DEXPI Specification

Release 2.0.1

DEXPI e.V.

Sep 30, 2026

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CHAPTER

ONE

INTRODUCTION

DEXPI e.V. (Data EXchange in the Process Industry) is an association under German law.

1.1 Motivation for DEXPI

Due to the lack of interoperability between CAE[1] (and other) systems, companies today face high efforts in data exchange while working together to execute projects for planning, construction and operation of process plants. Parties typically exchanging data in such projects are e.g. EP/EPCs[2], owner-operators, and vendors, but also site services and authorities. One of the main reasons for this high effort is the lack of an agreed understanding across the different systems, e.g. by means of a commonly used standard for data exchange in the process industry. To become more efficient during planning, construction and operation of plants, a data exchange model based on the ISO 15926 standard was established.

1.2 Objectives

The objective is to develop and promote a general method for data exchange, data interoperability and data integration for the process industry covering all phases of the lifecycle of a (petro-)chemical plant, ranging from specification of functional requirements to assets in operation. This method shall cover formats and content to address various problems seen today:

- Avoid format conversions (and thereby data loss) when passing engineering data and documents across CAE system boundaries.
- Make handover of engineering data during and at the end of a project easy and cost-effective.
- Reduce data exchange barriers between different CAE systems or different customizations of the same CAE systems.
- Support long-term storage of plant data in a CAE system independent format. Today's commonly used standard formats like the non data-centric PDF don't support value added improvements (or at best insufficiently).
- Simplify co-existence of different CAE systems within a company, e.g. due to mergers/acquisitions or different priorities in different business units.

1.3 Expectations

EP/EPCs, suppliers, and owner operators want to minimize the cost for handling engineering data during planning, construction and operation of process plants between different CAE systems and they want to create opportunities for new value-added functions based on the available engineering data. Therefore the CAE vendors will implement a valid global standard for data exchange into their CAE systems.

[1] CAE: Computer Aided Engineering
[2] EPC: Engineering-Procurement-Construction

The involved parties from DEXPI e.V. have defined a common data model which is based on the ISO 15926 standard. The resulting data model, as reflected in this specification, is aligned with other projects in the global ISO 15926 community. The CAE vendors will implement this common data model as the basis for data exchange and will deliver it as part of their default system configuration.

With the information model of the DEXPI 2.0 specification the information included in block flow diagrams (BFD, process model), process flow diagrams (PFD, process model), and piping and instrumentation diagrams (P&IDs[3], plant model) can be represented. Objective of the first phase of the initiative was the transfer of a P&ID from one P&ID system to another P&ID system. The data transfer must include graphics, symbols, topology, all engineering attributes, enumerations, select lists etc. to enable seamless continuation of work on the P&ID in the destination system. With DEXPI 2.0, the process model is included and combined in the same specification as the plant model, now also enabling the transfer of process related information (as represented on BFDs and PFDs), including simulation results (like stream tables).

[3] P&ID: Piping and Instrumentation Diagram

CHAPTER

TWO

BASICS

2.1 DEXPI XML

2.1.1 Overview

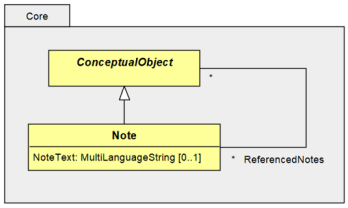
New Data Format

Principles

- XML (decision DEXPI group, approved by board)
- working title “DEXPI XML”
- key requirements
  - simple (based on very few basic rules)
  - easily readable for humans
  - future-proof
- suitable to transport both
  - the **information models** (“the specifications”, simple alternative to XMI)
  - the **actual data** (e.g., an actual P&ID or an actual PFD; simple replacement for Proteus in case of P&ID)

Example DEXPI XML: Information Model

Model with two Classes

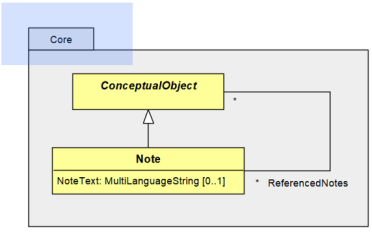


UML Diagram

```
<Model
  name = "Core"
  uri = "http://www.dexpi.org/specification/2.0/Core">
  <AbstractClass name = "ConceptualObject">
    <ReferenceProperty
      name = "ReferencedNotes"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      oppositeLower = "0"
      type = "/Note"/>
  </AbstractClass>
  <ConcreteClass
    name = "Note"
    superTypes = "/ConceptualObject">
    <DataProperty
      name = "NoteText"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      type = "/DataTypes.MultiLanguageString"
      upper = "1"/>
  </ConcreteClass>
  ...
```

Example DEXPI XML: Information Model

Model with two Classes

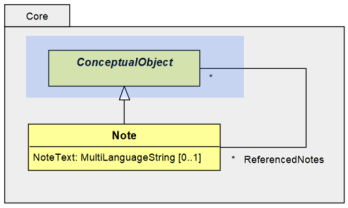


UML Diagram

```
<Model
  name = "Core"
  uri = "http://www.dexpi.org/specification/2.0/Core">
  <AbstractClass name = "ConceptualObject">
    <ReferenceProperty
      name = "ReferencedNotes"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      oppositeLower = "0"
      type = "/Note"/>
  </AbstractClass>
  <ConcreteClass
    name = "Note"
    superTypes = "/ConceptualObject">
    <DataProperty
      name = "NoteText"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      type = "/DataTypes.MultiLanguageString"
      upper = "1"/>
  </ConcreteClass>
  ...
```

Example DEXPI XML: Information Model

Model with two Classes

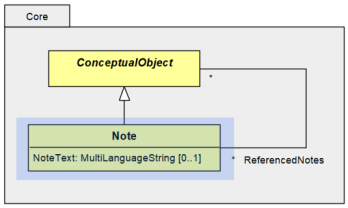


UML Diagram

```
<Model
  name = "Core"
  uri = "http://www.dexpi.org/specification/2.0/Core">
  <AbstractClass name = "ConceptualObject">
    <ReferenceProperty
      name = "ReferencedNotes"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      oppositeLower = "0"
      type = "/Note"/>
  </AbstractClass>
  <ConcreteClass
    name = "Note"
    superTypes = "/ConceptualObject">
    <DataProperty
      name = "NoteText"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      type = "/DataTypes.MultiLanguageString"
      upper = "1"/>
  </ConcreteClass>
  ...
```

Example DEXPI XML: Information Model

Model with two Classes



UML Diagram

```
<Model
  name = "Core"
  uri = "http://www.dexpi.org/specification/2.0/Core">
  <AbstractClass name = "ConceptualObject">
    <ReferenceProperty
      name = "ReferencedNotes"
      isOrdered = "false"
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      lower = "0"
      oppositeLower = "0"
      type = "/Note"/>
  </AbstractClass>
  <ConcreteClass
    name = "Note"
    superTypes = "/ConceptualObject">
    <DataProperty
      name = "NoteText"
      isOrdered = "false"
      isUnique = "false"
      lower = "0"
      type = "/DataTypes.MultiLanguageString"
      upper = "1"/>
  </ConcreteClass>
  ...
```
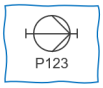
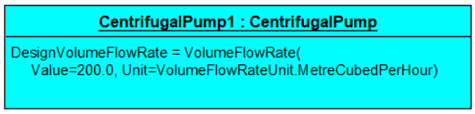

Example DEXPI XML: Data

Object in a P&ID



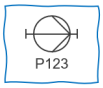


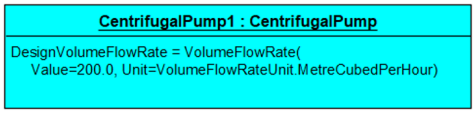
UML Diagram (details removed!)

```
<Model
  name = "mini_pid"
  uri = "http://www.example.org/mini_pid">
  <Import
    source = "http://www.dexpi.org/specification/2.0/Core"
    prefix = "Core"/>
  <Import
    source = "http://www.dexpi.org/specification/2.0/Plant"
    prefix = "Plant"/>
  <Object
    id = "CentrifugalPump1"
    type = "Plant/Equipment.CentrifugalPump">
    <Data property = "DesignVolumeFlowRate">
      <AggregatedDataValue type = "Core/PhysicalQuantities.VolumeFlowRate">
        <Data property = "Unit">
          <DataReference data = "Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour"/>
        </Data>
        <Data property = "Value">
          <Double>200.0</Double>
        </Data>
      </AggregatedDataValue>
    </Data>
  </Object>
  ...
```

Example DEXPI XML: Data

Object in a P&ID



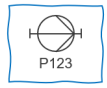


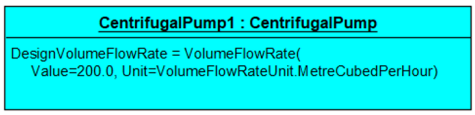
UML Diagram (details removed!)

```
<Model
  name = "mini_pid"
  uri = "http://www.example.org/mini_pid">
  <Import
    source = "http://www.dexpi.org/specification/2.0/Core"
    prefix = "Core"/>
  <Import
    source = "http://www.dexpi.org/specification/2.0/Plant"
    prefix = "Plant"/>
  <Object
    id = "CentrifugalPump1"
    type = "Plant/Equipment.CentrifugalPump">
    <Data property = "DesignVolumeFlowRate">
      <AggregatedDataValue type = "Core/PhysicalQuantities.VolumeFlowRate">
        <Data property = "Unit">
          <DataReference data = "Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour"/>
        </Data>
        <Data property = "Value">
          <Double>200.0</Double>
        </Data>
      </AggregatedDataValue>
    </Data>
  </Object>
  ...
```

Example DEXPI XML: Data

Object in a P&ID





UML Diagram (details removed!)

```
<Model
   name = "mini_pid"
   uri = "http://www.example.org/mini_pid">
   <Import
      source = "http://www.dexpi.org/specification/2.0/Core"
      prefix = "Core"/>
   <Import
      source = "http://www.dexpi.org/specification/2.0/Plant"
      prefix = "Plant"/>
   <Object
      id = "CentrifugalPump1"
      type = "Plant/Equipment.CentrifugalPump">
      <Data property = "DesignVolumeFlowRate">
         <AggregatedDataValue type = "Core/PhysicalQuantities.VolumeFlowRate">
            <Data property = "Unit">
               <DataReference data = "Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour"/>
            </Data>
            <Data property = "Value">
               <Double>200.0</Double>
            </Data>
         </AggregatedDataValue>
      </Data>
   </Object>
   ...
```

DEXPI XML

2.1.2 DEXPI XML Schema

Download DEXPI_XML_Schema.xsd.

There is also a generated XML Schema documentation.

Several DEXPI XML files are provided. See

- *Model Builtin*,
- *Model Core*,
- *Model Plant*,
- *Model Process*,
- *DEXPI Reference P&ID*.

The root element of a DEXPI XML file has the name `Model`. Its complex type is `Model`.

Simple Types

ID

An `ID` is an `xsd:string` with the same restrictions as a `name`. In addition, an `ID` must be unique in a DEXPI XML file.

IDREF

An `IDREF` is a reference to an `ID` in the same file. It starts with a number sign (“hash”, `#`) that is immediately followed by the referenced `ID`.

name

A `name` is an `xsd:string` that

- starts with an underscore (_) or an upper (`A-Z`) or lower case (`a-z`) letter (ASCII only).
- The start character may be followed by an arbitrary number of underscores, upper or lower case letters, or digits (`0-9`) in an arbitrary order.

nameOrIdReference

A `nameOrIdReference` is either a `nameReference` or an `IDREF`.

nameOrIdReferences

A `nameOrIdReferences` contains one or more `nameOrIdReference` parts, separated by a space character.

nameReference

A `nameReference` is a reference to a `name` in an arbitrary DEXPI XML file. It is composed of

- a reference to a DEXPI XML file. This is either the `prefix` of an imported file (see complex type `Import`) or the empty string if it refers to the current file (i.e., the file that contains the `nameReference`);
- a slash character (`/`);
- a `name`. This `name` refers to the child element of the XML file's `Model` element with that `name`.

Optionally, the `nameReference` may contain further `name`s, each separated by a dot (`.`), in order to refer to further, nested elements.

Complex Types

AbstractDataType

An abstract data type. An abstract data type is the only admissible supertype for any data type.

Attributes:

- name: the name of the abstract data type
- superTypes: the supertypes of the abstract data type; only other abstract data types are allowed

AggregatedDataType

An aggregated data type.

Attributes:

- name: the name of the aggregated data type
- superTypes: the supertypes of the aggregated data type; only abstract data types are allowed

Children:

- DataProperty*: the data properties declared for the aggregated data type

AggregatedDataValue

A value (“instance”) of an `AggregatedDataType`.

Attributes:

- type: the type of the `AggregatedDataValue`, i.e., an `AggregatedDataType`

Children:

- Data*: the instance’s values for the data properties declared for the `AggregatedDataType`

BooleanType

A primitive type, corresponding to xsd:boolean.

Attributes:

- name: the name of the type
- superTypes: the supertypes of the type; only abstract data types are allowed

AbstractClass

An abstract class.

Attributes:

- name: the name of the class

Children:

- (CompositionProperty | DataProperty | ReferenceProperty)*: the properties declared for the class

ClassExtension

An extension of a class that can be used to “inject” additional properties.

Attributes:

- baseType: a reference to the class that is extended
- name: the name of the class extension

Children:

- (CompositionProperty | DataProperty | ReferenceProperty)*: the properties declared for the class extension

Components

The values for a composition property for an object.

- property: the name of the property

Children:

- (Object | ObjectReference)+: the values for the property; if the property is ordered, the order of the values is relevant

CompositionProperty

A composition property, i.e., a property whose type must be a class and which indicates a composition (as opposed to a simple reference, cf. ReferenceProperty).

Attributes:

- isOrdered: whether the property is ordered, i.e., whether the order of values is relevant
- lower: lower multiplicity bound
- name: the name of the property
- type: the type of the property; must be a class
- upper: upper multiplicity bound

ConcreteClass

An concrete (non-abstract) class.

Attributes:

- name: the name of the class

Children:

- (CompositionProperty | DataProperty | ReferenceProperty)*: the properties declared for the class

Data

The values for a data property for an object or aggregated data type.

- property: the name of the property

Children:

- (AggregatedDataValue | DataReference | Boolean | DateTime | Double | Integer | String)+: the values for the property; if the property is ordered, the order of the values is relevant

DataProperty

A data property, i.e., a property whose type must be a data type.

Attributes:

- isOrdered: whether the property is ordered, i.e., whether the order of values is relevant
- isUnique: whether the property is unique, i.e., whether a value can appear multiple times (only relevant is upper is greater than 1)
- lower: lower multiplicity bound
- name: the name of the property
- type: the type of the property; must be a class
- upper: upper multiplicity bound

DataReference

A reference to a data value defined elsewhere.

This is used to refer to a SingletonValue or an EnumerationLiteral.

Attributes:

- data: the referenced data value

DateTimeType

A primitive type, corresponding to xsd:dateTime.

Attributes:

- name: the name of the type
- superTypes: the supertypes of the type; only abstract data types are allowed

DoubleType

A primitive type, corresponding to xsd:double.

Attributes:

- name: the name of the type
- superTypes: the supertypes of the type; only abstract data types are allowed

Enumeration

An enumeration.

Attributes:

- name: the name of the enumeration
- superTypes: the supertypes of the enumeration; only abstract data types are allowed

Children:

- EnumerationLiteral*: the literals of the enumeration

EnumerationLiteral

An enumeration literal.

Attributes:

- name: the name of the enumeration literal

Import

An import of a model by another model.

Attributes:

- prefix: a simple string to be used to refer to the imported model (in order to avoid the potentially complex uri)
- source: the uri of the imported model

IntegerType

A primitive type, corresponding to xsd:integer.

Attributes:

- name: the name of the type
- superTypes: the supertypes of the type; only abstract data types are allowed

Model

A model. A model is a top-level package that corresponds to a DEXPI XML file.

Attributes:

- name: the name of the model
- uri: a unique identifier for the model

Children:

- Import*: imports of other models that are referenced by the model
- (Package | AbstractClass | ConcreteClass | AbstractDataType | AggregatedDataType | Enumeration | SingletonType | SingletonValue | BooleanType | DateTimeType | DoubleType | IntegerType | StringType | Object)*: the content of the package

Object

A value (“instance”) of a `Class`.

Attributes:

- id: optional; an identifier for the object to be used for references within the same DEXPI XML file
- name: optional: a name for the object to be used for references, also from other files
- type: the type of the object, i.e., a class

Children:

- (Components | Data | References)*: the instance’s values for the properties declared for the `Class`

ObjectReference

A reference to an object.

Attributes:

- object: the actual reference

Package

A package.

Attributes:

- name: the name of the package

Children:

- (Package | AbstractClass | ConcreteClass | AbstractDataType | AggregatedDataType | Enumeration | SingletonType | SingletonValue | BooleanType | DateTimeType | DoubleType | IntegerType | StringType | Object)*: the content of the package

ReferenceProperty

A reference property, i.e., a property whose type must be a class and which indicates a simple reference (as opposed to a composition, cf. CompositionProperty).

Attributes:

- isOrdered: whether the property is ordered, i.e., whether the order of values is relevant
- isUnique: whether the property is unique, i.e., whether a value can appear multiple times (only relevant is upper is greater than 1)
- lower: lower multiplicity bound
- name: the name of the property
- oppositeLower: the opposite lower multiplicity bound
- oppositeUpper: the opposite upper multiplicity bound
- type: the type of the property; must be a class
- upper: upper multiplicity bound

References

The values for a reference property for an object.

- property: the name of the property
- objects: references to the values

SingletonType

A singleton data type, i.e., a type that as a single value (“instance”).

Attributes:

- name: the name of the type
- superTypes: the supertypes of the type; only abstract data types are allowed

SingletonValue

The value of a singleton type.

Attributes:

- name: the name of the value
- type: the singleton type

StringType

A primitive type, corresponding to xsd:string.

Attributes:

- name: the name of the type
- superTypes: the supertypes of the type; only abstract data types are allowed

2.2 Builtin

2.2.1 AnyURI

Builtin::AnyURI

Overview

StringType

<<primitive>>
AnyURI

2.2.2 Boolean

Builtin::Boolean

Overview

BooleanType

<<primitive>>
Boolean

2.2.3 DateTime

Builtin::DateTime

Overview

DateTimeType

<<primitive>>
DateTime

2.2.4 Double

Builtin::Double

Overview

DoubleType

<<primitive>>
Double

2.2.5 Integer

Builtin::Integer

Overview

IntegerType

<<primitive>>
Integer

2.2.6 String

Builtin::String

Overview

StringType

<<primitive>>
String

2.2.7 Undefined

Builtin::Undefined

Overview

UndefinedType

<<primitive>>
Undefined

2.2.8 UnsignedByte

Builtin::UnsignedByte

Overview

IntegerType

<<primitive>>
UnsignedByte
Builtin

2.2.9 Overview

Model

URI: https://data.dexpi.org/meta/1.0.0/Builtin

Builtin.xml

2.2.10 Members

Data Types

Name	Type
AnyURI	StringType
Boolean	BooleanType
DateTime	DateTimeType
Double	DoubleType
Integer	IntegerType
String	StringType
Undefined	UndefinedType
UnsignedByte	IntegerType

CHAPTER

THREE

MODELS

3.1 Core

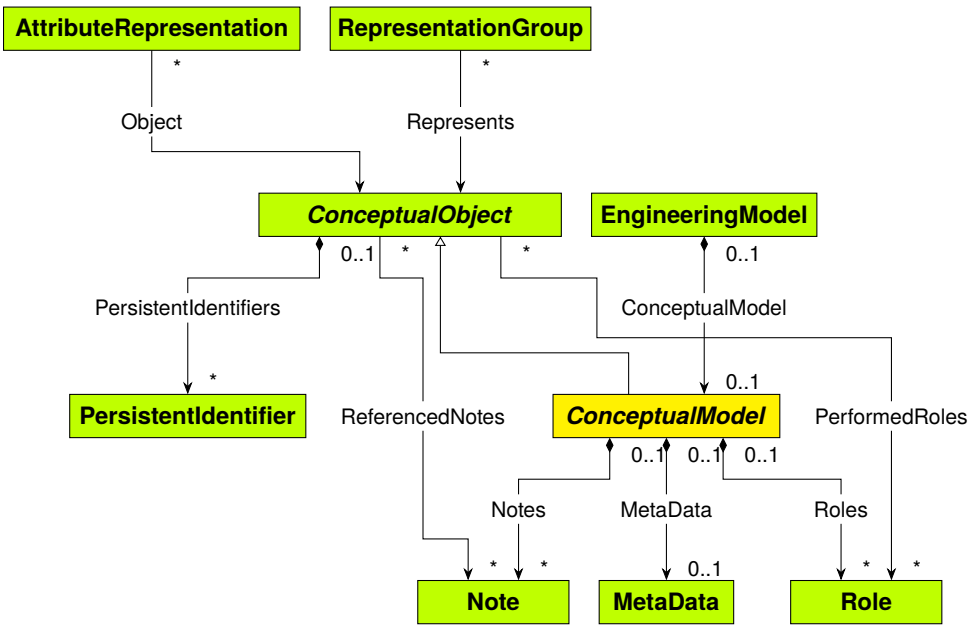
3.1.1 ConceptualModel

Core::ConceptualModel

Overview

Abstract Class

The conceptual content of an *EngineeringModel*, i.e., engineering information independent from its graphical representation.



Supertypes

- *ConceptualObject*

Subtypes

- *PlantModel*
- *ProcessModel*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
MetaData	0..1	*MetaData*	no
Notes	*	*Note*	no
Roles	*	*Role*	no

MetaData

Composition Property

The *MetaData* of the *ConceptualModel*.

Type: *MetaData*

Multiplicity: 0..1

Ordered: no

Notes

Composition Property

The *Notes* of the *ConceptualModel*.

Type: *Note*

Multiplicity: *

Ordered: no

Roles

Composition Property

The *Roles* of the *ConceptualModel*.

Type: *Role*

Multiplicity: *

Ordered: no

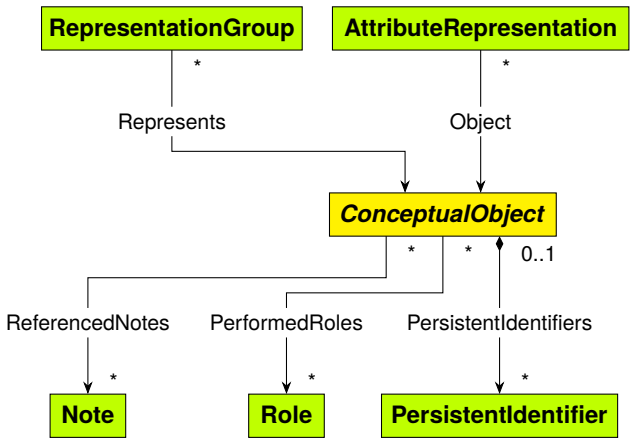
3.1.2 ConceptualObject

Core::ConceptualObject

Overview

Abstract Class

The abstract base class of all classes used in a *ConceptualModel*.



Subtypes

- *ActuatingElectricalFunction*
- *ActuatingElectricalSystem*
- *ActuatingFunction*
- *ActuatingSystem*
- *AgitatorRotor*
- *BriquettingRoller*
- *Chamber*
- *ColumnInternalsArrangement*
- *ColumnSection*
- *Composition*
- *ConceptualModel*
- *ControlledActuator*
- *CoolingTowerRotor*
- *CrusherElement*
- *Displacer*
- *DryingChamber*
- *ElectronicFrequencyConverter*
- *FilterUnit*
- *FilteringCentrifugeDrum*
- *GearBox*
- *GrindingElement*
- *HeatExchangerRotor*
- *Impeller*
- *InformationVariant*
- *InstrumentationActivity*

- *InstrumentationLoopFunction*
- *InstrumentationSystemActivity*
- *ListOfMaterialComponents*
- *MaterialComponent*
- *MaterialState*
- *MaterialStateType*
- *MaterialTemplate*
- *MeasuringElement*
- *MeasuringSystem*
- *MetaData*
- *MixingElementAssembly*
- *MotorAsComponent*
- *Mount*
- *Note*
- *Nozzle*
- *OperatedValveReference*
- *PelletizerDisc*
- *Pipe*
- *PipeOffPageConnector*
- *PipeOffPageConnectorReference*
- *PipingComponent*
- *PipingNetworkSegment*
- *PipingNetworkSystem*
- *PipingNode*
- *PlantStructureItem*
- *Port*
- *Positioner*
- *ProcessConnection*
- *ProcessInstrumentationFunction*
- *ProcessSignalGeneratingFunction*
- *ProcessStep*
- *ProcessStepDetail*
- *PropertyBreak*
- *QualifiedValue*
- *Screw*
- *SedimentalCentrifugeDrum*

- *SensorwellReference*
- *SieveElement*
- *SignalConveyingFunction*
- *SignalOffPageConnector*
- *SignalOffPageConnectorReference*
- *SprayNozzle*
- *TaggedPlantItem*
- *TransmissionSystem*
- *Transmitter*
- *TubeBundle*
- *Vent*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
PersistentIdentifiers	*	*PersistentIdentifier*	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
PerformedRoles	*	*Role*	no	no	*
ReferencedNotes	*	*Note*	no	no	*

PerformedRoles

Reference Property

The roles performed by the *ConceptualObject*.

Type: *Role*

Multiplicity: *

Ordered: no

Unique: no

Opposite Multiplicity: *

PersistentIdentifiers

Composition Property

The PersistentIdentifiers of the *ConceptualObject*.

Type: *PersistentIdentifier*

Multiplicity: *

Ordered: no

ReferencedNotes

Reference Property

The *Notes* about the *ConceptualObject*.

Type: *Note*

Multiplicity: *

Ordered: no

Unique: no

Opposite Multiplicity: *

3.1.3 DataTypes

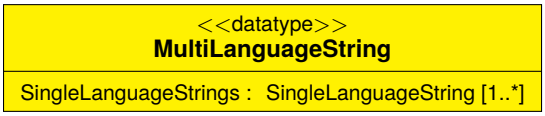
MultiLanguageString

Core::*DataTypes*::MultiLanguageString

Overview

Aggregated Data Type

A container for one or more *SingleLanguageString*'s. MultiLanguageString is used as the type of data attributes which have language-dependent string values.



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SingleLanguageStrings	1..*	*SingleLanguageString*	no	no

SingleLanguageStrings

Data Property

Language-dependent values of the *MultiLanguageString*.

Type: *SingleLanguageString*

Multiplicity: 1..*

Ordered: no

Unique: no

Example

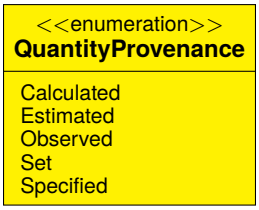
```
[
    SingleLanguageString(
        Language = "en",
        Value = "This is some sample text.")
]
```

QuantityProvenance

Core::*DataTypes*::QuantityProvenance

Overview

Enumeration



Members

Literals

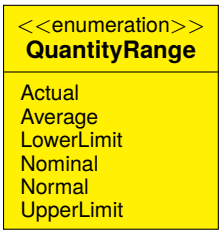
Name
Calculated
Estimated
Observed
Set
Specified

QuantityRange

Core::*DataTypes*::QuantityRange

Overview

Enumeration



Members

Literals

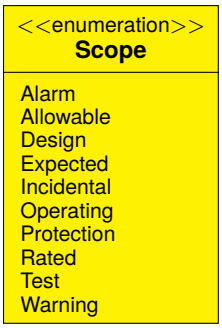
Name
Actual
Average
LowerLimit
Nominal
Normal
UpperLimit

Scope

Core::*DataTypes*::Scope

Overview

Enumeration



Members

Literals

Name	
Alarm	The value raises an alarm.
Allowable	The value that can be tolerated for an extended period. It has a specific meaning in safety specifications.
Design	The value is that used for design. It has a specific meaning in safety specifications.
Expected	A value that is estimated and subject to uncertainty.
Incidental	The value that can be tolerated for a short period. It has a specific meaning in safety specifications.
Operating	A value specified for operation.
Protection	The value initiates a protective action.
Rated	A value assigned by the manufacturer representing a specified operating condition.
Test	The value that will be set to test a system or piece of equipment.
Warning	The value raises a warning.

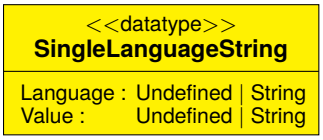
SingleLanguageString

Core::*DataTypes*::SingleLanguageString

Overview

Aggregated Data Type

A SingleLanguageString contains a *Value* and a *Language* tag. SingleLanguageString is only used within *MultiLanguageString*.



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Language	1	*Undefined* | *String*	no	no
Value	1	*Undefined* | *String*	no	no

Language

Data Property

The language of the *Value* of the *SingleLanguageString*. If not *Undefined*, the language must be given as a language tag standardized by IETF BCP 47 (Best Current Practice 47 by the Internet Engineering Task Force). IETF BCP 47 is based on ISO 639.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Language tags

In DEXPI, only those language tags are allowed

- that are listed in the normative registry file at https://www.iana.org/assignments/language-subtag-registry/language-subtag-registry from September 29, 2020,
- that consist of exactly two letters (in particular extended tags such as *en-US* or *de-CH-1996* are not allowed),
- that refer to an actual language (the *type* defined by IETF BCP 47 must be *language*),
- and that are not deprecated.

The table below contains all permitted language tags.

Tag	Language
aa	Afar
ab	Abkhazian
ae	Avestan
af	Afrikaans
ak	Akan
am	Amharic
an	Aragonese
ar	Arabic
as	Assamese
av	Avaric
ay	Aymara
az	Azerbaijani
ba	Bashkir
be	Belarusian
bg	Bulgarian
bh	Bihari languages
bi	Bislama
bm	Bambara
bn	Bengali/Bangla
bo	Tibetan
br	Breton
bs	Bosnian
ca	Catalan/Valencian
ce	Chechen
ch	Chamorro
co	Corsican
cr	Cree
cs	Czech
cu	Church Slavic/Church Slavonic/Old Bulgarian/Old Church Slavonic/Old Slavonic
cv	Chuvash
cy	Welsh
da	Danish

continues on next page

Table 1 – continued from previous page

Tag	Language
de	German
dv	Dhivehi/Divehi/Maldivian
dz	Dzongkha
ee	Ewe
el	Modern Greek (1453-)
en	English
eo	Esperanto
es	Spanish/Castilian
et	Estonian
eu	Basque
fa	Persian
ff	Fulah
fi	Finnish
fj	Fijian
fo	Faroese
fr	French
fy	Western Frisian
ga	Irish
gd	Scottish Gaelic/Gaelic
gl	Galician
gn	Guarani
gu	Gujarati
gv	Manx
ha	Hausa
he	Hebrew
hi	Hindi
ho	Hiri Motu
hr	Croatian
ht	Haitian/Haitian Creole
hu	Hungarian
hy	Armenian
hz	Herero
ia	Interlingua (International Auxiliary Language Association)
id	Indonesian
ie	Interlingue/Occidental
ig	Igbo
ii	Sichuan Yi/Nuosu
ik	Inupiaq
io	Ido
is	Icelandic
it	Italian
iu	Inuktitut
ja	Japanese
jv	Javanese
ka	Georgian
kg	Kongo
ki	Kikuyu/Gikuyu
kj	Kuanyama/Kwanyama
kk	Kazakh
kl	Kalaallisut/Greenlandic

continues on next page

Table 1 – continued from previous page

Tag	Language
km	Khmer/Central Khmer
kn	Kannada
ko	Korean
kr	Kanuri
ks	Kashmiri
ku	Kurdish
kv	Komi
kw	Cornish
ky	Kirghiz/Kyrgyz
la	Latin
lb	Luxembourgish/Letzeburgesch
lg	Ganda/Luganda
li	Limburgan/Limburger/Limburgish
ln	Lingala
lo	Lao
lt	Lithuanian
lu	Luba-Katanga
lv	Latvian
mg	Malagasy
mh	Marshallese
mi	Maori
mk	Macedonian
ml	Malayalam
mn	Mongolian
mr	Marathi
ms	Malay (macrolanguage)
mt	Maltese
my	Burmese
na	Nauru
nb	Norwegian Bokmål
nd	North Ndebele
ne	Nepali (macrolanguage)
ng	Ndonga
nl	Dutch/Flemish
nn	Norwegian Nynorsk
no	Norwegian
nr	South Ndebele
nv	Navajo/Navaho
ny	Nyanja/Chewa/Chichewa
oc	Occitan (post 1500)
oj	Ojibwa
om	Oromo
or	Oriya (macrolanguage)/Odia (macrolanguage)
os	Ossetian/Ossetic
pa	Panjabi/Punjabi
pi	Pali
pl	Polish
ps	Pushto/Pashto
pt	Portuguese
qu	Quechua

continues on next page

Table 1 – continued from previous page

Tag	Language
rm	Romansh
rn	Rundi
ro	Romanian/Moldavian/Moldovan
ru	Russian
rw	Kinyarwanda
sa	Sanskrit
sc	Sardinian
sd	Sindhi
se	Northern Sami
sg	Sango
sh	Serbo-Croatian
si	Sinhala/Sinhalese
sk	Slovak
sl	Slovenian
sm	Samoan
sn	Shona
so	Somali
sq	Albanian
sr	Serbian
ss	Swati
st	Southern Sotho
su	Sundanese
sv	Swedish
sw	Swahili (macrolanguage)
ta	Tamil
te	Telugu
tg	Tajik
th	Thai
ti	Tigrinya
tk	Turkmen
tl	Tagalog
tn	Tswana
to	Tonga (Tonga Islands)
tr	Turkish
ts	Tsonga
tt	Tatar
tw	Twi
ty	Tahitian
ug	Uighur/Uyghur
uk	Ukrainian
ur	Urdu
uz	Uzbek
ve	Venda
vi	Vietnamese
vo	Volapük
wa	Walloon
wo	Wolof
xh	Xhosa
yi	Yiddish
yo	Yoruba

continues on next page

Table 1 – continued from previous page

Tag	Language
za	Zhuang/Chuang
zh	Chinese
zu	Zulu

Example

"en"

Value

Data Property

The actual value of the *SingleLanguageString*.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

"This is some sample text."

Core::DataTypes

Overview

Package

Basic data types such as strings, numbers, and enumerations.

Members

Data Types

Name	Type
MultiLanguageString	Aggregated Data Type
QuantityProvenance	Enumeration
QuantityRange	Enumeration
Scope	Enumeration
SingleLanguageString	Aggregated Data Type

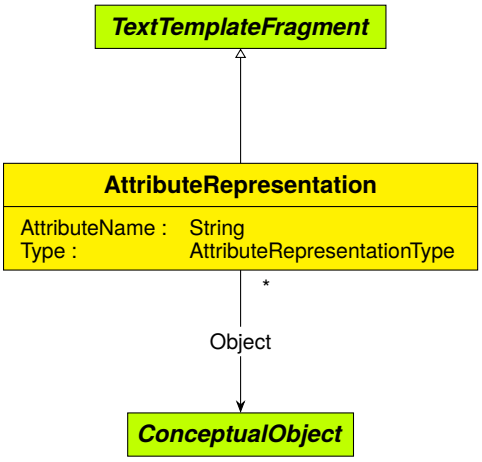
3.1.4 Diagram

AttributeRepresentation

Core::*Diagram*::AttributeRepresentation

Overview

Concrete Class



Supertypes

- *TextTemplateFragment*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Object	1	*ConceptualObject*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
AttributeName	1	*String*	no	no
Type	1	*AttributeRepresentationType*	no	no

AttributeName

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

"SubTagName"

Object

Reference Property

Type: *ConceptualObject*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: *

Type

Data Property

Type: *AttributeRepresentationType*

Multiplicity: 1

Ordered: no

Unique: no

Example

Value

Example in DEXPI XML

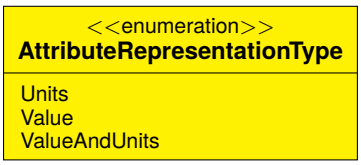
```
<Object type="Core/Diagram.AttributeRepresentation">
  <Data property="AttributeName">
    <String>SubTagName</String>
  </Data>
  <Data property="Type">
    <DataReference data="Core/Diagram.AttributeRepresentationType.Value"/>
  </Data>
</Object>
```

AttributeRepresentationType

Core::*Diagram*::AttributeRepresentationType

Overview

Enumeration



Members

Literals

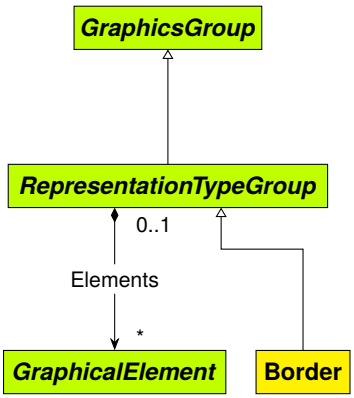
Name
Units
Value
ValueAndUnits

Border

Core::*Diagram*::Border

Overview

Concrete Class



Supertypes

- *RepresentationTypeGroup*

Example in DEXPI XML

```
<Object type="Core/Diagram.Border"/>
```

Color

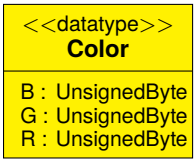
Core::*Diagram*::Color

Overview

Aggregated Data Type

A color.

Color is based on the RGB color model (e.g., see Wikipedia for an overview). For each channel *red*, *green*, and *blue*, Color has an attribute *R*, *G*, and *B* that gives the intensity of the channel. Intensities are given as values of Core.DataTypes.UnsignedByte, i.e., integers in the range [0, 255].



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
B	1	*UnsignedByte*	no	no
G	1	*UnsignedByte*	no	no
R	1	*UnsignedByte*	no	no

Simplified Literals

Within this specification, we use the hexadecimal SVG representation of a *Color* (without the string delimiters) as a convenient literal to refer to that *Color*.

For example, `#0000ff` refers to the <Core.Diagram.Color> *blue* with `R=0`, `G=0`, and `B=255`.

Mapping to SVG

There are several syntactical variants to map a *Color* to SVG. Here, we use the RGB Hexadecimal Notation with 6 digits as defined by standard-css-color-4. It has the form `'#RRGGBB'`, where `RR`, `GG`, and `BB` are 2-digit hexadecimal representations of the integer values of the attributes *R*, *G*, and *B*. Conventional hexadecimal digits are used: `0`, ..., `9`, `a`, ..., `f`. Capitalized versions of the latter are also allowed: `A`, ..., `F`. To ensure 2 digits for each integer, a leading zero is added if required.

example

Consider the *Color* with `R=0`, `G=10`, and `B=255`.

The hexadecimal representations of the attributes are `00`, `0a`, and `ff`.

Hence, the SVG representation of the color is `'#000aff'`.

B

Data Property

The intensity of the blue channel of the *Color*.

Type: *UnsignedByte*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
255
```

G

Data Property

The intensity of the green channel of the *Color*.

Type: *UnsignedByte*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
0
```

R

Data Property

The intensity of the red channel of the *Color*.

Type: *UnsignedByte*

Multiplicity: 1

Ordered: no

Unique: no

Example

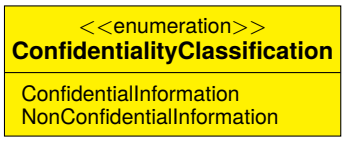
```
127
```

ConfidentialityClassification

Core::*Diagram*::ConfidentialityClassification

Overview

Enumeration



Members

Literals

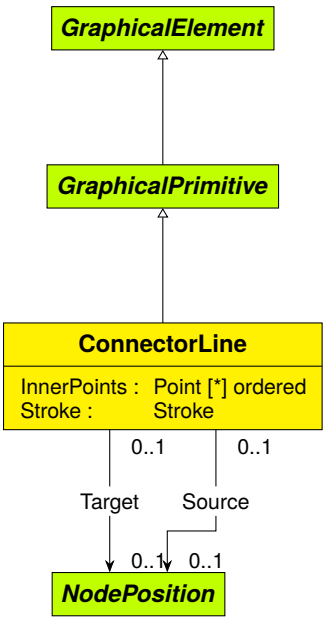
Name	Symbol	RDL Label	RDL URI
ConfidentialInformation	confidential	CONFIDENTIAL INFORMATION	http://data.posccaesar.org/rdl/RDS4316590816
NonConfidentialInformation	not confidential	NON CONFIDENTIAL INFORMATION	http://sandbox.dexpi.org/rdl/NonConfidentialInformation

ConnectorLine

Core::*Diagram*::ConnectorLine

Overview

Concrete Class



Supertypes

- *GraphicalPrimitive*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Source	0..1	*NodePosition*	no	no	0..1
Target	0..1	*NodePosition*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
InnerPoints	*	*Point*	yes	no
Stroke	1	*Stroke*	no	no

InnerPoints

Data Property

The inner points of the *ConnectorLine*.

Type: *Point*

Multiplicity: *

Ordered: yes

Unique: no

Example

```
[
    Point(
        X = 9.7,
        Y = 16.64)
]
```

Source

Reference Property

Type: *NodePosition*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Stroke

Data Property

The stroke of the *ConnectorLine*.

Type: *Stroke*

Multiplicity: 1

Ordered: no

Unique: no

Example

Stroke(

Color = *Color*(

B = 0,

G = 0,

R = 128),

DashStyle = *Solid*,

Width = 0.3)

Target

Reference Property

Type: *NodePosition*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Core/Diagram.ConnectorLine">
  <Data property="InnerPoints">
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>9.7</Double>
      </Data>
      <Data property="Y">
        <Double>16.64</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Stroke">
    <AggregatedDataValue type="Core/Diagram.Stroke">
      <Data property="Color">
        <AggregatedDataValue type="Core/Diagram.Color">
          <Data property="B">
            <Integer>0</Integer>
          </Data>
          <Data property="G">
            <Integer>0</Integer>
          </Data>
          <Data property="R">
            <Integer>128</Integer>
          </Data>
        </AggregatedDataValue>
      </Data>
```

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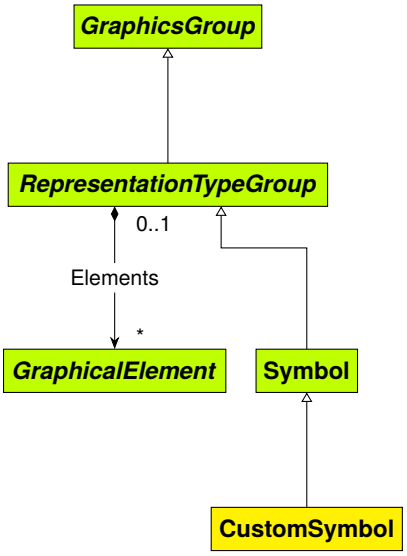
```
      <Data property="DashStyle">
        <DataReference data="Core/Diagram.DashStyle.Solid"/>
      </Data>
      <Data property="Width">
        <Double>0.3</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

CustomSymbol

Core::*Diagram*::CustomSymbol

Overview

Concrete Class



Supertypes

- *Symbol*

Example in DEXPI XML

```
<Object type="Core/Diagram.CustomSymbol"/>
```

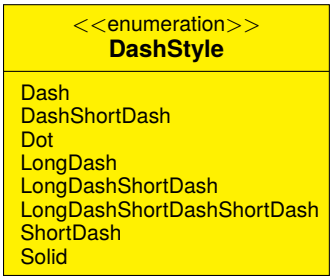
DashStyle

Core::*Diagram*::DashStyle

Overview

Enumeration

A DashStyle describes a pattern for drawing a stroke. The pattern gives the lengths of those parts of a stroke that are actually drawn and of those parts that are not drawn.



Members

Literals

Name
Dash
DashShortDash
Dot
LongDash
LongDashShortDash
LongDashShortDashShortDash
ShortDash
Solid

Appearance

Each DashStyle is characterized by a sequence of an even number of double values. The first of these values gives the length of a visible part of a stroke, the second one the length of an invisible part. Optional further pairs of double values in the pattern are applied in the same way. The entire pattern is applied repeatedly until the end of a stroke.

The lengths in a DashStyle's pattern are given in terms of the *Stroke*'s *Width* in mm, i.e., the dimensionless double values must be multiplied with the *Width* in order to get the actual lengths.

The following table gives heuristically proven patterns for the different *DashStyles*.

Solid

linecap: butt dash pattern: []

linecap: round dash pattern: []

Dot

linecap: butt dash pattern: [1, 1]

linecap: round dash pattern: [0, 2]

Dash

linecap: butt dash pattern: [6, 6]

linecap: round dash pattern: [5, 7]

LongDash

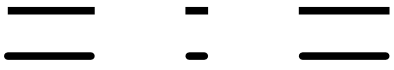
linecap: butt dash pattern: [12, 12]

linecap: round dash pattern: [11, 13]

LongDashShortDash

linecap: butt dash pattern: [12, 12, 3, 12]

linecap: round dash pattern: [11, 13, 2, 13]



ShortDash

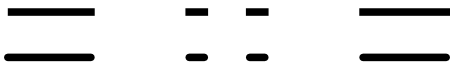
linecap: butt dash pattern: [4, 0.5]

linecap: round dash pattern: [3, 1.5]

LongDashShortDashShortDash

linecap: butt dash pattern: [12, 12, 3, 5, 3, 12]

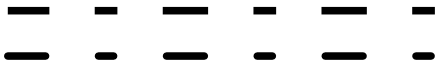
linecap: round dash pattern: [11, 13, 2, 6, 2, 13]



DashShortDash

linecap: butt dash pattern: [6, 6, 3, 6]

linecap: round dash pattern: [5, 7, 2, 7]

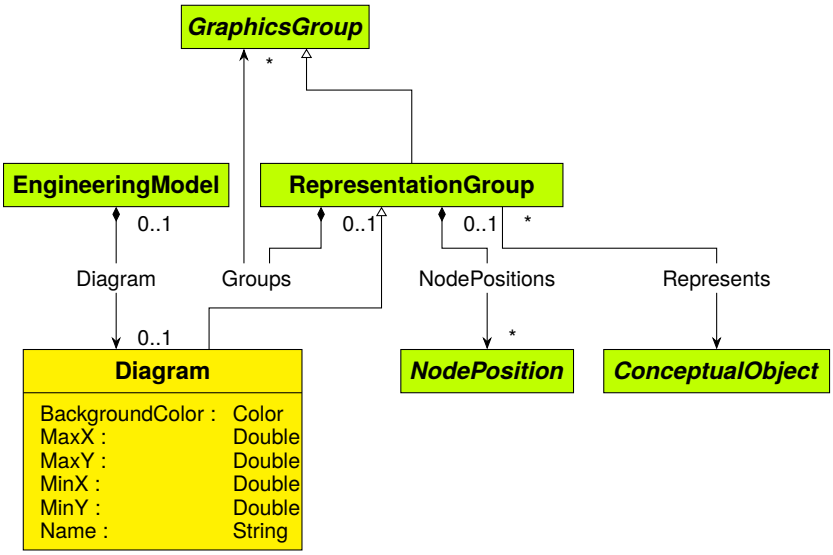


Diagram

Core::*Diagram*::Diagram

Overview

Concrete Class



Supertypes

- *RepresentationGroup*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
BackgroundColor	1	*Color*	no	no
MaxX	1	*Double*	no	no
MaxY	1	*Double*	no	no
MinX	1	*Double*	no	no
MinY	1	*Double*	no	no
Name	1	*String*	no	no

BackgroundColor

Data Property

Type: *Color*

Multiplicity: 1

Ordered: no

Unique: no

Example

Color(

B = 255,

G = 255,

R = 255)

MaxX

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

100.0

MaxY

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

40.0

MinX

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

0.0

MinY

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
0.0
```

Name

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"Example P&ID"
```

Example in DEXPI XML

```
<Object type="Core/Diagram.Diagram">
  <Data property="BackgroundColor">
    <AggregatedDataValue type="Core/Diagram.Color">
      <Data property="B">
        <Integer>255</Integer>
      </Data>
      <Data property="G">
        <Integer>255</Integer>
      </Data>
      <Data property="R">
        <Integer>255</Integer>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaxX">
    <Double>100.0</Double>
  </Data>
  <Data property="MaxY">
    <Double>40.0</Double>
  </Data>
  <Data property="MinX">
    <Double>0.0</Double>
  </Data>
```

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```
  <Data property="MinY">
    <Double>0.0</Double>
  </Data>
  <Data property="Name">
    <String>Example P&amp;amp;ID</String>
  </Data>
</Object>
```

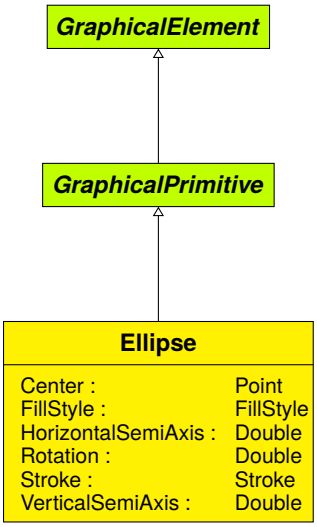
Ellipse

Core::*Diagram*::Ellipse

Overview

Concrete Class

An ellipse.



Supertypes

- *GraphicalPrimitive*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Center	1	*Point*	no	no
FillStyle	1	*FillStyle*	no	no
HorizontalSemiAxis	1	*Double*	no	no
Rotation	1	*Double*	no	no
Stroke	1	*Stroke*	no	no
VerticalSemiAxis	1	*Double*	no	no

Geometry

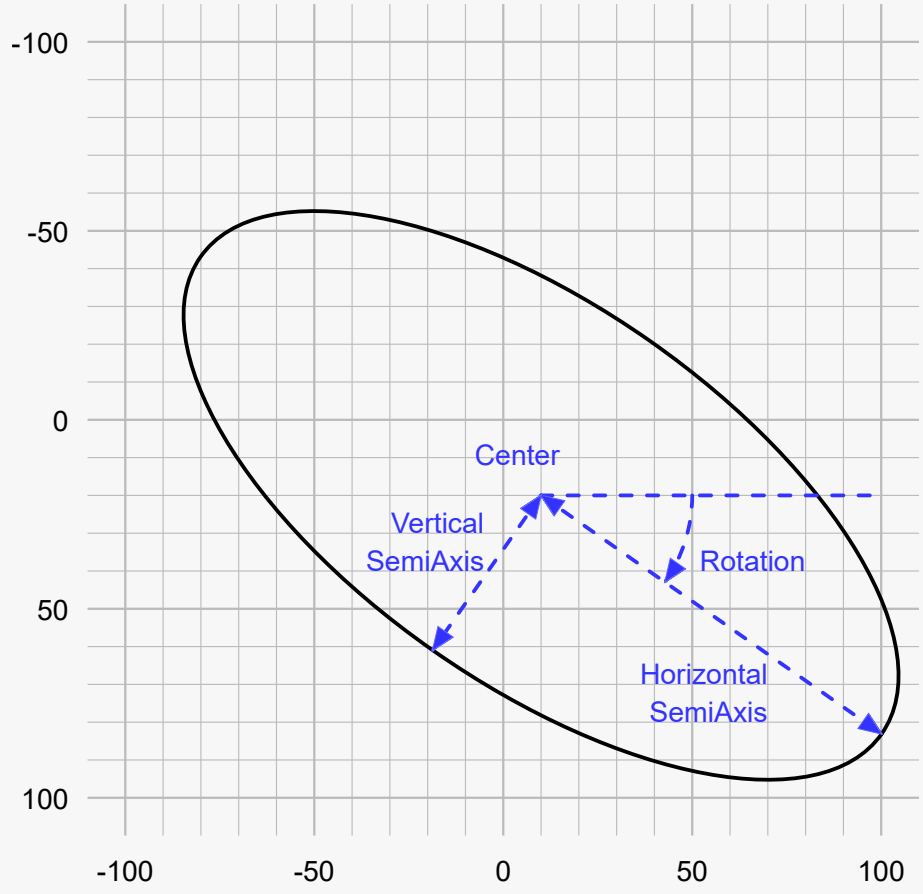
The geometry of an Ellipse is characterized by its *Center*, its two axes (*HorizontalSemiAxis* and *VerticalSemiAxis*), and the *Rotation* of the *HorizontalSemiAxis* w.r.t. the x axis of the owner. The *Rotation* is measured clockwise and in degrees.

example

We consider an Ellipse with

- *Center* `(10, 20)`,
- *HorizontalSemiAxis* `110`,
- *VerticalSemiAxis* `50`, and
- *Rotation* `35`.

The Ellipse will look like this:



Visual Center

The visual center of an Ellipse is its actual *Center*.

Mapping to SVG

An *Ellipse* corresponds to an svg:ellipse with these attributes:

- `transform` describes both the *Center* (c_x, c_y) and the *Rotation* r of the Ellipse.

  `transform = "translate(` + str(c_x) + `,` + str(c_y) + `) rotate(` + str(r) + `)"`

- `rx` and `ry` are string representations of *HorizontalSemiAxis* and *VerticalSemiAxis*.
- `stroke`, `stroke-dasharray`, `stroke-dashoffset` and `stroke-width` are set according to the SVG mapping rules for the *Stroke* of the *Ellipse* (see *Stroke*).
- `stroke-linecap = "round"` and `stroke-linejoin = "round"` reflect the heuristic for line caps and line joins.
- `vector-effect = "non-scaling-stroke"` reflects the heuristic for scaled symbols.
- `fill` is set according to the SVG mapping rules for the *FillStyle* of the *Ellipse* (see *FillStyle*).

example

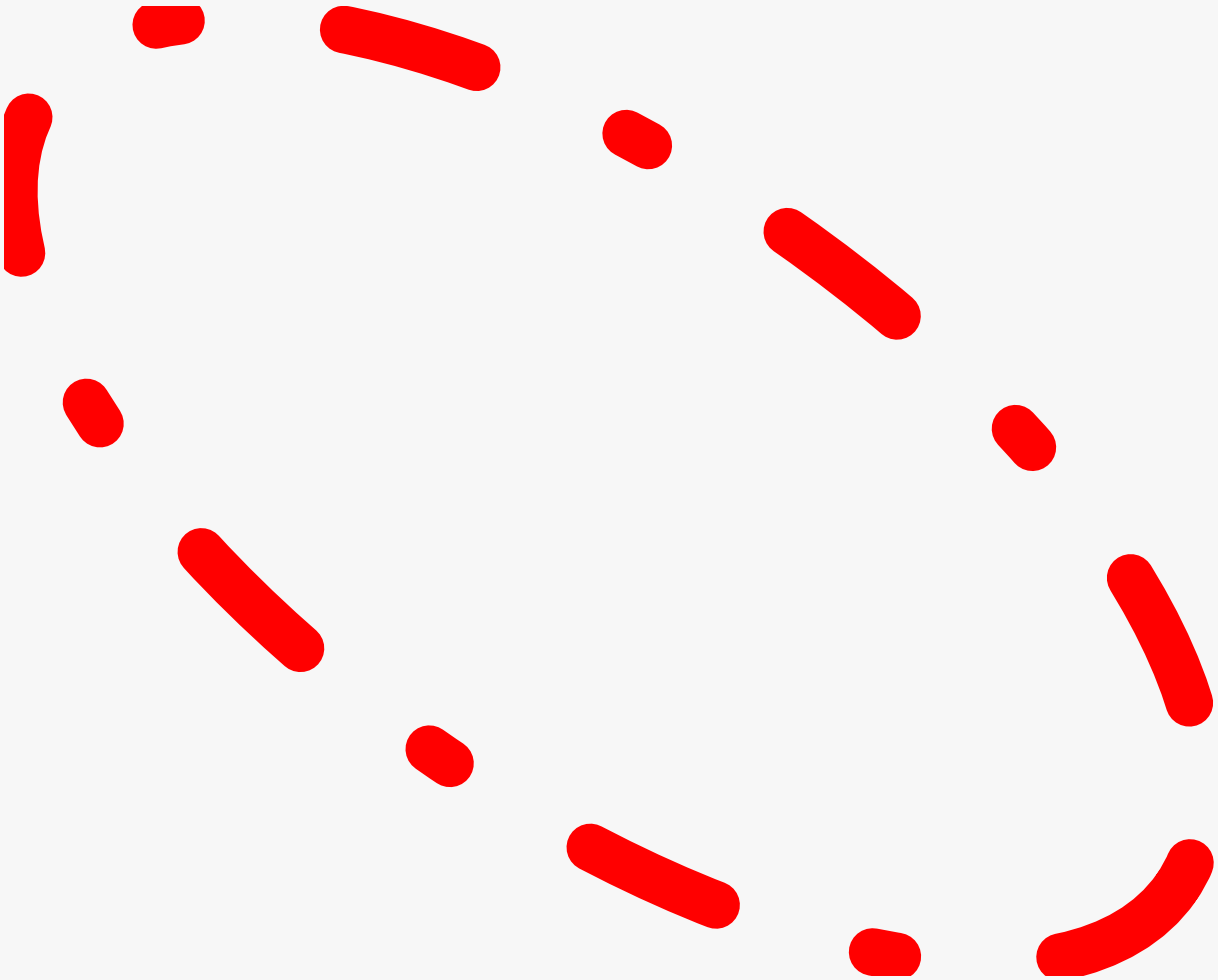
We assume that the *Stroke* of the *Ellipse* above is `2mm #ff0000 Solid` and that its *FillStyle* is *Transparent*.

```
{EllipseTransparentSvgCode}
```

example

We consider the same *Ellipse* as in the previous example, except that the *Stroke* is `2mm #ff0000 LongDashShortDash`.

```
{EllipseLongDashShortDashSvgCode}
```



example

Finally, a variant with *Stroke* `2mm #ff0000 Solid` and *FillStyle Hatch*.

```
{EllipseHatchSvgCode}
```

Center

Data Property

The center position of the *Ellipse*.

Type: *Point*

Multiplicity: 1

Ordered: no

Unique: no

Example

Point(

X = `0.0`,

Y = `0.0`)

FillStyle

Data Property

The fill style of the *Ellipse*.

Type: *FillStyle*

Multiplicity: 1

Ordered: no

Unique: no

Example

Transparent

HorizontalSemiAxis

Data Property

The length of the horizontal semi-axis of the *Ellipse* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
7.5
```

Rotation

Data Property

The rotation of the *Ellipse* around its center, measured clockwise and in degrees. The value must be in the inverval [0; 360).

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
270.0
```

Stroke

Data Property

The stroke of the *Ellipse*.

Type: *Stroke*

Multiplicity: 1

Ordered: no

Unique: no

Example

Stroke(

Color = *Color*(

B = 0,

G = 0,

R = 128),

DashStyle = *Solid*,

Width = 0.3)

VerticalSemiAxis

Data Property

The length of the vertical semi-axis of the *Ellipse* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

7.5

Example in DEXPI XML

```
<Object type="Core/Diagram.Ellipse">
  <Data property="Center">
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>0.0</Double>
      </Data>
      <Data property="Y">
        <Double>0.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="FillStyle">
    <DataReference data="Core/Diagram.FillStyle.Transparent"/>
  </Data>
  <Data property="HorizontalSemiAxis">
    <Double>7.5</Double>
  </Data>
```

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```
  <Data property="Rotation">
    <Double>270.0</Double>
  </Data>
  <Data property="Stroke">
    <AggregatedDataValue type="Core/Diagram.Stroke">
      <Data property="Color">
        <AggregatedDataValue type="Core/Diagram.Color">
          <Data property="B">
            <Integer>0</Integer>
          </Data>
          <Data property="G">
            <Integer>0</Integer>
          </Data>
          <Data property="R">
            <Integer>128</Integer>
          </Data>
        </AggregatedDataValue>
      </Data>
      <Data property="DashStyle">
        <DataReference data="Core/Diagram.DashStyle.Solid"/>
      </Data>
      <Data property="Width">
        <Double>0.3</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="VerticalSemiAxis">
    <Double>7.5</Double>
  </Data>
</Object>
```

EllipseArc

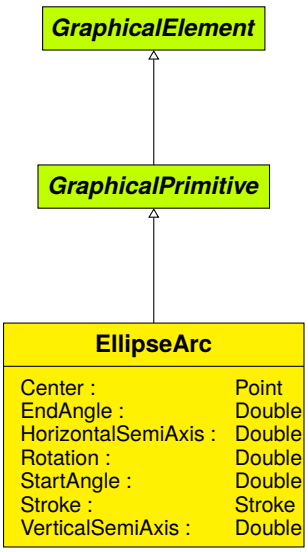
Core::*Diagram*::EllipseArc

Overview

Concrete Class

‘

A segment of an ellipse.



Supertypes

- *GraphicalPrimitive*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Center	1	*Point*	no	no
EndAngle	1	*Double*	no	no
HorizontalSemiAxis	1	*Double*	no	no
Rotation	1	*Double*	no	no
StartAngle	1	*Double*	no	no
Stroke	1	*Stroke*	no	no
VerticalSemiAxis	1	*Double*	no	no

Geometry

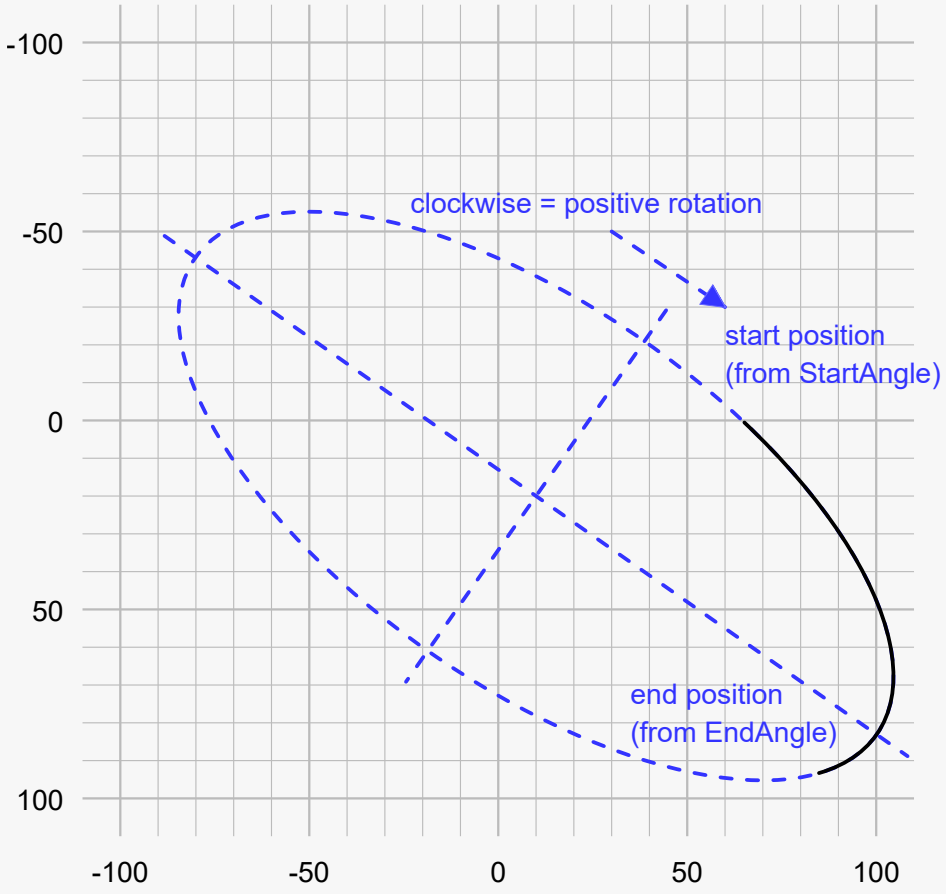
An EllipseArc is a segment of an ellipse. The geometry of the underlying ellipse is described in the same way as the geometry of the actual *Ellipse* class (*Center*, *HorizontalSemiAxis*, *VerticalSemiAxis*, *Rotation*). In addition, an EllipseArc has two attributes *StartAngle* and *EndAngle* that determine the start and end position of the arc.

example

We consider an *EllipseArc* with

- *Center* `(10, 20)`,
- *HorizontalSemiAxis* `110`,
- *VerticalSemiAxis* `50`, and
- *Rotation* `35`.

These attributes describe the blue dashed ellipse in this figure (cf. the *Ellipse* example which has the same attribute values).



The *EllipseArc* has two further geometric attributes

- *StartAngle* `288` and
- *EndAngle* `20`.

These two angles do not have a simple geometric interpretation in the figure; we will get back to them in the following sections. However, these angles determine the start position and the end position of the black *EllipseArc* in the figure. The actual *EllipseArc* goes from the start position *in positive direction* (i.e., clockwise) to the end position.

Calculation of start and end position

We use the following notation:

- c_x and c_y: components of the *Center*,
- r_x: *HorizontalSemiAxis*,
- r_y: *VerticalSemiAxis*,
- φ: *Rotation*,
- θ_1: *StartAngle*,
- θ_2: *EndAngle*,

- x_1 and y_1: start position,
- x_2 and y_2: end position.

technical

The notation is based on that used by the SVG Arc Implementation Notes which may be useful for implementors.

The start position is

$$\begin{pmatrix} x_1 \\ y_1 \end{pmatrix} = \begin{pmatrix} \cos\varphi & -\sin\varphi \\ \sin\varphi & \cos\varphi \end{pmatrix} \cdot \begin{pmatrix} r_x \cos\theta_1 \\ r_y \sin\theta_1 \end{pmatrix} + \begin{pmatrix} c_x \\ c_y \end{pmatrix}$$

and the end position is

$$\begin{pmatrix} x_2 \\ y_2 \end{pmatrix} = \begin{pmatrix} \cos\varphi & -\sin\varphi \\ \sin\varphi & \cos\varphi \end{pmatrix} \cdot \begin{pmatrix} r_x \cos\theta_2 \\ r_y \sin\theta_2 \end{pmatrix} + \begin{pmatrix} c_x \\ c_y \end{pmatrix} \quad .$$

example

In the example, we have

$$\begin{aligned} c_x &= 10 \\ c_y &= 20 \\ r_x &= 110 \\ r_y &= 50 \\ \varphi &= 35 \\ \theta_1 &= 288 \\ \theta_2 &= 20 \end{aligned}$$

With the equations above, we get these coordinates for the start and end positions (cf. the figure above):

$$\begin{aligned} x_1 &= 65.1197 \\ y_1 &= 0.5439 \\ x_2 &= 84.8639 \\ y_2 &= 93.2967 \end{aligned}$$

Interpretation of StartAngle and EndAngle

These angles are not measured in the ellipse on which an *EllipseArc* is based, but in the unit circle:

???

The figure shows the end position w.r.t. the unit circle. Its angle measured from the horizonal semi-axis is $\theta_2 = 20$. The ellipse could be constructed by stretching the unit circle by r_x in direction of the horizontal semi-axis and by r_y in direction of the vertical semi-axis. After this transformation, the end position w.r.t. the unit circle is at the actual end position.

To calculate an actual, ellipse-based angle from an angle w.r.t. the unit circle, use the formula

$$\theta_{actual} = \text{atan2}(r_y \sin\theta, r_x \cos\theta) \bmod 360 \quad .$$

The formulas apply to both the *StartAngle* θ_1 and the *EndAngle* θ_2. Note that we give angles in degrees, i.e., the actual calculations in a program may require conversions to and from radians.

example

In the example, we have

$$\theta_{actual,1} = \text{atan2}(50 \cdot \sin 288, 110 \cdot \cos 288) \bmod 360 = 305.56$$

and

$$\theta_{actual,2} = \text{atan2}(50 \cdot \sin 20, 110 \cdot \cos 20) \bmod 360 = 9.39 \quad .$$

The inverse formula is

$$\theta = \text{atan2}(r_x \sin \theta_{actual}, r_y \cos \theta_{actual}) \bmod 360 \quad .$$

technical

The rationale for using angles w.r.t. the unit circle is that they are numerically more stable when an *EllipseArc* is scaled with small values (i.e., in a *ShapeUsage*) and that some calculations are simpler (cf. SVG 2 Arc Implementation Notes).

Mapping to SVG

An *EllipseArc* is mapped to an svg:path with these attributes:

- d is the path data that describes the entire geometry of the *EllipseArc*. The value is the concatenation of the following strings, all of them separated by spaces:
  - `M`
  - str(x_1)
  - str(y_1)
  - `A`
  - str(r_x)
  - str(r_y)
  - str(φ)
  - str(f_A)
  - `1`
  - str(x_2)
  - str(y_2)

  f_A is calculated as follows (cf. the definition of the *modulo operator*):

  $$\Delta\theta = (\theta_2 - \theta_1) \bmod 360 \quad ,$$
  $$f_A = 0 \quad \text{if } \Delta\theta < 180 \quad ,$$
  $$f_A = 1 \quad \text{if } \Delta\theta \geq 180 \quad .$$

  The other variables have been defined above.
- `stroke`, `stroke-dasharray`, `stroke-dashoffset` and `stroke-width` are set according to the SVG mapping rules for the *Stroke* of the *EllipseArc* (see *Stroke*).

- `stroke-linecap = "round"` and `stroke-linejoin = "round"` reflect the heuristic for line caps and line joins.
- `vector-effect = "non-scaling-stroke"` reflects the heuristic for scaled symbols.
- `fill = "none"` is required to avoid that the svg:path is filled.

example

We assume that the *Stroke* of the *EllipseArc* above is `2mm #ff0000 solid`.

With $\Delta\theta = (20 - 288) \bmod 360 = (-268) \bmod 360 = 92 < 180$ we get $f_A = 0$.

```
{EllipseArcSolidSvgCode}
```

???

example

We consider the same *EllipseArc* as in the previous example, except that the *Stroke* is `2mm #ff0000 Dash`.

```
{EllipseArcDashSvgCode}
```

Center

Data Property

The center position of the *EllipseArc*.

Type: *Point*

Multiplicity: 1

Ordered: no

Unique: no

Example

Point(

X = 2.0,

Y = 5.0)

EndAngle

Data Property

The end angle of the *EllipseArc*, measured clockwise and in degrees. The value must be in the inverval [0; 360).

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
270.0
```

HorizontalSemiAxis

Data Property

The length of the horizontal semi-axis of the *EllipseArc* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
7.5
```

Rotation

Data Property

The rotation of the *EllipseArc* around its center, measured clockwise and in degrees. The value must be in the inverval [0; 360).

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
270.0
```

StartAngle

Data Property

The start angle of the *EllipseArc*, measured clockwise and in degrees. The value must be in the inverval [0; 360).

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
90.0
```

Stroke

Data Property

The stroke of the *EllipseArc*.

Type: *Stroke*

Multiplicity: 1

Ordered: no

Unique: no

Example

Stroke(
  Color = *Color*(
    B = 0,
    G = 0,
    R = 128),
  DashStyle = *Solid*,
  Width = 0.3)

VerticalSemiAxis

Data Property

The length of the vertical semi-axis of the *EllipseArc* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

3.5

Example in DEXPI XML

```
<Object type="Core/Diagram.EllipseArc">
  <Data property="Center">
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>2.0</Double>
      </Data>
      <Data property="Y">
        <Double>5.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="EndAngle">
    <Double>270.0</Double>
  </Data>
  <Data property="HorizontalSemiAxis">
    <Double>7.5</Double>
  </Data>
  <Data property="Rotation">
    <Double>270.0</Double>
  </Data>
  <Data property="StartAngle">
    <Double>90.0</Double>
  </Data>
  <Data property="Stroke">
    <AggregatedDataValue type="Core/Diagram.Stroke">
      <Data property="Color">
        <AggregatedDataValue type="Core/Diagram.Color">
          <Data property="B">
            <Integer>0</Integer>
          </Data>
          <Data property="G">
            <Integer>0</Integer>
          </Data>
          <Data property="R">
            <Integer>128</Integer>
          </Data>
        </AggregatedDataValue>
      </Data>
      <Data property="DashStyle">
        <DataReference data="Core/Diagram.DashStyle.Solid"/>
      </Data>
      <Data property="Width">
        <Double>0.3</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="VerticalSemiAxis">
```

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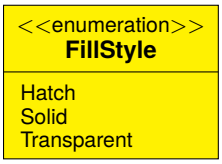
```
    <Double>3.5</Double>
  </Data>
</Object>
```

FillStyle

Core::*Diagram*::FillStyle

Overview

Enumeration



Members

Literals

Name
Hatch
Solid
Transparent

GraphicalElement

Core::*Diagram*::GraphicalElement

Overview

Abstract Class

Subtypes

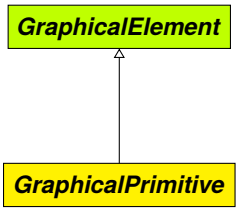
- *GraphicalPrimitive*
- *ShapeUsage*

GraphicalPrimitive

Core::*Diagram*::GraphicalPrimitive

Overview

Abstract Class



Supertypes

- *GraphicalElement*

Subtypes

- *ConnectorLine*
- *Ellipse*
- *EllipseArc*
- *PolyLine*
- *Polygon*
- *Text*

GraphicsGroup

Core::*Diagram*::GraphicsGroup

Overview

Abstract Class

Subtypes

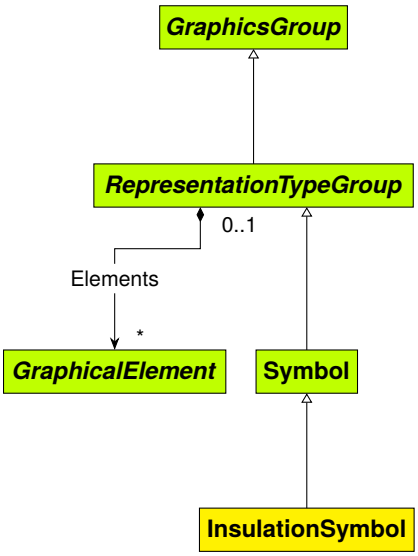
- *RepresentationGroup*
- *RepresentationTypeGroup*

InsulationSymbol

Core::*Diagram*::InsulationSymbol

Overview

Concrete Class



Supertypes

- *Symbol*

Example in DEXPI XML

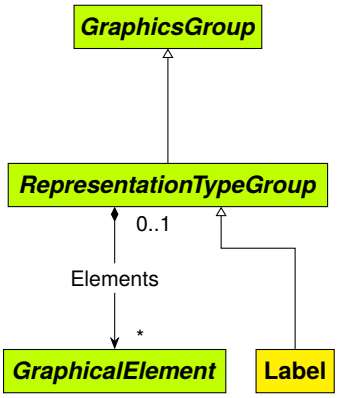
```
<Object type="Core/Diagram.InsulationSymbol"/>
```

Label

Core::*Diagram*::Label

Overview

Concrete Class



Supertypes

- *RepresentationTypeGroup*

Subtypes

- *ActuatingElectricalSystemNumberLabel*
- *ActuatingSystemNumberLabel*
- *CustomLabel*
- *DeviceInformationLabel*
- *EquipmentBarLabel*
- *EquipmentTagNameLabel*
- *FailActionLabel*
- *FittingLabel*
- *InsulationBreakLabel*
- *InsulationLabel*
- *MPRelevanceLabel*
- *MeasuringSystemNumberLabel*
- *NoteIdentifierLabel*
- *NoteTextLabel*
- *NozzleStandardLabel*
- *OffPageConnectorDescriptionLabel*
- *OffPageConnectorNumberLabel*
- *PipingClassBreakLabel*
- *PipingNetworkSegmentLabel*
- *PipingNetworkSystemLabel*
- *ProcessInstrumentationFunctionLabel*
- *QualityRelevanceLabel*
- *ReducerLabel*
- *ReferencedPIDNumberLabel*
- *SafetyRelevanceLabel*
- *SafetyValveOrFittingLabel*
- *SignalConveyingFunctionLabel*
- *SignalHighHighHighLabel*
- *SignalHighHighLabel*
- *SignalHighLabel*
- *SignalLowLabel*
- *SignalLowLowLabel*
- *SignalLowLowLowLabel*

- *TypicalInformationLabel*
- *ValveLabel*
- *VendorNameLabel*

Example in DEXPI XML

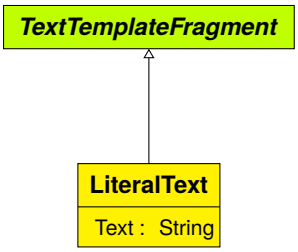
```
<Object type="Core/Diagram.Label"/>
```

LiteralText

Core::*Diagram*::LiteralText

Overview

Concrete Class



Supertypes

- *TextTemplateFragment*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Text	1	*String*	no	no

Text

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"Drawing No.:  "
```

Example in DEXPI XML

```
<Object type="Core/Diagram.LiteralText">
  <Data property="Text">
    <String>Drawing No.: </String>
  </Data>
</Object>
```

MetaData

Core::*Diagram*::MetaData

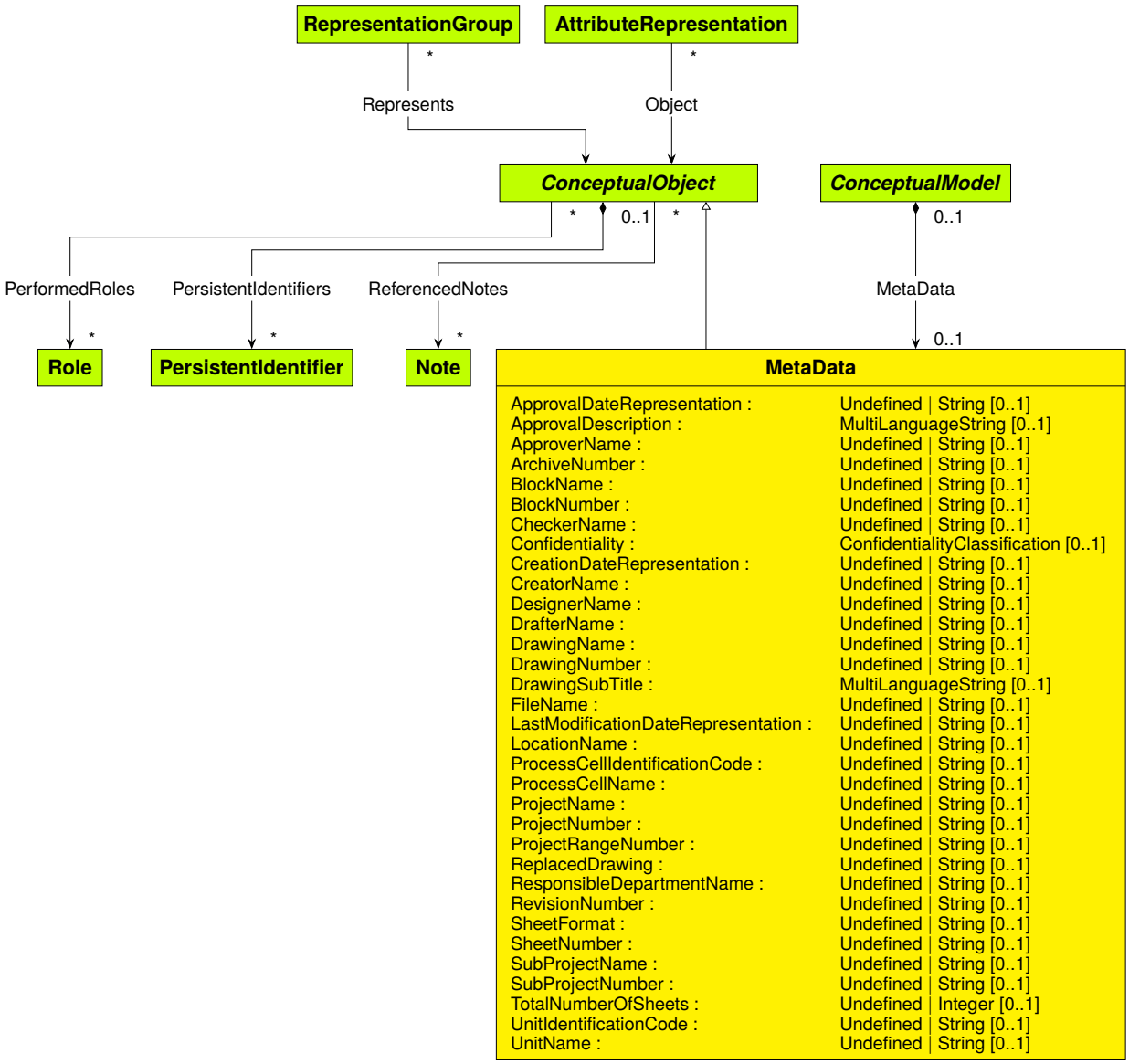
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MetaData

META DATA

Meta data about a Core.Container.



Supertypes

- *ConceptualObject*

Subtypes

- *PlantMetaData*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ApprovalDateRepresentation	0..1	*Undefined* | *String*	no	no
ApprovalDescription	0..1	*MultiLanguageString*	no	no

continues on next page

Table 2 – continued from previous page

Name	Multiplicity	Type	Ordered	Unique
ApproverName	0..1	*Undefined* | *String*	no	no
ArchiveNumber	0..1	*Undefined* | *String*	no	no
BlockName	0..1	*Undefined* | *String*	no	no
BlockNumber	0..1	*Undefined* | *String*	no	no
CheckerName	0..1	*Undefined* | *String*	no	no
Confidentiality	0..1	*ConfidentialityClassification*	no	no
CreationDateRepresentation	0..1	*Undefined* | *String*	no	no
CreatorName	0..1	*Undefined* | *String*	no	no
DesignerName	0..1	*Undefined* | *String*	no	no
DrafterName	0..1	*Undefined* | *String*	no	no
DrawingName	0..1	*Undefined* | *String*	no	no
DrawingNumber	0..1	*Undefined* | *String*	no	no
DrawingSubTitle	0..1	*MultiLanguageString*	no	no
FileName	0..1	*Undefined* | *String*	no	no
LastModificationDateRepresentation	0..1	*Undefined* | *String*	no	no
LocationName	0..1	*Undefined* | *String*	no	no
ProcessCellIdentificationCode	0..1	*Undefined* | *String*	no	no
ProcessCellName	0..1	*Undefined* | *String*	no	no
ProjectName	0..1	*Undefined* | *String*	no	no
ProjectNumber	0..1	*Undefined* | *String*	no	no
ProjectRangeNumber	0..1	*Undefined* | *String*	no	no
ReplacedDrawing	0..1	*Undefined* | *String*	no	no
ResponsibleDepartmentName	0..1	*Undefined* | *String*	no	no
RevisionNumber	0..1	*Undefined* | *String*	no	no
SheetFormat	0..1	*Undefined* | *String*	no	no
SheetNumber	0..1	*Undefined* | *String*	no	no
SubProjectName	0..1	*Undefined* | *String*	no	no
SubProjectNumber	0..1	*Undefined* | *String*	no	no
TotalNumberOfSheets	0..1	*Undefined* | *Integer*	no	no
UnitIdentificationCode	0..1	*Undefined* | *String*	no	no
UnitName	0..1	*Undefined* | *String*	no	no

ApprovalDateRepresentation

Data Property

A representation of the approval date of the drawing. The format of the representation is not prescribed.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ApprovalDateRepresentationAssignmentClass

APPROVAL DATE REPRESENTATION ASSIGNMENT CLASS

Example

```
"2016-04-01"
```

ApprovalDescription

Data Property

A description of the approval of the drawing.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ApprovalDescriptionAssignmentClass

APPROVAL DESCRIPTION ASSIGNMENT CLASS

Example

MultiLanguageString(
  SingleLanguageStrings = [
    SingleLanguageString(
      Language = "en",
      Value = "approved"),
    SingleLanguageString(
      Language = "de",
      Value = "genehmigt")])

ApproverName

Data Property

The name of the approver of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ApproverNameAssignmentClass

APPROVER NAME ASSIGNMENT CLASS

Example

```
"A. P. Prover"
```

ArchiveNumber

Data Property

The archive number of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ArchiveNumberAssignmentClass

ARCHIVE NUMBER ASSIGNMENT CLASS

Example

```
"XY923-463"
```

BlockName

Data Property

The name of the related block.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/BlockNameAssignmentClass

BLOCK NAME ASSIGNMENT CLASS

Example

```
"a block"
```

BlockNumber

Data Property

The number of the related block.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/BlockNumberAssignmentClass

BLOCK NUMBER ASSIGNMENT CLASS

Example

"B987-654"

CheckerName

Data Property

The name of the checker of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CheckerNameAssignmentClass

CHECKER NAME ASSIGNMENT CLASS

Example

"C. Hecker"

Confidentiality

Data Property

The confidentiality classification of the diagram.

Type: *ConfidentialityClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConfidentialitySpecialization

CONFIDENTIALITY SPECIALIZATION

Example

ConfidentialInformation

CreationDateRepresentation

Data Property

A representation of the creation date of the drawing. The format of the representation is not prescribed.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CreationDateRepresentationAssignmentClass

CREATION DATE REPRESENTATION ASSIGNMENT CLASS

Example

```
"2016-04-01"
```

CreatorName

Data Property

The name of the creator of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CreatorNameAssignmentClass

CREATOR NAME ASSIGNMENT CLASS

Example

```
"A. Creator"
```

DesignerName

Data Property

The name of the designer of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignerNameAssignmentClass

DESIGNER NAME ASSIGNMENT CLASS

Example

```
"D. E. Signer"
```

DrafterName

Data Property

The name of the drafter of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DrafterNameAssignmentClass

DRAFTER NAME ASSIGNMENT CLASS

Example

```
"D. Rafter"
```

DrawingName

Data Property

The drawing name.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS2102503531

DRAWING NAME ASSIGNMENT CLASS

Example

```
"DEXPI example PID"
```

DrawingNumber

Data Property

The drawing number.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DrawingNumberAssignmentClass

DRAWING NUMBER ASSIGNMENT CLASS

Example

```
"123/A93"
```

DrawingSubTitle

Data Property

The subtitle of the drawing.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DrawingSubTitleAssignmentClass

DRAWING SUB TITLE ASSIGNMENT CLASS

Example

MultiLanguageString(
SingleLanguageStrings = [
SingleLanguageString(
Language = "en",
Value = "DEXPI Example PID"),
SingleLanguageString(
Language = "de",
Value = "DEXPI Beispiel-R&I")])

FileName

Data Property

The file name of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FileNameAssignmentClass

FILE NAME ASSIGNMENT CLASS

Example

"DEXPI_example_PID.xml"

LastModificationDateRepresentation

Data Property

A representation of the last modification date of the drawing. The format of the representation is not prescribed.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LastModificationDateRepresentationAssignmentClass

LAST MODIFICATION DATE REPRESENTATION ASSIGNMENT CLASS

Example

"2016-04-02"

LocationName

Data Property

The location name.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNameAssignmentClass

LOCATION NAME ASSIGNMENT CLASS

Example

```
"C1248"
```

ProcessCellIdentificationCode

Data Property

The identification code of the related process cell according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessCellIdentificationCodeAssignmentClass

PROCESS CELL IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"PC123"
```

ProcessCellName

Data Property

The name of the related process cell according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessCellNameAssignmentClass

PROCESS CELL NAME ASSIGNMENT CLASS

Example

```
"a process cell"
```

ProjectName

Data Property

The name of the related project.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProjectNameAssignmentClass

PROJECT NAME ASSIGNMENT CLASS

Example

```
"a project"
```

ProjectNumber

Data Property

The number of the related project.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProjectNumberAssignmentClass

PROJECT NUMBER ASSIGNMENT CLASS

Example

```
"P3.1415"
```

ProjectRangeNumber

Data Property

The range number of the related project.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProjectRangeNumberAssignmentClass

PROJECT RANGE NUMBER ASSIGNMENT CLASS

Example

```
"PR321"
```

ReplacedDrawing

Data Property

The drawing replaced by this drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ReplacedDrawingAssignmentClass

REPLACED DRAWING ASSIGNMENT CLASS

Example

```
"D321"
```

ResponsibleDepartmentName

Data Property

The name of the department responsible for the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ResponsibleDepartmentNameAssignmentClass

RESPONSIBLE DEPARTMENT NAME ASSIGNMENT CLASS

Example

```
"R2-D2"
```

RevisionNumber

Data Property

The revision number of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/RevisionNumberAssignmentClass

REVISION NUMBER ASSIGNMENT CLASS

Example

```
"R2.2"
```

SheetFormat

Data Property

The sheet format.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SheetFormatAssignmentClass

SHEET FORMAT ASSIGNMENT CLASS

Example

```
"DIN A3"
```

SheetNumber

Data Property

The sheet number of the drawing.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SheetNumberAssignmentClass

SHEET NUMBER ASSIGNMENT CLASS

Example

```
"2a"
```

SubProjectName

Data Property

The name of the related sub-project.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubProjectNameAssignmentClass

SUB PROJECT NAME ASSIGNMENT CLASS

Example

```
"a sub-project"
```

SubProjectNumber

Data Property

The number of the related sub-project.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubProjectNumberAssignmentClass

SUB PROJECT NUMBER ASSIGNMENT CLASS

Example

```
"P3.1415-SP2"
```

TotalNumberOfSheets

Data Property

The total number of sheets.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TotalNumberOfSheets

TOTAL NUMBER OF SHEETS

Example

4

UnitIdentificationCode

Data Property

The identification code of the related unit according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UnitIdentificationCodeAssignmentClass

UNIT IDENTIFICATION CODE ASSIGNMENT CLASS

Example

"U-923-463"

UnitName

Data Property

The name of the related unit according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UnitIsa95NameAssignmentClass

UNIT ISA95 NAME ASSIGNMENT CLASS

Example

"a unit"

Example in DEXPI XML

```
<Object type="Core/Diagram.MetaData">
  <Data property="ApprovalDateRepresentation">
    <String>2016-04-01</String>
  </Data>
  <Data property="ApprovalDescription">
    <AggregatedDataValue type="Core/DataTypes.MultiLanguageString">
      <Data property="SingleLanguageStrings">
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>en</String>
          </Data>
          <Data property="Value">
            <String>approved</String>
          </Data>
        </AggregatedDataValue>
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>de</String>
          </Data>
          <Data property="Value">
            <String>genehmigt</String>
          </Data>
        </AggregatedDataValue>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="ApproverName">
    <String>A. P. Prover</String>
  </Data>
```

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```
  <Data property="ArchiveNumber">
    <String>XY923-463</String>
  </Data>
  <Data property="BlockName">
    <String>a block</String>
  </Data>
  <Data property="BlockNumber">
    <String>B987-654</String>
  </Data>
  <Data property="CheckerName">
    <String>C. Hecker</String>
  </Data>
  <Data property="Confidentiality">
    <DataReference data="Core/Diagram.ConfidentialityClassification.
↪ConfidentialInformation"/>
  </Data>
  <Data property="CreationDateRepresentation">
    <String>2016-04-01</String>
  </Data>
  <Data property="CreatorName">
    <String>A. Creator</String>
  </Data>
  <Data property="DesignerName">
    <String>D. E. Signer</String>
  </Data>
  <Data property="DrafterName">
    <String>D. Rafter</String>
  </Data>
  <Data property="DrawingName">
    <String>DEXPI example PID</String>
  </Data>
  <Data property="DrawingNumber">
    <String>123/A93</String>
  </Data>
  <Data property="DrawingSubTitle">
    <AggregatedDataValue type="Core/DataTypes.MultiLanguageString">
      <Data property="SingleLanguageStrings">
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>en</String>
          </Data>
          <Data property="Value">
            <String>DEXPI Example PID</String>
          </Data>
        </AggregatedDataValue>
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>de</String>
          </Data>
          <Data property="Value">
            <String>DEXPI Beispiel-R&amp;amp;I</String>
          </Data>
```

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```
      </AggregatedDataValue>
    </Data>
  </AggregatedDataValue>
</Data>
<Data property="FileName">
  <String>DEXPI_example_PID.xml</String>
</Data>
<Data property="LastModificationDateRepresentation">
  <String>2016-04-02</String>
</Data>
<Data property="LocationName">
  <String>C1248</String>
</Data>
<Data property="ProcessCellIdentificationCode">
  <String>PC123</String>
</Data>
<Data property="ProcessCellName">
  <String>a process cell</String>
</Data>
<Data property="ProjectName">
  <String>a project</String>
</Data>
<Data property="ProjectNumber">
  <String>P3.1415</String>
</Data>
<Data property="ProjectRangeNumber">
  <String>PR321</String>
</Data>
<Data property="ReplacedDrawing">
  <String>D321</String>
</Data>
<Data property="ResponsibleDepartmentName">
  <String>R2-D2</String>
</Data>
<Data property="RevisionNumber">
  <String>R2.2</String>
</Data>
<Data property="SheetFormat">
  <String>DIN A3</String>
</Data>
<Data property="SheetNumber">
  <String>2a</String>
</Data>
<Data property="SubProjectName">
  <String>a sub-project</String>
</Data>
<Data property="SubProjectNumber">
  <String>P3.1415-SP2</String>
</Data>
<Data property="TotalNumberOfSheets">
  <Integer>4</Integer>
</Data>
```

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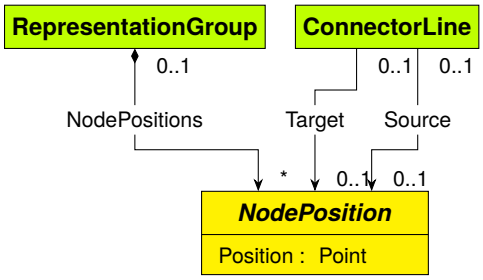
```
  <Data property="UnitIdentificationCode">
    <String>U-923-463</String>
  </Data>
  <Data property="UnitName">
    <String>a unit</String>
  </Data>
</Object>
```

NodePosition

Core::*Diagram*::NodePosition

Overview

Abstract Class



Subtypes

- *InstrumentationNodePosition*
- *PipingNodePosition*
- *PortNodePosition*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Position	1	*Point*	no	no

Position

Data Property

Type: *Point*

Multiplicity: 1

Ordered: no

Unique: no

Example

Point(

X = 3.5,

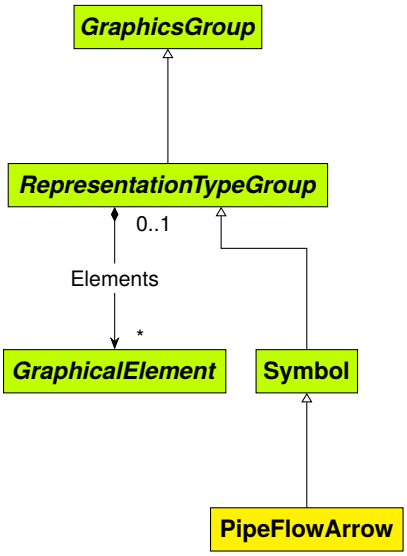
Y = 5.5)

PipeFlowArrow

Core::*Diagram*::PipeFlowArrow

Overview

Concrete Class



Supertypes

- *Symbol*

Example in DEXPI XML

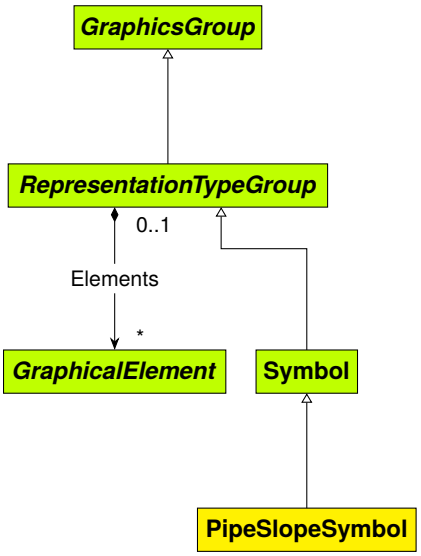
```
<Object type="Core/Diagram.PipeFlowArrow"/>
```

PipeSlopeSymbol

Core::*Diagram*::PipeSlopeSymbol

Overview

Concrete Class



Supertypes

- *Symbol*

Example in DEXPI XML

```
<Object type="Core/Diagram.PipeSlopeSymbol"/>
```

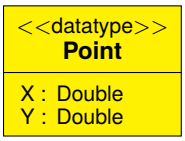
Point

Core::*Diagram*::Point

Overview

Aggregated Data Type

A point in the X-Y-plane.



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
X	1	*Double*	no	no
Y	1	*Double*	no	no

X

Data Property

The X (horizontal) coordinate of the *Point* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
50.5
```

Y

Data Property

The Y (horizontal) coordinate of the *Point* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
-1.2
```

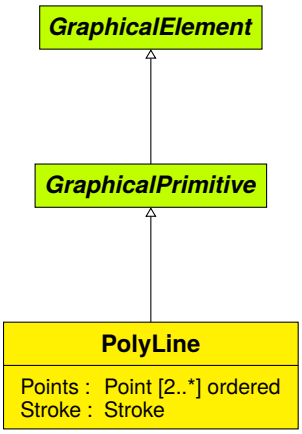
PolyLine

Core::*Diagram*::PolyLine

Overview

Concrete Class

A curve that consists of one or more chained straight sections.



Supertypes

- *GraphicalPrimitive*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Points	2..*	*Point*	yes	no
Stroke	1	*Stroke*	no	no

Geometry

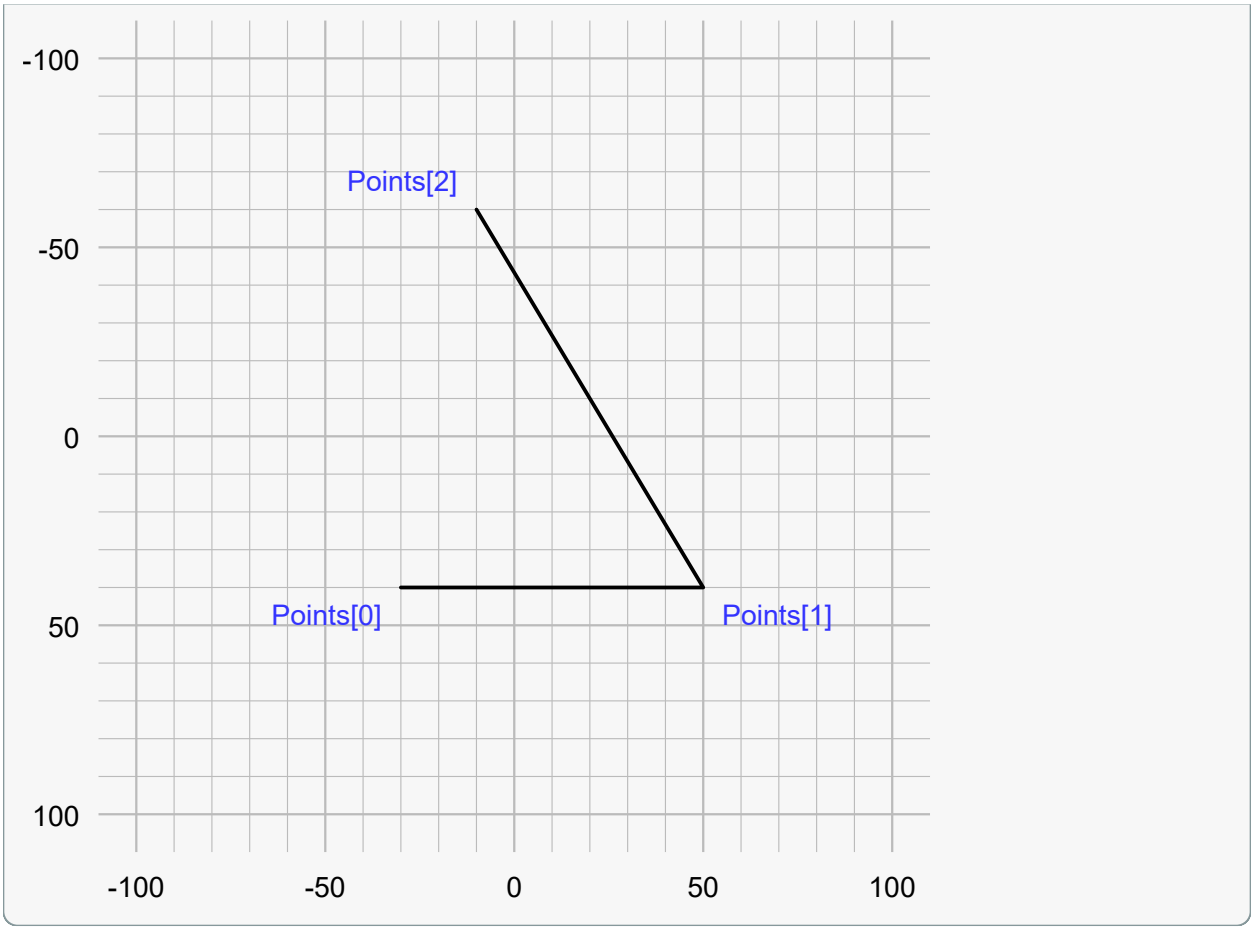
The first straight section of a *PolyLine* starts at its first *Point*, i.e., *Points[0]*, and ends at its second *Point*. For each further *Point*, another section is drawn that starts at the preceding *Point*.

example

We consider a *PolyLine* with 3 *Points*:

- `(-30, 40)`,
- `(50, 40)`, and
- `(-10, -60)`.

The *PolyLine* will look like this:



Mapping to SVG

A *PolyLine* corresponds to an svg:polyline with these attributes:

- `points` contains the *Points* of the *PolyLine*.

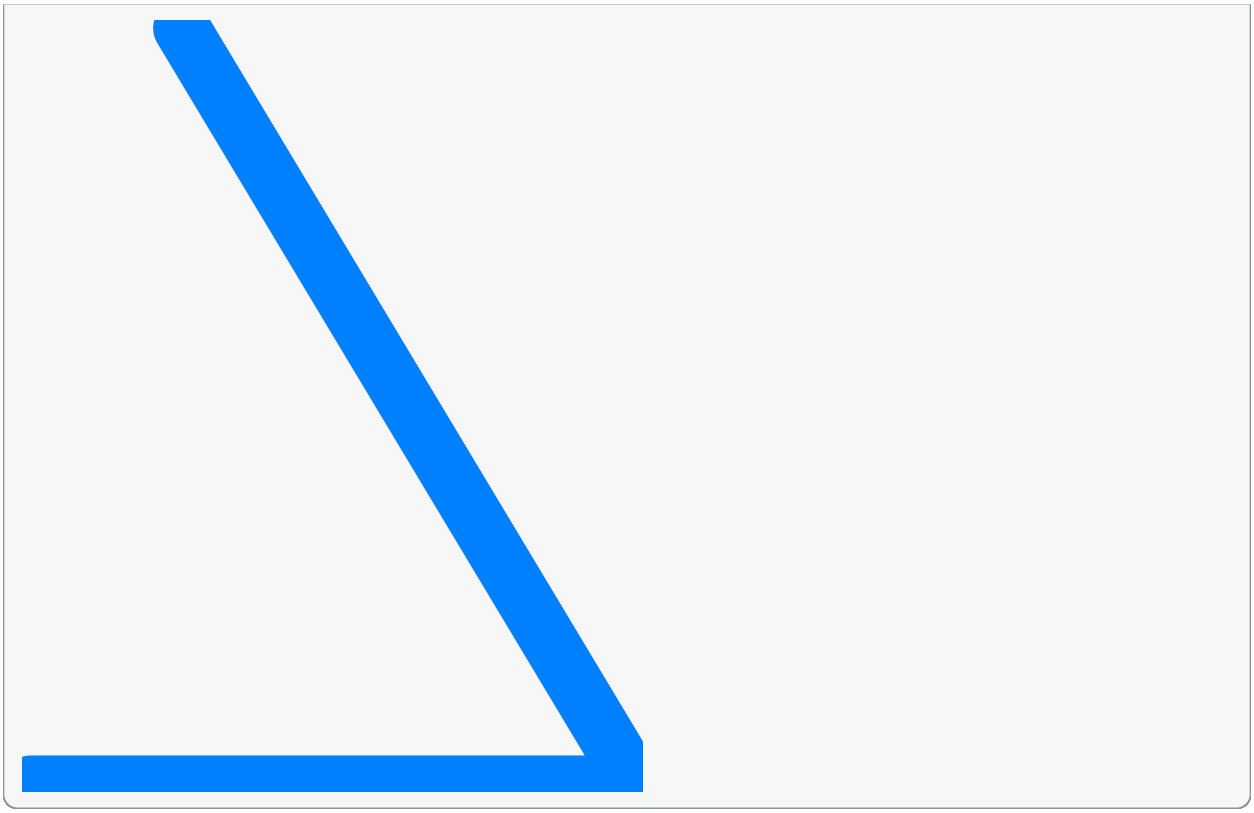
  Each *Point* i with position x_i and y_i is converted to a string as str(x_i) + `,` + str(y_i). Finally, the `points` attribute is set to a single string that contains all positions, separated by spaces.

- `stroke`, `stroke-dasharray`, `stroke-dashoffset` and `stroke-width` are set according to the SVG mapping rules for the *Stroke* of the *PolyLine* (see *Stroke*).
- `stroke-linecap = "round"` and `stroke-linejoin = "round"` reflect the heuristic for line caps and line joins.
- `vector-effect = "non-scaling-stroke"` reflects the heuristic for scaled symbols.
- `fill = "none"` is required to avoid that the svg:polyline is filled.

example

We assume that the *Stroke* of the *PolyLine* above is `2mm #007fff solid`.

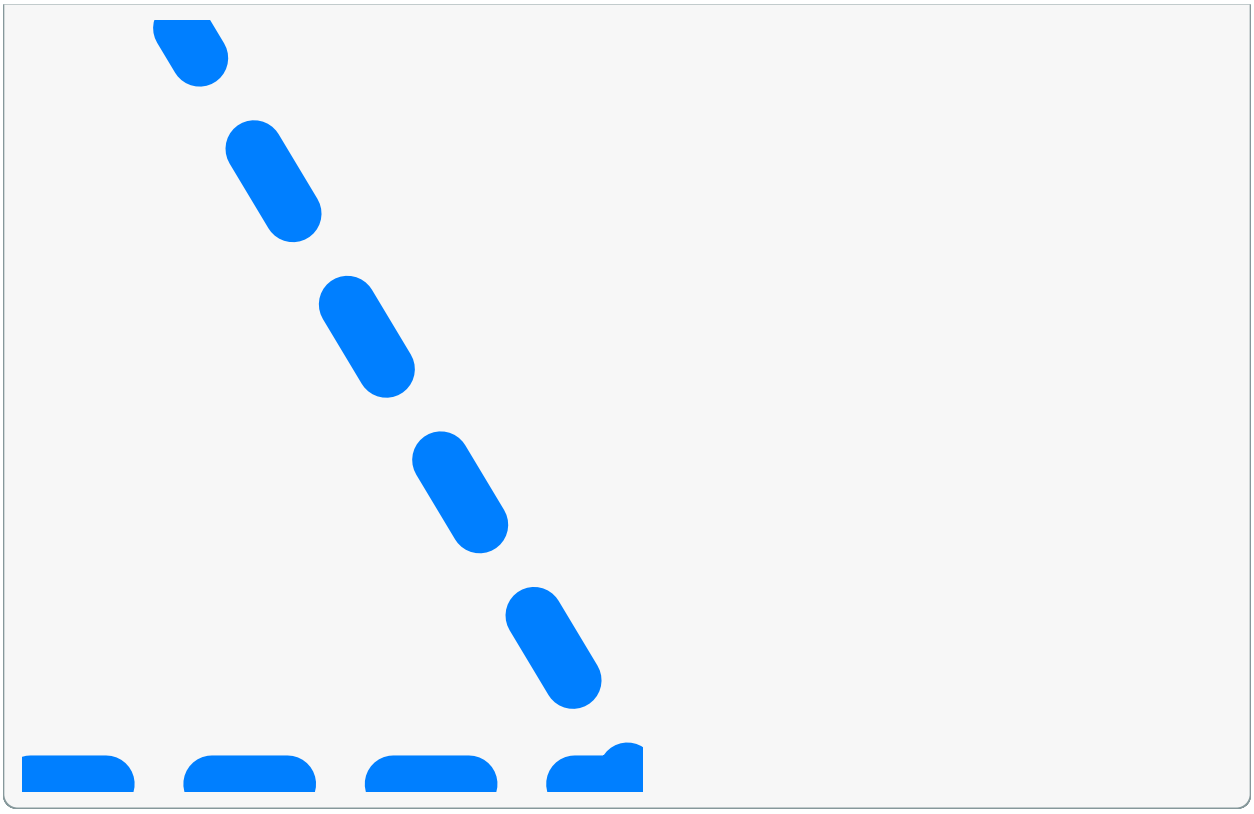
```
{PolyLineSolidSvgCode}
```



example

We consider the same *PolyLine* as in the previous example, except that the *Stroke* is `2mm #007fff Dash`.

```
{PolyLineDashSvgCode}
```



Points

Data Property

The points of the *PolyLine*.

Type: *Point*

Multiplicity: 2..*

Ordered: yes

Unique: no

Example

```
[
    Point(
        X = 3.5,
        Y = 5.5),
    Point(
        X = 5.5,
        Y = 7.5)
]
```

Stroke

Data Property

The stroke of the *PolyLine*.

Type: *Stroke*

Multiplicity: 1

Ordered: no

Unique: no

Example

Stroke(

Color = *Color*(

B = 0,

G = 0,

R = 128),

DashStyle = *Solid*,

Width = 0.3)

Example in DEXPI XML

```
<Object type="Core/Diagram.PolyLine">
  <Data property="Points">
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>3.5</Double>
      </Data>
      <Data property="Y">
        <Double>5.5</Double>
      </Data>
    </AggregatedDataValue>
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>5.5</Double>
      </Data>
      <Data property="Y">
        <Double>7.5</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Stroke">
    <AggregatedDataValue type="Core/Diagram.Stroke">
      <Data property="Color">
        <AggregatedDataValue type="Core/Diagram.Color">
          <Data property="B">
            <Integer>0</Integer>
          </Data>
```

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```
          <Data property="G">
            <Integer>0</Integer>
          </Data>
          <Data property="R">
            <Integer>128</Integer>
          </Data>
        </AggregatedDataValue>
      </Data>
      <Data property="DashStyle">
        <DataReference data="Core/Diagram.DashStyle.Solid"/>
      </Data>
      <Data property="Width">
        <Double>0.3</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

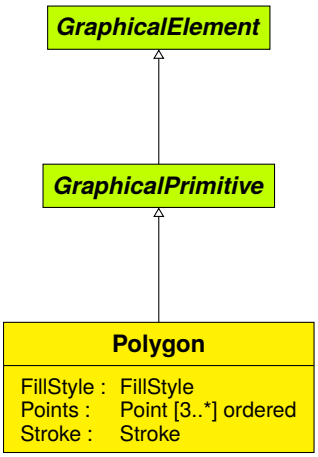
Polygon

Core::*Diagram*::Polygon

Overview

Concrete Class

A figure that is delimited by a closed chain of three or more straight sections.



Supertypes

- *GraphicalPrimitive*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FillStyle	1	*FillStyle*	no	no
Points	3..*	*Point*	yes	no
Stroke	1	*Stroke*	no	no

Geometry

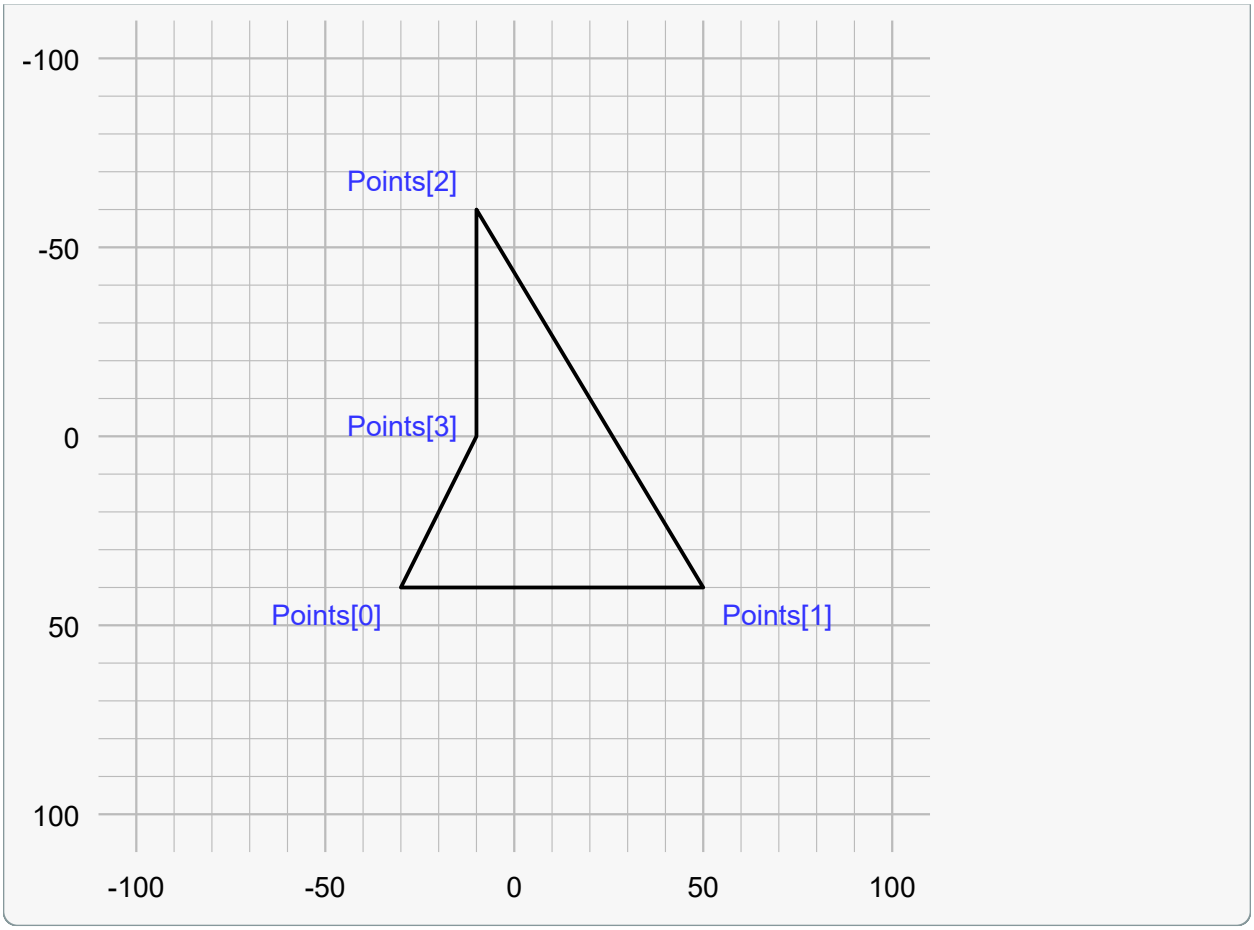
The first straight section that delimits a Polygon starts at its first *Point*, i.e., *Points[0]*, and ends at its second *Point*. For each further *Point*, another section is added that starts at the preceding *Point*. Finally, a section is added that starts at the last *Point* and goes back to the first *Point* such that the chain of sections is closed.

example

We consider a *Polygon* with 4 *Points*:

- `(-30, 40)`,
- `(50, 40)`,
- `(-10, -60)`, and
- `(-10, 0)`.

The *Polygon* will look like this:



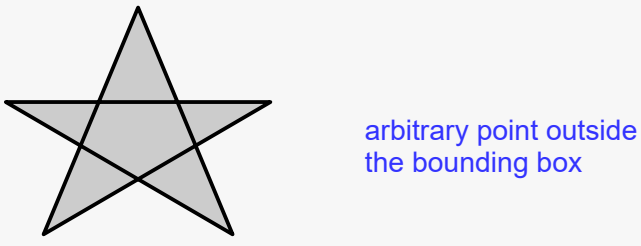
Interior of a Polygon

Depending on its *FillStyle*, the interior of a *Polygon* may be filled. There are several possibilities to define when *"a point is inside a polygon"*. DEXPI applies a simple intuitive rule:

- Choose an arbitrary point outside the geometric bounding box of the *Polygon*.
- Each point that can be reached from there without crossing any segment is outside the *Polygon*.
- Each other point is inside the *Polygon*.

example

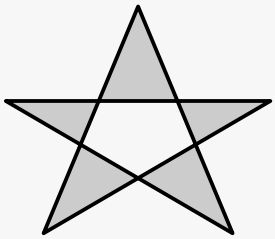
The grey area in the figure visualizes the interior of the given *Polygon*.



technical

In case of polygons, the DEXPI definition for interior points coincides with the *nonzero rule* in SVG. See Section 13.4.2. of the SVG 2 Recommendation for a more precise definition of the *nonzero rule*.

The SVG 2 Recommendation also defines an alternative rule called *evenodd rule*. If we applied this rule, the pentagonal area in the center of this *Polygon* would be considered outside:



Interior of a polygon when the evenodd rule is applied.
For illustration only! DEXPI does not apply this rule!

Visual Center

Let n be the number of *Points*, and let x_i and y_i be the *X* and *Y* positions of *Point* i for $0 \leq i < n$.

Then the horizontal position c_x and the vertical position c_y of the visual center of the *Polygon* are

$$c_x = \frac{1}{2}\left[\min_{i=0}^{n-1} x_i + \max_{i=0}^{n-1} x_i\right] \quad ,$$
$$c_y = \frac{1}{2}\left[\min_{i=0}^{n-1} y_i + \max_{i=0}^{n-1} y_i\right] \quad .$$

Intuitively, the visual center is the center of the minimum bounding box that contains all *Points*.

If the *Polygon* has the *FillStyle Hatch*, then one of the hatch lines will cross through the visual center.

example

For the *Polygon* above, we have

$$\begin{aligned} c_x &= \frac{1}{2}[\min(-30, 50, -10, -10) + \max(-30, 50, -10, -10)] \\ &= \frac{1}{2}[-30 + 50] \\ &= 10 \end{aligned}$$

and

$$\begin{aligned} c_y &= \frac{1}{2}[\min(40, 40, -60, 0) + \max(40, 40, -60, 0)] \\ &= \frac{1}{2}[-60 + 40] \\ &= -10 \quad . \end{aligned}$$

Mapping to SVG

A *Polygon* corresponds to an svg:polygon with these attributes:

- `transform` contains a translation from the origin to the visual center. This is required due to the modified positions in `points`.

  `transform = "translate(` + str(c_x) + `,` + str(c_y) + `)"`

- `points` contains the *Points* of the *Polygon* *relative to the visual center*.

  For each *Point* i with (absolute) position x_i and y_i, the position relative to the visual center is

  $$\tilde{x}_i = x_i - c_x \quad ,$$
  $$\tilde{y}_i = y_i - c_y \quad .$$

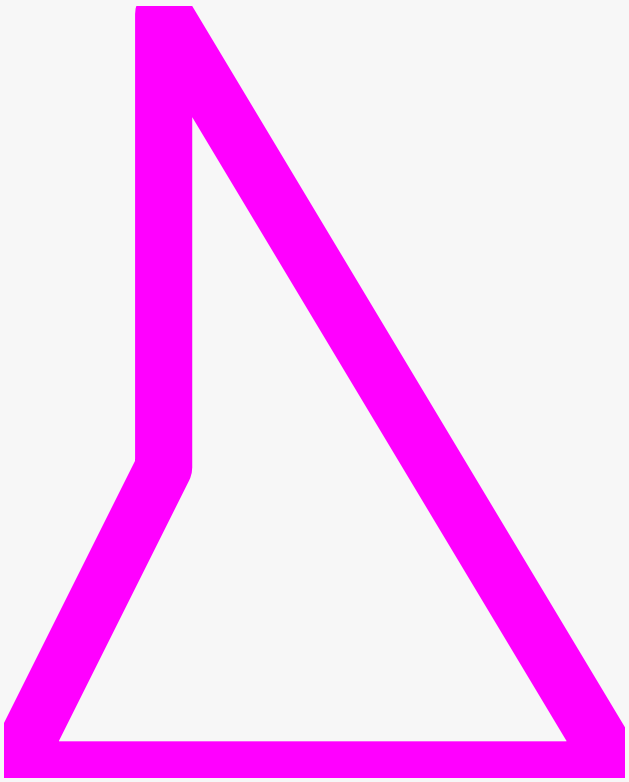
  Each of the relative positions is converted to a string as str($\tilde{x}_i$) + `,` + str($\tilde{y}_i$). Finally, the `points` attribute is set to a single string that contains all relative positions, separated by spaces.

- `stroke`, `stroke-dasharray`, `stroke-dashoffset` and `stroke-width` are set according to the SVG mapping rules for the *Stroke* of the *Polygon* (see *Stroke*).
- `stroke-linecap = "round"` and `stroke-linejoin = "round"` reflect the heuristic for line caps and line joins.
- `vector-effect = "non-scaling-stroke"` reflects the heuristic for scaled symbols.
- `fill` is set according to the SVG mapping rules for the *FillStyle* of the *Polygon* (see *FillStyle*).

example

We assume that the *Stroke* of the *Polygon* above is `2mm #ff00ff Solid` and that its *FillStyle* is *Transparent*.

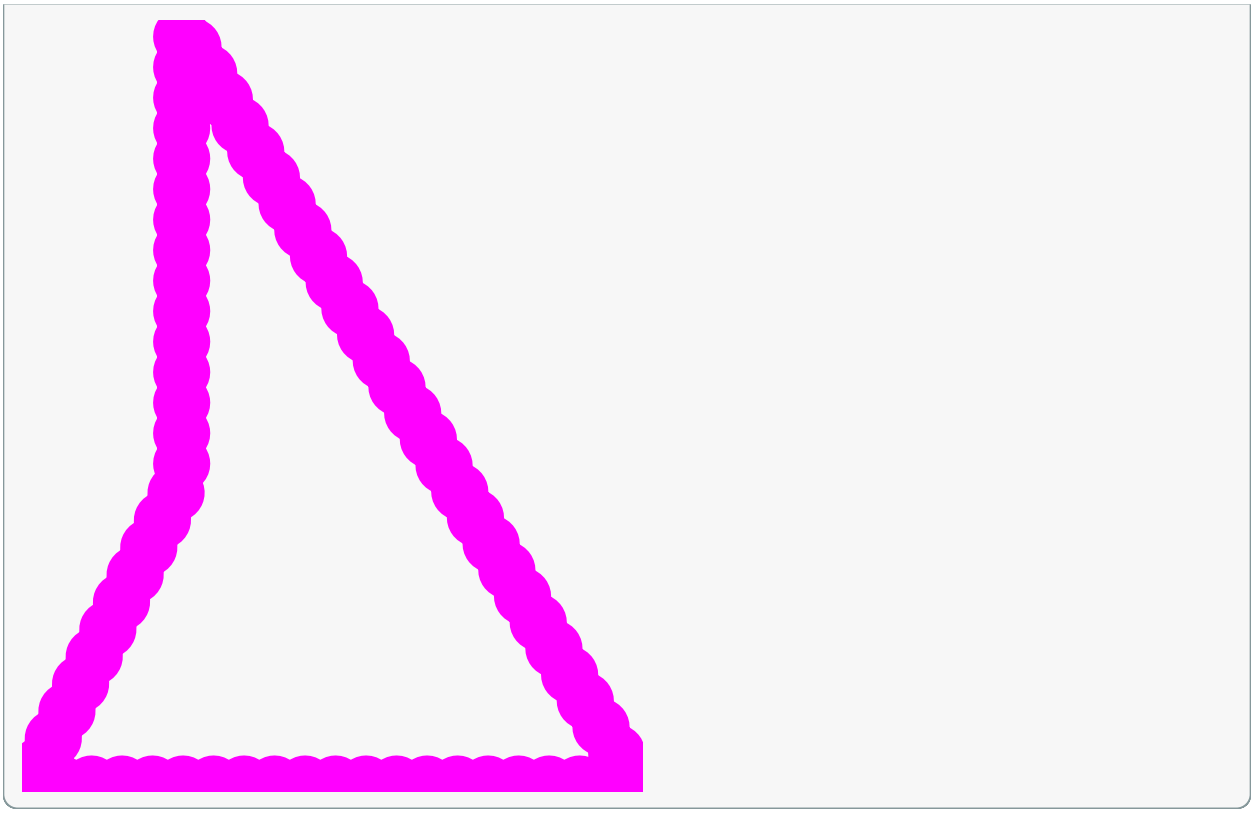
```
{PolygonTransparentSvgCode}
```



example

We consider the same *Polygon* as in the previous example, except that the *Stroke* is `2mm #ff00ff Dot`.

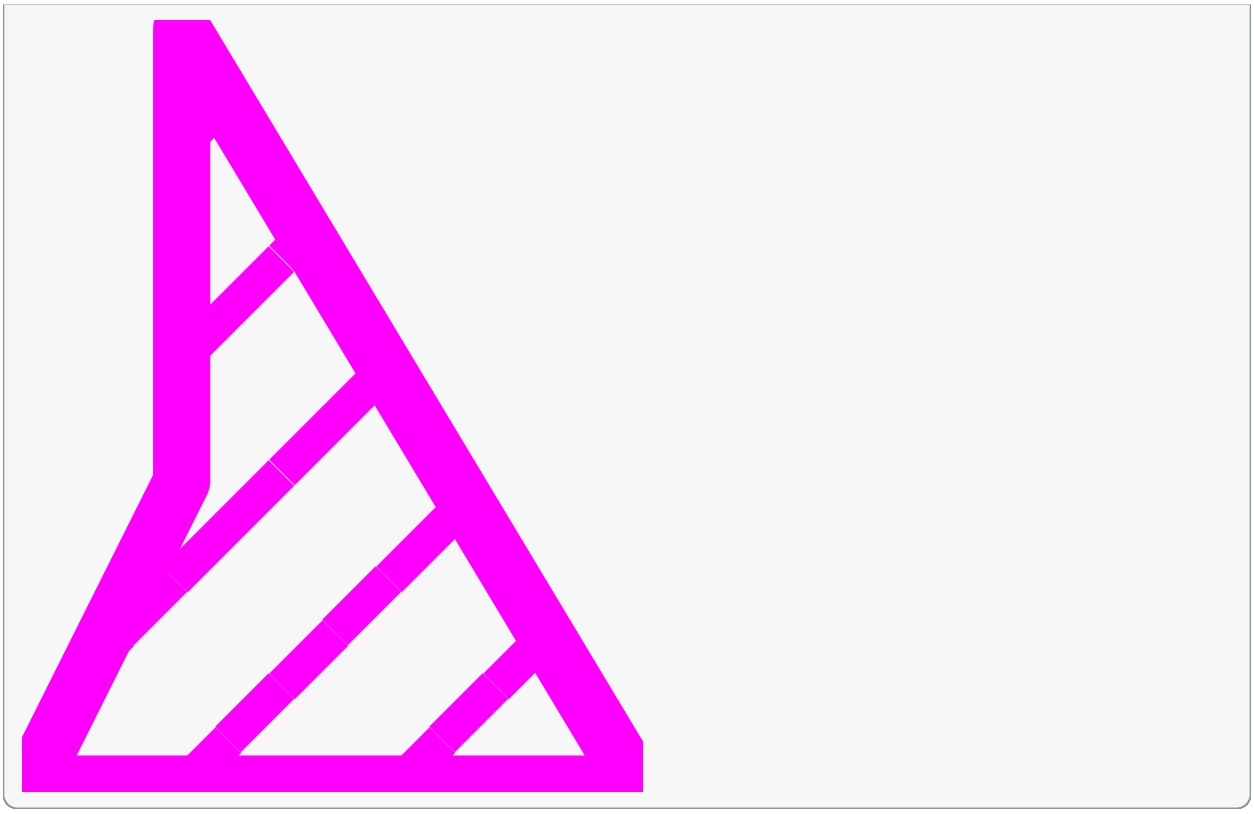
```
{PolygonDotSvgCode}
```



example

Finally, a variant with *Stroke* `2mm #ff00ff Solid` and *FillStyle Hatch*.

```
{PolygonHatchSvgCode}
```



FillStyle

Data Property

The fill style of the *Polygon*.

Type: *FillStyle*

Multiplicity: 1

Ordered: no

Unique: no

Example

Transparent

Points

Data Property

The points (vertices) of the *Polygon*.

Type: *Point*

Multiplicity: 3..*

Ordered: yes

Unique: no

Example

[

Point(

X = 3.5,

Y = 5.5),

Point(

X = 5.5,

Y = 7.5),

Point(

X = 1.5,

Y = 9.5)

]

Stroke

Data Property

The stroke of the *Polygon*.

Type: *Stroke*

Multiplicity: 1

Ordered: no

Unique: no

Example

Stroke(

Color = *Color*(

B = 0,

G = 0,

R = 128),

DashStyle = *Solid*,

Width = 0.3)

Example in DEXPI XML

```
<Object type="Core/Diagram.Polygon">
  <Data property="FillStyle">
    <DataReference data="Core/Diagram.FillStyle.Transparent"/>
  </Data>
  <Data property="Points">
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
```

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```
        <Double>3.5</Double>
      </Data>
      <Data property="Y">
        <Double>5.5</Double>
      </Data>
    </AggregatedDataValue>
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>5.5</Double>
      </Data>
      <Data property="Y">
        <Double>7.5</Double>
      </Data>
    </AggregatedDataValue>
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>1.5</Double>
      </Data>
      <Data property="Y">
        <Double>9.5</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Stroke">
    <AggregatedDataValue type="Core/Diagram.Stroke">
      <Data property="Color">
        <AggregatedDataValue type="Core/Diagram.Color">
          <Data property="B">
            <Integer>0</Integer>
          </Data>
          <Data property="G">
            <Integer>0</Integer>
          </Data>
          <Data property="R">
            <Integer>128</Integer>
          </Data>
        </AggregatedDataValue>
      </Data>
      <Data property="DashStyle">
        <DataReference data="Core/Diagram.DashStyle.Solid"/>
      </Data>
      <Data property="Width">
        <Double>0.3</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

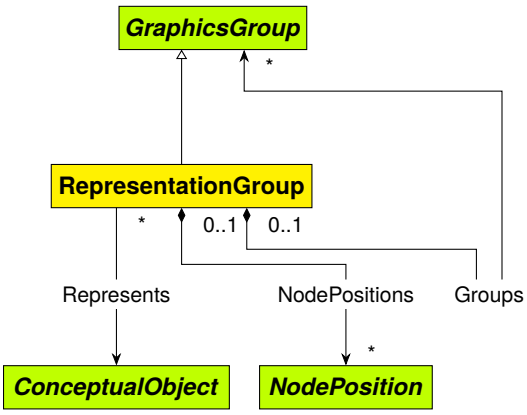
RepresentationGroup

Core::*Diagram*::RepresentationGroup

Overview

Concrete Class

A RepresentationGroup is a graphical representation of a *ConceptualObject*.



Supertypes

- *GraphicsGroup*

Subtypes

- *Diagram*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Groups	*	*GraphicsGroup*	yes
NodePositions	*	*NodePosition*	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Represents	1	*ConceptualObject*	no	no	*

Groups

Composition Property

The groups of the *RepresentationGroup*.

Type: *GraphicsGroup*

Multiplicity: *

Ordered: yes

NodePositions

Composition Property

The node positions of the *RepresentationGroup*.

Type: *NodePosition*

Multiplicity: *

Ordered: no

Represents

Reference Property

The object represented by the *RepresentationGroup*.

Type: *ConceptualObject*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

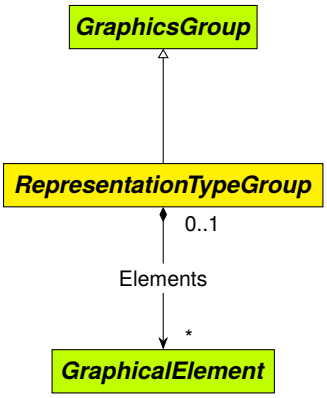
```
<Object type="Core/Diagram.RepresentationGroup"/>
```

RepresentationTypeGroup

Core::*Diagram*::RepresentationTypeGroup

Overview

Abstract Class



Supertypes

- *GraphicsGroup*

Subtypes

- *Border*
- *Label*
- *Static*
- *Symbol*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Elements	*	*GraphicalElement*	yes

Elements

Composition Property

The graphical elements of the *RepresentationTypeGroup*.

Type: *GraphicalElement*

Multiplicity: *

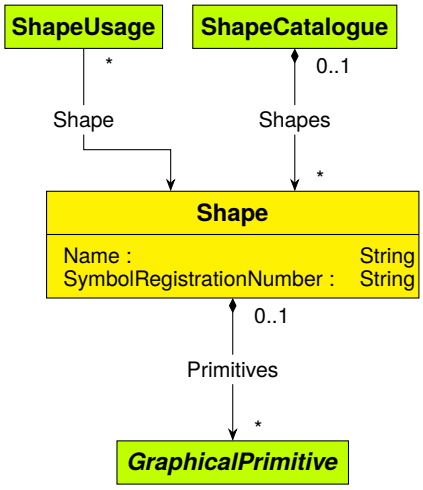
Ordered: yes

Shape

Core::*Diagram*::Shape

Overview

Concrete Class



Members

Composition Properties

Name	Multiplicity	Type	Ordered
Primitives	*	*GraphicalPrimitive*	yes

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Name	1	*String*	no	no
SymbolRegistrationNumber	1	*String*	no	no

Name

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"ENTRIFUGAL_PUMP_SHAPE"
```

Primitives

Composition Property

The primitives of the *Shape*.

Type: *GraphicalPrimitive*

Multiplicity: *

Ordered: yes

SymbolRegistrationNumber

Data Property

A registration number that identifies the *Shape*.

The following format is recommended:

`[standard]:[version]-[id]-[transform]`

where

- `standard` is the name of a drawing standard,
- `version` is the version the drawing standard, e.g., a year,
- `id` is the identifier used in the standard for the *Shape*,

- `transform` gives the transformation of the *Shape* w.r.t. its depiction in the standard.

  `transform` is one of the following values:

  - `A`: no transformation,
  - `B`: rotation by 90°,
  - `C`: rotation by 180°,
  - `D`: rotation by 270°,
  - `E`: mirrored,
  - `F`: mirrored, rotation by 90°,
  - `G`: mirrored, rotation by 180°,
  - `H`: mirrored, rotation by 270°.

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"ISO10628:2012-2322-A"
```

Example in DEXPI XML

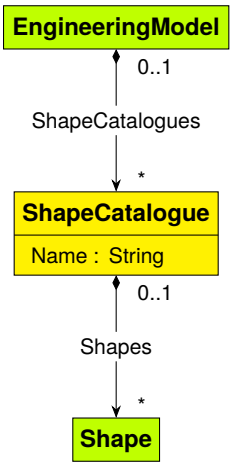
```
<Object type="Core/Diagram.Shape">
  <Data property="Name">
    <String>ENTRIFUGAL_PUMP_SHAPE</String>
  </Data>
  <Data property="SymbolRegistrationNumber">
    <String>ISO10628:2012-2322-A</String>
  </Data>
</Object>
```

ShapeCatalogue

Core::*Diagram*::ShapeCatalogue

Overview

Concrete Class



Members

Composition Properties

Name	Multiplicity	Type	Ordered
Shapes	*	*Shape*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Name	1	*String*	no	no

Name

Data Property

The name of the *ShapeCatalogue*.

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"Shapes for example P&ID"
```

Shapes

Composition Property

The shapes of the *ShapeCatalogue*.

Type: *Shape*

Multiplicity: *

Ordered: no

Example in DEXPI XML

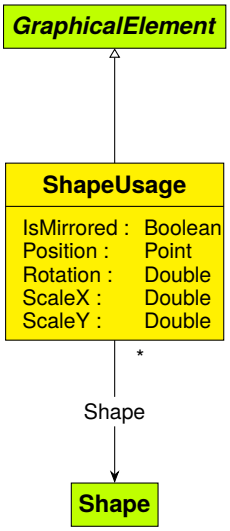
```
<Object type="Core/Diagram.ShapeCatalogue">
  <Data property="Name">
    <String>Shapes for example P&amp;amp;ID</String>
  </Data>
</Object>
```

ShapeUsage

Core::*Diagram*::ShapeUsage

Overview

Concrete Class



Supertypes

- *GraphicalElement*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Shape	1	*Shape*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
IsMirrored	1	*Boolean*	no	no
Position	1	*Point*	no	no
Rotation	1	*Double*	no	no
ScaleX	1	*Double*	no	no
ScaleY	1	*Double*	no	no

IsMirrored

Data Property

Type: *Boolean*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
false
```

Position

Data Property

Type: *Point*

Multiplicity: 1

Ordered: no

Unique: no

Example

Point(

X = `20.0`,

Y = `20.0`)

Rotation

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

`0.0`

ScaleX

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

`1.0`

ScaleY

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

`1.0`

Shape

Reference Property

The shape used by the *ShapeUsage*.

Type: *Shape*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Core/Diagram.ShapeUsage">
  <Data property="IsMirrored">
    <Boolean>false</Boolean>
  </Data>
  <Data property="Position">
    <AggregatedDataValue type="Core/Diagram.Point">
```

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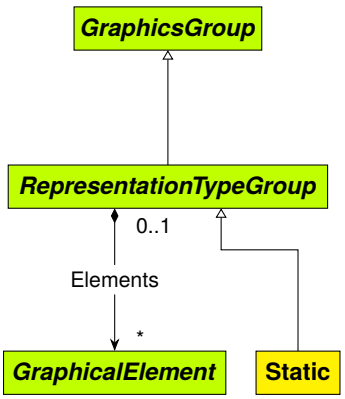
```
      <Data property="X">
        <Double>20.0</Double>
      </Data>
      <Data property="Y">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Rotation">
    <Double>0.0</Double>
  </Data>
  <Data property="ScaleX">
    <Double>1.0</Double>
  </Data>
  <Data property="ScaleY">
    <Double>1.0</Double>
  </Data>
</Object>
```

Static

Core::*Diagram*::Static

Overview

Concrete Class



Supertypes

- *RepresentationTypeGroup*

Example in DEXPI XML

```
<Object type="Core/Diagram.Static"/>
```

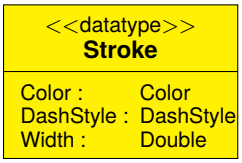
Stroke

Core::*Diagram*::Stroke

Overview

Aggregated Data Type

A stroke defines the visual appearance of a line.



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Color	1	*Color*	no	no
DashStyle	1	*DashStyle*	no	no
Width	1	*Double*	no	no

Simplified Literals

Within this specification, a simplified type of literal is used to refer to a *Stroke*. This literal is composed of

- a decimal representation of the *Width*, followed by `mm`,
- the simplified literal of the *Color* of the *Stroke* (see *Color*),
- the name of the *DashStyle* of the *Stroke* (see *DashStyle*).

The three components are separated by spaces.

For example, a *Stroke* with

- *Width* = `2`,
- *Color* = `#00ff00`, and
- *DashStyle* = *Dot*

is represented as `2mm #00ff00 Dot`.

Mapping to SVG

A *Stroke* is mapped to a set of XML attributes, which are added to the SVG element (e.g., a svg:polygon or a svg:polyline element) that is drawn with the *Stroke*.

- The *Color* of the *Stroke* is mapped to the `stroke` attribute. For the attribute value, see the SVG mapping for *Color*.
- The *DashStyle* of the *Stroke* is mapped to the `stroke-dasharray` and `stroke-dashoffset` attributes as described in the SVG mapping for *DashStyle*. Note that these attribute values depend on the *Width* of the *Stroke* and on the linecap of the *GraphicalPrimitive* that uses the *Stroke*.

- The *Width* of the *Stroke* is mapped to the `stroke-width` attribute. The attribute value is the concatenation of the string representation of the *Width* and the fixed string `mm`. That is, in terms of standard-css-values-4 we use an absolute length with the unit millimeters.

example

For examples, see the SVG mapping sections of those subclasses of *GraphicalPrimitive* that have a *Stroke* attribute:

- *Ellipse*
- *EllipseArc*
- *Polygon*
- *PolyLine*

Color

Data Property

The color of the *Stroke*.

Type: *Color*

Multiplicity: 1

Ordered: no

Unique: no

Example

Color(

B = `255`,

G = `0`,

R = `0`)

DashStyle

Data Property

The dash style of the *Stroke*.

Type: *DashStyle*

Multiplicity: 1

Ordered: no

Unique: no

Example

Solid

Width

Data Property

The width of the *Stroke* in mm.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

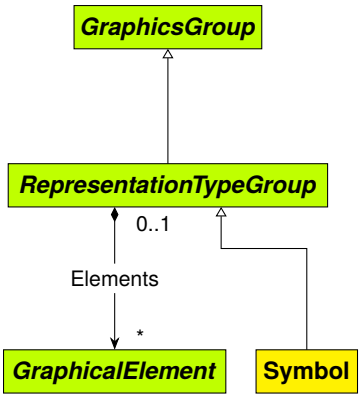
```
2.0
```

Symbol

Core::*Diagram*::Symbol

Overview

Concrete Class



Supertypes

- *RepresentationTypeGroup*

Subtypes

- *CustomSymbol*
- *InsulationSymbol*
- *PipeFlowArrow*
- *PipeSlopeSymbol*

Example in DEXPI XML

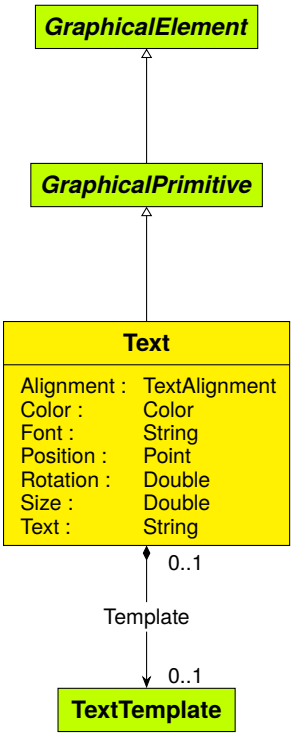
```
<Object type="Core/Diagram.Symbol"/>
```

Text

Core::*Diagram*::Text

Overview

Concrete Class



Supertypes

- *GraphicalPrimitive*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Template	0..1	*TextTemplate*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Alignment	1	*TextAlignment*	no	no
Color	1	*Color*	no	no
Font	1	*String*	no	no
Position	1	*Point*	no	no
Rotation	1	*Double*	no	no
Size	1	*Double*	no	no
Text	1	*String*	no	no

Alignment

Data Property

Type: *TextAlignment*

Multiplicity: 1

Ordered: no

Unique: no

Example

CenterBottom

Color

Data Property

Type: *Color*

Multiplicity: 1

Ordered: no

Unique: no

Example

Color(

B = 0,

G = 0,

R = 0)

Font

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"Calibri"
```

Position

Data Property

Type: *Point*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
Point(
    X = 9.7,
    Y = 16.64)
```

Rotation

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
0.0
```

Size

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
3.0
```

Template

Composition Property

The template that describes how the text is built.

Type: *TextTemplate*

Multiplicity: 0..1

Ordered: no

Text

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

"N1"

Example in DEXPI XML

```
<Object type="Core/Diagram.Text">
  <Data property="Alignment">
    <DataReference data="Core/Diagram.TextAlignment.CenterBottom"/>
  </Data>
  <Data property="Color">
    <AggregatedDataValue type="Core/Diagram.Color">
      <Data property="B">
        <Integer>0</Integer>
      </Data>
      <Data property="G">
        <Integer>0</Integer>
      </Data>
      <Data property="R">
        <Integer>0</Integer>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Font">
    <String>Calibri</String>
  </Data>
  <Data property="Position">
    <AggregatedDataValue type="Core/Diagram.Point">
      <Data property="X">
        <Double>9.7</Double>
      </Data>
      <Data property="Y">
        <Double>16.64</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Rotation">
    <Double>0.0</Double>
```

(continues on next page)

(continued from previous page)

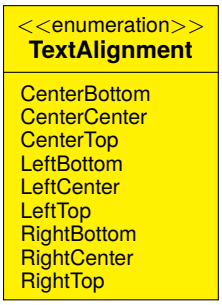
```
  </Data>
  <Data property="Size">
    <Double>3.0</Double>
  </Data>
  <Data property="Text">
    <String>N1</String>
  </Data>
</Object>
```

TextAlignment

Core::*Diagram*::TextAlignment

Overview

Enumeration



Members

Literals

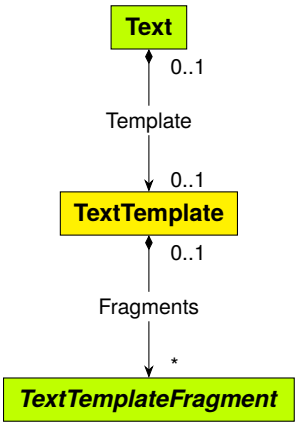
Name
CenterBottom
CenterCenter
CenterTop
LeftBottom
LeftCenter
LeftTop
RightBottom
RightCenter
RightTop

TextTemplate

Core::*Diagram*::TextTemplate

Overview

Concrete Class



Members

Composition Properties

Name	Multiplicity	Type	Ordered
Fragments	*	*TextTemplateFragment*	yes

Fragments

Composition Property

The fragments of the *TextTemplate*.

Type: *TextTemplateFragment*

Multiplicity: *

Ordered: yes

Example in DEXPI XML

```
<Object type="Core/Diagram.TextTemplate"/>
```

TextTemplateFragment

Core::*Diagram*::TextTemplateFragment

Overview

Abstract Class

Subtypes

- *AttributeRepresentation*
- *LiteralText*

Core::Diagram

Overview

Package

Two-dimensional engineering diagrams.

The Diagram package provides concepts

1. for the graphical representation of a *ConceptualObject*,
2. for linking parts of this graphical representation to parts of the ConceptualObject, and
3. for semantic annotations of the graphical representation.

technical

This specification is not a drawing standard. It does not prescribe any drawing style or standard and it does not prescribe which information in a ConceptualObject has to be represented in a *Diagram*.

technical

Until version 1.2, graphics has not been in the scope of the DEXPI P&ID Specification. Graphics was handled as prescribed by standard-proteus. Over the years, some best practices concerning graphics have evolved in the DEXPI community, and fragmentary annotations have been added to the DEXPI P&ID Specification.

In DEXPI P&ID Specification 1.3, an informative Graphics package was added to cover conceptual and graphics information in a single comprehensive model.

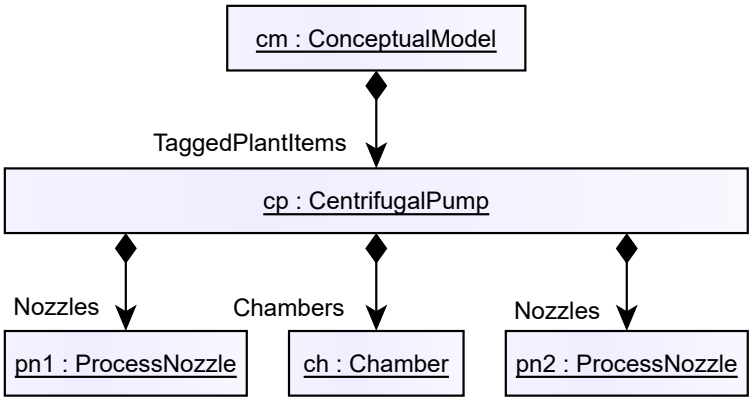
For the P&ID Specification 1.4, the Graphics package was further elaborated, and it is now a normative part of the specification. It serves to document the best practices that have emerged in the past, but no new features have been added.

The Graphics package is independent from Proteus Schema in the sense that it is a pure UML package. But, like for all other packages in this specification, mappings to Proteus Schema are defined that describe how instances of the package's types are serialized. In consequence, the features of the Graphics package are constrained to what is supported by Proteus Schema. Future versions of the DEXPI P&ID Specification will skip support for Proteus Schema, such that additional features can be added to the Graphics package depending on the DEXPI community's needs.

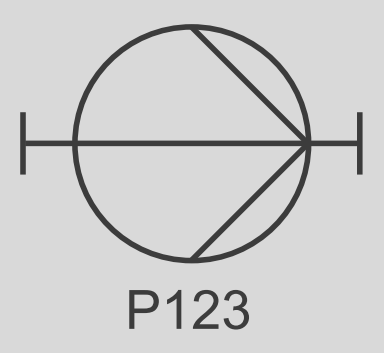
Since DEXPI 2.0, the Graphics package can be used for both P&IDs and process models.

Example

We consider a simple *ConceptualModel* cm that contains a single *CentrifugalPump* with two *ProcessNozzles* and a *Chamber*; in total, there are five *ConceptualObjects*:

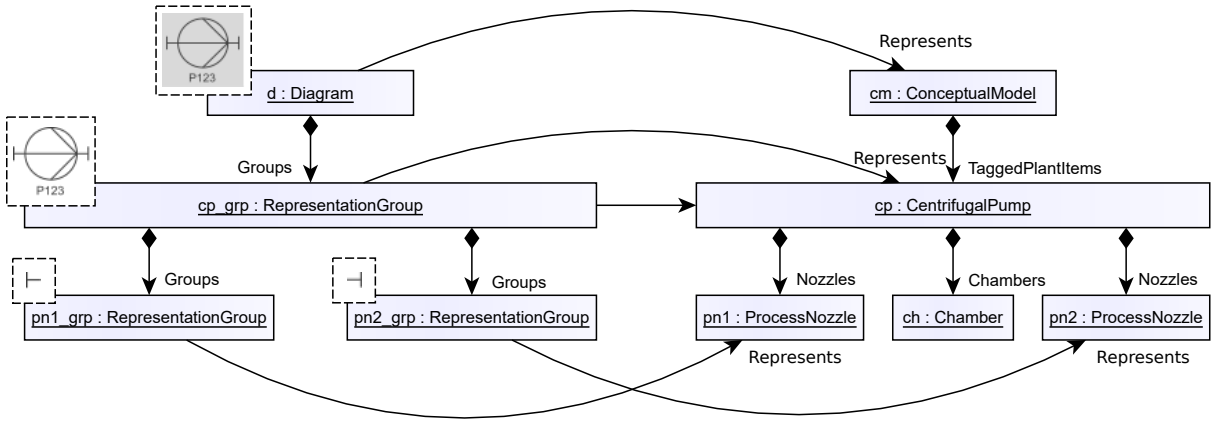


A typical graphical representation of this model may look like this:



Linking Graphics and Conceptual Objects

The graphics can be decomposed in parts each of which represents one of the *ConceptualObjects*. For each of these parts, we use a *RepresentationGroup*:



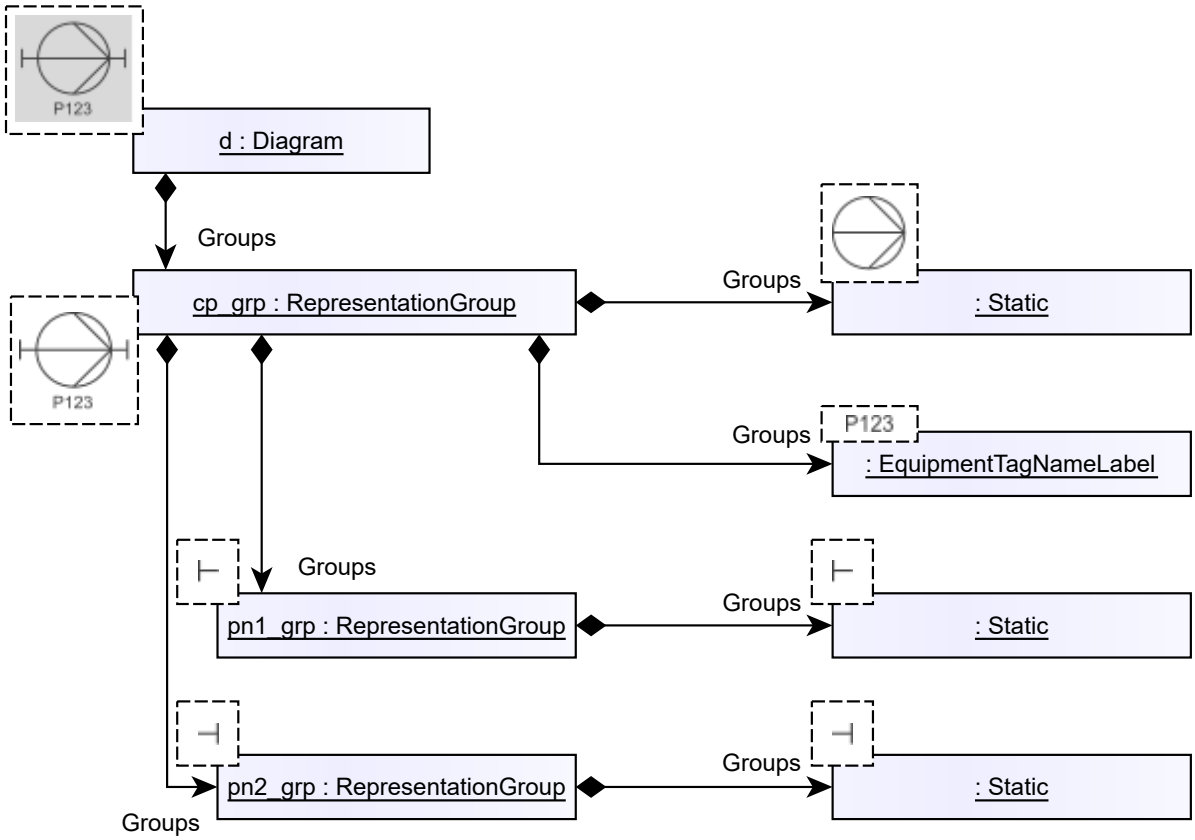
- The *Diagram* d represents the entire *ConceptualModel*. Diagram is a subclass of *RepresentationGroup* that is meant to be used for the entire graphics. In addition to a conventional *RepresentationGroup*, a *Diagram* has a size (width and height) and a background color.
- cp_grp is the *RepresentationGroup* for the *CentrifugalPump* cp.
- pn1_grp and pn2_grp represent the two *ProcessNozzles* pn1 and pn2.

Note that the composition hierarchy of the Diagram corresponds exactly to the composition hierarchy of the *ConceptualModel*. In the *ConceptualModel*, pn1 is a component of cp, and in the Diagram, pn1_grp is a component of cp_grp.

However, if a *ConceptualObject* (including all its descendants) has no graphical representation at all, no *RepresentationGroup* is required: In the example above, there is no *RepresentationGroup* for the *Chamber* ch.

Adding Semantics

So far, we have decomposed the overall graphics in *RepresentationGroups* that correspond to certain *ConceptualObjects*. On a finer level of granularity, we can identify parts with different meanings. These meanings are covered by different subclasses of the abstract class *RepresentationTypeGroup*. In the example, two of these subclasses are used: *Static* and *EquipmentTagNameLabel*.

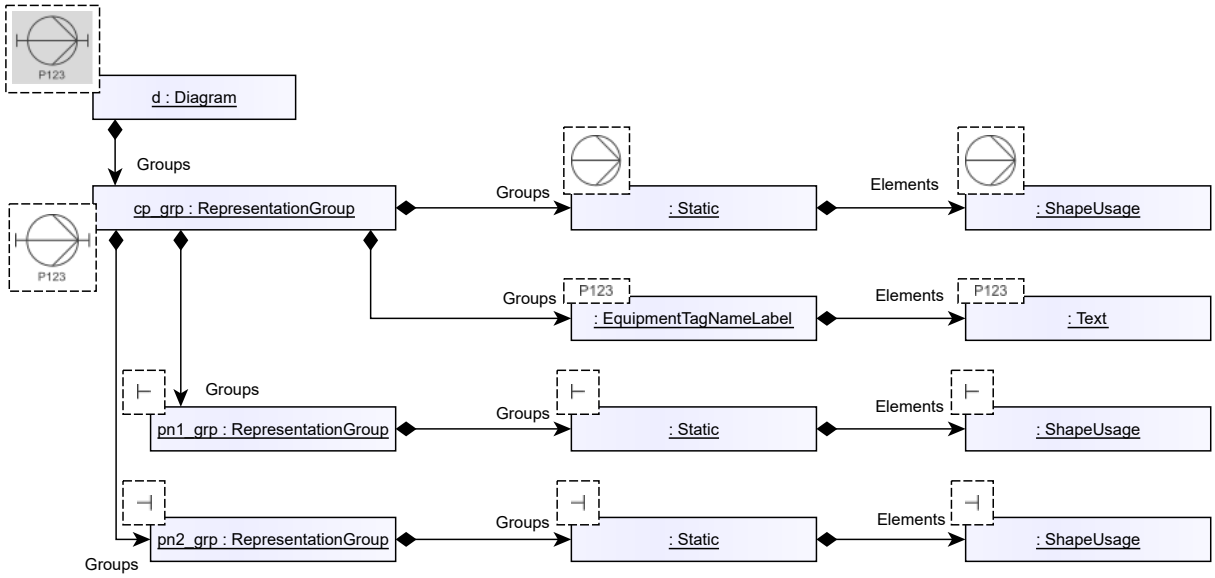


- Consider cp_grp, the *RepresentationGroup* of the *CentrifugalPump* cp. In addition to the two groups for the *ProcessNozzles*, cp_grp now contains two *RepresentationTypeGroups*.
  - The *Static* group contains the actual *CentrifugalPump* graphics without any annotations, labels, etc.
  - The *EquipmentTagNameLabel* group displays the tag name of the *CentrifugalPump*.
- pn1_grp contains a *Static* group for the basic symbol of the *ProcessNozzle*.
- pn2_grp contains another *Static* group for the second *ProcessNozzle* symbol.

Whereas *RepresentationGroups* can be decomposed in further groups, *RepresentationTypeGroups* cannot contain further groups.

Adding Graphical Elements

RepresentationTypeGroups rather contain *GraphicalElements* such as geometric primitives, texts, or *ShapeUsages*.



- The *Static* group for the *CentrifugalPump* contains a *ShapeUsage*, i.e., a reference to a reusable *Shape* with information about this specific usage (scaling, rotation, position).
- The *EquipmentTagNameLabel* for the *CentrifugalPump* contains a *Text*.
- Both *Static* groups for the two *ProcessNozzles* contain a *ShapeUsage*.

Coordinate System

The coordinate system used is a 2D Cartesian system whose horizontal axis is oriented to the right and whose vertical axis is oriented to the bottom. In consequence, angles are measured clockwise.

Lengths are dimensionless. In the examples, we assume they are in millimeters.

In Proteus Schema, the vertical axis to the top, and angles are measured anti-clockwise.

Mapping to SVG

The purpose of these mappings is to define the visualization of instances of the types in this package, i.e., "how they look like".

In order to keep the mappings simple, the SVG mappings for all *GraphicalPrimitives* are defined such that they can be easily scaled when they appear in a *Shape* (in particular, they use `vector-effect = "non-scaling-stroke"`). In consequence, further scaling, e.g., in an application, will lead to unacceptable results.

The SVG mappings in this specification must not be misunderstood as a proposal for exchanging P&ID graphics via SVG.

Modulo Operator

In some calculations for the SVG and Proteus mappings, the *modulo operator* (or *remainder of division*) is used. As the modulo operator can be defined in different ways, we give a definition of how the operator is used in this specification. We content ourselves with a definition for positive quotients.

Let $q > 0, a \in \mathbb{R}$. Then

$$a \bmod q = a - \left\lfloor \frac{a}{q} \right\rfloor \cdot q \quad .$$

$\lfloor . \rfloor$ is the *floor function* that for $x \in \mathbb{R}$ yields the largest integer n such that $n \leq x$.

For example,

$$\begin{aligned}
0 \bmod 360 &= 0 - \left\lfloor \frac{0}{360} \right\rfloor \cdot 360 = 0 - 0 \cdot 360 = 0 \quad , \\
100 \bmod 360 &= 100 - \left\lfloor \frac{100}{360} \right\rfloor \cdot 360 = 100 - 0 \cdot 360 = 100 \quad , \\
359 \bmod 360 &= 359 - \left\lfloor \frac{359}{360} \right\rfloor \cdot 360 = 359 - 0 \cdot 360 = 359 \quad , \\
360 \bmod 360 &= 360 - \left\lfloor \frac{360}{360} \right\rfloor \cdot 360 = 360 - 1 \cdot 360 = 0 \quad , \\
(-100) \bmod 360 &= -100 - \left\lfloor \frac{-100}{360} \right\rfloor \cdot 360 = -100 - (-1) \cdot 360 = 260 \quad .
\end{aligned}$$

technical

The definition of the modulo operator differs between programming languages. For example, the modulo operator in Python, written `%`, coincides with the definition above. The modulo operator in JavaScript (ECMAScript), also written `%`, behaves differently for negative dividends: `-100 % 360` is evaluated to `-100`.

Members

Classes

Name	Type
AttributeRepresentation	Concrete Class
Border	Concrete Class
ConnectorLine	Concrete Class
CustomSymbol	Concrete Class
Diagram	Concrete Class
Ellipse	Concrete Class
EllipseArc	Concrete Class
GraphicalElement	Abstract Class
GraphicalPrimitive	Abstract Class
GraphicsGroup	Abstract Class
InsulationSymbol	Concrete Class
Label	Concrete Class
LiteralText	Concrete Class
MetaData	Concrete Class
NodePosition	Abstract Class
PipeFlowArrow	Concrete Class
PipeSlopeSymbol	Concrete Class
PolyLine	Concrete Class
Polygon	Concrete Class
RepresentationGroup	Concrete Class
RepresentationTypeGroup	Abstract Class
Shape	Concrete Class
ShapeCatalogue	Concrete Class
ShapeUsage	Concrete Class
Static	Concrete Class
Symbol	Concrete Class
Text	Concrete Class
TextTemplate	Concrete Class
TextTemplateFragment	Abstract Class

Data Types

Name	Type
AttributeRepresentationType	Enumeration
Color	Aggregated Data Type
ConfidentialityClassification	Enumeration
DashStyle	Enumeration
FillStyle	Enumeration
Point	Aggregated Data Type
Stroke	Aggregated Data Type
TextAlignment	Enumeration

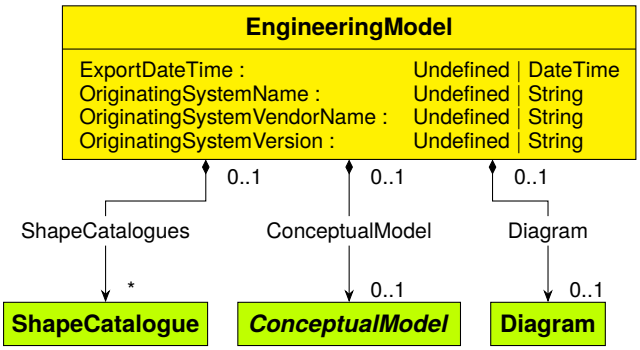
3.1.5 EngineeringModel

Core::EngineeringModel

Overview

Concrete Class

An entire DEXPI engineering model.



Members

Composition Properties

Name	Multiplicity	Type	Ordered
ConceptualModel	0..1	*ConceptualModel*	no
Diagram	0..1	*Diagram*	no
ShapeCatalogues	*	*ShapeCatalogue*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ExportDateTime	1	*Undefined* | *DateTime*	no	no
OriginatingSystemName	1	*Undefined* | *String*	no	no
OriginatingSystemVendorName	1	*Undefined* | *String*	no	no
OriginatingSystemVersion	1	*Undefined* | *String*	no	no

ConceptualModel

Composition Property

The conceptual model of the EngineeringModel.

Type: *ConceptualModel*

Multiplicity: 0..1

Ordered: no

Diagram

Composition Property

The diagram of the EngineeringModel.

Type: *Diagram*

Multiplicity: 0..1

Ordered: no

ExportDateTime

Data Property

The date time at which the *EngineeringModel* was exported by the originating system (see *OriginatingSystemName*).

Type: *Undefined* | *DateTime*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
2020-12-07T15:32:42
```

OriginatingSystemName

Data Property

The name of the system from which the *EngineeringModel* originates, e.g., the name of a P&ID tool.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"PID Kit Professional"
```

OriginatingSystemVendorName

Data Property

The name of the vendor of the system from which the *EngineeringModel* originates, e.g., the name of a software company.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"Smart and Clever Systems, Inc."
```

OriginatingSystemVersion

Data Property

The version of the the system from which the *EngineeringModel* originates, e.g., the version number of a tool.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

"1.1"

ShapeCatalogues

Composition Property

The shape catalogues of the EngineeringModel.

Type: *ShapeCatalogue*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Core/EngineeringModel">
  <Data property="ExportDateTime">
    <DateTime>2020-12-07T15:32:42</DateTime>
  </Data>
  <Data property="OriginatingSystemName">
    <String>PID Kit Professional</String>
  </Data>
  <Data property="OriginatingSystemVendorName">
    <String>Smart and Clever Systems, Inc.</String>
  </Data>
  <Data property="OriginatingSystemVersion">
    <String>1.1</String>
  </Data>
</Object>
```

3.1.6 Note

Core::Note

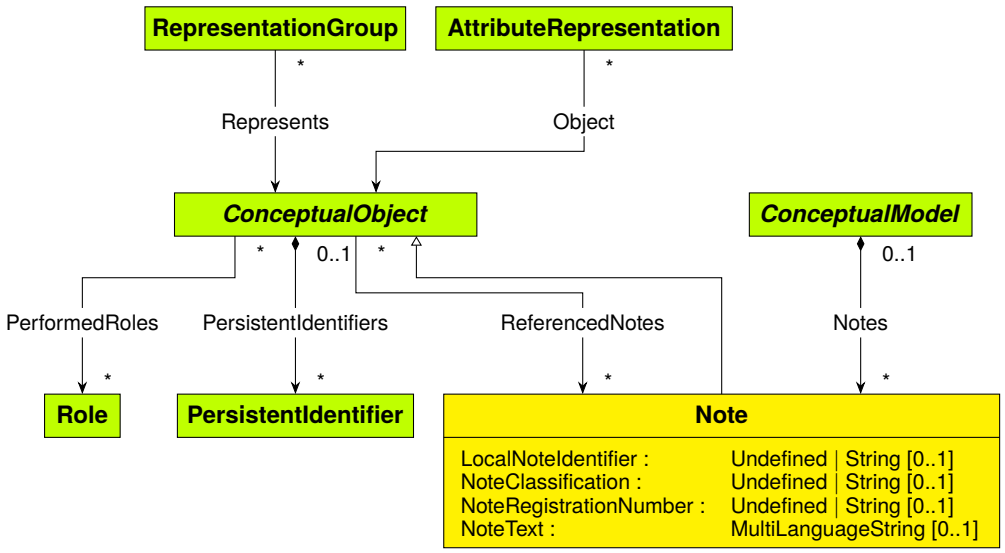
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Note

NOTE

A textual annotation about *ConceptualObjects*. See also *ReferencedNotes*.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
LocalNoteIdentifier	0..1	*Undefined* | *String*	no	no
NoteClassification	0..1	*Undefined* | *String*	no	no
NoteRegistrationNumber	0..1	*Undefined* | *String*	no	no
NoteText	0..1	*MultiLanguageString*	no	no

LocalNoteIdentifier

Data Property

An identifier for the *Note* in a local context.

A typical usage of the LocalNoteIdentifier is to visualize the relation between a *ConceptualObject* shown on a diagram and the actual *NoteText* shown elsewhere on the diagram: The LocalNoteIdentifier would be drawn near the symbol of the *ConceptualObject*. A separate table would list the LocalNoteIdentifier and *NoteText* attributes of all *Notes* on the diagram.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocalNoteIdentifierAssignmentClass

LOCAL NOTE IDENTIFIER ASSIGNMENT CLASS

Example

```
"42"
```

NoteClassification

Data Property

A textual classification of the *Note*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NoteClassificationAssignmentClass

NOTE CLASSIFICATION ASSIGNMENT CLASS

Example

```
"operational requirement"
```

NoteRegistrationNumber

Data Property

A registration number of the *Note*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NoteRegistrationNumberAssignmentClass

NOTE REGISTRATION NUMBER ASSIGNMENT CLASS

Example

```
"XY-42-1"
```

NoteText

Data Property

The text of the *Note*.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NoteTextAssignmentClass

NOTE TEXT ASSIGNMENT CLASS

Example

MultiLanguageString(

SingleLanguageStrings = [

SingleLanguageString(

Language = "en",

Value = "Water outlet is elevated to reduce sand entrainment.")])

Example in DEXPI XML

```
<Object type="Core/Note">
  <Data property="LocalNoteIdentifier">
    <String>42</String>
  </Data>
  <Data property="NoteClassification">
    <String>operational requirement</String>
  </Data>
  <Data property="NoteRegistrationNumber">
    <String>XY-42-1</String>
  </Data>
  <Data property="NoteText">
    <AggregatedDataValue type="Core/DataTypes.MultiLanguageString">
      <Data property="SingleLanguageStrings">
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>en</String>
          </Data>
          <Data property="Value">
            <String>Water outlet is elevated to reduce sand entrainment.</String>
          </Data>
        </AggregatedDataValue>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

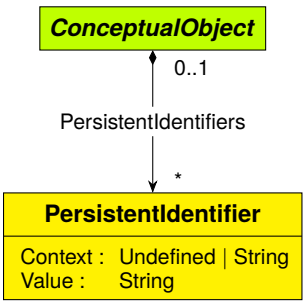
3.1.7 PersistentIdentifier

Core::PersistentIdentifier

Overview

Concrete Class

A persistent context-dependent identifier for a *ConceptualObject*.



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Context	1	*Undefined* | *String*	no	no
Value	1	*String*	no	no

Context

Data Property

The context of the *PersistentIdentifier* such as a database, a project number or name, etc.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"mysql://myhost:1111/db"
```

Value

Data Property

The value of the *PersistentIdentifier*, i.e., the actual identifier string.

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
"84187274"
```

Example in DEXPI XML

```
<Object type="Core/PersistentIdentifier">
  <Data property="Context">
    <String>mysql://myhost:1111/db</String>
  </Data>
  <Data property="Value">
    <String>84187274</String>
  </Data>
</Object>
```

3.1.8 PhysicalQuantities

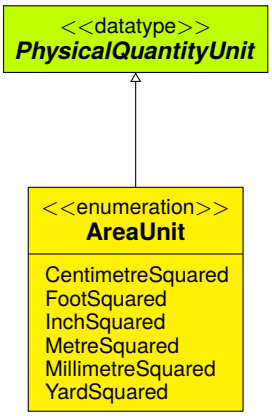
AreaUnit

Core::*PhysicalQuantities*::AreaUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *area* with dimension L^2.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
CentimetreSquared	cm^2	CMK	CENTIMETRE SQUARED	http://data.posccaesar.org/rdl/RDS1357829
FootSquared	ft^2	FTK	FOOT SQUARED	http://data.posccaesar.org/rdl/RDS1342934
InchSquared	in^2	INK	INCH SQUARED	http://data.posccaesar.org/rdl/RDS1342979
MetreSquared	m^2	MTK	METRE SQUARED	http://data.posccaesar.org/rdl/RDS1358009
MillimetreSquared	mm^2	MMK	MILLIMETRE SQUARED	http://data.posccaesar.org/rdl/RDS1358189
YardSquared	yd^2	YDK	YARD SQUARED	http://data.posccaesar.org/rdl/RDS1343744

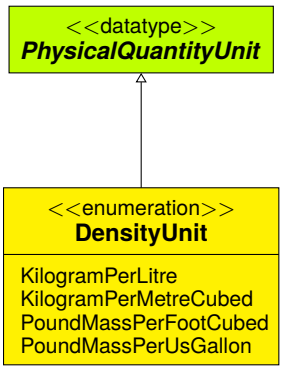
DensityUnit

Core::*PhysicalQuantities*::DensityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *density* with dimension $L^{-3}M$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KilogramPerLitre	kg/l	B35	KILOGRAM PER LITRE	http://data.posccaesar.org/rdl/RDS1355129
KilogramPerMetre-Cubed	kg/m^3	KMQ	KILOGRAM PER METRE CUBED	http://data.posccaesar.org/rdl/RDS1354454
PoundMassPer-FootCubed	lb/ft^3	87	POUND MASS PER FOOT CUBED	http://data.posccaesar.org/rdl/RDS1340909
PoundMassPerUs-Gallon	lb/gal (US)	GE	POUND MASS PER US GALLON	http://data.posccaesar.org/rdl/RDS1341629

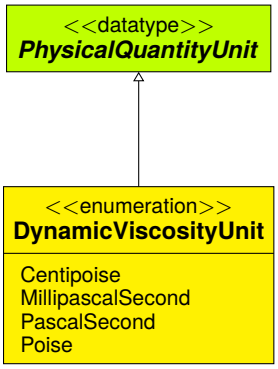
DynamicViscosityUnit

Core::*PhysicalQuantities*::DynamicViscosityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *dynamic viscosity* with dimension $L^{-1}MT^{-1}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Sym-bol	UN Code	RDL Label	RDL URI
Centipoise	cP	C7	CENTIPOISE	http://data.posccaesar.org/rdl/RDS1318274
MillipascalSec-ond	mPa·s	C24	MILLIPASCAL SEC-OND	http://data.posccaesar.org/rdl/RDS11617155
PascalSecond	Pa·s	C65	PASCAL SECOND	http://data.posccaesar.org/rdl/RDS1352204
Poise	P	89	POISE	http://data.posccaesar.org/rdl/RDS1339964

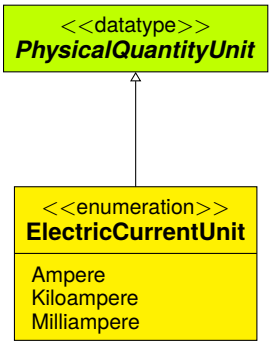
ElectricCurrentUnit

Core::*PhysicalQuantities*::ElectricCurrentUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *electric current* with dimension I.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Ampere	A	AMP	AMPERE	http://data.posccaesar.org/rdl/RDS1313954
Kiloampere	kA	B22	KILOAMPERE	http://data.posccaesar.org/rdl/RDS4316756455
Milliampere	mA	4K	MILLIAMPERE	http://data.posccaesar.org/rdl/RDS4316806954

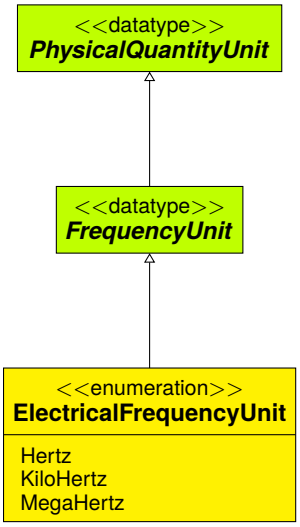
ElectricalFrequencyUnit

Core::*PhysicalQuantities*::ElectricalFrequencyUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *electrical frequency* with dimension T^{-1}.



Supertypes

- *FrequencyUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Hertz	Hz	HTZ	HERTZ	http://data.posccaesar.org/rdl/RDS1326464
KiloHertz	kHz	KHZ	KILOHERTZ	http://data.posccaesar.org/rdl/RDS4316756612
MegaHertz	MHz	MHZ	MEGAHERTZ	http://data.posccaesar.org/rdl/RDS4316806716

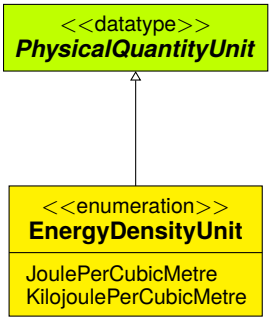
EnergyDensityUnit

Core::*PhysicalQuantities*::EnergyDensityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *energy density* with dimension $L^{-1}MT^{-2}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	RDL Label
JoulePerCubicMetre	J/m^3	JOULE PER CUBIC METRE
KilojoulePerCubicMetre	kJ/m^3	KILOJOULE PER CUBIC METRE

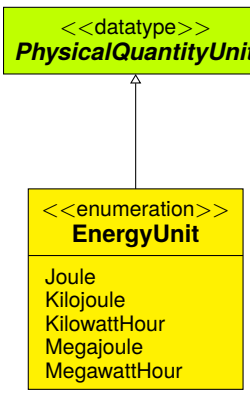
EnergyUnit

Core::*PhysicalQuantities*::EnergyUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *energy* with dimension L^2MT^{-2}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Sym-bol	UN Code	RDL Label	RDL URI
Joule	J	JOU	JOULE	http://data.posccaesar.org/rdl/RDS1327544
Kilojoule	kJ	KJO	KILOJOULE	http://data.posccaesar.org/rdl/RDS4316756626
KilowattHour	kW·h	KWH	KILOWATT HOUR	http://data.posccaesar.org/rdl/RDS4316756769
Megajoule	MJ	3B	MEGAJOULE	http://data.posccaesar.org/rdl/RDS4316806730
MegawattHour	MW·h	MWH	MEGAWATT HOUR	http://data.posccaesar.org/rdl/RDS43168067178

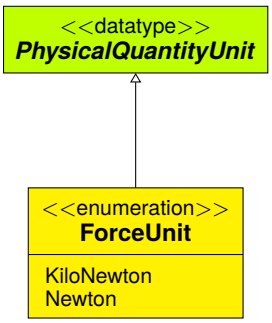
ForceUnit

Core::*PhysicalQuantities*::ForceUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *force* with dimension LMT^{-2}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KiloNewton	kN	B47	KILONEWTON	http://data.posccaesar.org/rdl/RDS1351034
Newton	N	NEW	NEWTON	http://data.posccaesar.org/rdl/RDS1337939

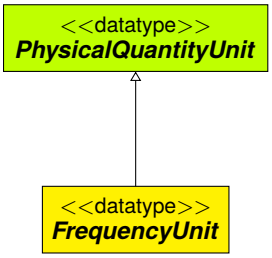
FrequencyUnit

Core::*PhysicalQuantities*::FrequencyUnit

Overview

AbstractDataType

A unit of measurement for a physical quantity of type *frequency* with dimension T^{-1}. FrequencyUnit has 3 subtypes for different application areas.



Supertypes

- *PhysicalQuantityUnit*

Subtypes

- *ElectricalFrequencyUnit*
- *NumberPerTimeIntervalUnit*
- *RotationalFrequencyUnit*

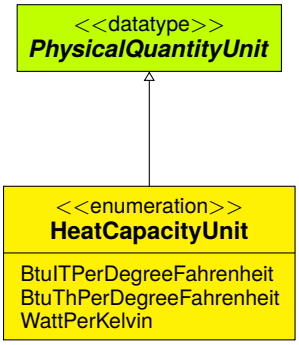
HeatCapacityUnit

Core::*PhysicalQuantities*::HeatCapacityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *heat capacity* with dimension $L^2M\Theta^{-1}T^{-3}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label		RDL URI
BtuITPerDegreeFahrenheit	Btu[IT]/ºF	N60			
BtuThPerDegreeFahrenheit	Btu[th]/ºF	N61			
WattPerKelvin	W/K	D52	WATT KELVIN	PER	http://data.posccaesar.org/rdl/RDS1355759

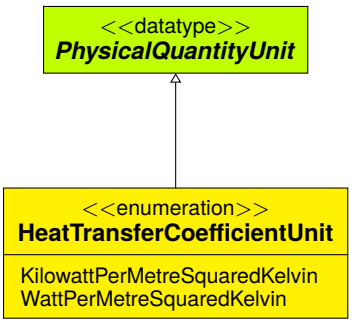
HeatTransferCoefficientUnit

Core::*PhysicalQuantities*::HeatTransferCoefficientUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *heat transfer coefficient* with dimension $MT^{-3}\Theta$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KilowattPerMetreSquaredKelvin	kW/(m^2·K	N78	KILOWATT PER METRE SQUARED KELVIN	http://data.posccaesar.org/rdl/RDS43167567170
WattPerMetreSquaredKelvin	W/(m^2·K	D55	WATT PER METRE SQUARED KELVIN	http://data.posccaesar.org/rdl/RDS1348424

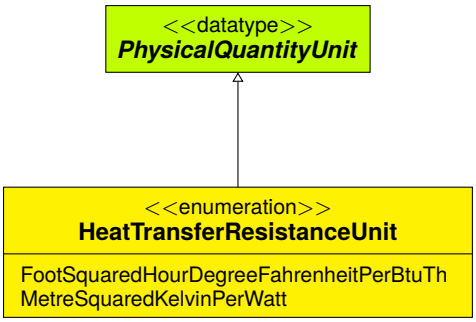
HeatTransferResistanceUnit

Core::*PhysicalQuantities*::HeatTransferResistanceUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *heat transfer resistance* with dimension $M^{-1}\Theta T^3$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
FootSquaredHourDegreeFahrenheitPerBtuTh	°F·h·ft^2/E	J19	DEGREE FAHRENHEIT SQUARE FOOT HOUR PER BRITISH THERMAL UNIT	http://data.posccaesar.org/rdl/RDS43166353195
MetreSquaredKelvinPerWatt	m^2·K/W	D19	KELVIN SQUARE METRE PER WATT	http://data.posccaesar.org/rdl/RDS4316756411

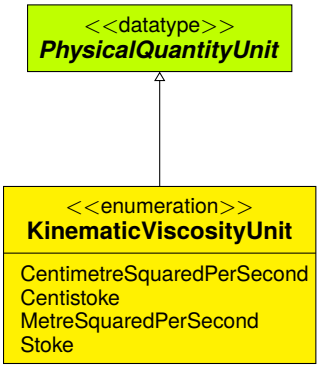
KinematicViscosityUnit

Core::*PhysicalQuantities*::KinematicViscosityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *kinematic viscosity* with dimension L^2T^{-1}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
CentimetreSquaredPerSecond	cm^2/s	M81	SQUARE CENTIMETRE PER SECOND	http://data.posccaesar.org/rdl/RDS43168636161
Centistoke	cSt	4C	CENTISTOKE	http://data.posccaesar.org/rdl/RDS43165906236
MetreSquaredPerSecond	m^2/s	S4	METRE SQUARED PER SECOND	http://data.posccaesar.org/rdl/RDS1355399
Stoke	St	91	STOKE	http://data.posccaesar.org/rdl/RDS4316863983

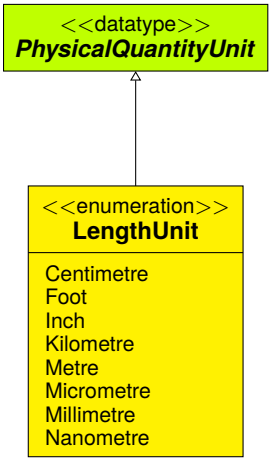
LengthUnit

Core::*PhysicalQuantities*::LengthUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *length* with dimension L.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Centimetre	cm	CMT	CENTIMETRE	http://data.posccaesar.org/rdl/RDS1318004
Foot	ft	FOT	FOOT	http://data.posccaesar.org/rdl/RDS1324664
Inch	in	INH	INCH	http://data.posccaesar.org/rdl/RDS1326959
Kilometre	km	KMT	KILOMETRE	http://data.posccaesar.org/rdl/RDS1330199
Metre	m	MTR	METRE	http://data.posccaesar.org/rdl/RDS1332674
Micrometre	µm	4H	MICROMETRE	http://data.posccaesar.org/rdl/RDS1351529
Millimetre	mm	MMT	MILLIMETRE	http://data.posccaesar.org/rdl/RDS1357739
Nanometre	nm	C45	NANOMETRE	http://data.posccaesar.org/rdl/RDS1337669

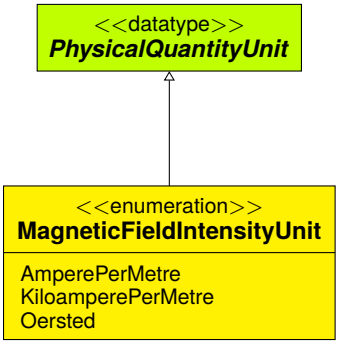
MagneticFieldIntensityUnit

Core::*PhysicalQuantities*::MagneticFieldIntensityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *magnetic field intensity* with dimension IL^{-1}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
AmperePerMetre	A/m	AE	AMPERE PER METRE	http://data.posccaesar.org/rdl/RDS1353734
KiloamperePerMetre	kA/m	B24	KILOAMPERE PER METRE	http://data.posccaesar.org/rdl/RDS4316756466
Oersted	Oe	66	OERSTED	http://data.posccaesar.org/rdl/RDS1338479

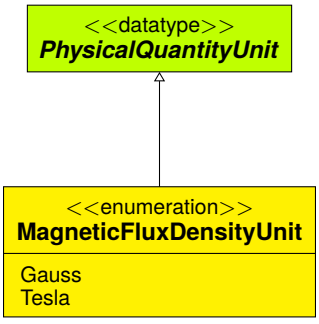
MagneticFluxDensityUnit

Core::*PhysicalQuantities*::MagneticFluxDensityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *magnetic flux density* with dimension $MT^{-2}I^{-1}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Gauss	Gs	76	GAUSS	http://data.posccaesar.org/rdl/RDS4316755955
Tesla	T	D33	TESLA	http://data.posccaesar.org/rdl/RDS1344644

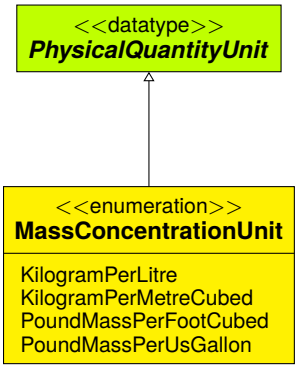
MassConcentrationUnit

Core::*PhysicalQuantities*::MassConcentrationUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mass concentration* with dimension $L^{-3}M$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KilogramPerLitre	kg/l	B35	KILOGRAM PER LITRE	http://data.posccaesar.org/rdl/RDS1355129
KilogramPerMetreCubed	kg/m^3	KMQ	KILOGRAM PER METRE CUBED	http://data.posccaesar.org/rdl/RDS1354454
PoundMassPerFootCubed	lb/ft^3	87	POUND MASS PER FOOT CUBED	http://data.posccaesar.org/rdl/RDS1340909
PoundMassPerUsGallon	lb/gal (US)	GE	POUND MASS PER US GALLON	http://data.posccaesar.org/rdl/RDS1341629

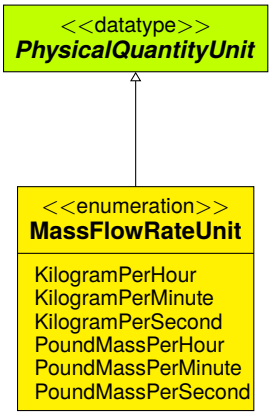
MassFlowRateUnit

Core::*PhysicalQuantities*::MassFlowRateUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mass flow rate* with dimension MT^{-1}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KilogramPerHour	kg/h	E93	KILOGRAM PER HOUR	http://data.posccaesar.org/rdl/RDS1329344
KilogramPerMinute	kg/min	F31	KILOGRAM PER MINUTE	http://data.posccaesar.org/rdl/RDS1350719
KilogramPerSecond	kg/s	KGS	KILOGRAM PER SECOND	http://data.posccaesar.org/rdl/RDS1329659
PoundMassPerHour	lb/h	4U	POUND MASS PER HOUR	http://data.posccaesar.org/rdl/RDS43168250123
PoundMassPerMinute	lb/min	K78	POUND MASS PER MINUTE	http://data.posccaesar.org/rdl/RDS43168250156
PoundMassPerSecond	lb/s	K81	POUND MASS PER SECOND	http://data.posccaesar.org/rdl/RDS43168250167

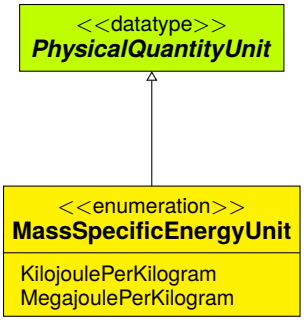
MassSpecificEnergyUnit

Core::*PhysicalQuantities*::MassSpecificEnergyUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mass specific energy* with dimension L^2T^{-2}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KilojoulePerKilogram	kJ/kg	B42	KILOJOULE PER KILOGRAM	http://data.posccaesar.org/rdl/RDS1329884
MegajoulePerKilogram	MJ/kg	JK	MEGAJOULE PER KILOGRAM	http://data.posccaesar.org/rdl/RDS1332224

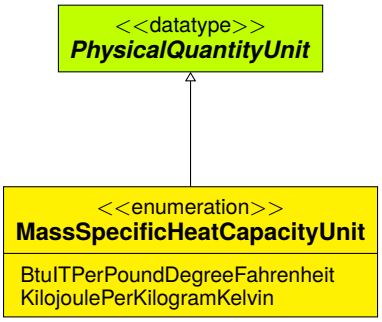
MassSpecificHeatCapacityUnit

Core::*PhysicalQuantities*::MassSpecificHeatCapacityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mass specific heat capacity* with dimension $L^2\Theta^{-1}T^{-2}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
BtuITPerPoundDegreeFahrenheit	Btu[IT]/(l	J43	BRITISH THERMAL UNIT PER POUND MASS DEGREE FAHRENHEIT	http://data.posccaesar.org/rdl/RDS43164893116
KilojoulePerKilogramKelvin	kJ/(kg·K)	B43	KILOJOULE PER KILOGRAM KELVIN	http://data.posccaesar.org/rdl/RDS43167566130

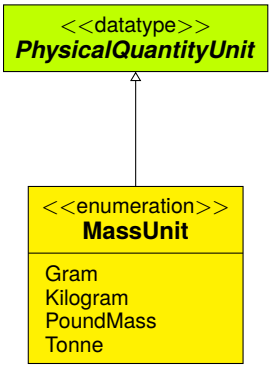
MassUnit

Core::*PhysicalQuantities*::MassUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mass* with dimension M.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Gram	g	GRM	GRAM	http://data.posccaesar.org/rdl/RDS1325789
Kilogram	kg	KGM	KILOGRAM	http://data.posccaesar.org/rdl/RDS1328669
PoundMass	lb	LBR	POUND MASS	http://data.posccaesar.org/rdl/RDS11617515
Tonne	t	TNE	TONNE	http://data.posccaesar.org/rdl/RDS1344689

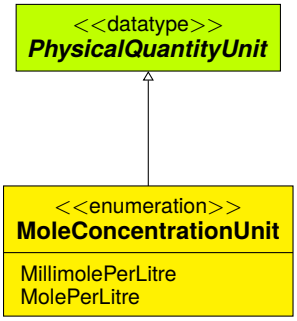
MoleConcentrationUnit

Core::*PhysicalQuantities*::MoleConcentrationUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mole concentration* with dimension NL^{-3}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
MillimolePerLitre	mmol/l	M33		
MolePerLitre	mol/l	C38	MOLE PER LITRE	http://data.posccaesar.org/rdl/RDS1357964

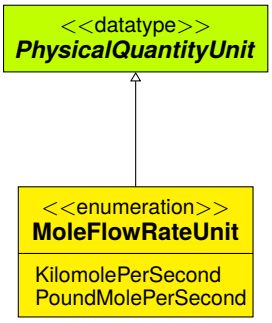
MoleFlowRateUnit

Core::*PhysicalQuantities*::MoleFlowRateUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mole flow rate* with dimension NT^{-1}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KilomolePerSecond	kmol/s	E94	KILOMOLE PER SECOND	http://data.posccaesar.org/rdl/RDS43167566235
PoundMolePerSecond	lb-mol/s	P45	MOLE-POUND MASS PER SECOND	http://data.posccaesar.org/rdl/RDS4316807294

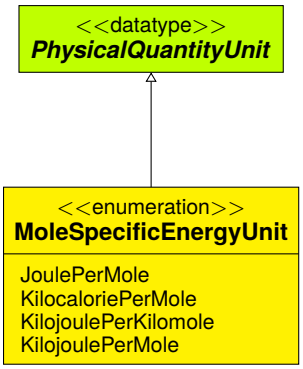
MoleSpecificEnergyUnit

Core::*PhysicalQuantities*::MoleSpecificEnergyUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *mole specific energy* with dimension $N^{-1}L^{2}MT^{-2}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
JoulePerMole	J/mol	B15	JOULE PER MOLE	http://data.posccaesar.org/rdl/RDS1354364
KilocaloriePerMole			KILOCALORIE PER MOLE	http://data.posccaesar.org/rdl/RDS43167564201
KilojoulePerKilomole	J/mol	B15	KILOJOULE PER KILOMOLE	http://data.posccaesar.org/rdl/RDS43167566144
KilojoulePerMole	kJ/mol	B44	KILOJOULE PER MOLE	http://data.posccaesar.org/rdl/RDS43167566155

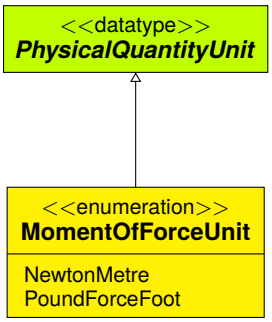
MomentOfForceUnit

Core::*PhysicalQuantities*::MomentOfForceUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *moment of force* with dimension L^2MT^{-2}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
NewtonMetre	N·m	NU	NEWTON METRE	http://data.posccaesar.org/rdl/RDS1337984
PoundForceFoot	lbf·ft	M92	FOOT POUND FORCE	http://data.posccaesar.org/rdl/RDS1324754

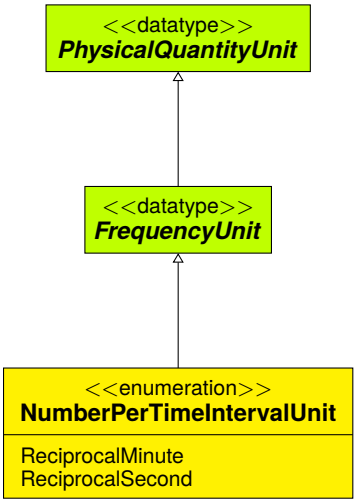
NumberPerTimeIntervalUnit

Core::*PhysicalQuantities*::NumberPerTimeIntervalUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *number per time interval* with dimension T^{-1}.



Supertypes

- *FrequencyUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
ReciprocalMinute	min^{-1}	C94	RECIPROCAL MINUTE	http://data.posccaesar.org/rdl/RDS4316851589
ReciprocalSecond	s^{-1}	C97	RECIPROCAL SECOND	http://data.posccaesar.org/rdl/RDS1355489

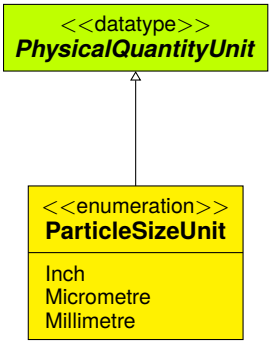
ParticleSizeUnit

Core::*PhysicalQuantities*::ParticleSizeUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *particle size* with dimension L.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Inch	in	INH	INCH	http://data.posccaesar.org/rdl/RDS1326959
Micrometre	µm	4H	MICROMETRE	http://data.posccaesar.org/rdl/RDS1351529
Millimetre	mm	MMT	MILLIMETRE	http://data.posccaesar.org/rdl/RDS1357739

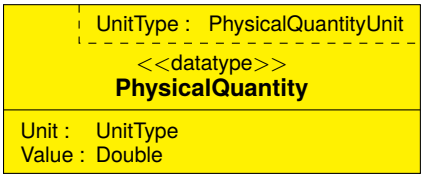
PhysicalQuantity

Core::*PhysicalQuantities*::PhysicalQuantity

Overview

Aggregated Data Type

A quantification of a scalar physical property such as a length or a force. A PhysicalQuantity comprises a numerical *Value* and a *Unit*.



Members

Type Parameters

Name	Default Type
UnitType	*PhysicalQuantityUnit*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Unit	1	*UnitType*	no	no
Value	1	*Double*	no	no

Unit

Data Property

The unit of measurement of the *PhysicalQuantity*.

Type: *UnitType*

Multiplicity: 1

Ordered: no

Unique: no

Example

KilomolePerSecond

UnitType

Data Type Parameter

A type parameter that gives the type of the *Unit*.

Default Type: *PhysicalQuantityUnit*

Value

Data Property

The numerical value of the *PhysicalQuantity*.

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

Example

```
8.5
```

PhysicalQuantityUnit

Core::*PhysicalQuantities*::PhysicalQuantityUnit

Overview

AbstractDataType

<<datatype>>
PhysicalQuantityUnit

Subtypes

- *AreaUnit*
- *DensityUnit*
- *DynamicViscosityUnit*
- *ElectricCurrentUnit*
- *EnergyDensityUnit*
- *EnergyUnit*
- *ForceUnit*
- *FrequencyUnit*
- *HeatCapacityUnit*
- *HeatTransferCoefficientUnit*
- *HeatTransferResistanceUnit*
- *KinematicViscosityUnit*
- *LengthUnit*
- *MagneticFieldIntensityUnit*
- *MagneticFluxDensityUnit*
- *MassConcentrationUnit*
- *MassFlowRateUnit*
- *MassSpecificEnergyUnit*
- *MassSpecificHeatCapacityUnit*
- *MassUnit*
- *MoleConcentrationUnit*
- *MoleFlowRateUnit*
- *MoleSpecificEnergyUnit*
- *MomentOfForceUnit*
- *ParticleSizeUnit*
- *PowerUnit*
- *PressureUnit*
- *RatioUnit*
- *SurfaceTensionUnit*
- *TemperatureUnit*

- *ThermalConductivityUnit*
- *TimeIntervalUnit*
- *VelocityUnit*
- *VoltageUnit*
- *VolumeFlowRateUnit*
- *VolumeUnit*
- *pHUnit*

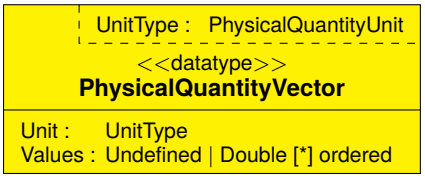
PhysicalQuantityVector

Core::*PhysicalQuantities*::PhysicalQuantityVector

Overview

Aggregated Data Type

A quantification of a vector of physical properties such as length or force. A PhysicalQuantityVector comprises an arbitrary number of *Values* and a *Unit*.



Members

Type Parameters

Name	Default Type
UnitType	*PhysicalQuantityUnit*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Unit	1	*UnitType*	no	no
Values	*	*Undefined* | *Double*	yes	no

Unit

Data Property

The unit of measurement of the *PhysicalQuantityVector*.

Type: *UnitType*

Multiplicity: 1

Ordered: no

Unique: no

Example

KilomolePerSecond

UnitType

Data Type Parameter

A type parameter that gives the type of the *Unit*.

Default Type: *PhysicalQuantityUnit*

Values

Data Property

The numerical values of the *PhysicalQuantityVector*.

Type: *Undefined* | *Double*

Multiplicity: *

Ordered: yes

Unique: no

Example

```
[
  8.5,
  17.3
]
```

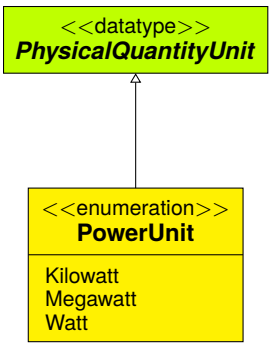
PowerUnit

Core::*PhysicalQuantities*::PowerUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *power* with dimension L^2MT^{-3}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	RDL Label	RDL URI
Kilowatt	kW	KILOWATT	http://data.posccaesar.org/rdl/RDS1330919
Megawatt	MW	MEGAWATT	http://data.posccaesar.org/rdl/RDS1332584
Watt	W	WATT	http://data.posccaesar.org/rdl/RDS1348154

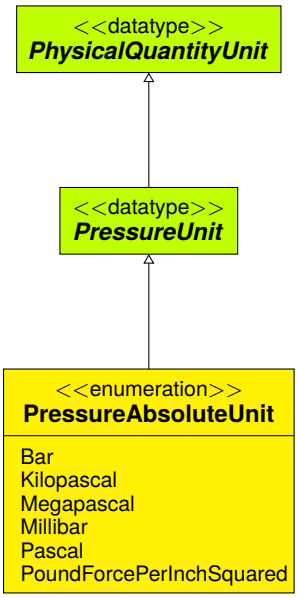
PressureAbsoluteUnit

Core::*PhysicalQuantities*::PressureAbsoluteUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *pressure absolute* with dimension $L^{-1}MT^{-2}$.



Supertypes

- *PressureUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Bar	bar	BAR	BAR	http://data.posccaesar.org/rdl/RDS1314539
Kilopascal	kPa	KPA	KILOPASCAL	http://data.posccaesar.org/rdl/RDS1330559
Megapascal	MPa	MPA	MEGAPASCAL	http://data.posccaesar.org/rdl/RDS1332404
Millibar	mbar	MBR	MILLIBAR	http://data.posccaesar.org/rdl/RDS11617875
Pascal	Pa	PAL	PASCAL	http://data.posccaesar.org/rdl/RDS1338749
PoundForcePerInchSquared	lbf/in^2	PS	POUND FORCE PER INCH SQUARED	http://data.posccaesar.org/rdl/RDS1341809

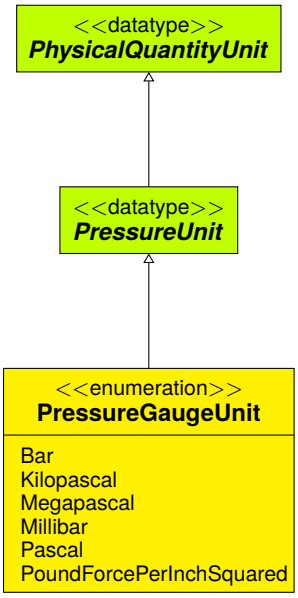
PressureGaugeUnit

Core::*PhysicalQuantities*::PressureGaugeUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *pressure gauge* with dimension $L^{-1}MT^{-2}$.



Supertypes

- *PressureUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Bar	bar	BAR	BAR	http://data.posccaesar.org/rdl/RDS1314539
Kilopascal	kPa	KPA	KILOPASCAL	http://data.posccaesar.org/rdl/RDS1330559
Megapascal	MPa	MPA	MEGAPASCAL	http://data.posccaesar.org/rdl/RDS1332404
Millibar	mbar	MBR	MILLIBAR	http://data.posccaesar.org/rdl/RDS11617875
Pascal	Pa	PAL	PASCAL	http://data.posccaesar.org/rdl/RDS1338749
PoundForcePerInchSquared	lbf/in^2	PS	POUND FORCE PER INCH SQUARED	http://data.posccaesar.org/rdl/RDS1341809

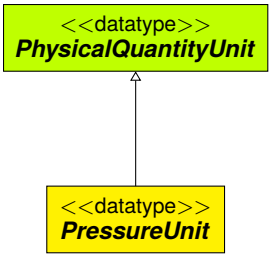
PressureUnit

Core::*PhysicalQuantities*::PressureUnit

Overview

AbstractDataType

A unit of measurement for a physical quantity of type *pressure* with dimension $L^{-1}MT^{-2}$. PressureUnit has 2 subtypes for different application areas.



Supertypes

- *PhysicalQuantityUnit*

Subtypes

- *PressureAbsoluteUnit*
- *PressureGaugeUnit*

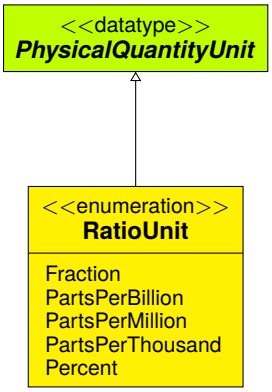
RatioUnit

Core::*PhysicalQuantities*::RatioUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *ratio* with dimension 1.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Fraction	1			
PartsPerBillion	ppb	61	PARTS PER BILLION	http://data.posccaesar.org/rdl/RDS1337624
PartsPerMillion	ppm	59	PARTS PER MILLION	http://data.posccaesar.org/rdl/RDS1333484
PartsPerThousand	‰	NX	PARTS PER THOUSAND	http://data.posccaesar.org/rdl/RDS1334834
Percent	%	P1	PERCENT	http://data.posccaesar.org/rdl/RDS1317959

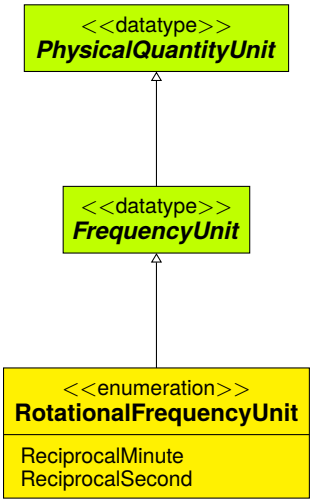
RotationalFrequencyUnit

Core::*PhysicalQuantities*::RotationalFrequencyUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *rotational frequency* with dimension T^{-1}.



Supertypes

- *FrequencyUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
ReciprocalMinute	min^{-1}	C94	RECIPROCAL MINUTE	http://data.posccaesar.org/rdl/RDS4316851589
ReciprocalSecond	s^{-1}	C97	RECIPROCAL SECOND	http://data.posccaesar.org/rdl/RDS1355489

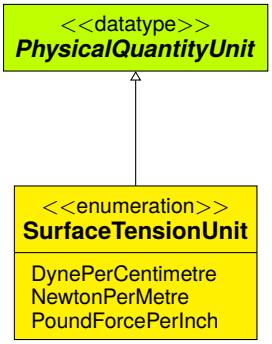
SurfaceTensionUnit

Core::*PhysicalQuantities*::SurfaceTensionUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *surface tension* with dimension MT^{-2}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
DynePerCentimetre	dyn/cm	DX	DYNE PER CENTIMETRE	http://data.posccaesar.org/rdl/RDS1323359
NewtonPerMetre	N/m	4P	NEWTON PER METRE	http://data.posccaesar.org/rdl/RDS1338299
PoundForcePerInch	lbf/in	F48	POUND FORCE PER INCH	http://data.posccaesar.org/rdl/RDS4316825046

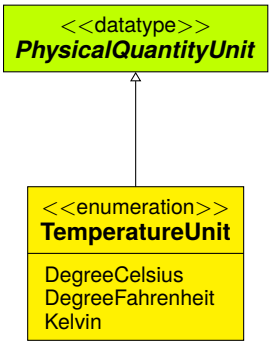
TemperatureUnit

Core::*PhysicalQuantities*::TemperatureUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *temperature* with dimension Θ.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
DegreeCelsius	°C	CEL	DEGREE CELSIUS	http://data.posccaesar.org/rdl/RDS1322684
DegreeFahrenheit	°F	FAH	DEGREE FAHRENHEIT	http://data.posccaesar.org/rdl/RDS1322549
Kelvin	K	KEL	KELVIN	http://data.posccaesar.org/rdl/RDS1327904

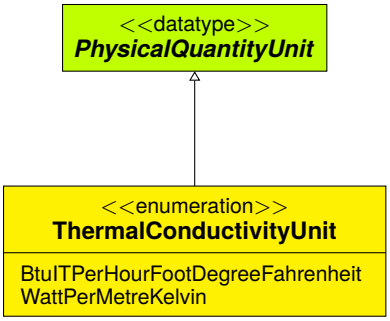
ThermalConductivityUnit

Core::*PhysicalQuantities*::ThermalConductivityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *thermal conductivity* with dimension $LM\Theta^{-1}T^{-3}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
BtuITPerHourFoot-DegreeFahrenheit	Btu[IT]·ft/(h	J40	BRITISH THERMAL UNIT PER HOUR FOOT DEGREE FAHRENHEIT	http://data.posccaesar.org/rdl/RDS431648930
WattPerMe-treKelvin	W/(m·K)	D53	WATT PER METRE KELVIN	http://data.posccaesar.org/rdl/RDS1348334

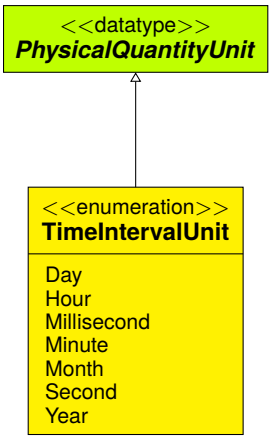
TimeIntervalUnit

Core::*PhysicalQuantities*::TimeIntervalUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *time interval* with dimension T.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Day	d	DAY	DAY	http://data.posccaesar.org/rdl/RDS8945301
Hour	h	HUR	HOUR	http://data.posccaesar.org/rdl/RDS1326734
Millisecond	ms	C26	MILLISECOND	http://data.posccaesar.org/rdl/RDS1336364
Minute	min	MIN	MINUTE	http://data.posccaesar.org/rdl/RDS1336814
Month	mo	MON	MONTH	http://data.posccaesar.org/rdl/RDS1370700781
Second	s	SEC	SECOND	http://data.posccaesar.org/rdl/RDS1342529
Year	y	ANN	YEAR	http://data.posccaesar.org/rdl/RDS4316908552

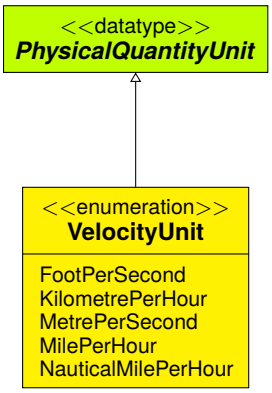
VelocityUnit

Core::*PhysicalQuantities*::VelocityUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *velocity* with dimension LT^{-1}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
FootPerSecond	ft/s	FS	FOOT PER SECOND	http://data.posccaesar.org/rdl/RDS1324439
KilometrePerHour	km/h	KMH	KILOMETRE PER HOUR	http://data.posccaesar.org/rdl/RDS1330289
MetrePerSecond	m/s	MTS	METRE PER SECOND	http://data.posccaesar.org/rdl/RDS1354499
MilePerHour	mile/h	HM	MILE PER HOUR	http://data.posccaesar.org/rdl/RDS1334204
NauticalMilePerHour	kn	KNT	KNOT	http://data.posccaesar.org/rdl/RDS1331099

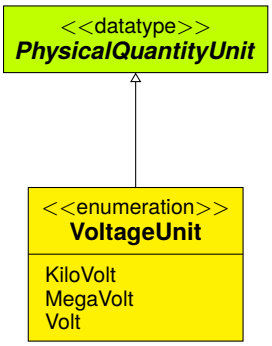
VoltageUnit

Core::*PhysicalQuantities*::VoltageUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *voltage* with dimension $L^2MT^{-3}I^{-1}$.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
KiloVolt	kV	KVT	KILOVOLT	http://data.posccaesar.org/rdl/RDS1359653041
MegaVolt	MV	B78	MEGAVOLT	http://data.posccaesar.org/rdl/RDS1359661910
Volt	V	VLT	VOLT	http://data.posccaesar.org/rdl/RDS1347974

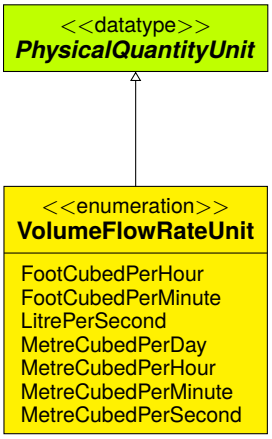
VolumeFlowRateUnit

Core::*PhysicalQuantities*::VolumeFlowRateUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *volume flow rate* with dimension L^3T^{-1}.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
FootCubedPerHour	ft^3/h	2K	FOOT CUBED PER HOUR	http://data.posccaesar.org/rdl/RDS1320029
FootCubedPerMinute	ft^3/min	2L	FOOT CUBED PER MINUTE	http://data.posccaesar.org/rdl/RDS1320164
LitrePerSecond	l/s	G51	LITRE PER SECOND	http://data.posccaesar.org/rdl/RDS1331369
MetreCubedPerDay	m^3/d	G52	METRE CUBED PER DAY	http://data.posccaesar.org/rdl/RDS1320839
MetreCubedPerHour	m^3/h	MQH	METRE CUBED PER HOUR	http://data.posccaesar.org/rdl/RDS1321064
MetreCubedPerMinute	m^3/min	G53	METRE CUBED PER MINUTE	http://data.posccaesar.org/rdl/RDS1349909
MetreCubedPerSecond	m^3/s	MQS	METRE CUBED PER SECOND	http://data.posccaesar.org/rdl/RDS1321379

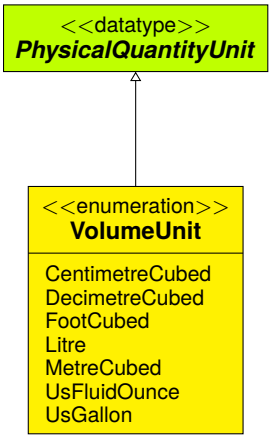
VolumeUnit

Core::*PhysicalQuantities*::VolumeUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *volume* with dimension L^3.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
Centimetre-Cubed	cm^3	CMQ	CENTIMETRE CUBED	http://data.posccaesar.org/rdl/RDS1357874
DecimetreCubed	dm^3	DMQ	DECIMETRE CUBED	http://data.posccaesar.org/rdl/RDS1319174
FootCubed	ft^3	FTQ	FOOT CUBED	http://data.posccaesar.org/rdl/RDS1319669
Litre	l	LTR	LITRE	http://data.posccaesar.org/rdl/RDS1331144
MetreCubed	m^3	MTQ	METRE CUBED	http://data.posccaesar.org/rdl/RDS1349099
UsFluidOunce	fl oz (US)	OZA	US FLUID OUNCE	http://data.posccaesar.org/rdl/RDS11619315
UsGallon	gal (US)	GLL	US GALLON	http://data.posccaesar.org/rdl/RDS11615400

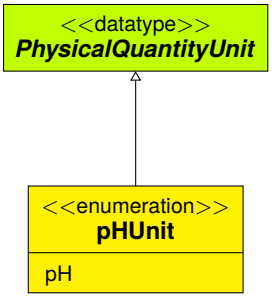
pHUnit

Core::*PhysicalQuantities*::pHUnit

Overview

Enumeration

A unit of measurement for a physical quantity of type *pH* with dimension 1.



Supertypes

- *PhysicalQuantityUnit*

Members

Literals

Name	Symbol	UN Code	RDL Label	RDL URI
pH	pH	Q30	pH	http://data.posccaesar.org/rdl/RDS1060066911

Core::PhysicalQuantities

Overview

Package

Data types for representing physical quantities such as the area of a surface and the frequency of a repeating event.

Members

Data Types

Name	Type
AreaUnit	Enumeration
DensityUnit	Enumeration
DynamicViscosityUnit	Enumeration
ElectricCurrentUnit	Enumeration
ElectricalFrequencyUnit	Enumeration
EnergyDensityUnit	Enumeration
EnergyUnit	Enumeration
ForceUnit	Enumeration
FrequencyUnit	AbstractDataType
HeatCapacityUnit	Enumeration
HeatTransferCoefficientUnit	Enumeration
HeatTransferResistanceUnit	Enumeration
KinematicViscosityUnit	Enumeration
LengthUnit	Enumeration
MagneticFieldIntensityUnit	Enumeration
MagneticFluxDensityUnit	Enumeration
MassConcentrationUnit	Enumeration
MassFlowRateUnit	Enumeration
MassSpecificEnergyUnit	Enumeration
MassSpecificHeatCapacityUnit	Enumeration
MassUnit	Enumeration
MoleConcentrationUnit	Enumeration
MoleFlowRateUnit	Enumeration
MoleSpecificEnergyUnit	Enumeration
MomentOfForceUnit	Enumeration
NumberPerTimeIntervalUnit	Enumeration
ParticleSizeUnit	Enumeration
PhysicalQuantity	Aggregated Data Type
PhysicalQuantityUnit	AbstractDataType
PhysicalQuantityVector	Aggregated Data Type
PowerUnit	Enumeration
PressureAbsoluteUnit	Enumeration
PressureGaugeUnit	Enumeration
PressureUnit	AbstractDataType
RatioUnit	Enumeration
RotationalFrequencyUnit	Enumeration
SurfaceTensionUnit	Enumeration
TemperatureUnit	Enumeration
ThermalConductivityUnit	Enumeration
TimeIntervalUnit	Enumeration

continues on next page

Table 3 – continued from previous page

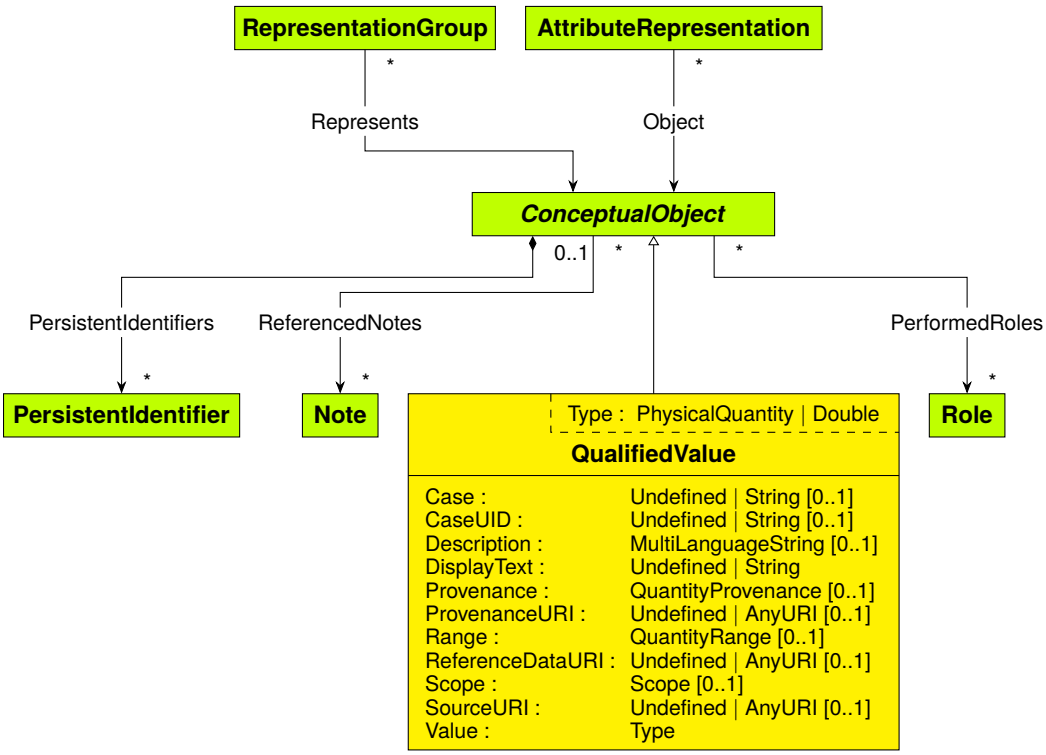
Name	Type
VelocityUnit	Enumeration
VoltageUnit	Enumeration
VolumeFlowRateUnit	Enumeration
VolumeUnit	Enumeration
pHUnit	Enumeration

3.1.9 QualifiedValue

Core::QualifiedValue

Overview

Concrete Class



Supertypes

- *ConceptualObject*

Members

Type Parameters

Name	Default Type
Type	*PhysicalQuantity* | *Double*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Case	0..1	*Undefined* | *String*	no	no
CaseUID	0..1	*Undefined* | *String*	no	no
Description	0..1	*MultiLanguageString*	no	no
DisplayText	1	*Undefined* | *String*	no	no
Provenance	0..1	*QuantityProvenance*	no	no
ProvenanceURI	0..1	*Undefined* | *AnyURI*	no	no
Range	0..1	*QuantityRange*	no	no
ReferenceDataURI	0..1	*Undefined* | *AnyURI*	no	no
Scope	0..1	*Scope*	no	no
SourceURI	0..1	*Undefined* | *AnyURI*	no	no
Value	1	*Type*	no	no

Case

Data Property

The identifier string for the case definition.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

```
"Special case"
```

CaseUID

Data Property

Globally unique identifier to the case referred to.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

```
"1723-001"
```

Description

Data Property

A description.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

MultiLanguageString(
SingleLanguageStrings = [
SingleLanguageString(
Language = "en",
Value = "Lower limit ambient operating temperature."),
SingleLanguageString(
Language = "de",
Value = "Untergrenze für die Umgebungstemperatur bei Betrieb.")])

DisplayText

Data Property

The display text of the *QualifiedValue*, typically shown in a diagram.

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

"Lower limit ambient operating temperature."

Provenance

Data Property

Type: *QuantityProvenance*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

Specified

ProvenanceURI

Data Property

Type: *Undefined* | *AnyURI*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

```
"abc://exampleURI"
```

Range

Data Property

Type: *QuantityRange*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

LowerLimit

ReferenceDataURI

Data Property

A reference to the definition of the *QualifiedValue*.

Type: *Undefined* | *AnyURI*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

```
"abc://referenceURI"
```

Scope

Data Property

Type: *Scope*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

Operating

SourceURI

Data Property

A reference to the source of the value.

Type: *Undefined* | *AnyURI*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

```
"abc://sourceURI"
```

Type

Data Type Parameter

Default Type: *PhysicalQuantity* | *Double*

Value

Data Property

Type: *Type*

Multiplicity: 1

Ordered: no

Unique: no

Example

PhysicalQuantity(

Unit = *Kelvin*,

Value = 230.2)

Example in DEXPI XML

```
<Object type="Core/QualifiedValue">
  <Data property="Case">
    <String>Special case</String>
  </Data>
  <Data property="CaseUID">
    <String>1723-001</String>
  </Data>
  <Data property="Description">
    <AggregatedDataValue type="Core/DataTypes.MultiLanguageString">
      <Data property="SingleLanguageStrings">
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>en</String>
          </Data>
```

(continues on next page)

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```
          <Data property="Value">
            <String>Lower limit ambient operating temperature.</String>
          </Data>
        </AggregatedDataValue>
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>de</String>
          </Data>
          <Data property="Value">
            <String>Untergrenze f&#252;r die Umgebungstemperatur bei Betrieb.</String>
          </Data>
        </AggregatedDataValue>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DisplayText">
    <String>Lower limit ambient operating temperature.</String>
  </Data>
  <Data property="Provenance">
    <DataReference data="Core/DataTypes.QuantityProvenance.Specified"/>
  </Data>
  <Data property="ProvenanceURI">
    <String>abc://exampleURI</String>
  </Data>
  <Data property="Range">
    <DataReference data="Core/DataTypes.QuantityRange.LowerLimit"/>
  </Data>
  <Data property="ReferenceDataURI">
    <String>abc://referenceURI</String>
  </Data>
  <Data property="Scope">
    <DataReference data="Core/DataTypes.Scope.Operating"/>
  </Data>
  <Data property="SourceURI">
    <String>abc://sourceURI</String>
  </Data>
  <Data property="Value">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.Kelvin"/>
      </Data>
      <Data property="Value">
        <Double>230.2</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

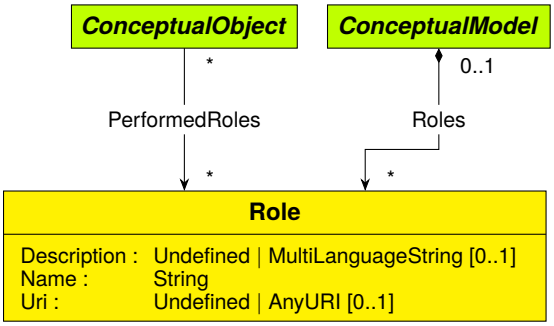
3.1.10 Role

Core::Role

Overview

Concrete Class

The role fulfilled by a *Core.ConceptualObject*.



Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	0..1	*Undefined* | *MultiLanguageString*	no	no
Name	1	*String*	no	no
Uri	0..1	*Undefined* | *AnyURI*	no	no

Description

Data Property

A description of the *Role*.

Type: *Undefined* | *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

Name

Data Property

The name of the *Role*.

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Example

"Bottom Product"

Uri

Data Property

The URI of the *Role*.

Type: *Undefined* | *AnyURI*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

"http://www.exampleProcessOntology/BottomProduct"

Example in DEXPI XML

```
<Object type="Core/Role">
  <Data property="Name">
    <String>Bottom Product</String>
  </Data>
  <Data property="Uri">
    <String>http://www.exampleProcessOntology/BottomProduct</String>
  </Data>
</Object>
```

Core

3.1.11 Overview

Model

URI: https://data.dexpi.org/models/2.0.1/Core.xml

Core.xml

General types for the representation of engineering information and associated graphical representations.

3.1.12 Members

Packages

Name
DataTypes
Diagram
PhysicalQuantities

Classes

Name	Type
ConceptualModel	Abstract Class
ConceptualObject	Abstract Class
EngineeringModel	Concrete Class
Note	Concrete Class
PersistentIdentifier	Concrete Class
QualifiedValue	Concrete Class
Role	Concrete Class

3.2 Plant

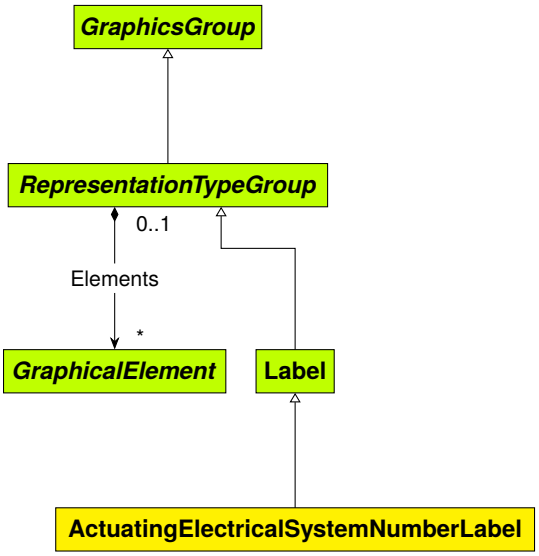
3.2.1 Diagram

ActuatingElectricalSystemNumberLabel

Plant::*Diagram*::ActuatingElectricalSystemNumberLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

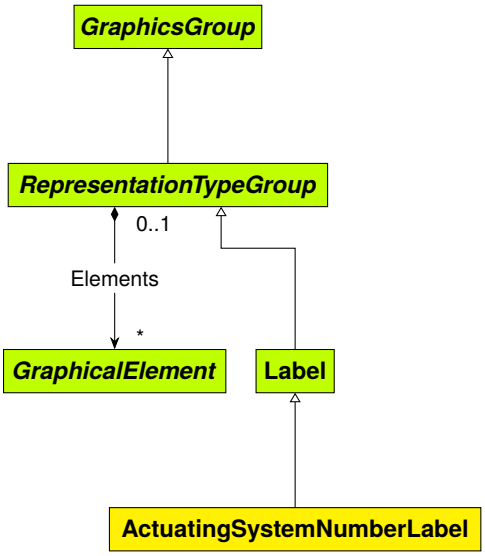
```
<Object type="Plant/Diagram.ActuatingElectricalSystemNumberLabel"/>
```

ActuatingSystemNumberLabel

Plant::*Diagram*::ActuatingSystemNumberLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

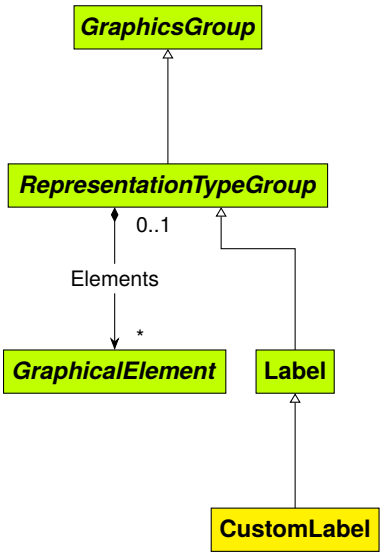
```
<Object type="Plant/Diagram.ActuatingSystemNumberLabel"/>
```

CustomLabel

Plant::*Diagram*::CustomLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

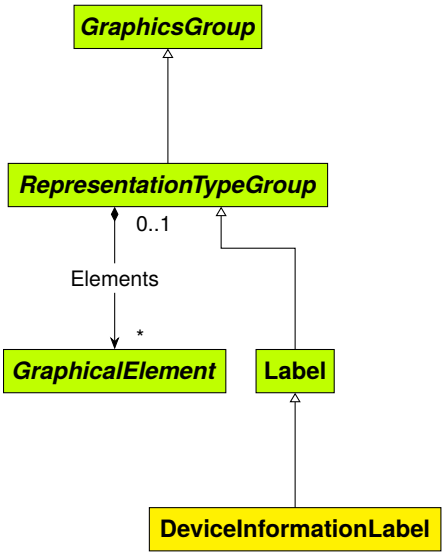
```
<Object type="Plant/Diagram.CustomLabel"/>
```

DeviceInformationLabel

Plant::*Diagram*::DeviceInformationLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

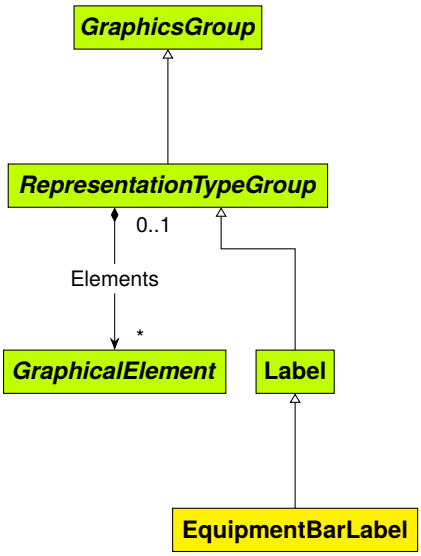
```
<Object type="Plant/Diagram.DeviceInformationLabel"/>
```

EquipmentBarLabel

Plant::*Diagram*::EquipmentBarLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

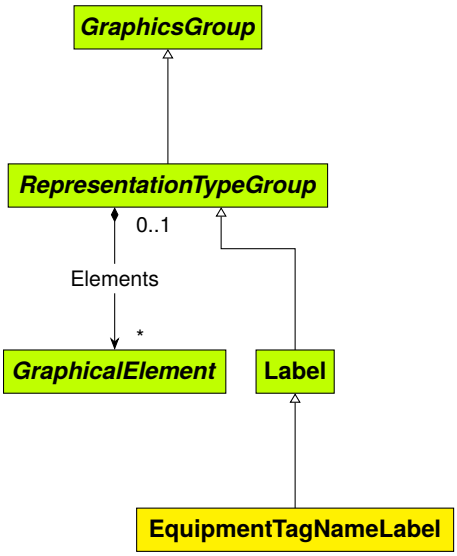
```
<Object type="Plant/Diagram.EquipmentBarLabel"/>
```

EquipmentTagNameLabel

Plant::*Diagram*::EquipmentTagNameLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

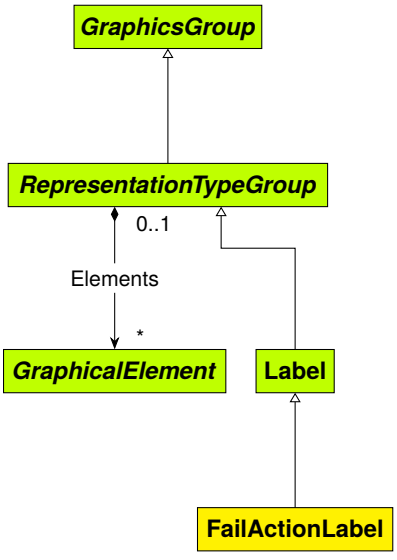
```
<Object type="Plant/Diagram.EquipmentTagNameLabel"/>
```

FailActionLabel

Plant::*Diagram*::FailActionLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

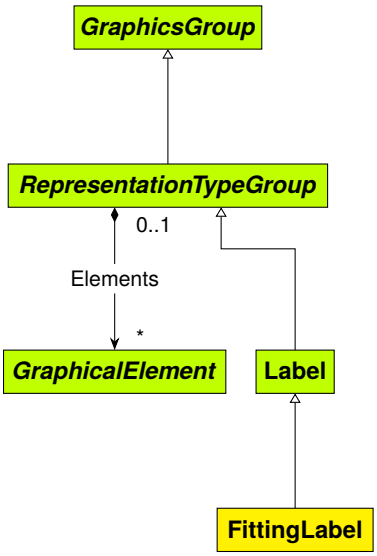
```
<Object type="Plant/Diagram.FailActionLabel"/>
```

FittingLabel

Plant::*Diagram*::FittingLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

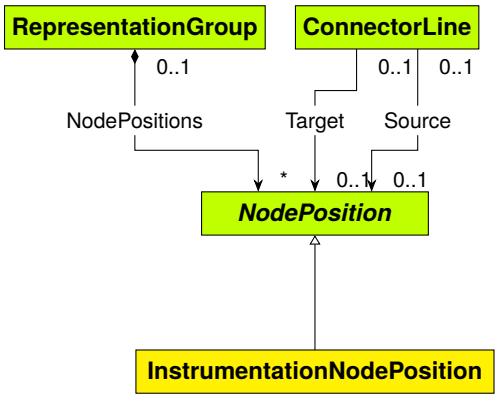
```
<Object type="Plant/Diagram.FittingLabel"/>
```

InstrumentationNodePosition

Plant::*Diagram*::InstrumentationNodePosition

Overview

Concrete Class



Supertypes

- *NodePosition*

Example in DEXPI XML

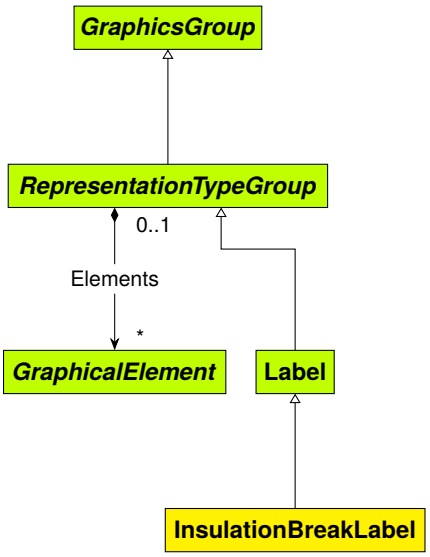
```
<Object type="Plant/Diagram.InstrumentationNodePosition"/>
```

InsulationBreakLabel

Plant::*Diagram*::InsulationBreakLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

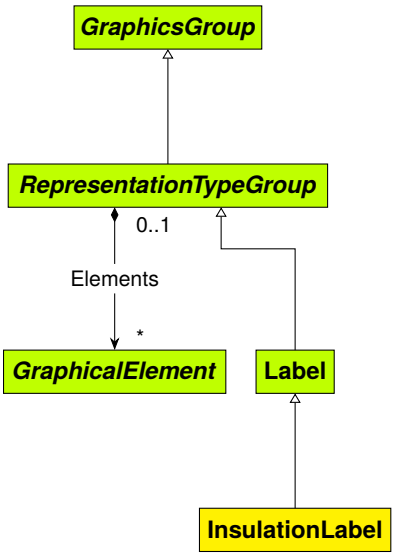
```
<Object type="Plant/Diagram.InsulationBreakLabel"/>
```

InsulationLabel

Plant::*Diagram*::InsulationLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

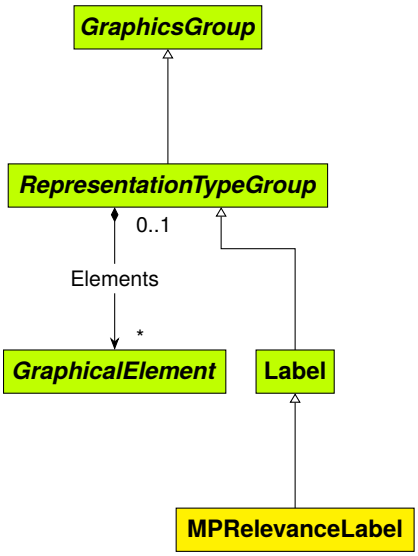
```
<Object type="Plant/Diagram.InsulationLabel"/>
```

MPRelevanceLabel

Plant::*Diagram*::MPRelevanceLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

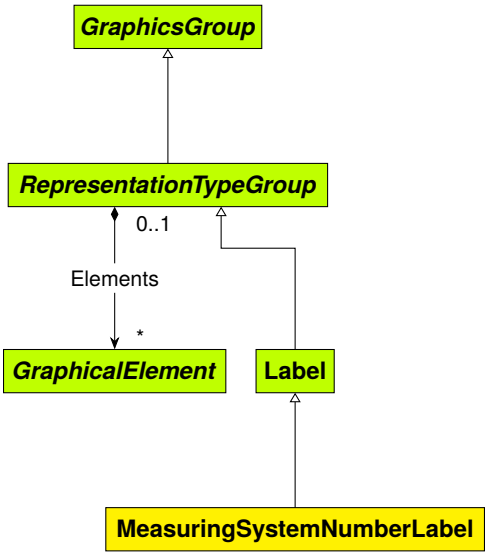
```
<Object type="Plant/Diagram.MPRelevanceLabel"/>
```

MeasuringSystemNumberLabel

Plant::*Diagram*::MeasuringSystemNumberLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

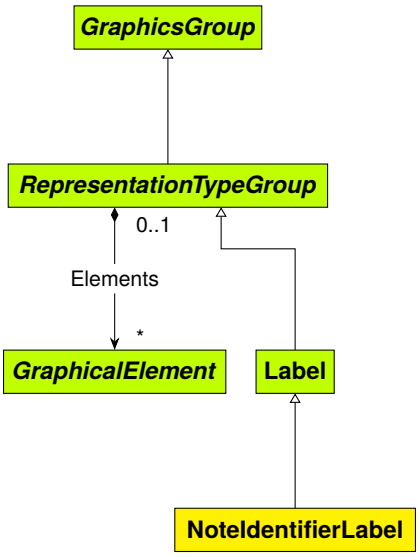
```
<Object type="Plant/Diagram.MeasuringSystemNumberLabel"/>
```

NoteIdentifierLabel

Plant::*Diagram*::NoteIdentifierLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

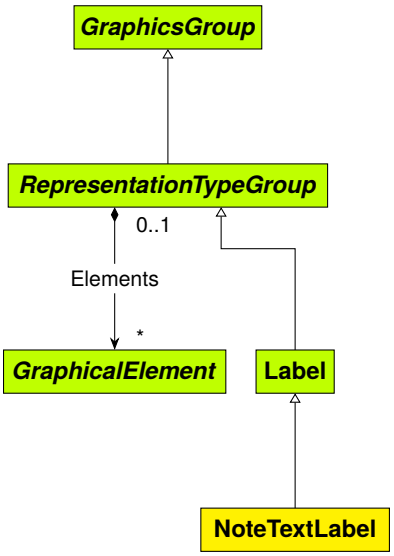
```
<Object type="Plant/Diagram.NoteIdentifierLabel"/>
```

NoteTextLabel

Plant::*Diagram*::NoteTextLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

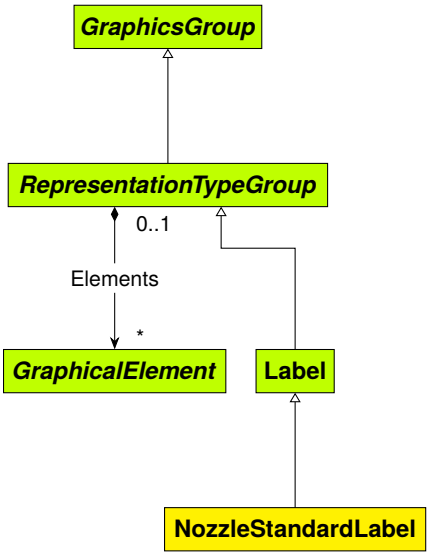
```
<Object type="Plant/Diagram.NoteTextLabel"/>
```

NozzleStandardLabel

Plant::*Diagram*::NozzleStandardLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

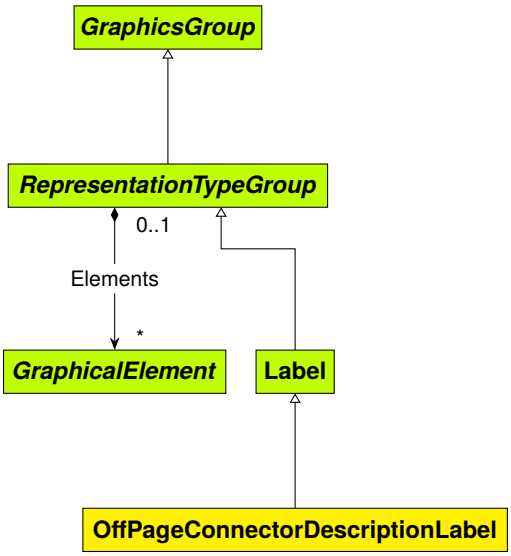
```
<Object type="Plant/Diagram.NozzleStandardLabel"/>
```

OffPageConnectorDescriptionLabel

Plant::*Diagram*::OffPageConnectorDescriptionLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

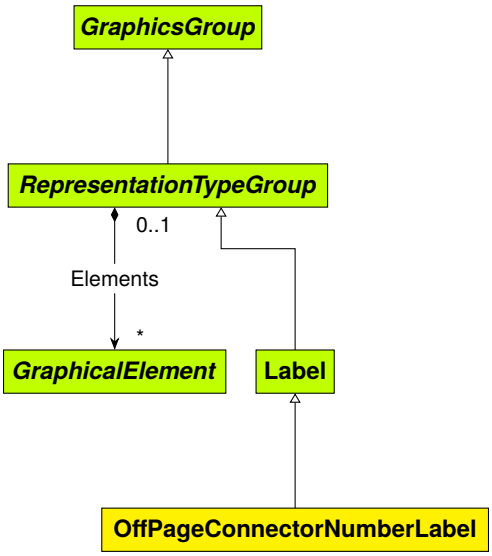
```
<Object type="Plant/Diagram.OffPageConnectorDescriptionLabel"/>
```

OffPageConnectorNumberLabel

Plant::*Diagram*::OffPageConnectorNumberLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

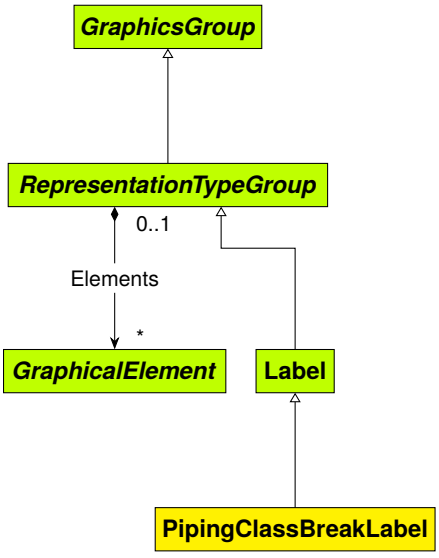
```
<Object type="Plant/Diagram.OffPageConnectorNumberLabel"/>
```

PipingClassBreakLabel

Plant::*Diagram*::PipingClassBreakLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

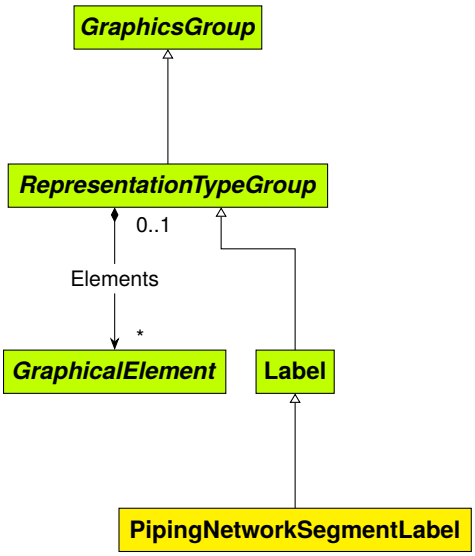
```
<Object type="Plant/Diagram.PipingClassBreakLabel"/>
```

PipingNetworkSegmentLabel

Plant::*Diagram*::PipingNetworkSegmentLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

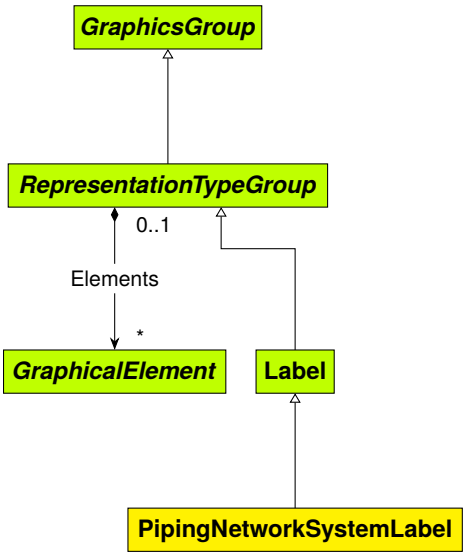
```
<Object type="Plant/Diagram.PipingNetworkSegmentLabel"/>
```

PipingNetworkSystemLabel

Plant::*Diagram*::PipingNetworkSystemLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

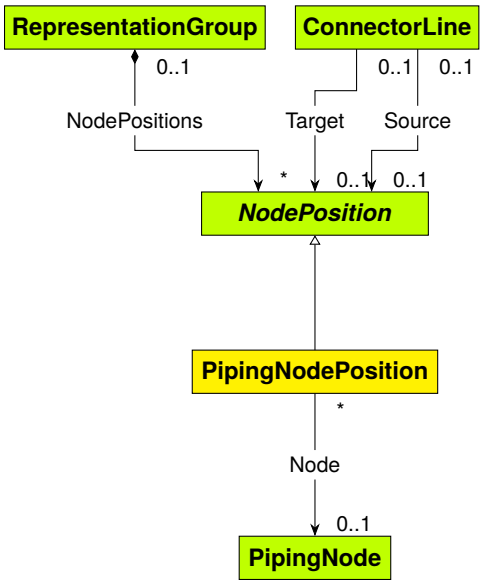
```
<Object type="Plant/Diagram.PipingNetworkSystemLabel"/>
```

PipingNodePosition

Plant::*Diagram*::PipingNodePosition

Overview

Concrete Class



Supertypes

- *NodePosition*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Node	0..1	*PipingNode*	no	no	*

Node

Reference Property

Type: *PipingNode*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Plant/Diagram.PipingNodePosition"/>
```

PlantMetaData

Plant::*Diagram*::PlantMetaData

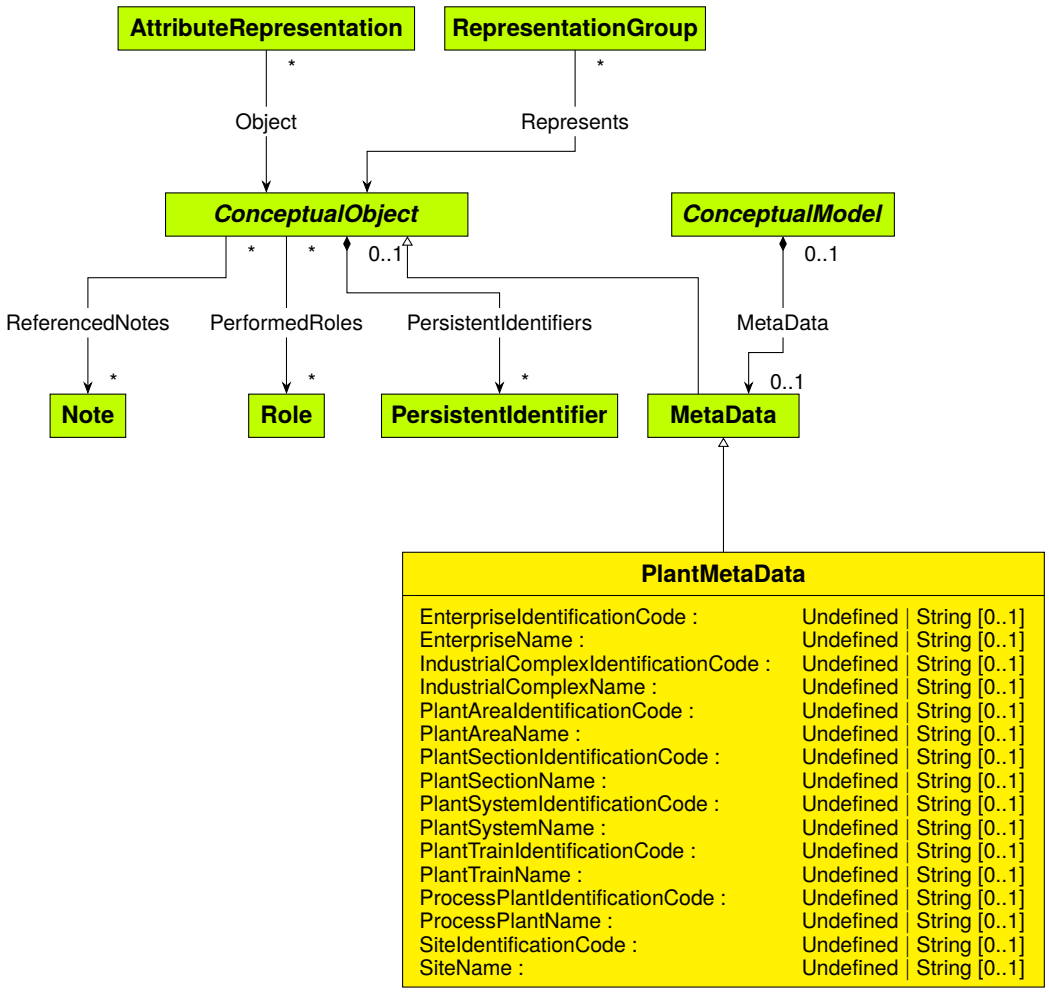
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PlantMetaData

PLANT META DATA

Meta data about a Core.Container with a *PlantModel*.



Supertypes

- *MetaData*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
EnterpriseIdentificationCode	0..1	*Undefined* | *String*	no	no
EnterpriseName	0..1	*Undefined* | *String*	no	no
IndustrialComplexIdentificationCode	0..1	*Undefined* | *String*	no	no
IndustrialComplexName	0..1	*Undefined* | *String*	no	no
PlantAreaIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantAreaName	0..1	*Undefined* | *String*	no	no
PlantSectionIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantSectionName	0..1	*Undefined* | *String*	no	no
PlantSystemIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantSystemName	0..1	*Undefined* | *String*	no	no
PlantTrainIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantTrainName	0..1	*Undefined* | *String*	no	no
ProcessPlantIdentificationCode	0..1	*Undefined* | *String*	no	no
ProcessPlantName	0..1	*Undefined* | *String*	no	no
SiteIdentificationCode	0..1	*Undefined* | *String*	no	no
SiteName	0..1	*Undefined* | *String*	no	no

EnterpriseIdentificationCode

Data Property

The identification code of the enterprise.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/EnterpriseIdentificationCodeAssignmentClass

ENTERPRISE IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"C1248"
```

EnterpriseName

Data Property

The name of the enterprise.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/EnterpriseNameAssignmentClass

ENTERPRISE NAME ASSIGNMENT CLASS

Example

```
"CompAny Ltd."
```

IndustrialComplexIdentificationCode

Data Property

The identification code of the industrial complex.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/IndustrialComplexIdentificationCodeAssignmentClass

INDUSTRIAL COMPLEX IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"I-Chain"
```

IndustrialComplexName

Data Property

The name of the industrial complex.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/IndustrialComplexNameAssignmentClass

INDUSTRIAL COMPLEX NAME ASSIGNMENT CLASS

Example

```
"Isophorone Chain"
```

PlantAreaIdentificationCode

Data Property

The identification code of the plant area according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantAreaIdentificationCodeAssignmentClass

PLANT AREA IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"F4"
```

PlantAreaName

Data Property

The name of the plant area according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/AreaIsa95NameAssignmentClass

AREA ISA95 NAME ASSIGNMENT CLASS

Example

```
"Area F4"
```

PlantSectionIdentificationCode

Data Property

The identification code of the plant section.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSectionIdentificationCodeAssignmentClass

PLANT SECTION IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"10"
```

PlantSectionName

Data Property

The name of the plant section.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSectionNameAssignmentClass

PLANT SECTION NAME ASSIGNMENT CLASS

Example

```
"Utilities"
```

PlantSystemIdentificationCode

Data Property

The identification code of the plant system.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSystemIdentificationCodeAssignmentClass

PLANT SYSTEM IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"X123"
```

PlantSystemName

Data Property

The name of the plant system.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSystemNameAssignmentClass

PLANT SYSTEM NAME ASSIGNMENT CLASS

Example

```
"System X123"
```

PlantTrainIdentificationCode

Data Property

The identification code of the plant train.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantTrainIdentificationCodeAssignmentClass

PLANT TRAIN IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"T456"
```

PlantTrainName

Data Property

The name of the plant train.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantTrainNameAssignmentClass

PLANT TRAIN NAME ASSIGNMENT CLASS

Example

```
"Train T456"
```

ProcessPlantIdentificationCode

Data Property

The identification code of the process plant.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessPlantIdentificationCodeAssignmentClass

PROCESS PLANT IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"ABC"
```

ProcessPlantName

Data Property

The name of the process plant.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessPlantNameAssignmentClass

PROCESS PLANT NAME ASSIGNMENT CLASS

Example

"ABC Plant"

SiteIdentificationCode

Data Property

The identification code of the site.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SiteIdentificationCodeAssignmentClass

SITE IDENTIFICATION CODE ASSIGNMENT CLASS

Example

"DC"

SiteName

Data Property

The name of the site.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SiteNameAssignmentClass

SITE NAME ASSIGNMENT CLASS

Example

"Dexpi City"

Example in DEXPI XML

```
<Object type="Plant/Diagram.PlantMetaData">
  <Data property="EnterpriseIdentificationCode">
    <String>C1248</String>
  </Data>
  <Data property="EnterpriseName">
    <String>CompAny Ltd.</String>
  </Data>
  <Data property="IndustrialComplexIdentificationCode">
    <String>I-Chain</String>
  </Data>
```

(continues on next page)

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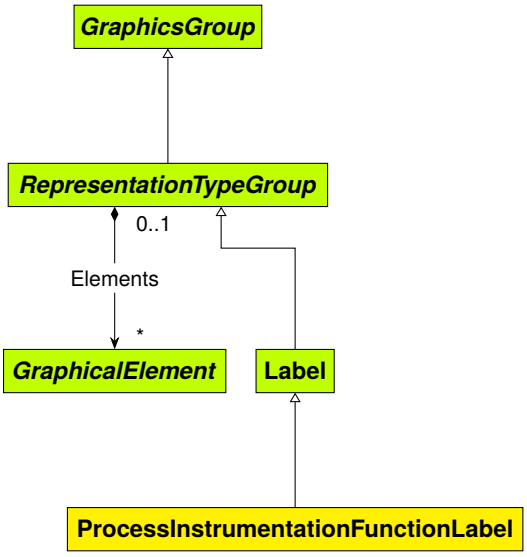
```
  <Data property="IndustrialComplexName">
    <String>Isophorone Chain</String>
  </Data>
  <Data property="PlantAreaIdentificationCode">
    <String>F4</String>
  </Data>
  <Data property="PlantAreaName">
    <String>Area F4</String>
  </Data>
  <Data property="PlantSectionIdentificationCode">
    <String>10</String>
  </Data>
  <Data property="PlantSectionName">
    <String>Utilities</String>
  </Data>
  <Data property="PlantSystemIdentificationCode">
    <String>X123</String>
  </Data>
  <Data property="PlantSystemName">
    <String>System X123</String>
  </Data>
  <Data property="PlantTrainIdentificationCode">
    <String>T456</String>
  </Data>
  <Data property="PlantTrainName">
    <String>Train T456</String>
  </Data>
  <Data property="ProcessPlantIdentificationCode">
    <String>ABC</String>
  </Data>
  <Data property="ProcessPlantName">
    <String>ABC Plant</String>
  </Data>
  <Data property="SiteIdentificationCode">
    <String>DC</String>
  </Data>
  <Data property="SiteName">
    <String>Dexpi City</String>
  </Data>
</Object>
```

ProcessInstrumentationFunctionLabel

Plant::*Diagram*::ProcessInstrumentationFunctionLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

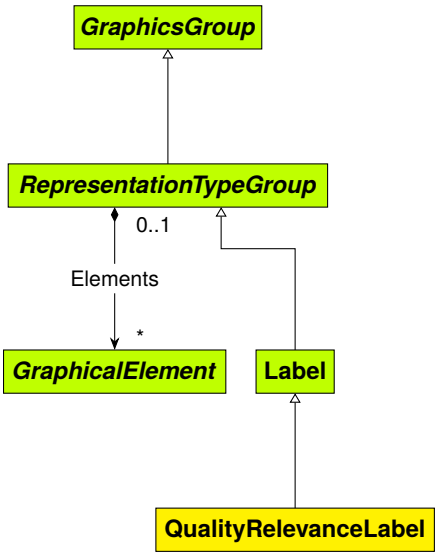
```
<Object type="Plant/Diagram.ProcessInstrumentationFunctionLabel"/>
```

QualityRelevanceLabel

Plant::*Diagram*::QualityRelevanceLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

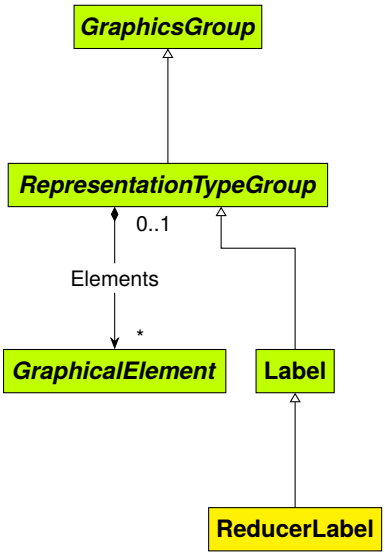
```
<Object type="Plant/Diagram.QualityRelevanceLabel"/>
```

ReducerLabel

Plant::*Diagram*::ReducerLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

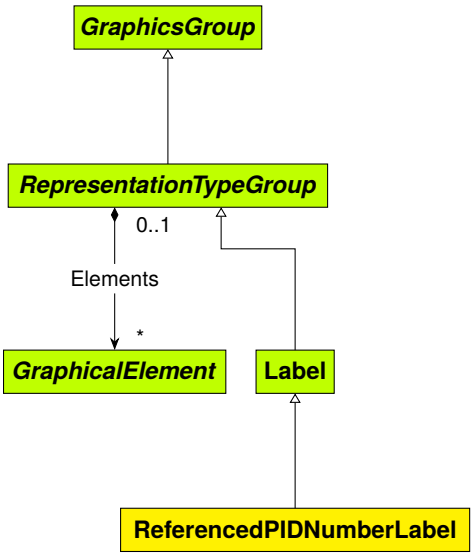
```
<Object type="Plant/Diagram.ReducerLabel"/>
```

ReferencedPIDNumberLabel

Plant::*Diagram*::ReferencedPIDNumberLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

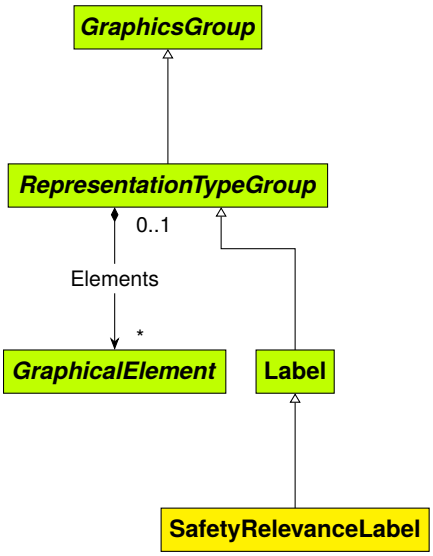
```
<Object type="Plant/Diagram.ReferencedPIDNumberLabel"/>
```

SafetyRelevanceLabel

Plant::*Diagram*::SafetyRelevanceLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

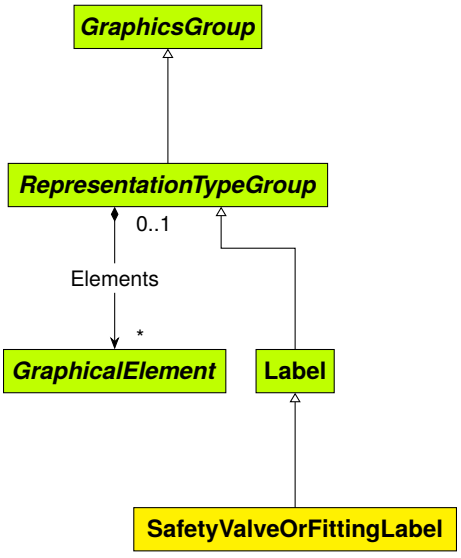
```
<Object type="Plant/Diagram.SafetyRelevanceLabel"/>
```

SafetyValveOrFittingLabel

Plant::*Diagram*::SafetyValveOrFittingLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

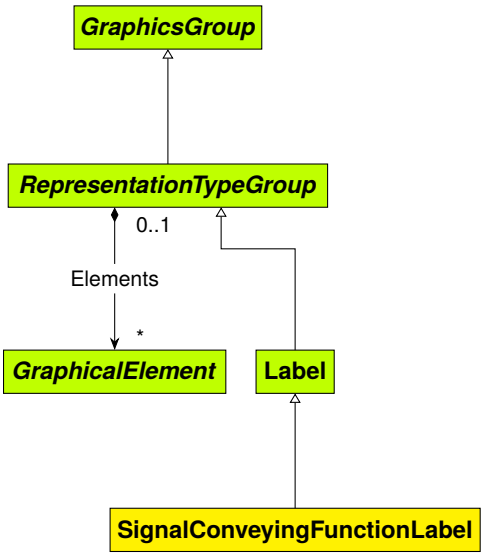
```
<Object type="Plant/Diagram.SafetyValveOrFittingLabel"/>
```

SignalConveyingFunctionLabel

Plant::*Diagram*::SignalConveyingFunctionLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

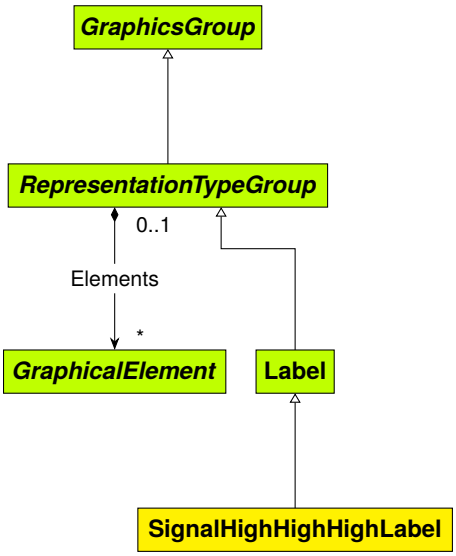
```
<Object type="Plant/Diagram.SignalConveyingFunctionLabel"/>
```

SignalHighHighHighLabel

Plant::*Diagram*::SignalHighHighHighLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

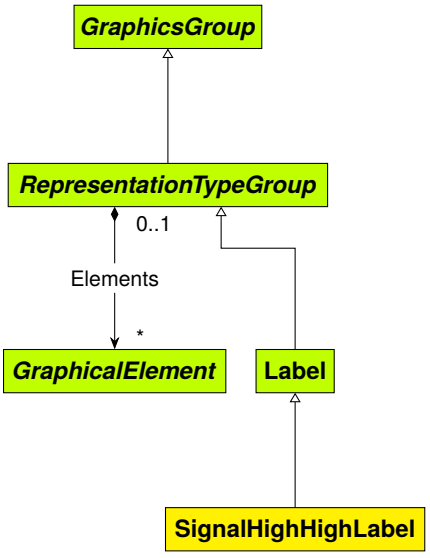
```
<Object type="Plant/Diagram.SignalHighHighHighLabel"/>
```

SignalHighHighLabel

Plant::*Diagram*::SignalHighHighLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

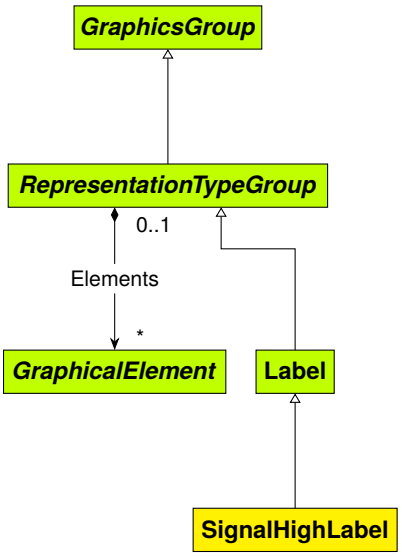
```
<Object type="Plant/Diagram.SignalHighHighLabel"/>
```

SignalHighLabel

Plant::*Diagram*::SignalHighLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

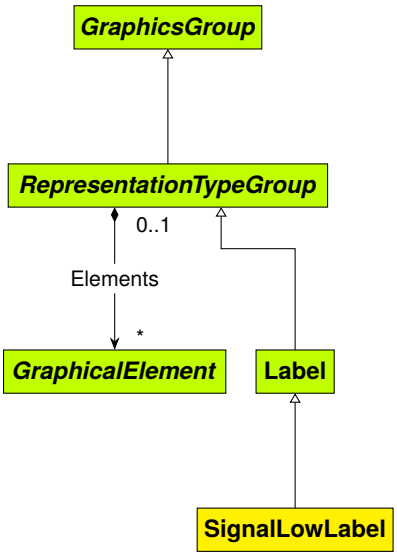
```
<Object type="Plant/Diagram.SignalHighLabel"/>
```

SignalLowLabel

Plant::*Diagram*::SignalLowLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

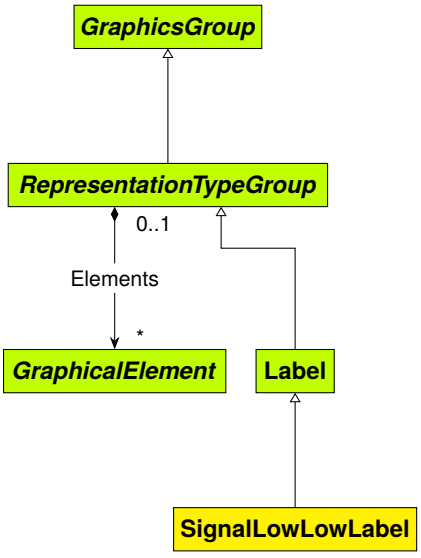
```
<Object type="Plant/Diagram.SignalLowLabel"/>
```

SignalLowLowLabel

Plant::*Diagram*::SignalLowLowLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

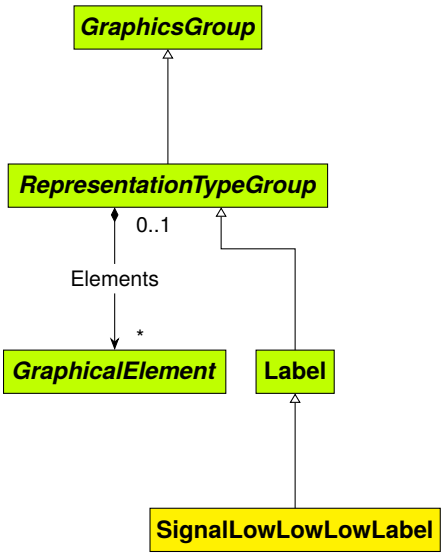
```
<Object type="Plant/Diagram.SignalLowLowLabel"/>
```

SignalLowLowLowLabel

Plant::*Diagram*::SignalLowLowLowLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

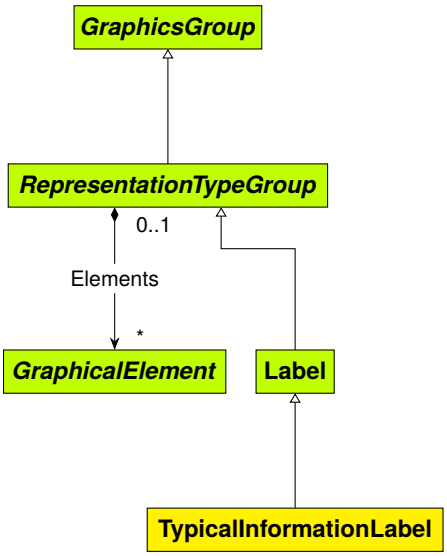
```
<Object type="Plant/Diagram.SignalLowLowLowLabel"/>
```

TypicalInformationLabel

Plant::*Diagram*::TypicalInformationLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

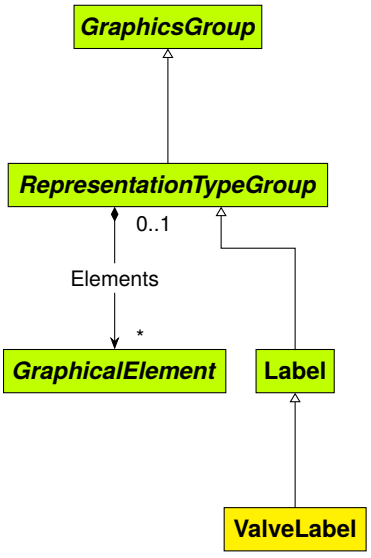
```
<Object type="Plant/Diagram.TypicalInformationLabel"/>
```

ValveLabel

Plant::*Diagram*::ValveLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

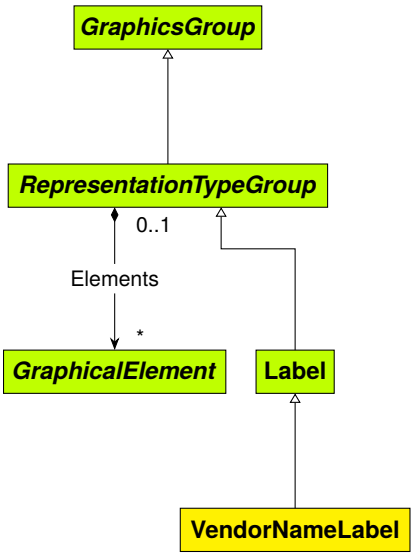
```
<Object type="Plant/Diagram.ValveLabel"/>
```

VendorNameLabel

Plant::*Diagram*::VendorNameLabel

Overview

Concrete Class



Supertypes

- *Label*

Example in DEXPI XML

```
<Object type="Plant/Diagram.VendorNameLabel"/>
```

Plant::Diagram

Overview

Package

Members

Classes

Name	Type
ActuatingElectricalSystemNumberLabel	Concrete Class
ActuatingSystemNumberLabel	Concrete Class
CustomLabel	Concrete Class
DeviceInformationLabel	Concrete Class
EquipmentBarLabel	Concrete Class
EquipmentTagNameLabel	Concrete Class
FailActionLabel	Concrete Class
FittingLabel	Concrete Class
InstrumentationNodePosition	Concrete Class
InsulationBreakLabel	Concrete Class
InsulationLabel	Concrete Class
MPRelevanceLabel	Concrete Class
MeasuringSystemNumberLabel	Concrete Class
NoteIdentifierLabel	Concrete Class
NoteTextLabel	Concrete Class
NozzleStandardLabel	Concrete Class
OffPageConnectorDescriptionLabel	Concrete Class
OffPageConnectorNumberLabel	Concrete Class
PipingClassBreakLabel	Concrete Class
PipingNetworkSegmentLabel	Concrete Class
PipingNetworkSystemLabel	Concrete Class
PipingNodePosition	Concrete Class
PlantMetaData	Concrete Class
ProcessInstrumentationFunctionLabel	Concrete Class
QualityRelevanceLabel	Concrete Class
ReducerLabel	Concrete Class
ReferencedPIDNumberLabel	Concrete Class
SafetyRelevanceLabel	Concrete Class
SafetyValveOrFittingLabel	Concrete Class
SignalConveyingFunctionLabel	Concrete Class
SignalHighHighHighLabel	Concrete Class
SignalHighHighLabel	Concrete Class
SignalHighLabel	Concrete Class
SignalLowLabel	Concrete Class
SignalLowLowLabel	Concrete Class
SignalLowLowLowLabel	Concrete Class
TypicalInformationLabel	Concrete Class
ValveLabel	Concrete Class
VendorNameLabel	Concrete Class

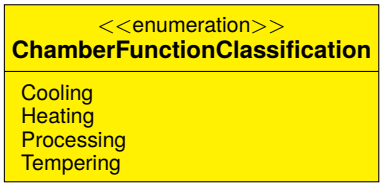
3.2.2 Enumerations

ChamberFunctionClassification

Plant::*Enumerations*::ChamberFunctionClassification

Overview

Enumeration



Members

Literals

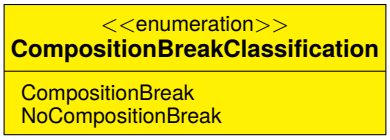
Name	Symbol	RDL Label	RDL URI
Cooling	cooling	COOLING	http://data.posccaesar.org/rdl/RDS9684422
Heating	heating	HEATING	http://data.posccaesar.org/rdl/RDS9666872
Processing	processing	PROCESSING	http://data.posccaesar.org/rdl/RDS9658367
Tempering	tempering	TEMPERING	http://sandbox.dexpi.org/rdl/Tempering

CompositionBreakClassification

Plant::*Enumerations*::CompositionBreakClassification

Overview

Enumeration



Members

Literals

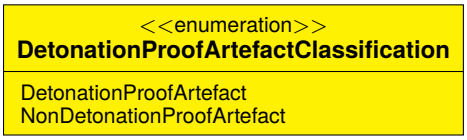
Name	Symbol	RDL Label	RDL URI
CompositionBreak	composition break	COMPOSITION BREAK	http://sandbox.dexpi.org/rdl/CompositionBreak
NoComposition-Break	no composition break	NO COMPOSITION BREAK	http://sandbox.dexpi.org/rdl/NoCompositionBreak

DetonationProofArtefactClassification

Plant::*Enumerations*::DetonationProofArtefactClassification

Overview

Enumeration



Members

Literals

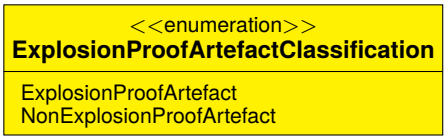
Name	Symbol	RDL Label	RDL URI
DetonationProofArtefact	detonation-proof artefact	DETONATION PROOF ARTEFACT	http://sandbox.dexpi.org/rdl/DetonationProofArtefact
NonDetonationProofArtefact	non detonation-proof artefact	NON DETONATION PROOF ARTEFACT	http://sandbox.dexpi.org/rdl/NonDetonationProofArtefact

ExplosionProofArtefactClassification

Plant::*Enumerations*::ExplosionProofArtefactClassification

Overview

Enumeration



Members

Literals

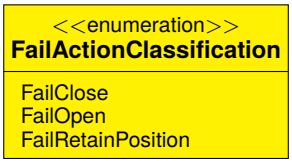
Name	Symbol	RDL Label	RDL URI
ExplosionProofArtefact	explosion-proof artefact	EXPLOSION PROOF ARTEFACT	http://sandbox.dexpi.org/rdl/ExplosionProofArtefact
NonExplosionProofArtefact	non explosion-proof artefact	NON EXPLOSION PROOF ARTEFACT	http://sandbox.dexpi.org/rdl/NonExplosionProofArtefact

FailActionClassification

Plant::*Enumerations*::FailActionClassification

Overview

Enumeration



Members

Literals

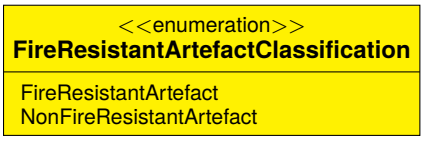
Name	Symbol	RDL Label	RDL URI
FailClose	fail close	FAIL CLOSE	http://data.posccaesar.org/rdl/RDS5921400
FailOpen	fail open	FAIL OPEN	http://data.posccaesar.org/rdl/RDS5921445
FailRetainPosition	fail retain position	FAIL RETAIN POSITION	http://sandbox.dexpi.org/rdl/FailRetainPosition

FireResistantArtefactClassification

Plant::*Enumerations*::FireResistantArtefactClassification

Overview

Enumeration



Members

Literals

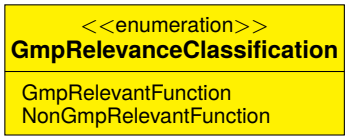
Name	Symbol	RDL Label	RDL URI
FireResistantArtefact	fire-resistant artefact	FIRE RESISTANT ARTEFACT	http://data.posccaesar.org/rdl/RDS7907520
NonFireResistantArtefact	non fire-resistant artefact	NON FIRE RESISTANT ARTEFACT	http://sandbox.dexpi.org/rdl/NonFireResistantArtefact

GmpRelevanceClassification

Plant::*Enumerations*::GmpRelevanceClassification

Overview

Enumeration



Members

Literals

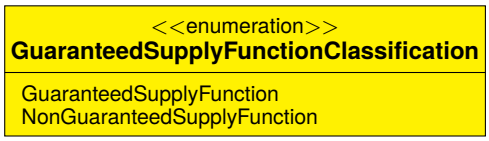
Name	Symbol	RDL Label	RDL URI
GmpRelevantFunction	GMP relevant	GMP RELEVANT FUNCTION	http://sandbox.dexpi.org/rdl/GmpRelevantFunction
NonGmpRelevantFunction	not GMP relevant	NON GMP RELEVANT FUNCTION	http://sandbox.dexpi.org/rdl/NonGmpRelevantFunction

GuaranteedSupplyFunctionClassification

Plant::*Enumerations*::GuaranteedSupplyFunctionClassification

Overview

Enumeration



Members

Literals

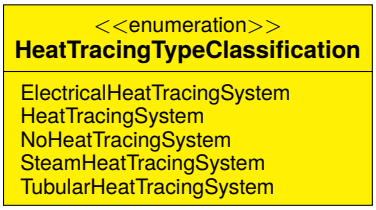
Name	Symbol	RDL Label	RDL URI
GuaranteedSupplyFunction	guaranteed supply	GUARANTEED SUPPLY FUNCTION	http://sandbox.dexpi.org/rdl/GuaranteedSupplyFunction
NonGuaranteedSupplyFunction	no guaranteed supply	NON GUARANTEED SUPPLY FUNCTION	http://sandbox.dexpi.org/rdl/NonGuaranteedSupplyFunction

HeatTracingTypeClassification

Plant::*Enumerations*::HeatTracingTypeClassification

Overview

Enumeration



Members

Literals

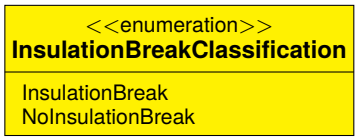
Name	Symbol	RDL Label	RDL URI
ElectricalHeatTracingSystem	electrical heat tracing system	ELECTRICAL HEAT TRACING SYSTEM	http://data.posccaesar.org/rdl/RDS11854600
HeatTracingSystem	heat tracing system	HEAT TRACING SYSTEM	http://data.posccaesar.org/rdl/RDS267434
NoHeatTracingSystem	no heat tracing system	NO HEAT TRACING SYSTEM	http://sandbox.dexpi.org/rdl/NoHeatTracingSystem
SteamHeatTracingSystem	steam heat tracing system	STEAM HEAT TRACING SYSTEM	http://data.posccaesar.org/rdl/RDS11854690
TubularHeatTracingSystem	tubular heat tracing system	TUBULAR HEAT TRACING SYSTEM	http://data.posccaesar.org/rdl/RDS11854645

InsulationBreakClassification

Plant::*Enumerations*::InsulationBreakClassification

Overview

Enumeration



Members

Literals

Name	Symbol	RDL Label	RDL URI
InsulationBreak	inulation break	INSULATION BREAK	http://sandbox.dexpi.org/rdl/InsulationBreak
NoInsulation-Break	no insulation break	NO INSULATION BREAK	http://sandbox.dexpi.org/rdl/NoInsulationBreak

JacketedPipeClassification

Plant::*Enumerations*::JacketedPipeClassification

Overview

Enumeration

<<enumeration>>
JacketedPipeClassification

JacketedPipe
UnjacketedPipe

Members

Literals

Name	Symbol	RDL Label	RDL URI
JacketedPipe	jacketed	JACKETED PIPE	http://sandbox.dexpi.org/rdl/JacketedPipe
UnjacketedPipe	not jacketed	UNJACKETED PIPE	http://sandbox.dexpi.org/rdl/UnjacketedPipe

LocationClassification

Plant::*Enumerations*::LocationClassification

Overview

Enumeration

<<enumeration>>
LocationClassification

CentralLocation
ControlPanel
Field

Members

Literals

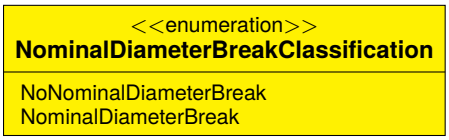
Name	Symbol	RDL Label	RDL URI
CentralLocation	central	CENTRAL LOCATION	http://sandbox.dexpi.org/rdl/CentralLocation
ControlPanel	panel	CONTROL PANEL	http://data.posccaesar.org/rdl/RDS874124
Field	field	FIELD	http://data.posccaesar.org/rdl/RDS409545541

NominalDiameterBreakClassification

Plant::*Enumerations*::NominalDiameterBreakClassification

Overview

Enumeration



Members

Literals

Name	Symbol	RDL Label	RDL URI
NoNominalDiameterBreak	no nominal diameter break	NO NOMINAL DIAMETER BREAK	http://sandbox.dexpi.org/rdl/NoNominalDiameterBreak
NominalDiameterBreak	nominal diameter break	NOMINAL DIAMETER BREAK	http://sandbox.dexpi.org/rdl/NominalDiameterBreak

NominalDiameterStandardClassification

Plant::*Enumerations*::NominalDiameterStandardClassification

Overview

Enumeration

Members

Literals

Name	Symbol	RDL Label	RDL URI
Din2448ObjectDn100	DN 100 (DIN 2448)	DIN 2448 OBJECT DN 100	http://sandbox.dexpi.org/rdl/Din2448ObjectDn10
Din2448ObjectDn125	DN 125 (DIN 2448)	DIN 2448 OBJECT DN 125	http://sandbox.dexpi.org/rdl/Din2448ObjectDn12
Din2448ObjectDn15	DN 15 (DIN 2448)	DIN 2448 OBJECT DN 15	http://sandbox.dexpi.org/rdl/Din2448ObjectDn15

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Table 5 – continued from previous page

Name	Symbol	RDL Label	RDL URI
Din2448ObjectDn150	DN 150 (DIN 2448)	DIN 2448 OBJECT DN 150	http://sandbox.dexpi.org/rdl/Din2448ObjectDn15
Din2448ObjectDn20	DN 20 (DIN 2448)	DIN 2448 OBJECT DN 20	http://sandbox.dexpi.org/rdl/Din2448ObjectDn20
Din2448ObjectDn200	DN 200 (DIN 2448)	DIN 2448 OBJECT DN 200	http://sandbox.dexpi.org/rdl/Din2448ObjectDn20
Din2448ObjectDn25	DN 25 (DIN 2448)	DIN 2448 OBJECT DN 25	http://sandbox.dexpi.org/rdl/Din2448ObjectDn25
Din2448ObjectDn32	DN 32 (DIN 2448)	DIN 2448 OBJECT DN 32	http://sandbox.dexpi.org/rdl/Din2448ObjectDn32
Din2448ObjectDn40	DN 40 (DIN 2448)	DIN 2448 OBJECT DN 40	http://sandbox.dexpi.org/rdl/Din2448ObjectDn40
Din2448ObjectDn50	DN 50 (DIN 2448)	DIN 2448 OBJECT DN 50	http://sandbox.dexpi.org/rdl/Din2448ObjectDn50
Din2448ObjectDn65	DN 65 (DIN 2448)	DIN 2448 OBJECT DN 65	http://sandbox.dexpi.org/rdl/Din2448ObjectDn65
Din2448ObjectDn80	DN 80 (DIN 2448)	DIN 2448 OBJECT DN 80	http://sandbox.dexpi.org/rdl/Din2448ObjectDn80
Iso6708ObjectDn100	DN 100 (ISO 6708)	ISO 6708 OBJECT DN 100	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn100
Iso6708ObjectDn1000	DN 1000 (ISO 6708)	ISO 6708 OBJECT DN 1000	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn100
Iso6708ObjectDn1200	DN 1200 (ISO 6708)	ISO 6708 OBJECT DN 1200	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn120
Iso6708ObjectDn125	DN 125 (ISO 6708)	ISO 6708 OBJECT DN 125	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn125
Iso6708ObjectDn1400	DN 1400 (ISO 6708)	ISO 6708 OBJECT DN 1400	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn140
Iso6708ObjectDn15	DN 15 (ISO 6708)	ISO 6708 OBJECT DN 15	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn15
Iso6708ObjectDn150	DN 150 (ISO 6708)	ISO 6708 OBJECT DN 150	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn150
Iso6708ObjectDn1600	DN 1600 (ISO 6708)	ISO 6708 OBJECT DN 1600	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn160
Iso6708ObjectDn20	DN 20 (ISO 6708)	ISO 6708 OBJECT DN 20	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn20
Iso6708ObjectDn200	DN 200 (ISO 6708)	ISO 6708 OBJECT DN 200	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn200
Iso6708ObjectDn25	DN 25 (ISO 6708)	ISO 6708 OBJECT DN 25	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn25
Iso6708ObjectDn250	DN 250 (ISO 6708)	ISO 6708 OBJECT DN 250	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn250
Iso6708ObjectDn300	DN 300 (ISO 6708)	ISO 6708 OBJECT DN 300	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn300
Iso6708ObjectDn32	DN 32 (ISO 6708)	ISO 6708 OBJECT DN 32	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn32
Iso6708ObjectDn350	DN 350 (ISO 6708)	ISO 6708 OBJECT DN 350	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn350
Iso6708ObjectDn40	DN 40 (ISO 6708)	ISO 6708 OBJECT DN 40	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn40
Iso6708ObjectDn400	DN 400 (ISO 6708)	ISO 6708 OBJECT DN 400	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn400
Iso6708ObjectDn450	DN 450 (ISO 6708)	ISO 6708 OBJECT DN 450	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn450
Iso6708ObjectDn50	DN 50 (ISO 6708)	ISO 6708 OBJECT DN 50	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn50
Iso6708ObjectDn500	DN 500 (ISO 6708)	ISO 6708 OBJECT DN 500	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn500
Iso6708ObjectDn600	DN 600 (ISO 6708)	ISO 6708 OBJECT DN 600	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn600
Iso6708ObjectDn65	DN 65 (ISO 6708)	ISO 6708 OBJECT DN 65	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn65
Iso6708ObjectDn700	DN 700 (ISO 6708)	ISO 6708 OBJECT DN 700	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn700
Iso6708ObjectDn80	DN 80 (ISO 6708)	ISO 6708 OBJECT DN 80	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn80
Iso6708ObjectDn800	DN 800 (ISO 6708)	ISO 6708 OBJECT DN 800	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn800
Iso6708ObjectDn900	DN 900 (ISO 6708)	ISO 6708 OBJECT DN 900	http://sandbox.dexpi.org/rdl/Iso6708ObjectDn900
Nps10Artefact	NPS 10	NPS 10 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408298
Nps12Artefact	NPS 12	NPS 12 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082110
Nps14Artefact	NPS 14	NPS 14 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082122
Nps16Artefact	NPS 16	NPS 16 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082134
Nps18Artefact	NPS 18	NPS 18 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082146
Nps1Artefact	NPS 1	NPS 1 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408137
Nps1_1_PER_2Artefact	NPS 1 1/2	NPS 1 1/2 ARTEFACT	http://data.posccaesar.org/rdl/RDS2086340822
Nps1_1_PER_4Artefact	NPS 1 1/4	NPS 1 1/4 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408321
Nps1_PER_2Artefact	NPS 1/2	NPS 1/2 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408113
Nps1_PER_4Artefact	NPS 1/4	NPS 1/4 ARTEFACT	http://data.posccaesar.org/rdl/RDS2086340839
Nps20Artefact	NPS 20	NPS 20 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082158
Nps24Artefact	NPS 24	NPS 24 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082170
Nps2Artefact	NPS 2	NPS 2 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408214
Nps2_1_PER_2Artefact	NPS 2 1/2	NPS 2 1/2 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408226
Nps30Artefact	NPS 30	NPS 30 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082182

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Table 5 – continued from previous page

Name	Symbol	RDL Label	RDL URI
Nps36Artefact	NPS 36	NPS 36 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082194
Nps3Artefact	NPS 3	NPS 3 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408238
Nps3_1_PER_2Artefact	NPS 3 1/2	NPS 3 1/2 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408333
Nps3_PER_4Artefact	NPS 3/4	NPS 3/4 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408125
Nps42Artefact	NPS 42	NPS 42 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082206
Nps48Artefact	NPS 48	NPS 48 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082218
Nps4Artefact	NPS 4	NPS 4 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408250
Nps54Artefact	NPS 54	NPS 54 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082230
Nps5Artefact	NPS 5	NPS 5 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408262
Nps60Artefact	NPS 60	NPS 60 ARTEFACT	http://data.posccaesar.org/rdl/RDS208634082242
Nps6Artefact	NPS 6	NPS 6 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408274
Nps8Artefact	NPS 8	NPS 8 ARTEFACT	http://data.posccaesar.org/rdl/RDS20863408286

NominalPressureStandardClassification

Plant::*Enumerations*::NominalPressureStandardClassification

Overview

Enumeration

Members

Literals

Name	Symbol	RDL Label	RDL URI
Class10000PsiArtefact	Class 10000 psi	CLASS 10000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class10000
Class1000KpaArtefact	Class 1000 kpa	CLASS 1000 KPA ARTEFACT	http://sandbox.dexpi.org/rdl/Class1000K
Class125LbsArtefact	Class 125 lbs	CLASS 125 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class125Lb
Class15000PsiArtefact	Class 15000 psi	CLASS 15000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class15000
Class1500LbsArtefact	Class 1500 lbs	CLASS 1500 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class1500L
Class150LbsArtefact	Class 150 lbs	CLASS 150 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class150Lb
Class16BarArtefact	Class 16 bar	CLASS 16 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class16Bar
Class20000PsiArtefact	Class 20000 psi	CLASS 20000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class20000
Class2000PsiArtefact	Class 2000 psi	CLASS 2000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class2000P
Class2500LbsArtefact	Class 2500 lbs	CLASS 2500 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class2500L
Class250PsiArtefact	Class 250 psi	CLASS 250 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class250Ps
Class3000PsiArtefact	Class 3000 psi	CLASS 3000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class3000P
Class300LbsArtefact	Class 300 lbs	CLASS 300 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class300Lb
Class300PsiArtefact	Class 300 psi	CLASS 300 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class300Ps
Class315BarArtefact	Class 315 bar	CLASS 315 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class315Ba
Class345BarArtefact	Class 345 bar	CLASS 345 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class345Ba
Class350BarArtefact	Class 350 bar	CLASS 350 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class350Ba
Class4000PsiArtefact	Class 4000 psi	CLASS 4000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class4000P
Class400LbsArtefact	Class 400 lbs	CLASS 400 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class400Lb
Class4500LbsArtefact	Class 4500 lbs	CLASS 4500 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class4500L
Class4500PsiArtefact	Class 4500 psi	CLASS 4500 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class4500P
Class5000PsiArtefact	Class 5000 psi	CLASS 5000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class5000P
Class50BarArtefact	Class 50 bar	CLASS 50 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class50Bar
Class517BarArtefact	Class 517 bar	CLASS 517 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class517Ba

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Table 6 – continued from previous page

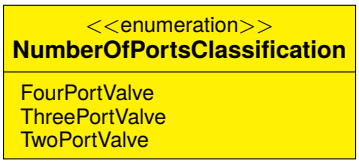
Name	Symbol	RDL Label	RDL URI
Class6000PsiArtefact	Class 6000 psi	CLASS 6000 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class6000P
Class600LbsArtefact	Class 600 lbs	CLASS 600 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class600Lb
Class690BarArtefact	Class 690 bar	CLASS 690 BAR ARTEFACT	http://sandbox.dexpi.org/rdl/Class690Ba
Class800LbsArtefact	Class 800 lbs	CLASS 800 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class800Lb
Class800PsiArtefact	Class 800 psi	CLASS 800 PSI ARTEFACT	http://sandbox.dexpi.org/rdl/Class800Ps
Class850KpaArtefact	Class 850 kpa	CLASS 850 KPA ARTEFACT	http://sandbox.dexpi.org/rdl/Class850Kp
Class9000LbsArtefact	Class 9000 lbs	CLASS 9000 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class9000L
Class900LbsArtefact	Class 900 lbs	CLASS 900 LBS ARTEFACT	http://sandbox.dexpi.org/rdl/Class900Lb
En1333Pn100Artefact	PN 100 (EN 1333)	EN 1333 PN 100 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn1
En1333Pn10Artefact	PN 10 (EN 1333)	EN 1333 PN 10 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn1
En1333Pn160Artefact	PN 160 (EN 1333)	EN 1333 PN 160 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn1
En1333Pn16Artefact	PN 16 (EN 1333)	EN 1333 PN 16 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn1
En1333Pn250Artefact	PN 250 (EN 1333)	EN 1333 PN 250 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn2
En1333Pn25Artefact	PN 25 (EN 1333)	EN 1333 PN 25 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn2
En1333Pn2_COMMA_5Artefact	PN 2,5 (EN 1333)	EN 1333 PN 2,5 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn2
En1333Pn320Artefact	PN 320 (EN 1333)	EN 1333 PN 320 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn3
En1333Pn400Artefact	PN 400 (EN 1333)	EN 1333 PN 400 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn4
En1333Pn40Artefact	PN 40 (EN 1333)	EN 1333 PN 40 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn4
En1333Pn63Artefact	PN 63 (EN 1333)	EN 1333 PN 63 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn6
En1333Pn6Artefact	PN 6 (EN 1333)	EN 1333 PN 6 ARTEFACT	http://sandbox.dexpi.org/rdl/En1333Pn6

NumberOfPortsClassification

Plant::*Enumerations*::NumberOfPortsClassification

Overview

Enumeration



Members

Literals

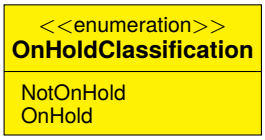
Name	Symbol	RDL Label	RDL URI
FourPortValve	4 port valve	FOUR PORT VALVE	http://data.posccaesar.org/rdl/RDS6330166
ThreePortValve	3 port valve	THREE PORT VALVE	http://data.posccaesar.org/rdl/RDS6331437
TwoPortValve	2 port valve	TWO PORT VALVE	http://data.posccaesar.org/rdl/RDS11506315

OnHoldClassification

Plant::*Enumerations*::OnHoldClassification

Overview

Enumeration



Members

Literals

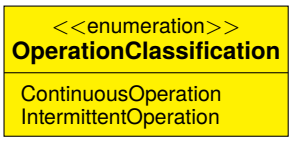
Name	Symbol	RDL Label	RDL URI
NotOnHold	not on hold	NOT ON HOLD	http://sandbox.dexpi.org/rdl/NotOnHold
OnHold	on hold	ON HOLD	http://sandbox.dexpi.org/rdl/OnHold

OperationClassification

Plant::*Enumerations*::OperationClassification

Overview

Enumeration



Members

Literals

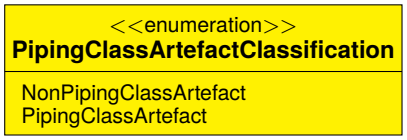
Name	Symbol	RDL Label	RDL URI
ContinuousOperation	continuous operation	CONTINUOUS OPERATION	http://data.posccaesar.org/rdl/RDS9710162
IntermittentOperation	intermittent operation	INTERMITTENT OPERATION	http://data.posccaesar.org/rdl/RDS9705752

PipingClassArtefactClassification

Plant::*Enumerations*::PipingClassArtefactClassification

Overview

Enumeration



Members

Literals

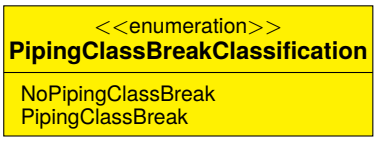
Name	Symbol	RDL Label	RDL URI
NonPipingClassArtefact	non-piping-class artefact	NON PIPING CLASS ARTEFACT	http://sandbox.dexpi.org/rdl/NonPipingClassArtefact
PipingClassArtefact	piping class artefact	PIPING CLASS ARTEFACT	http://sandbox.dexpi.org/rdl/PipingClassArtefact

PipingClassBreakClassification

Plant::*Enumerations*::PipingClassBreakClassification

Overview

Enumeration



Members

Literals

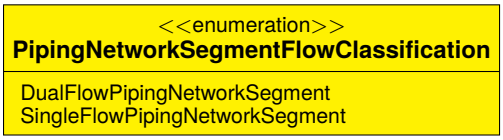
Name	Symbol	RDL Label	RDL URI
NoPipingClassBreak	no piping class break	NO PIPING CLASS BREAK	http://sandbox.dexpi.org/rdl/NoPipingClassBreak
PipingClassBreak	piping class break	PIPING CLASS BREAK	http://sandbox.dexpi.org/rdl/PipingClassBreak

PipingNetworkSegmentFlowClassification

Plant::*Enumerations*::PipingNetworkSegmentFlowClassification

Overview

Enumeration



Members

Literals

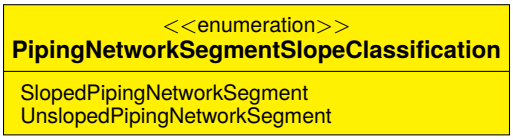
Name	Symbol	RDL Label	RDL URI
DualFlowPipingNetworkSegment	dual flow	DUAL FLOW PIPING NETWORK SEGMENT	http://sandbox.dexpi.org/rdl/DualFlowPipingNetworkSegment
SingleFlowPipingNetworkSegment	single flow	SINGLE FLOW PIPING NETWORK SEGMENT	http://sandbox.dexpi.org/rdl/SingleFlowPipingNetworkSegment

PipingNetworkSegmentSlopeClassification

Plant::*Enumerations*::PipingNetworkSegmentSlopeClassification

Overview

Enumeration



Members

Literals

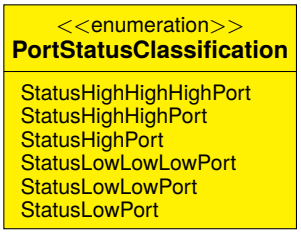
Name	Symbol	RDL Label	RDL URI
SlopedPipingNetworkSegment	sloped	SLOPED PIPING NETWORK SEGMENT	http://sandbox.dexpi.org/rdl/SlopedPipingNetworkSegment
UnslopedPipingNetworkSegment	not sloped	UNSLOPED PIPING NETWORK SEGMENT	http://sandbox.dexpi.org/rdl/UnslopedPipingNetworkSegment

PortStatusClassification

Plant::*Enumerations*::PortStatusClassification

Overview

Enumeration



Members

Literals

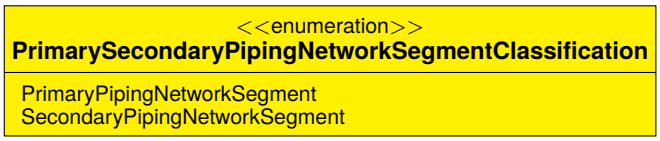
Name	Symbol	RDL Label	RDL URI
StatusHighHighHighPort	HHH	STATUS HIGH HIGH HIGH PORT	http://sandbox.dexpi.org/rdl/StatusHighHighHighPort
StatusHighHighPort	HH	STATUS HIGH HIGH PORT	http://data.posccaesar.org/rdl/RDS323099
StatusHighPort	H	STATUS HIGH PORT	http://data.posccaesar.org/rdl/RDS323144
StatusLowLowLowPort	LLL	STATUS LOW LOW LOW PORT	http://sandbox.dexpi.org/rdl/StatusLowLowLowPort
StatusLowLowPort	LL	STATUS LOW LOW PORT	http://data.posccaesar.org/rdl/RDS323189
StatusLowPort	L	STATUS LOW PORT	http://data.posccaesar.org/rdl/RDS323234

PrimarySecondaryPipingNetworkSegmentClassification

Plant::*Enumerations*::PrimarySecondaryPipingNetworkSegmentClassification

Overview

Enumeration



Members

Literals

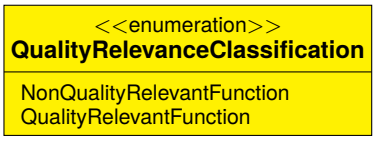
Name	Symbol	RDL Label	RDL URI
PrimaryPipingNetworkSegment	primary segment	PRIMARY PIPING NETWORK SEGMENT	http://sandbox.dexpi.org/rdl/PrimaryPipingNetworkSegment
SecondaryPipingNetworkSegment	secondary segment	SECONDARY PIPING NETWORK SEGMENT	http://sandbox.dexpi.org/rdl/SecondaryPipingNetworkSegment

QualityRelevanceClassification

Plant::*Enumerations*::QualityRelevanceClassification

Overview

Enumeration



Members

Literals

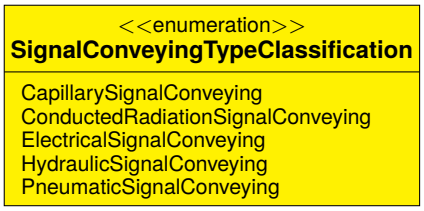
Name	Symbol	RDL Label	RDL URI
NonQualityRelevantFunction	not quality relevant	NON QUALITY RELEVANT FUNCTION	http://sandbox.dexpi.org/rdl/NonQualityRelevantFunction
QualityRelevantFunction	quality relevant	QUALITY RELEVANT FUNCTION	http://sandbox.dexpi.org/rdl/QualityRelevantFunction

SignalConveyingTypeClassification

Plant::*Enumerations*::SignalConveyingTypeClassification

Overview

Enumeration



Members

Literals

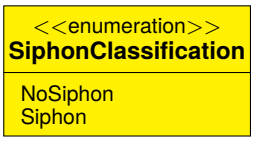
Name	Symbol	RDL Label	RDL URI
CapillarySignalConveying	capillary	CAPILLARY SIGNAL CONVEYING	http://sandbox.dexpi.org/rdl/CapillarySignalConveying
ConductedRadiationSignalConveying	conducted radiation	CONDUCTED RADIATION SIGNAL CONVEYING	http://sandbox.dexpi.org/rdl/ConductedRadiationSignalConveying
ElectricalSignalConveying	electrical	ELECTRICAL SIGNAL CONVEYING	http://sandbox.dexpi.org/rdl/ElectricalSignalConveying
HydraulicSignalConveying	hydraulic	HYDRAULIC SIGNAL CONVEYING	http://sandbox.dexpi.org/rdl/HydraulicSignalConveying
PneumaticSignalConveying	pneumatic	PNEUMATIC SIGNAL CONVEYING	http://sandbox.dexpi.org/rdl/PneumaticSignalConveying

SiphonClassification

Plant::*Enumerations*::SiphonClassification

Overview

Enumeration



Members

Literals

Name	Symbol	RDL Label	RDL URI
NoSiphon	no siphon	NO SIPHON	http://sandbox.dexpi.org/rdl/NoSiphon
Siphon	siphon	SIPHON	http://data.posccaesar.org/rdl/RDS311084

Plant::Enumerations

Overview

Package

The Enumerations package contains enumerations for various aspects of engineering information in a P&ID. Enumerations that are relevant for P&ID graphics only are part of the Graphics package.

Members

Data Types

Name	Type
ChamberFunctionClassification	Enumeration
CompositionBreakClassification	Enumeration
DetonationProofArtefactClassification	Enumeration
ExplosionProofArtefactClassification	Enumeration
FailActionClassification	Enumeration
FireResistantArtefactClassification	Enumeration
GmpRelevanceClassification	Enumeration
GuaranteedSupplyFunctionClassification	Enumeration
HeatTracingTypeClassification	Enumeration
InsulationBreakClassification	Enumeration
JacketedPipeClassification	Enumeration
LocationClassification	Enumeration
NominalDiameterBreakClassification	Enumeration
NominalDiameterStandardClassification	Enumeration
NominalPressureStandardClassification	Enumeration
NumberOfPortsClassification	Enumeration
OnHoldClassification	Enumeration
OperationClassification	Enumeration
PipingClassArtefactClassification	Enumeration
PipingClassBreakClassification	Enumeration
PipingNetworkSegmentFlowClassification	Enumeration
PipingNetworkSegmentSlopeClassification	Enumeration
PortStatusClassification	Enumeration
PrimarySecondaryPipingNetworkSegmentClassification	Enumeration
QualityRelevanceClassification	Enumeration
SignalConveyingTypeClassification	Enumeration
SiphonClassification	Enumeration

3.2.3 Instrumentation

ActuatingElectricalFunction

Plant::*Instrumentation*::ActuatingElectricalFunction

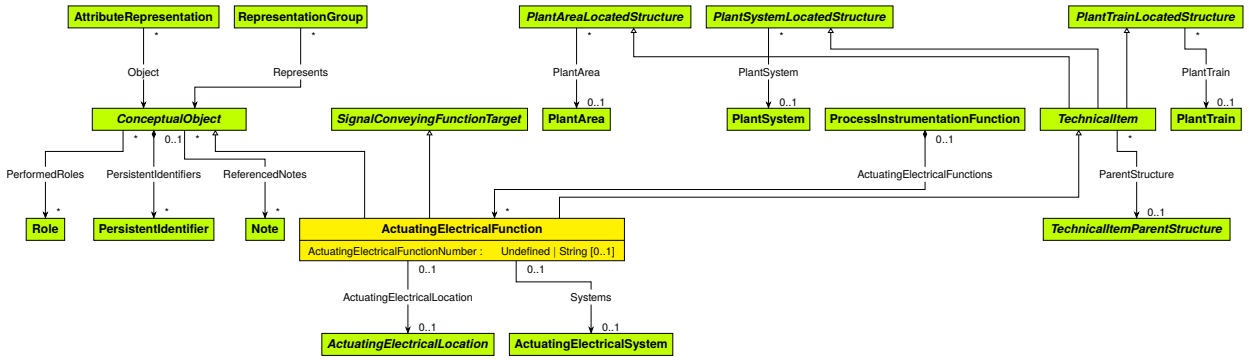
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ActuatingElectricalFunction

ACTUATING ELECTRICAL FUNCTION

An actuation setting electrical function. It covers all types of electrical consumers, e.g., motors and heaters.



Supertypes

- *ConceptualObject*
- *SignalConveyingFunctionTarget*
- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ActuatingElectricalLocation	0..1	*ActuatingElectricalLocation*	no	no	0..1
Systems	0..1	*ActuatingElectricalSystem*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ActuatingElectricalFunctionNumber	0..1	*Undefined* | *String*	no	no

ActuatingElectricalFunctionNumber

Data Property

An identifier for the *ActuatingElectricalFunction*. It usually contains the identifier of the *ProcessInstrumentationFunction* that includes the *ActuatingElectricalFunction* (see *ProcessInstrumentationFunctionNumber*).

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ActuatingElectricalFunctionNumberAssignmentClass

ACTUATING ELECTRICAL FUNCTION NUMBER ASSIGNMENT CLASS

Example

"E4750.01"

ActuatingElectricalLocation

Reference Property

The actuating electrical location of the ActuatingElectricalFunction.

Type: *ActuatingElectricalLocation*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Systems

Reference Property

The ActuatingElectricalSystem that implements the ActuatingElectricalFunction.

Type: *ActuatingElectricalSystem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ActuatingElectricalFunction">
  <Data property="ActuatingElectricalFunctionNumber">
    <String>E4750.01</String>
  </Data>
</Object>
```

ActuatingElectricalLocation

Plant::*Instrumentation*::ActuatingElectricalLocation

Overview

Abstract Class

An object suitable as the ActuatingElectricalLocation of an *ActuatingElectricalFunction*.

ActuatingElectricalLocation

Subtypes

- *Nozzle*
- *PipingNetworkSegment*

ActuatingElectricalSystem

Plant::*Instrumentation*::ActuatingElectricalSystem

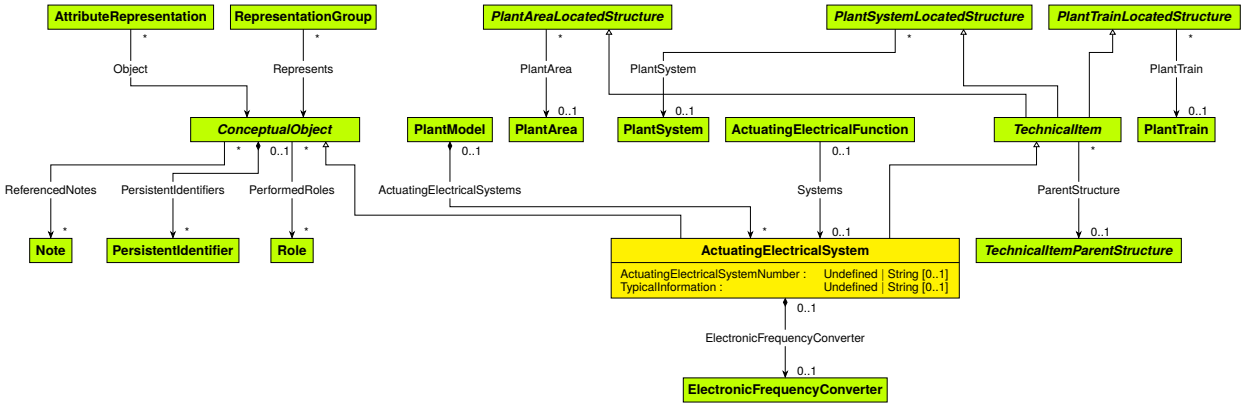
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ActuatingElectricalSystem

ACTUATING ELECTRICAL SYSTEM

An assembly of artefacts that is designed to fulfill an *ActuatingElectricalFunction*.



Supertypes

- *ConceptualObject*
- *TechnicalItem*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ElectronicFrequencyConverter	0..1	*ElectronicFrequencyConverter*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ActuatingElectricalSystemNumber	0..1	*Undefined* | *String*	no	no
TypicalInformation	0..1	*Undefined* | *String*	no	no

ActuatingElectricalSystemNumber

Data Property

The number of *ActuatingElectricalSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ActuatingSystemNumberAssignmentClass

ACTUATING SYSTEM NUMBER ASSIGNMENT CLASS

Example

```
"E0001"
```

ElectronicFrequencyConverter

Composition Property

The *ElectronicFrequencyConverter* of the ActuatingElectricalSystem.

Type: *ElectronicFrequencyConverter*

Multiplicity: 0..1

Ordered: no

TypicalInformation

Data Property

Typical information about the *ActuatingElectricalSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TypicalInformationAssignmentClass

TYPICAL INFORMATION ASSIGNMENT CLASS

Example

```
"F4"
```

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ActuatingElectricalSystem">
  <Data property="ActuatingElectricalSystemNumber">
    <String>E0001</String>
  </Data>
```

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```
  <Data property="TypicalInformation">
    <String>F4</String>
  </Data>
</Object>
```

ActuatingFunction

Plant::*Instrumentation*::ActuatingFunction

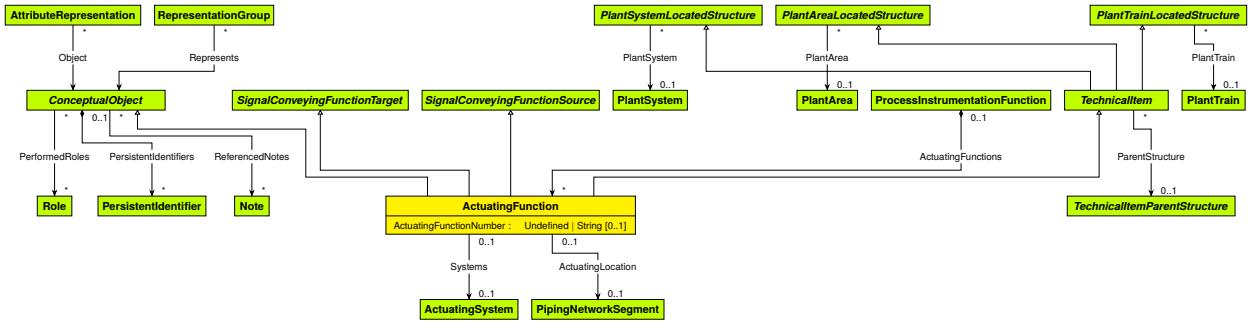
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ActuatingFunction

ACTUATING FUNCTION

A function for acting control structures relating to the process.



Supertypes

- *ConceptualObject*
- *SignalConveyingFunctionSource*
- *SignalConveyingFunctionTarget*
- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ActuatingLocation	0..1	*PipingNetworkSegment*	no	no	0..1
Systems	0..1	*ActuatingSystem*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ActuatingFunctionNumber	0..1	*Undefined* | *String*	no	no

ActuatingFunctionNumber

Data Property

An identifier for the *ActuatingFunction*. It usually contains the identifier of the *ProcessInstrumentationFunction* that includes the *ActuatingFunction* (see *ProcessInstrumentationFunctionNumber*).

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ActuatingFunctionNumberAssignmentClass

ACTUATING FUNCTION NUMBER ASSIGNMENT CLASS

Example

```
"HV4750.01"
```

ActuatingLocation

Reference Property

The actuating location of the ActuatingFunction.

Type: *PipingNetworkSegment*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Systems

Reference Property

The ActuatingSystem that implements the ActuatingFunction.

Type: *ActuatingSystem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ActuatingFunction">
  <Data property="ActuatingFunctionNumber">
    <String>HV4750.01</String>
  </Data>
</Object>
```

ActuatingSystem

Plant::*Instrumentation*::ActuatingSystem

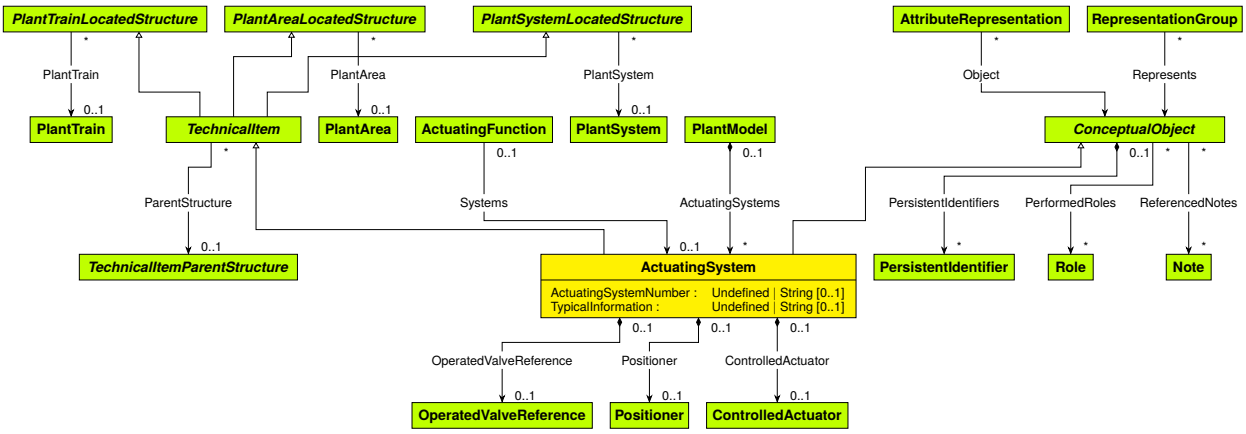
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ActuatingSystem

ACTUATING SYSTEM

An assembly of artefacts that is designed to fulfill an *ActuatingFunction*.



Supertypes

- *ConceptualObject*
- *TechnicalItem*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ControlledActuator	0..1	*ControlledActuator*	no
OperatedValveReference	0..1	*OperatedValveReference*	no
Positioner	0..1	*Positioner*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ActuatingSystemNumber	0..1	*Undefined* | *String*	no	no
TypicalInformation	0..1	*Undefined* | *String*	no	no

ActuatingSystemNumber

Data Property

The number of the *ActuatingSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ActuatingSystemNumberAssignmentClass

ACTUATING SYSTEM NUMBER ASSIGNMENT CLASS

Example

```
"FT0001"
```

ControlledActuator

Composition Property

The *ControlledActuator* of the ActuatingSystem.

Type: *ControlledActuator*

Multiplicity: 0..1

Ordered: no

OperatedValveReference

Composition Property

The *OperatedValveReference* of the ActuatingSystem.

Type: *OperatedValveReference*

Multiplicity: 0..1

Ordered: no

Positioner

Composition Property

The *Positioner* of the ActuatingSystem.

Type: *Positioner*

Multiplicity: 0..1

Ordered: no

TypicalInformation

Data Property

Typical information about the *ActuatingSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TypicalInformationAssignmentClass

TYPICAL INFORMATION ASSIGNMENT CLASS

Example

"F4"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ActuatingSystem">
  <Data property="ActuatingSystemNumber">
    <String>FT0001</String>
  </Data>
  <Data property="TypicalInformation">
    <String>F4</String>
  </Data>
</Object>
```

ControlledActuator

Plant::*Instrumentation*::ControlledActuator

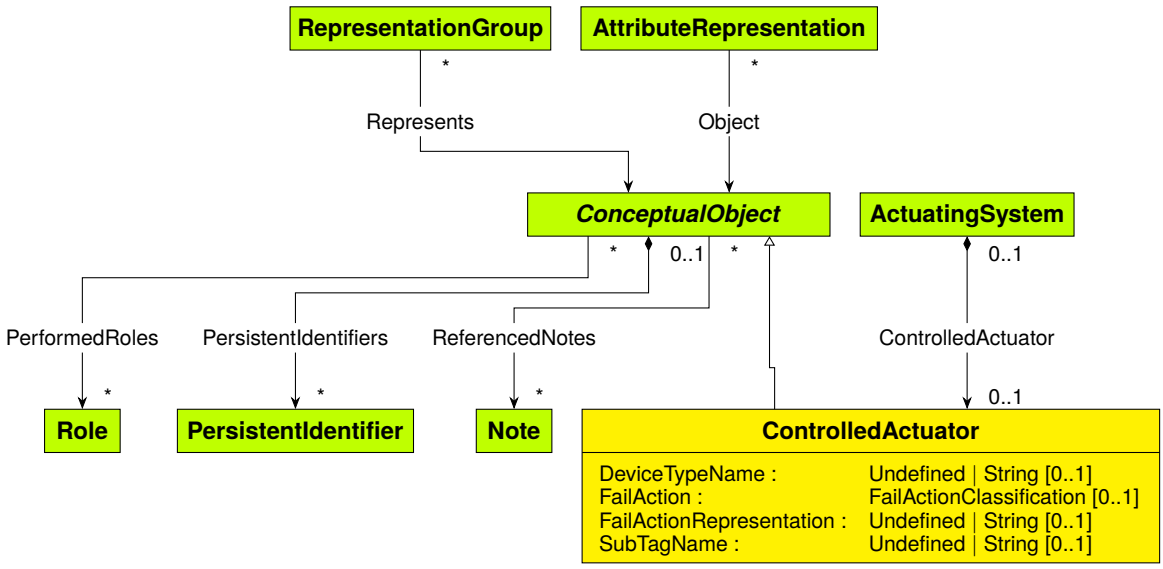
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ControlledActuator

CONTROLLED ACTUATOR

A transducer that is intended to convert energy (electric, mechanical, pneumatic or hydraulic) from an external source into kinetic energy (motion) in response to a signal or power input.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DeviceTypeName	0..1	*Undefined* | *String*	no	no
FailAction	0..1	*FailActionClassification*	no	no
FailActionRepresentation	0..1	*Undefined* | *String*	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

DeviceTypeName

Data Property

The device type of the *ControlledActuator*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DeviceTypeNameAssignmentClass

DEVICE TYPE NAME ASSIGNMENT CLASS

Example

```
"pressure transmitter"
```

FailAction

Data Property

The fail action of the *ControlledActuator*.

Type: *FailActionClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FailActionSpecialization

FAIL ACTION SPECIALIZATION

Example

FailOpen

FailActionRepresentation

Data Property

A readable representation of the fail action of the *ControlledActuator*. This attribute should also be referenced in the graphics if applicable.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FailActionRepresentationAssignmentClass

FAIL ACTION REPRESENTATION ASSIGNMENT CLASS

Example

`"F.O."`

SubTagName

Data Property

The sub tag name of the *ControlledActuator*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ControlledActuator">
  <Data property="DeviceTypeName">
    <String>pressure transmitter</String>
  </Data>
  <Data property="FailAction">
    <DataReference data="Plant/Enumerations.FailActionClassification.FailOpen"/>
  </Data>
  <Data property="FailActionRepresentation">
    <String>F.O.</String>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

ElectronicFrequencyConverter

Plant::*Instrumentation*::ElectronicFrequencyConverter

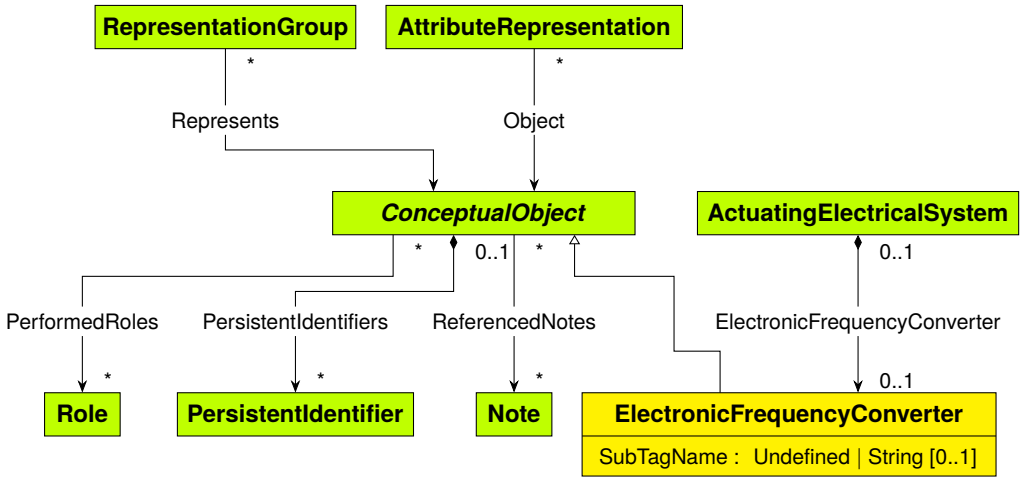
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ElectronicFrequencyConverter

ELECTRONIC FREQUENCY CONVERTER

An electronic AC converter for changing the frequency.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

SubTagName

Data Property

The sub tag name of the *ElectronicFrequencyConverter*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ElectronicFrequencyConverter">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

FlowDetector

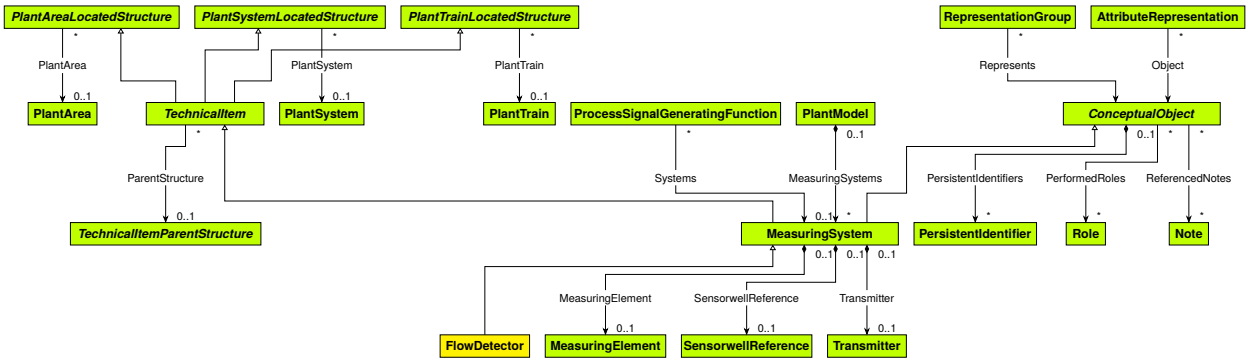
Plant::*Instrumentation*::FlowDetector

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1008719

FLOW DETECTOR



Supertypes

- *MeasuringSystem*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.FlowDetector"/>
```

FlowInSignalOffPageConnector

Plant::*Instrumentation*::FlowInSignalOffPageConnector

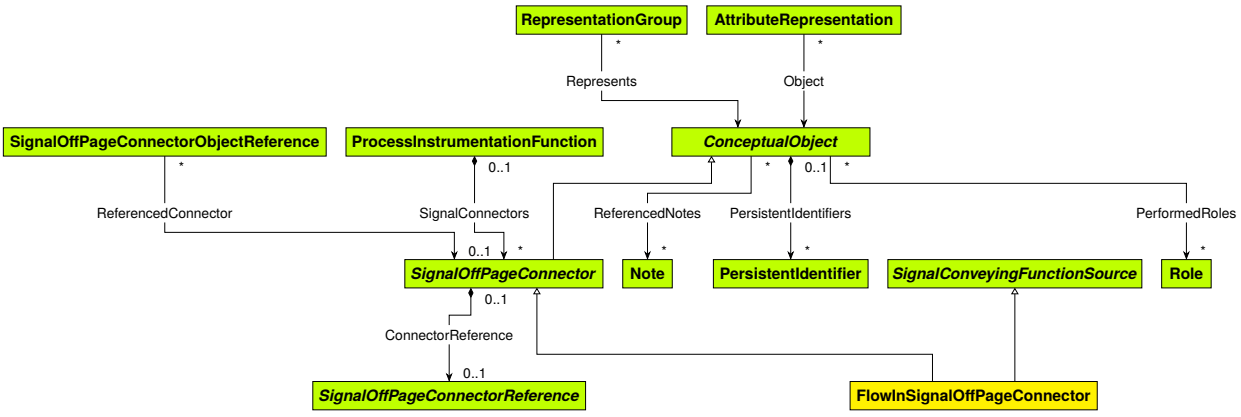
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FlowInSignalOffPageConnector

FLOW IN SIGNAL OFF PAGE CONNECTOR

A signal connector that indicates that a preceding part of a signal conveying function is represented somewhere else, either on the same PID, or on some other PID.



Supertypes

- *SignalConveyingFunctionSource*
- *SignalOffPageConnector*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.FlowInSignalOffPageConnector"/>
```

FlowOutSignalOffPageConnector

Plant::*Instrumentation*::FlowOutSignalOffPageConnector

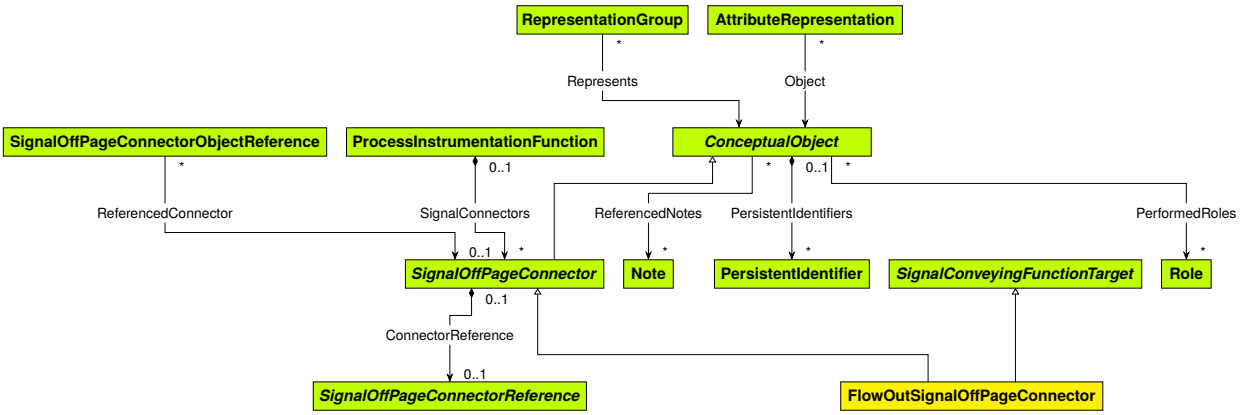
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FlowOutSignalOffPageConnector

FLOW OUT SIGNAL OFF PAGE CONNECTOR

A signal connector that indicates that a subsequent part of a signal conveying function is represented somewhere else, either on the same PID, or on some other PID.



Supertypes

- *SignalConveyingFunctionTarget*
- *SignalOffPageConnector*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.FlowOutSignalOffPageConnector"/>
```

InlineMeasuringElementReference

Plant::*Instrumentation*::InlineMeasuringElementReference

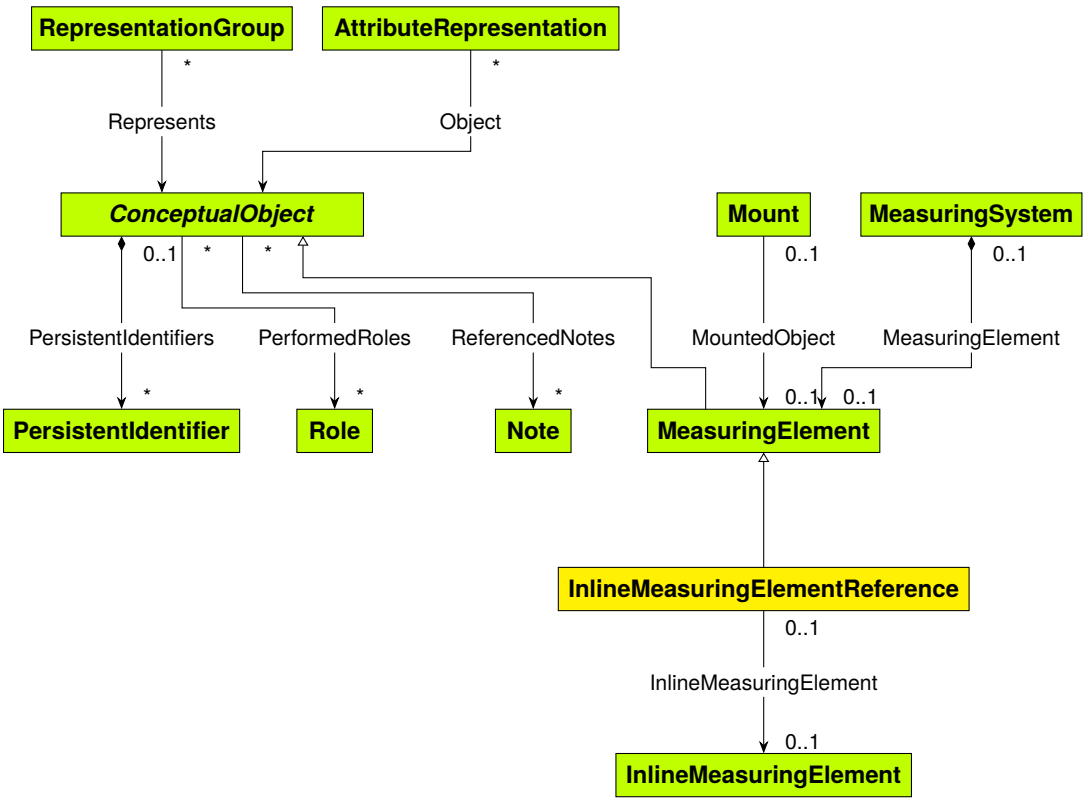
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/InlineMeasuringElementReference

INLINE MEASURING ELEMENT REFERENCE

A reference to an *InlineMeasuringElement* that is part of a *PipingNetworkSegment*.



Supertypes

- *MeasuringElement*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
InlineMeasuringElement	0..1	*InlineMeasuringElement*	no	no	0..1

InlineMeasuringElement

Reference Property

The *InlineMeasuringElement* referenced by the InlineMeasuringElementReference.

Type: *InlineMeasuringElement*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.InlineMeasuringElementReference"/>
```

InstrumentationLoopFunction

Plant::*Instrumentation*::InstrumentationLoopFunction

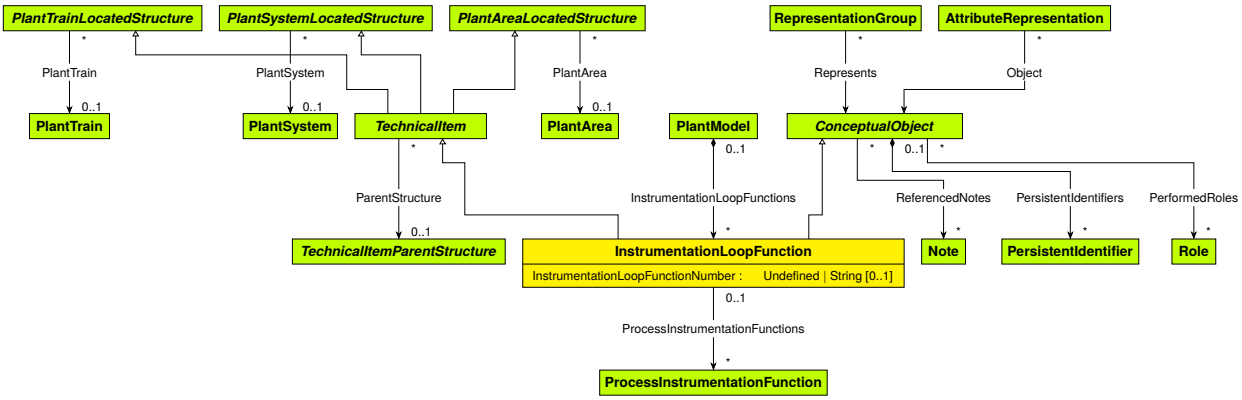
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/InstrumentationLoopFunction

INSTRUMENTATION LOOP FUNCTION

An identified collection of related *ProcessInstrumentationFunctions* that interact for a known purpose.



Supertypes

- *ConceptualObject*
- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite	Multiplicity
ProcessInstrumentationFunctions	*	*ProcessInstrumentationFunction*	no	no	0..1	

Data Properties

Name	Multiplicity	Type	Ordered	Unique
InstrumentationLoopFunctionNumber	0..1	*Undefined* | *String*	no	no

InstrumentationLoopFunctionNumber

Data Property

The identification number of the *InstrumentationLoopFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InstrumentationLoopFunctionNumberAssignmentClass

INSTRUMENTATION LOOP FUNCTION NUMBER ASSIGNMENT CLASS

Example

```
"4750.01"
```

ProcessInstrumentationFunctions

Reference Property

The *ProcessInstrumentationFunctions* that constitute this InstrumentationLoopFunction.

Type: *ProcessInstrumentationFunction*

Multiplicity: *

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.InstrumentationLoopFunction">
  <Data property="InstrumentationLoopFunctionNumber">
    <String>4750.01</String>
  </Data>
</Object>
```

MeasuringElement

Plant::*Instrumentation*::MeasuringElement

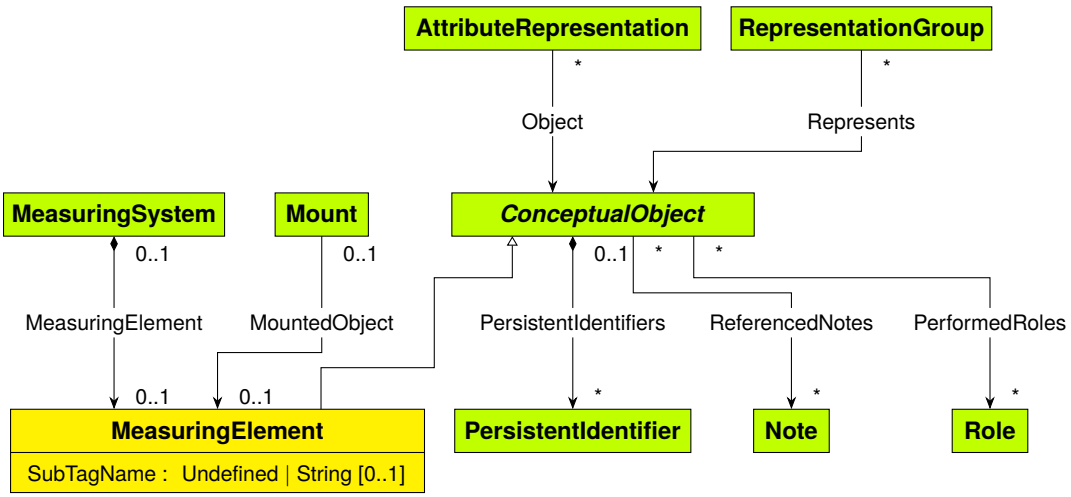
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MeasuringElement

MEASURING ELEMENT

An artefact used for the measurement of a Property.



Supertypes

- *ConceptualObject*

Subtypes

- *InlineMeasuringElementReference*
- *OfflineMeasuringElement*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

SubTagName

Data Property

The sub tag name of the *MeasuringElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

```
"ST1"
```

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.MeasuringElement">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

MeasuringLineFunction

Plant::*Instrumentation*::MeasuringLineFunction

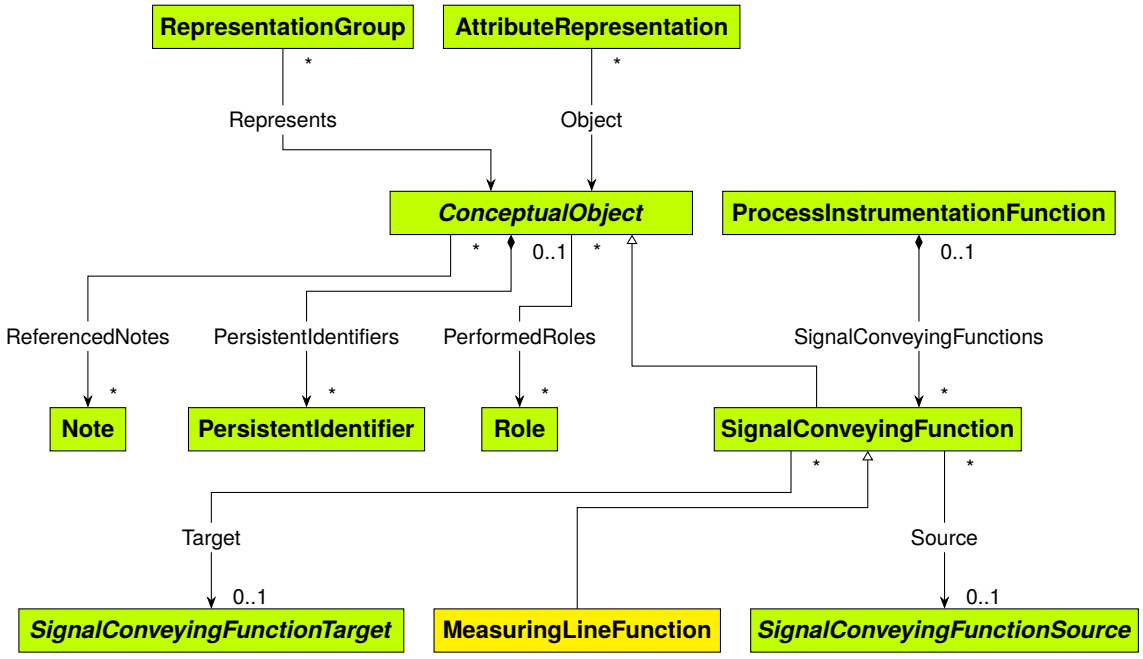
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MeasuringLineFunction

MEASURING LINE FUNCTION

Information flow function for measured values.



Supertypes

- *SignalConveyingFunction*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.MeasuringLineFunction"/>
```

MeasuringSystem

Plant::*Instrumentation*::MeasuringSystem

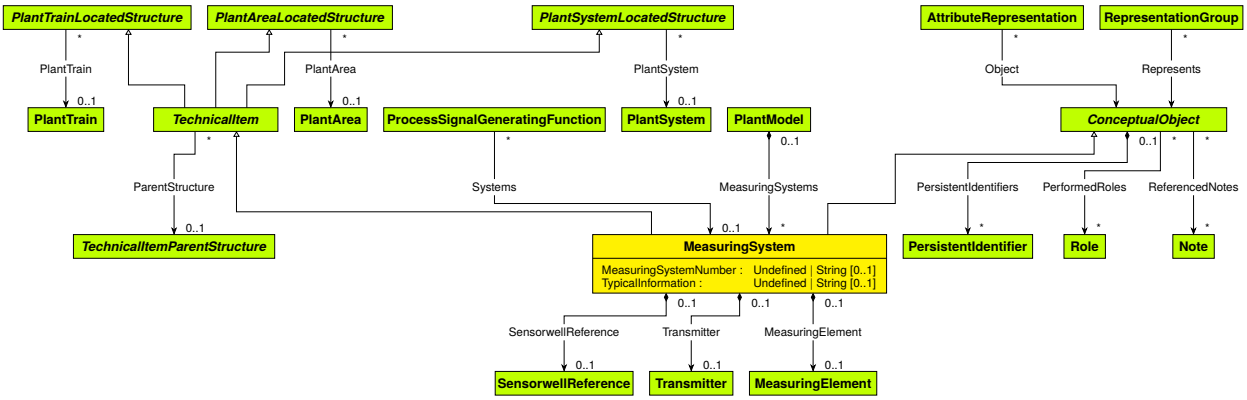
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MeasuringSystem

MEASURING SYSTEM

An assembly of artefacts that is designed to measure and transmit a property in order to fulfill one or more *ProcessSignalGeneratingFunctions*.



Supertypes

- *ConceptualObject*
- *TechnicalItem*

Subtypes

- *FlowDetector*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
MeasuringElement	0..1	*MeasuringElement*	no
SensorwellReference	0..1	*SensorwellReference*	no
Transmitter	0..1	*Transmitter*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MeasuringSystemNumber	0..1	*Undefined* | *String*	no	no
TypicalInformation	0..1	*Undefined* | *String*	no	no

MeasuringElement

Composition Property

The *MeasuringElement* of the MeasuringSystem.

Type: *MeasuringElement*

Multiplicity: 0..1

Ordered: no

MeasuringSystemNumber

Data Property

The number of the *MeasuringSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/MeasuringSystemNumberAssignmentClass

MEASURING SYSTEM NUMBER ASSIGNMENT CLASS

Example

```
"FE0001"
```

SensorwellReference

Composition Property

The *SensorwellReference* of the MeasuringSystem.

Type: *SensorwellReference*

Multiplicity: 0..1

Ordered: no

Transmitter

Composition Property

The *Transmitter* of the MeasuringSystem.

Type: *Transmitter*

Multiplicity: 0..1

Ordered: no

TypicalInformation

Data Property

Typical information about the *MeasuringSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TypicalInformationAssignmentClass

TYPICAL INFORMATION ASSIGNMENT CLASS

Example

"F4"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.MeasuringSystem">
  <Data property="MeasuringSystemNumber">
    <String>FE0001</String>
  </Data>
  <Data property="TypicalInformation">
    <String>F4</String>
  </Data>
</Object>
```

OfflineMeasuringElement

Plant::*Instrumentation*::OfflineMeasuringElement

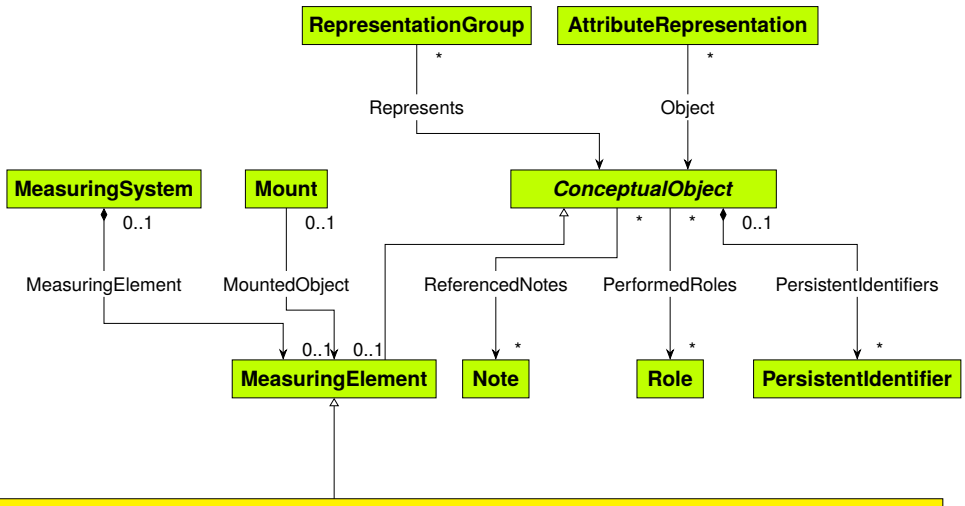
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/OfflineMeasuringElement

OFFLINE MEASURING ELEMENT

A *MeasuringElement* that is not part of a *PipingNetworkSegment*.



OfflineMeasuringElement	
ConnectionNominalDiameterNumericalValueRepresentation :	Undefined | String [0..1]
ConnectionNominalDiameterRepresentation :	Undefined | String [0..1]
ConnectionNominalDiameterStandard :	NominalDiameterStandardClassification [0..1]
ConnectionNominalDiameterTypeRepresentation :	Undefined | String [0..1]
FluidCode :	Undefined | String [0..1]
HeatTracingType :	HeatTracingTypeClassification [0..1]
HeatTracingTypeRepresentation :	Undefined | String [0..1]
InsulationThickness :	Undefined | <PhysicalQuantity with UnitType → LengthUnit> [0..1]
InsulationType :	Undefined | String [0..1]
LocationNominalDiameterNumericalValueRepresentation :	Undefined | String [0..1]
LocationNominalDiameterRepresentation :	Undefined | String [0..1]
LocationNominalDiameterStandard :	NominalDiameterStandardClassification [0..1]
LocationNominalDiameterTypeRepresentation :	Undefined | String [0..1]
LowerLimitHeatTracingTemperature :	Undefined | <PhysicalQuantity with UnitType → TemperatureUnit> [0..1]

Supertypes

- *MeasuringElement*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ConnectionNominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
ConnectionNominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
ConnectionNominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
ConnectionNominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no
FluidCode	0..1	*Undefined* | *String*	no	no
HeatTracingType	0..1	*HeatTracingTypeClassification*	no	no
HeatTracingTypeRepresentation	0..1	*Undefined* | *String*	no	no
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
LocationNominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
LocationNominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
LocationNominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
LocationNominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no
LowerLimitHeatTracingTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no

ConnectionNominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter at the device connection of the *OfflineMeasuringElement*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConnectionNominalDiameterNumericalValueRepresentationAssignmentClass

CONNECTION NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

```
"25"
```

ConnectionNominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter at the device connection of the *OfflineMeasuringElement*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConnectionNominalDiameterRepresentationAssignmentClass

CONNECTION NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN 25"
```

ConnectionNominalDiameterStandard

Data Property

The nominal diameter of the device connection of the *OfflineMeasuringElement*, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConnectionNominalDiameterStandardSpecialization

CONNECTION NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

ConnectionNominalDiameterTypeRepresentation

Data Property

A readable representation of the type of the nominal diameter at the device connection of the *OfflineMeasuringElement*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConnectionNominalDiameterTypeRepresentationAssignmentClass

CONNECTION NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

"DN"

FluidCode

Data Property

The identification code of the fluid related to the *OfflineMeasuringElement*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FluidCodeAssignmentClass

FLUID CODE ASSIGNMENT CLASS

Example

"MNb"

HeatTracingType

Data Property

A specialization indicating the heat tracing type related to the *OfflineMeasuringElement*.

Type: *HeatTracingTypeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeSpecialization

HEAT TRACING TYPE SPECIALIZATION

Example

ElectricalHeatTracingSystem

HeatTracingTypeRepresentation

Data Property

The heat tracing type related to the *OfflineMeasuringElement*, represented as a string.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeRepresentationAssignmentClass

HEAT TRACING TYPE REPRESENTATION ASSIGNMENT CLASS

Example

"E"

InsulationThickness

Data Property

The insulation thickness of the *OfflineMeasuringElement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = 40.0)

InsulationType

Data Property

The identification code for the insulation type related to the *OfflineMeasuringElement*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

"Q"

LocationNominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter at the location of the *OfflineMeasuringElement*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterNumericalValueRepresentationAssignmentClass

LOCATION NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

```
"25"
```

LocationNominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter at the location of the *OfflineMeasuringElement*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterRepresentationAssignmentClass

LOCATION NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN 25"
```

LocationNominalDiameterStandard

Data Property

The nominal diameter of the location of the *OfflineMeasuringElement*, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterStandardSpecialization

LOCATION NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

LocationNominalDiameterTypeRepresentation

Data Property

A readable representation of the type of the nominal diameter at the location of the *OfflineMeasuringElement*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterTypeRepresentationAssignmentClass

LOCATION NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

`"DN"`

LowerLimitHeatTracingTemperature

Data Property

The lower limit for the temperature that a heat tracing system must ensure for the *OfflineMeasuringElement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitHeatTracingTemperature

LOWER LIMIT HEAT TRACING TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `100.0`)

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.OfflineMeasuringElement">
  <Data property="ConnectionNominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="ConnectionNominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="ConnectionNominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
```

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```
  </Data>
  <Data property="ConnectionNominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
  <Data property="FluidCode">
    <String>MNb</String>
  </Data>
  <Data property="HeatTracingType">
    <DataReference data="Plant/Enumerations.HeatTracingTypeClassification.
↪ElectricalHeatTracingSystem"/>
  </Data>
  <Data property="HeatTracingTypeRepresentation">
    <String>E</String>
  </Data>
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="LocationNominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="LocationNominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="LocationNominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
  </Data>
  <Data property="LocationNominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
  <Data property="LowerLimitHeatTracingTemperature">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
      </Data>
      <Data property="Value">
        <Double>100.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

OperatedValveReference

Plant::*Instrumentation*::OperatedValveReference

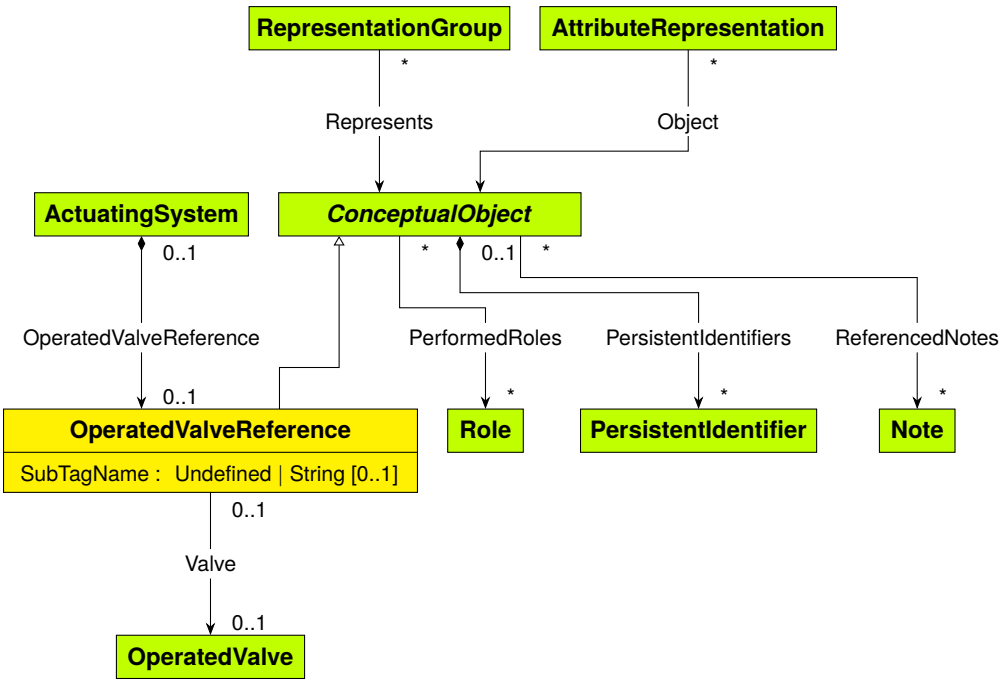
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/OperatedValveReference

OPERATED VALVE REFERENCE

A reference to an *OperatedValve*.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Valve	0..1	*OperatedValve*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

SubTagName

Data Property

The sub tag name of the *OperatedValveReference*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

```
"ST1"
```

Valve

Reference Property

The actual valve referenced by the OperatedValveReference.

Type: *OperatedValve*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.OperatedValveReference">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

Positioner

Plant::*Instrumentation*::Positioner

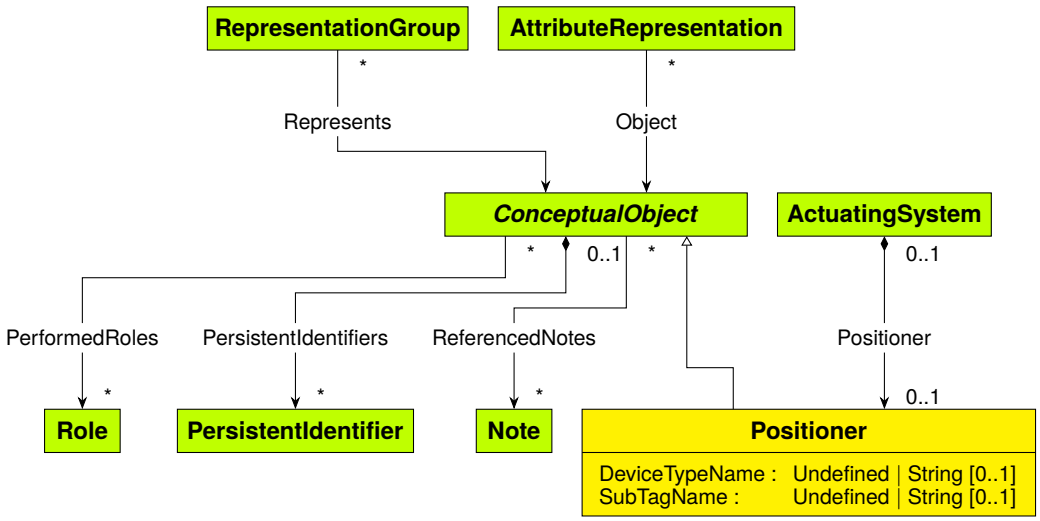
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Positioner

POSITIONER

A positioner.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DeviceTypeName	0..1	*Undefined* | *String*	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

DeviceTypeName

Data Property

The device type of the *Positioner*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DeviceTypeNameAssignmentClass

DEVICE TYPE NAME ASSIGNMENT CLASS

Example

```
"pressure transmitter"
```

SubTagName

Data Property

The sub tag name of the *Positioner*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.Positioner">
  <Data property="DeviceTypeName">
    <String>pressure transmitter</String>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

ProcessControlFunction

Plant::*Instrumentation*::ProcessControlFunction

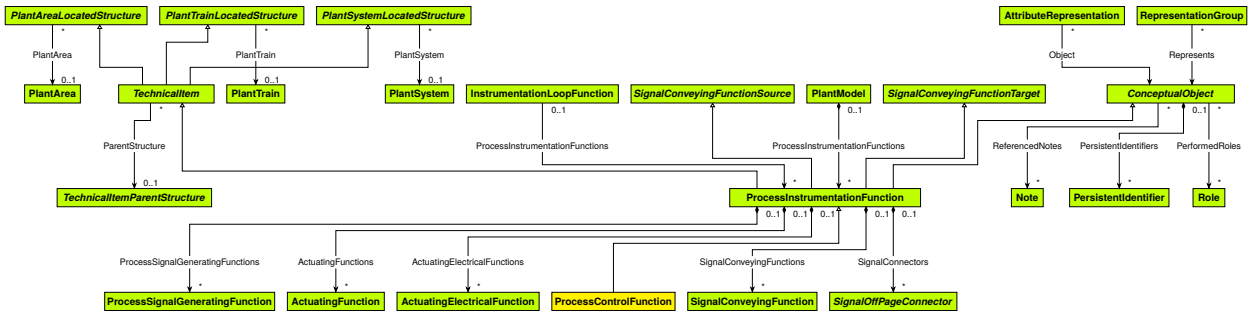
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ProcessControlFunction

PROCESS CONTROL FUNCTION

A requirement for control structures relating to Process Engineering.



Supertypes

- *ProcessInstrumentationFunction*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ProcessControlFunction"/>
```

ProcessInstrumentationFunction

Plant::*Instrumentation*::ProcessInstrumentationFunction

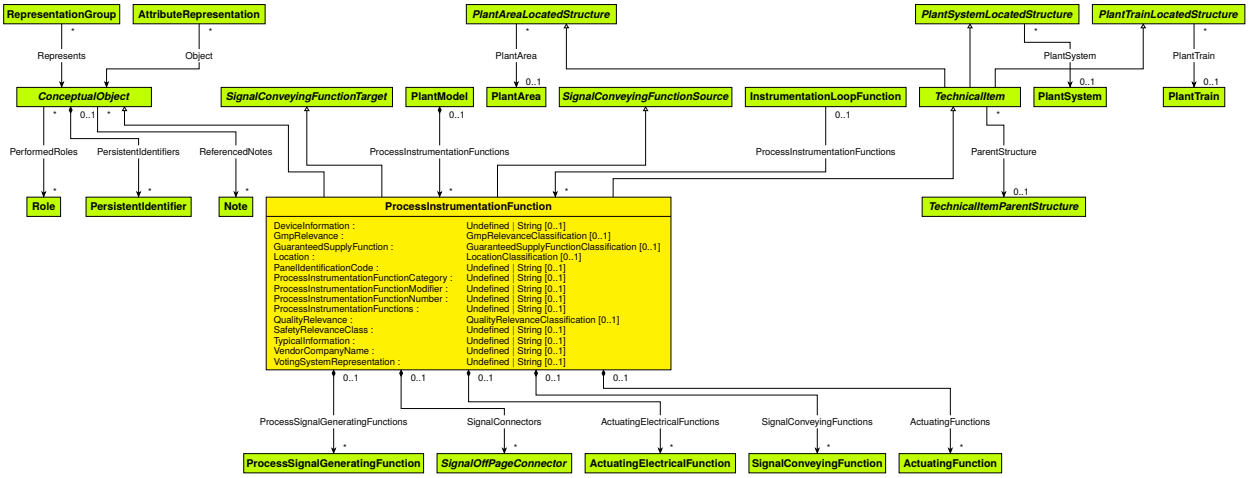
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ProcessInstrumentationFunction

PROCESS INSTRUMENTATION FUNCTION

A requirement for instrumentation and/or control structures relating to Process Engineering.



Supertypes

- *ConceptualObject*
- *SignalConveyingFunctionSource*
- *SignalConveyingFunctionTarget*
- *TechnicalItem*

Subtypes

- *ProcessControlFunction*
- *ProcessSafetyFunction*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ActuatingElectricalFunctions	*	*ActuatingElectricalFunction*	no
ActuatingFunctions	*	*ActuatingFunction*	no
ProcessSignalGeneratingFunctions	*	*ProcessSignalGeneratingFunction*	no
SignalConnectors	*	*SignalOffPageConnector*	no
SignalConveyingFunctions	*	*SignalConveyingFunction*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DeviceInformation	0..1	*Undefined* | *String*	no	no
GmpRelevance	0..1	*GmpRelevanceClassification*	no	no
GuaranteedSupplyFunction	0..1	*GuaranteedSupplyFunctionClassification*	no	no
Location	0..1	*LocationClassification*	no	no
PanelIdentificationCode	0..1	*Undefined* | *String*	no	no
ProcessInstrumentationFunctionCategory	0..1	*Undefined* | *String*	no	no
ProcessInstrumentationFunctionModifier	0..1	*Undefined* | *String*	no	no
ProcessInstrumentationFunctionNumber	0..1	*Undefined* | *String*	no	no
ProcessInstrumentationFunctions	0..1	*Undefined* | *String*	no	no
QualityRelevance	0..1	*QualityRelevanceClassification*	no	no
SafetyRelevanceClass	0..1	*Undefined* | *String*	no	no
TypicalInformation	0..1	*Undefined* | *String*	no	no
VendorCompanyName	0..1	*Undefined* | *String*	no	no
VotingSystemRepresentation	0..1	*Undefined* | *String*	no	no

ActuatingElectricalFunctions

Composition Property

The *ActuatingElectricalFunctions* that are part of this ProcessInstrumentationFunction.

Type: *ActuatingElectricalFunction*

Multiplicity: *

Ordered: no

ActuatingFunctions

Composition Property

The *ActuatingFunctions* that are part of this ProcessInstrumentationFunction.

Type: *ActuatingFunction*

Multiplicity: *

Ordered: no

DeviceInformation

Data Property

Device information the *ProcessInstrumentationFunction*, e.g., for a detector.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DeviceInformationAssignmentClass

DEVICE INFORMATION ASSIGNMENT CLASS

Example

```
"MDM"
```

GmpRelevance

Data Property

A classification indicating if the *ProcessInstrumentationFunction* is relevant for GMP (good manufacturing practice).

Type: *GmpRelevanceClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/GmpRelevanceSpecialization

GMP RELEVANCE SPECIALIZATION

Example

GmpRelevantFunction

GuaranteedSupplyFunction

Data Property

A classification indicating if the *ProcessInstrumentationFunction* is a guaranteed supply function.

Type: *GuaranteedSupplyFunctionClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/GuaranteedSupplyFunctionSpecialization

GUARANTEED SUPPLY FUNCTION SPECIALIZATION

Example

GuaranteedSupplyFunction

Location

Data Property

A specialization indicating the location of the *ProcessInstrumentationFunction*.

Type: *LocationClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationSpecialization

LOCATION SPECIALIZATION

Example

Field

PanelIdentificationCode

Data Property

The panel identification code of the *ProcessInstrumentationFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PanelIdentificationCodeAssignmentClass

PANEL IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"P 3A"
```

ProcessInstrumentationFunctionCategory

Data Property

The function category of the *ProcessInstrumentationFunction*. The value is a string, typically one or two letters. Recent standards for PIDs normally enforce a single letter from a fixed list. However, there are no formal DEXPI restrictions for valid strings.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessInstrumentationFunctionCategoryAssignmentClass

PROCESS INSTRUMENTATION FUNCTION CATEGORY ASSIGNMENT CLASS

Example

"H"

ProcessInstrumentationFunctionModifier

Data Property

The modifier of the *ProcessInstrumentationFunction*. The value is a string, typically a single letter, e.g., D for difference. So far, there are no formal DEXPI restrictions for valid strings.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessInstrumentationFunctionModifierAssignmentClass

PROCESS INSTRUMENTATION FUNCTION MODIFIER ASSIGNMENT CLASS

Example

"D"

ProcessInstrumentationFunctionNumber

Data Property

A unique identifier for the *ProcessInstrumentationFunction*. If the *ProcessInstrumentationFunction* is part of a *InstrumentationLoopFunction*, the identifier of the *ProcessInstrumentationFunction* usually contains the identifier of the *InstrumentationLoopFunction* (see *InstrumentationLoopFunctionNumber*).

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessInstrumentationFunctionNumberAssignmentClass

PROCESS INSTRUMENTATION FUNCTION NUMBER ASSIGNMENT CLASS

Example

"H4750.01"

ProcessInstrumentationFunctions

Data Property

Additional functions of the *ProcessInstrumentationFunction* (i.e., in addition to the function category, see *ProcessInstrumentationFunctionCategory*).

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessInstrumentationFunctionsAssignmentClass

PROCESS INSTRUMENTATION FUNCTIONS ASSIGNMENT CLASS

Example

"HS"

ProcessSignalGeneratingFunctions

Composition Property

The *ProcessSignalGeneratingFunctions* that are part of this ProcessInstrumentationFunction.

Type: *ProcessSignalGeneratingFunction*

Multiplicity: *

Ordered: no

QualityRelevance

Data Property

A classification indicating if the *ProcessInstrumentationFunction* is quality relevant.

Type: *QualityRelevanceClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/QualityRelevanceSpecialization

QUALITY RELEVANCE SPECIALIZATION

Example

QualityRelevantFunction

SafetyRelevanceClass

Data Property

The safety relevance class the *ProcessInstrumentationFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SafetyRelevanceClassAssignmentClass

SAFETY RELEVANCE CLASS ASSIGNMENT CLASS

Example

```
"SIL3"
```

SignalConnectors

Composition Property

The Plant.Instrumentation.SignalOffPageConnectors that are part of this ProcessInstrumentationFunction.

Type: *SignalOffPageConnector*

Multiplicity: *

Ordered: no

SignalConveyingFunctions

Composition Property

The *SignalConveyingFunctions* that are part of this ProcessInstrumentationFunction.

Type: *SignalConveyingFunction*

Multiplicity: *

Ordered: no

TypicalInformation

Data Property

Typical information about the *ProcessInstrumentationFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TypicalInformationAssignmentClass

TYPICAL INFORMATION ASSIGNMENT CLASS

Example

```
"F4"
```

VendorCompanyName

Data Property

The vendor company name the *ProcessInstrumentationFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/VendorCompanyNameAssignmentClass

VENDOR COMPANY NAME ASSIGNMENT CLASS

Example

"Emerson"

VotingSystemRepresentation

Data Property

A representation of the voting system of the *ProcessInstrumentationFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/VotingSystemRepresentationAssignmentClass

VOTING SYSTEM REPRESENTATION ASSIGNMENT CLASS

Example

"1oo2"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ProcessInstrumentationFunction">
  <Data property="DeviceInformation">
    <String>MDM</String>
  </Data>
  <Data property="GmpRelevance">
    <DataReference data="Plant/Enumerations.GmpRelevanceClassification.
↪GmpRelevantFunction"/>
  </Data>
  <Data property="GuaranteedSupplyFunction">
    <DataReference data="Plant/Enumerations.GuaranteedSupplyFunctionClassification.
↪GuaranteedSupplyFunction"/>
  </Data>
  <Data property="Location">
    <DataReference data="Plant/Enumerations.LocationClassification.Field"/>
  </Data>
  <Data property="PanelIdentificationCode">
    <String>P 3A</String>
  </Data>
  <Data property="ProcessInstrumentationFunctionCategory">
    <String>H</String>
  </Data>
  <Data property="ProcessInstrumentationFunctionModifier">
    <String>D</String>
```

(continues on next page)

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```
  </Data>
  <Data property="ProcessInstrumentationFunctionNumber">
    <String>H4750.01</String>
  </Data>
  <Data property="ProcessInstrumentationFunctions">
    <String>HS</String>
  </Data>
  <Data property="QualityRelevance">
    <DataReference data="Plant/Enumerations.QualityRelevanceClassification.
↪QualityRelevantFunction"/>
  </Data>
  <Data property="SafetyRelevanceClass">
    <String>SIL3</String>
  </Data>
  <Data property="TypicalInformation">
    <String>F4</String>
  </Data>
  <Data property="VendorCompanyName">
    <String>Emerson</String>
  </Data>
  <Data property="VotingSystemRepresentation">
    <String>1oo2</String>
  </Data>
</Object>
```

ProcessSafetyFunction

Plant::*Instrumentation*::ProcessSafetyFunction

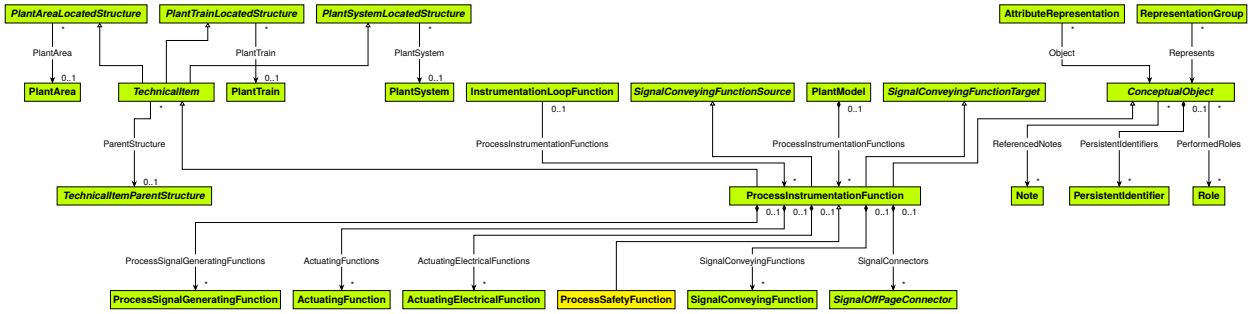
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ProcessSafetyFunction

PROCESS SAFETY FUNCTION

A requirement for safety structures relating to Process Engineering.



Supertypes

- *ProcessInstrumentationFunction*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ProcessSafetyFunction"/>
```

ProcessSignalGeneratingFunction

Plant::*Instrumentation*::ProcessSignalGeneratingFunction

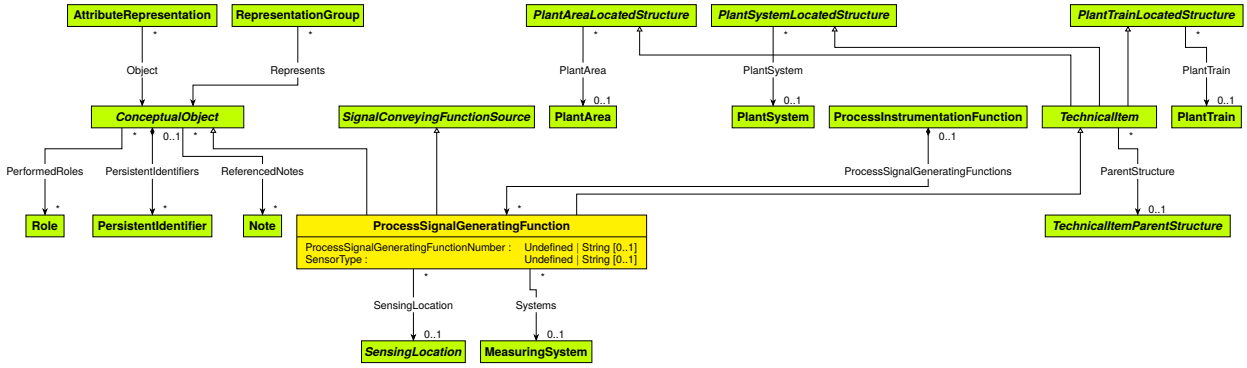
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ProcessSignalGeneratingFunction

PROCESS SIGNAL GENERATING FUNCTION

A function for instrumentation and/or control structures relating to Process Engineering.



Supertypes

- *ConceptualObject*
- *SignalConveyingFunctionSource*
- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
SensingLocation	0..1	*SensingLocation*	no	no	*
Systems	0..1	*MeasuringSystem*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ProcessSignalGeneratingFunctionNumber	0..1	*Undefined* | *String*	no	no
SensorType	0..1	*Undefined* | *String*	no	no

ProcessSignalGeneratingFunctionNumber

Data Property

An identifier for the *ProcessSignalGeneratingFunction*. It usually contains the identifier of the *ProcessInstrumentationFunction* that includes the *ProcessSignalGeneratingFunction* (see *ProcessInstrumentationFunctionNumber*).

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessSignalGeneratingFunctionNumberAssignmentClass

PROCESS SIGNAL GENERATING FUNCTION NUMBER ASSIGNMENT CLASS

Example

```
"TT4750.03"
```

SensingLocation

Reference Property

The sensing location of the ProcessSignalGeneratingFunction.

Type: *SensingLocation*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

SensorType

Data Property

The sensor type of the *ProcessSignalGeneratingFunction*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SensorTypeAssignmentClass

SENSOR TYPE ASSIGNMENT CLASS

Example

"MDM"

Systems

Reference Property

The MeasuringSystem that implements the ProcessSignalGeneratingFunction.

Type: *MeasuringSystem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.ProcessSignalGeneratingFunction">
  <Data property="ProcessSignalGeneratingFunctionNumber">
    <String>TT4750.03</String>
  </Data>
  <Data property="SensorType">
    <String>MDM</String>
  </Data>
</Object>
```

SensingLocation

Plant::*Instrumentation*::SensingLocation

Overview

Abstract Class

An object that can act as a *SensingLocation* of a *ProcessSignalGeneratingFunction*.

Subtypes

- *Mount*
- *Nozzle*
- *PipingComponent*
- *PipingNetworkSegment*

SensorwellReference

Plant::*Instrumentation*::SensorwellReference

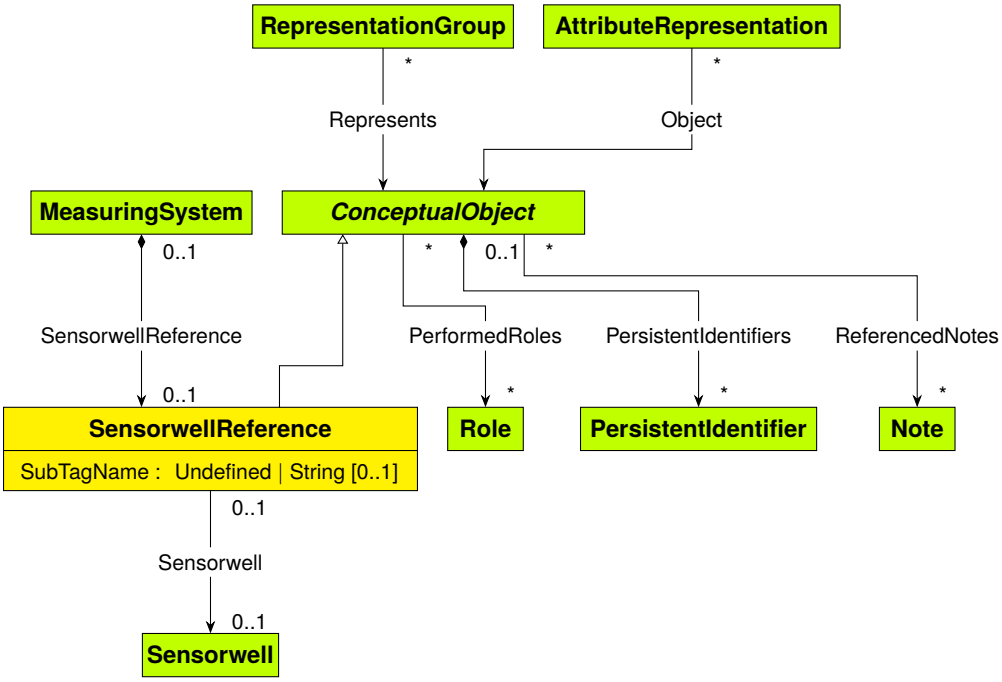
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SensorwellReference

SENSORWELL REFERENCE

A reference to a *Sensorwell* that is part of a *PipingNetworkSegment*.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Sensorwell	0..1	*Sensorwell*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

Sensorwell

Reference Property

The *Sensorwell* referenced by the SensorwellReference.

Type: *Sensorwell*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

SubTagName

Data Property

The sub tag name of the *SensorwellReference*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.SensorwellReference">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

SignalConveyingFunction

Plant::*Instrumentation*::SignalConveyingFunction

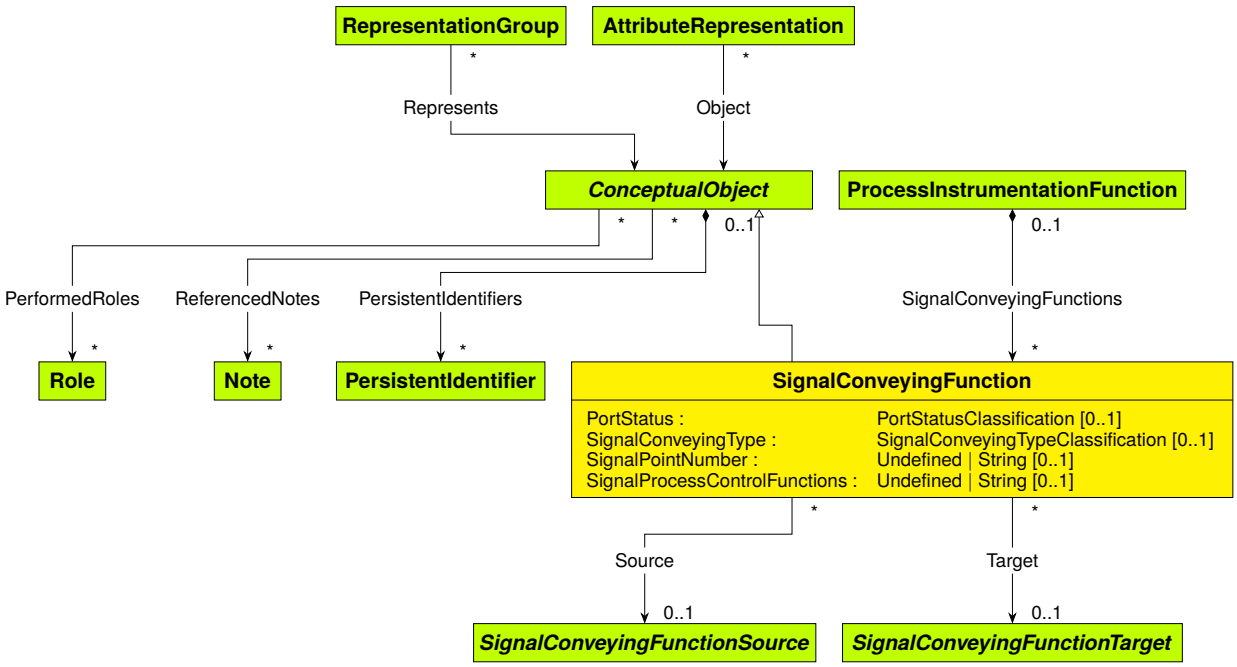
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SignalConveyingFunction

SIGNAL CONVEYING FUNCTION

A function for conveying a signal.



Supertypes

- *ConceptualObject*

Subtypes

- *MeasuringLineFunction*
- *SignalLineFunction*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Source	0..1	*SignalConveyingFunctionSource*	no	no	*
Target	0..1	*SignalConveyingFunctionTarget*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
PortStatus	0..1	*PortStatusClassification*	no	no
SignalConveyingType	0..1	*SignalConveyingTypeClassification*	no	no
SignalPointNumber	0..1	*Undefined* | *String*	no	no
SignalProcessControlFunctions	0..1	*Undefined* | *String*	no	no

PortStatus

Data Property

A classification indicating the port status of the *SignalConveyingFunction*.

Type: *PortStatusClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PortStatusSpecialization

PORT STATUS SPECIALIZATION

Example

StatusHighHighPort

SignalConveyingType

Data Property

A classification indicating the signal conveying type of the *SignalConveyingFunction*.

Type: *SignalConveyingTypeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SignalConveyingTypeSpecialization

SIGNAL CONVEYING TYPE SPECIALIZATION

Example

ElectricalSignalConveying

SignalPointNumber

Data Property

The signal point number of the *SignalConveyingFunction*. Typical values are 1 to 6.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SignalPointNumberAssignmentClass

SIGNAL POINT NUMBER ASSIGNMENT CLASS

Example

```
"2"
```

SignalProcessControlFunctions

Data Property

The process control functions of the *SignalConveyingFunction*. Values are combinations of characters.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SignalProcessControlFunctionsAssignmentClass

SIGNAL PROCESS CONTROL FUNCTIONS ASSIGNMENT CLASS

Example

```
"SA"
```

Source

Reference Property

The source of the signal conveyed by this SignalConveyingFunction.

Type: *SignalConveyingFunctionSource*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Target

Reference Property

The target of the signal conveyed by this SignalConveyingFunction.

Type: *SignalConveyingFunctionTarget*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.SignalConveyingFunction">
  <Data property="PortStatus">
    <DataReference data="Plant/Enumerations.PortStatusClassification.StatusHighHighPort"/
↪>
  </Data>
  <Data property="SignalConveyingType">
    <DataReference data="Plant/Enumerations.SignalConveyingTypeClassification.
↪ElectricalSignalConveying"/>
  </Data>
  <Data property="SignalPointNumber">
    <String>2</String>
  </Data>
  <Data property="SignalProcessControlFunctions">
    <String>SA</String>
  </Data>
</Object>
```

SignalConveyingFunctionSource

Plant::*Instrumentation*::SignalConveyingFunctionSource

Overview

Abstract Class

An object than can act as the *Source* of a *SignalConveyingFunction*.

SignalConveyingFunctionSource

Subtypes

- *ActuatingFunction*
- *FlowInSignalOffPageConnector*
- *ProcessInstrumentationFunction*
- *ProcessSignalGeneratingFunction*

SignalConveyingFunctionTarget

Plant::*Instrumentation*::SignalConveyingFunctionTarget

Overview

Abstract Class

An object than can act as the *Target* of a *SignalConveyingFunction*.

SignalConveyingFunctionTarget

Subtypes

- *ActuatingElectricalFunction*
- *ActuatingFunction*
- *FlowOutSignalOffPageConnector*
- *ProcessInstrumentationFunction*

SignalLineFunction

Plant::*Instrumentation*::SignalLineFunction

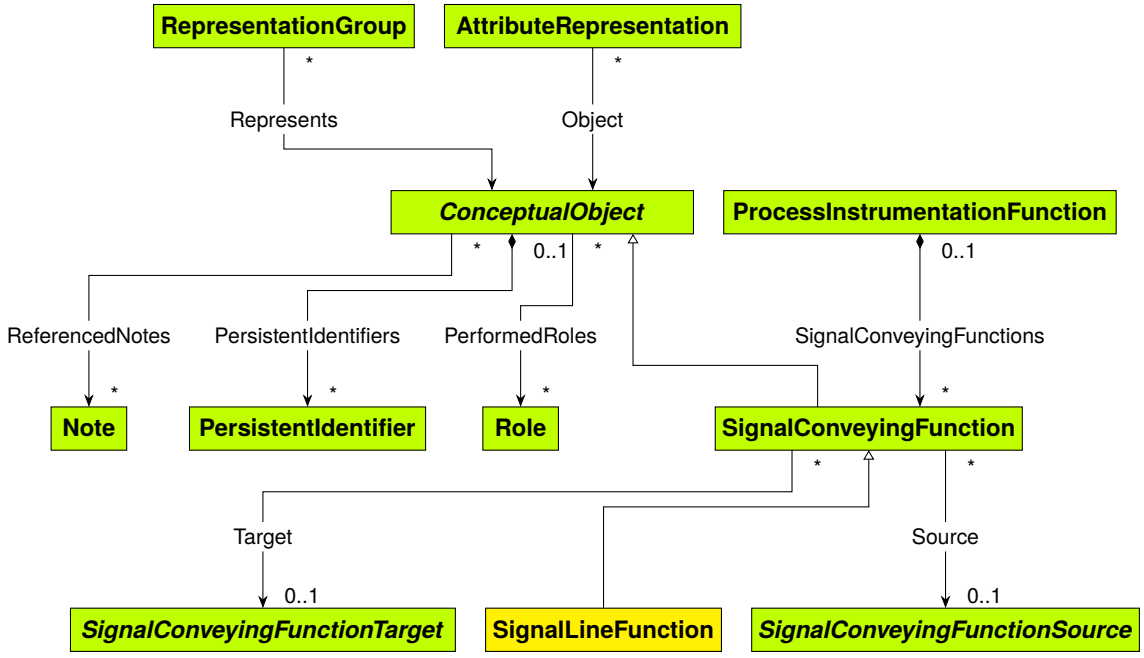
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SignalLineFunction

SIGNAL LINE FUNCTION

Information flow function for signals.



Supertypes

- *SignalConveyingFunction*

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.SignalLineFunction"/>
```

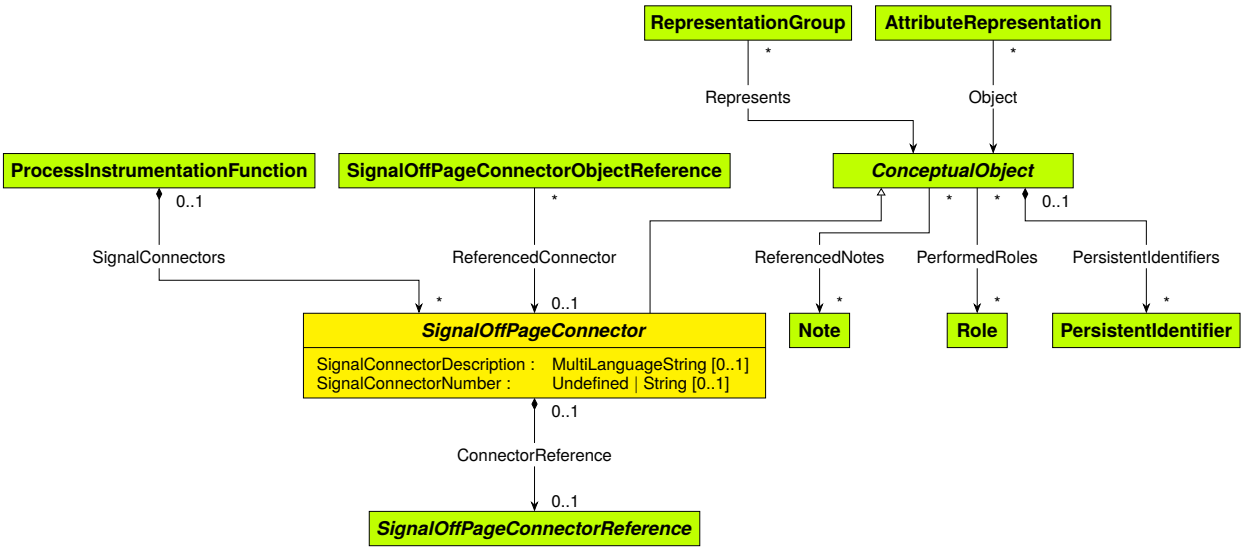
SignalOffPageConnector

Plant::*Instrumentation*::SignalOffPageConnector

Overview

Abstract Class

A signal connector that indicates that a *SignalConveyingFunction* is continued elsewhere, either on the same P&ID or on another P&ID. Graphically, it is usually represented as an arrow.



Supertypes

- *ConceptualObject*

Subtypes

- *FlowInSignalOffPageConnector*
- *FlowOutSignalOffPageConnector*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ConnectorReference	0..1	*SignalOffPageConnectorReference*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SignalConnectorDescription	0..1	*MultiLanguageString*	no	no
SignalConnectorNumber	0..1	*Undefined* | *String*	no	no

ConnectorReference

Composition Property

A reference indicating to which other *SignalOffPageConnector* this *SignalOffPageConnector* is connected.

Type: *SignalOffPageConnectorReference*

Multiplicity: 0..1

Ordered: no

SignalConnectorDescription

Data Property

A description of the *SignalOffPageConnector*.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SignalConnectorDescriptionAssignmentClass

SIGNAL CONNECTOR DESCRIPTION ASSIGNMENT CLASS

Example

```
" (('en', 'reactor temperature'), ('de', 'Reaktortemperatur')) "
```

SignalConnectorNumber

Data Property

The number of the *SignalOffPageConnector*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SignalConnectorNumberAssignmentClass

SIGNAL CONNECTOR NUMBER ASSIGNMENT CLASS

Example

```
"321"
```

SignalOffPageConnectorObjectReference

Plant::*Instrumentation*::SignalOffPageConnectorObjectReference

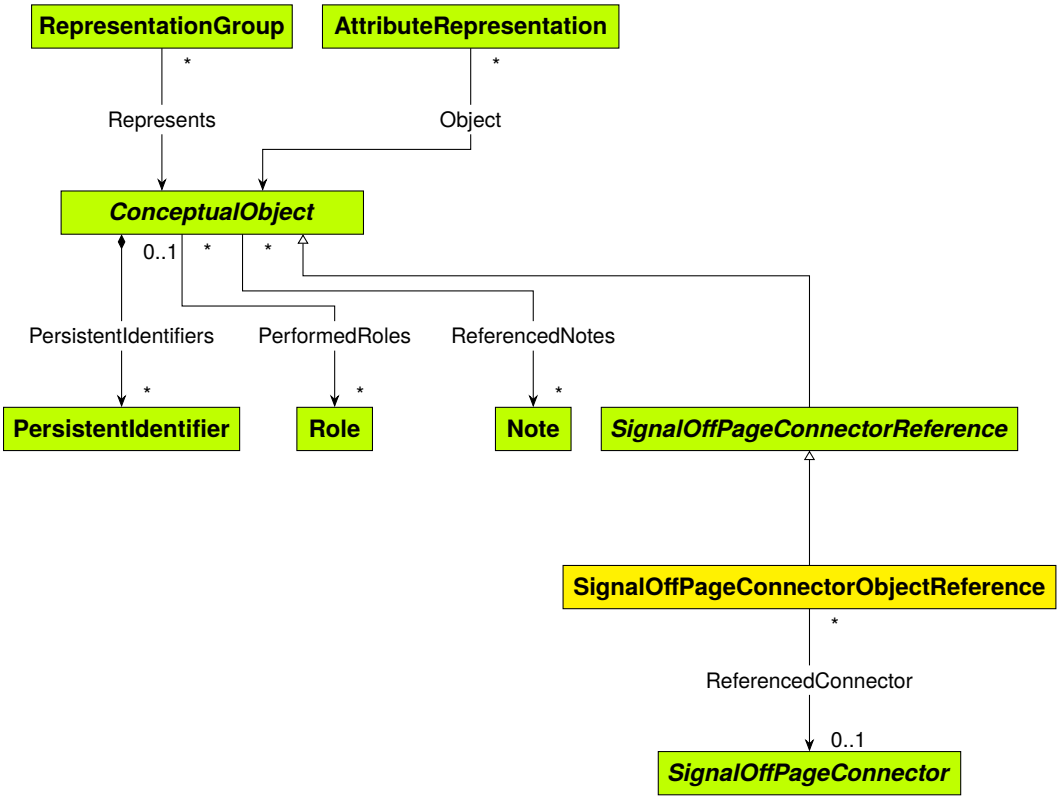
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SignalOffPageConnectorObjectReference

SIGNAL OFF PAGE CONNECTOR OBJECT REFERENCE

A reference to a *SignalOffPageConnector* by an association.



Supertypes

- *SignalOffPageConnectorReference*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ReferencedConnector	0..1	*SignalOffPageConnector*	no	no	*

ReferencedConnector

Reference Property

The *SignalOffPageConnector* referenced.

Type: *SignalOffPageConnector*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.SignalOffPageConnectorObjectReference"/>
```

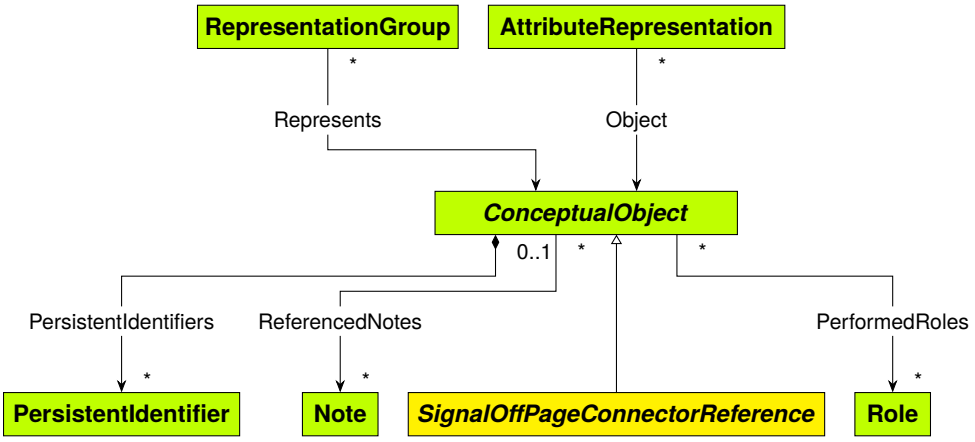
SignalOffPageConnectorReference

Plant::*Instrumentation*::SignalOffPageConnectorReference

Overview

Abstract Class

A reference to a *SignalOffPageConnector*.



Supertypes

- *ConceptualObject*

Subtypes

- *SignalOffPageConnectorObjectReference*
- *SignalOffPageConnectorReferenceByNumber*

SignalOffPageConnectorReferenceByNumber

Plant::*Instrumentation*::SignalOffPageConnectorReferenceByNumber

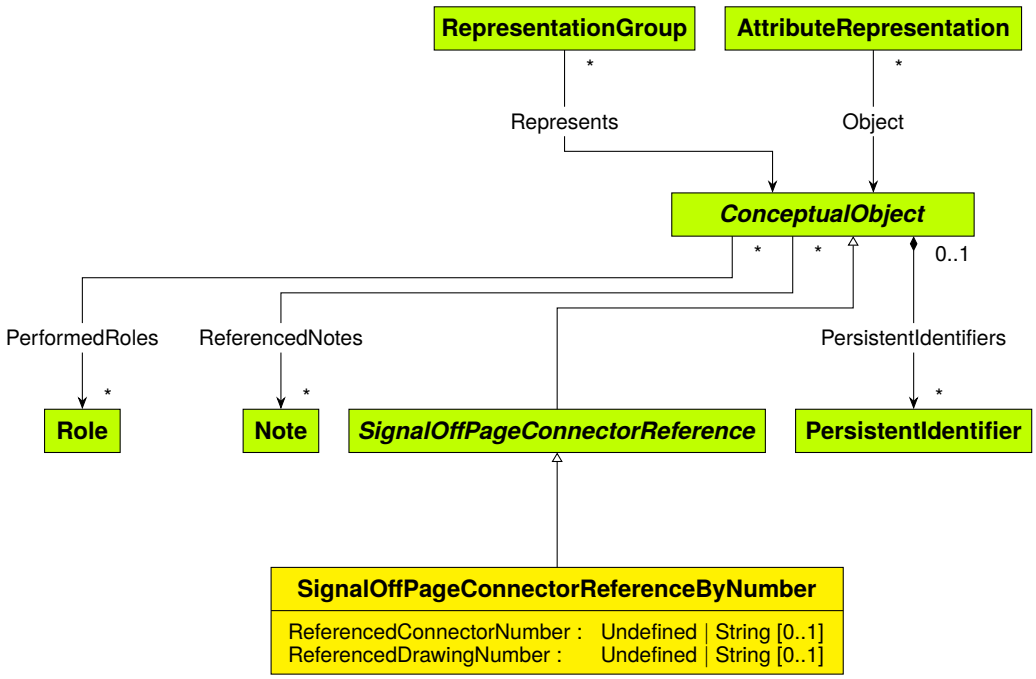
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SignalOffPageConnectorReferenceByNumber

SIGNAL OFF PAGE CONNECTOR REFERENCE BY NUMBER

A reference to a *SignalOffPageConnector* by drawing and connector number.



Supertypes

- *SignalOffPageConnectorReference*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ReferencedConnectorNumber	0..1	*Undefined* | *String*	no	no
ReferencedDrawingNumber	0..1	*Undefined* | *String*	no	no

ReferencedConnectorNumber

Data Property

The connector number of the referenced connector.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ReferencedConnectorNumberAssignmentClass

REFERENCED CONNECTOR NUMBER ASSIGNMENT CLASS

Example

"97"

ReferencedDrawingNumber

Data Property

The Core.Diagram.MetaData.DrawingNumberAssignmentClass of the PID that contains the referenced connector.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ReferencedDrawingNumberAssignmentClass

REFERENCED DRAWING NUMBER ASSIGNMENT CLASS

Example

"123/A93"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.SignalOffPageConnectorReferenceByNumber">
  <Data property="ReferencedConnectorNumber">
    <String>97</String>
  </Data>
  <Data property="ReferencedDrawingNumber">
    <String>123/A93</String>
  </Data>
</Object>
```

Transmitter

Plant::*Instrumentation*::Transmitter

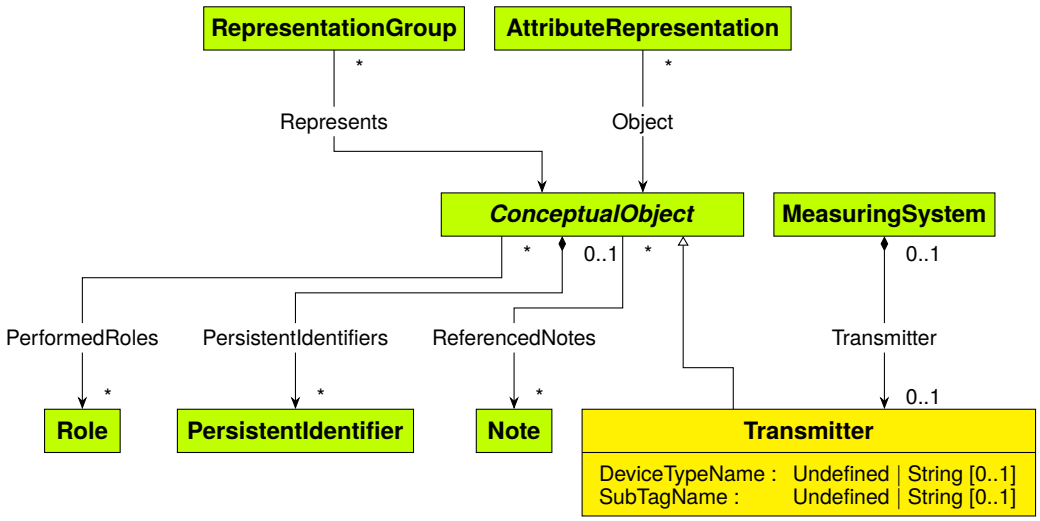
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS267929

TRANSMITTER

A detecting instrument that generates a process variable signal and converts it into an output signal.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DeviceTypeName	0..1	*Undefined* | *String*	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

DeviceTypeName

Data Property

The device type of the *Transmitter*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DeviceTypeNameAssignmentClass

DEVICE TYPE NAME ASSIGNMENT CLASS

Example

```
"pressure transmitter"
```

SubTagName

Data Property

The sub tag name of the *Transmitter*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/Instrumentation.Transmitter">
  <Data property="DeviceTypeName">
    <String>pressure transmitter</String>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

Plant::Instrumentation

Overview

Package

Members

Classes

Name	Type
ActuatingElectricalFunction	Concrete Class
ActuatingElectricalLocation	Abstract Class
ActuatingElectricalSystem	Concrete Class
ActuatingFunction	Concrete Class
ActuatingSystem	Concrete Class
ControlledActuator	Concrete Class
ElectronicFrequencyConverter	Concrete Class
FlowDetector	Concrete Class
FlowInSignalOffPageConnector	Concrete Class
FlowOutSignalOffPageConnector	Concrete Class
InlineMeasuringElementReference	Concrete Class
InstrumentationLoopFunction	Concrete Class

continues on next page

Table 7 – continued from previous page

Name	Type
MeasuringElement	Concrete Class
MeasuringLineFunction	Concrete Class
MeasuringSystem	Concrete Class
OfflineMeasuringElement	Concrete Class
OperatedValveReference	Concrete Class
Positioner	Concrete Class
ProcessControlFunction	Concrete Class
ProcessInstrumentationFunction	Concrete Class
ProcessSafetyFunction	Concrete Class
ProcessSignalGeneratingFunction	Concrete Class
SensingLocation	Abstract Class
SensorwellReference	Concrete Class
SignalConveyingFunction	Concrete Class
SignalConveyingFunctionSource	Abstract Class
SignalConveyingFunctionTarget	Abstract Class
SignalLineFunction	Concrete Class
SignalOffPageConnector	Abstract Class
SignalOffPageConnectorObjectReference	Concrete Class
SignalOffPageConnectorReference	Abstract Class
SignalOffPageConnectorReferenceByNumber	Concrete Class
Transmitter	Concrete Class

3.2.4 Piping

AngleBallValve

Plant::*Piping*::AngleBallValve

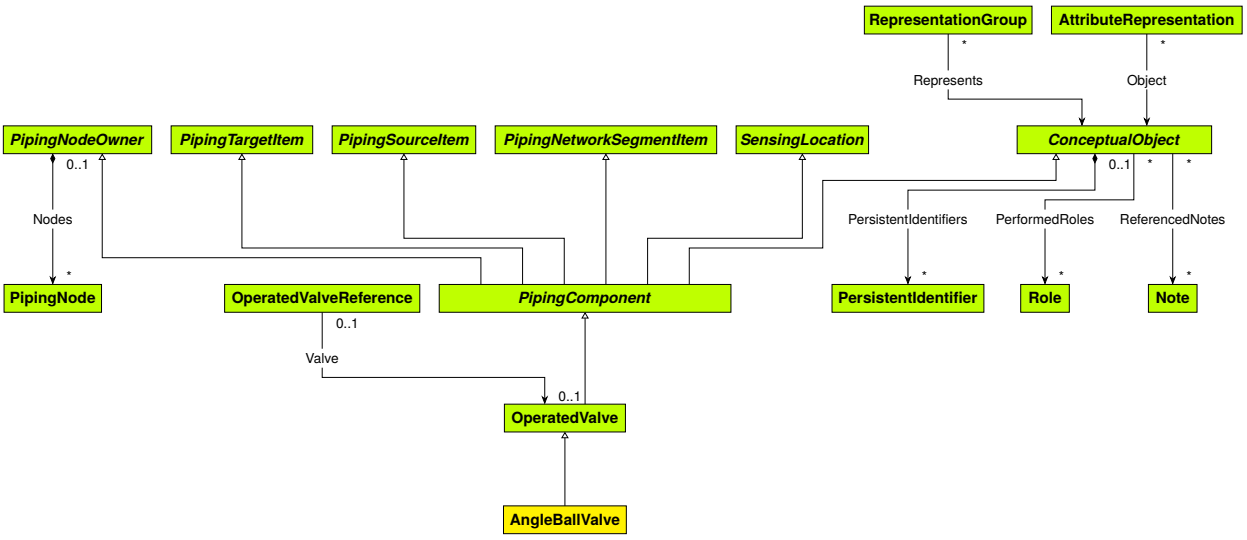
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/AngleBallValve

ANGLE BALL VALVE

A valve that has valve ports which are not in-line and that has a ball closure member.



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.AngleBallValve"/>
```

AngleGlobeValve

Plant::*Piping*::AngleGlobeValve

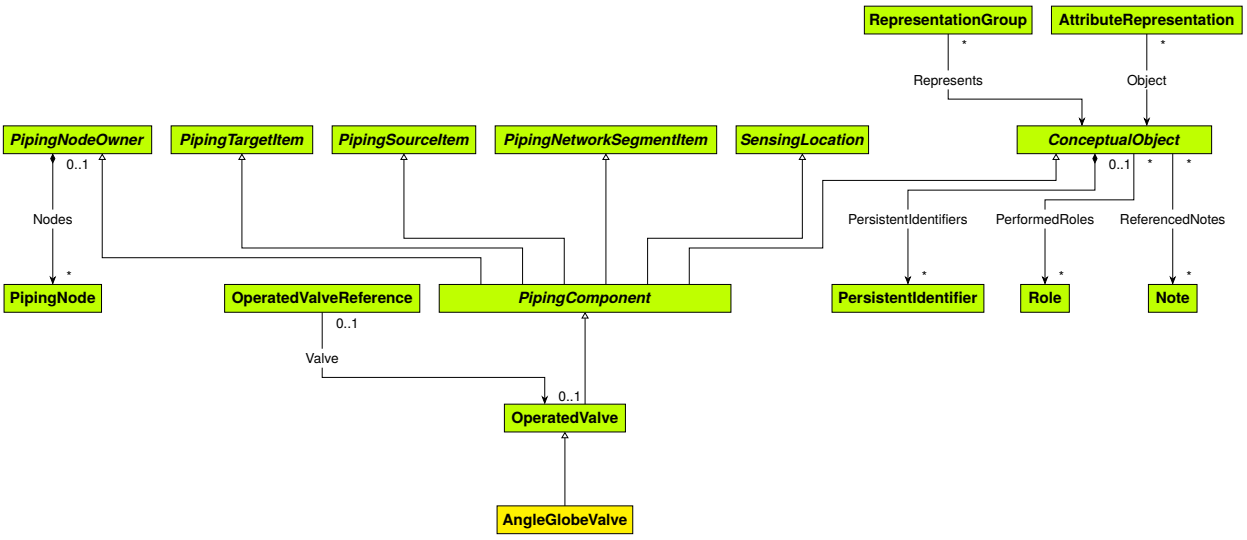
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS882944

ANGLE GLOBE VALVE

A globe valve that deviates from the in-line design, i.e. with a body shape designed to adjust the flow direction with a specified angle relative to the straight through-flow an in-line valve would have provided for (from http://data.posccaesar.org/rdl/RDS882944).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.AngleGlobeValve"/>
```

AnglePlugValve

Plant::*Piping*::AnglePlugValve

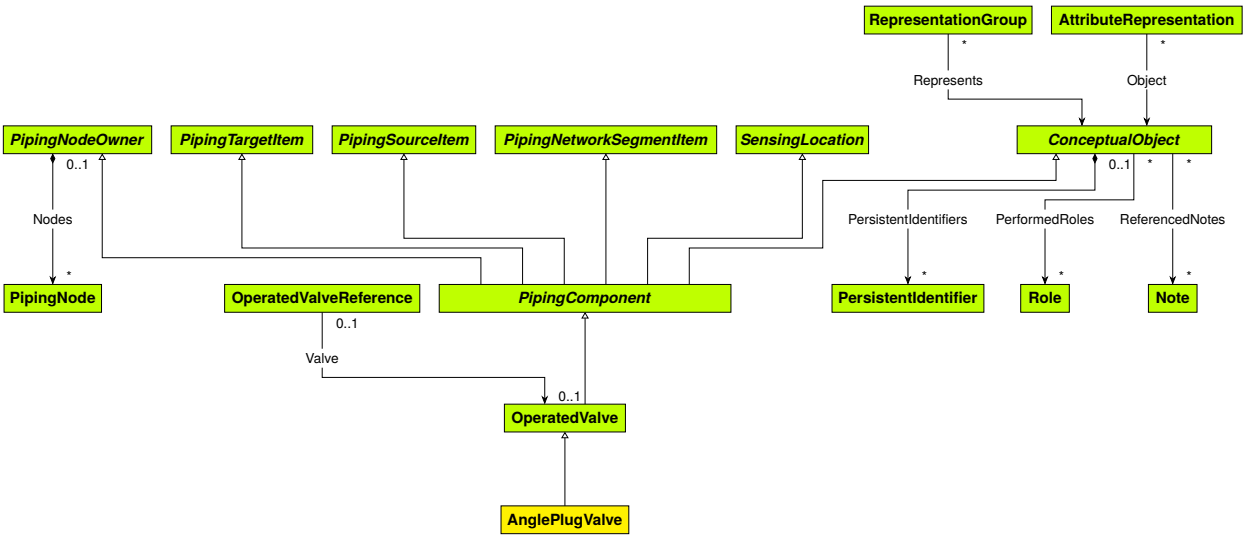
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/AnglePlugValve

ANGLE PLUG VALVE

A valve that has valve ports which are not in-line and that has a quarter turn action in which the closure member is a cylindrical or tapered plug which operates by rotating on its axis and sealing against a downstream seat.



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.AnglePlugValve"/>
```

AngleValve

Plant::*Piping*::AngleValve

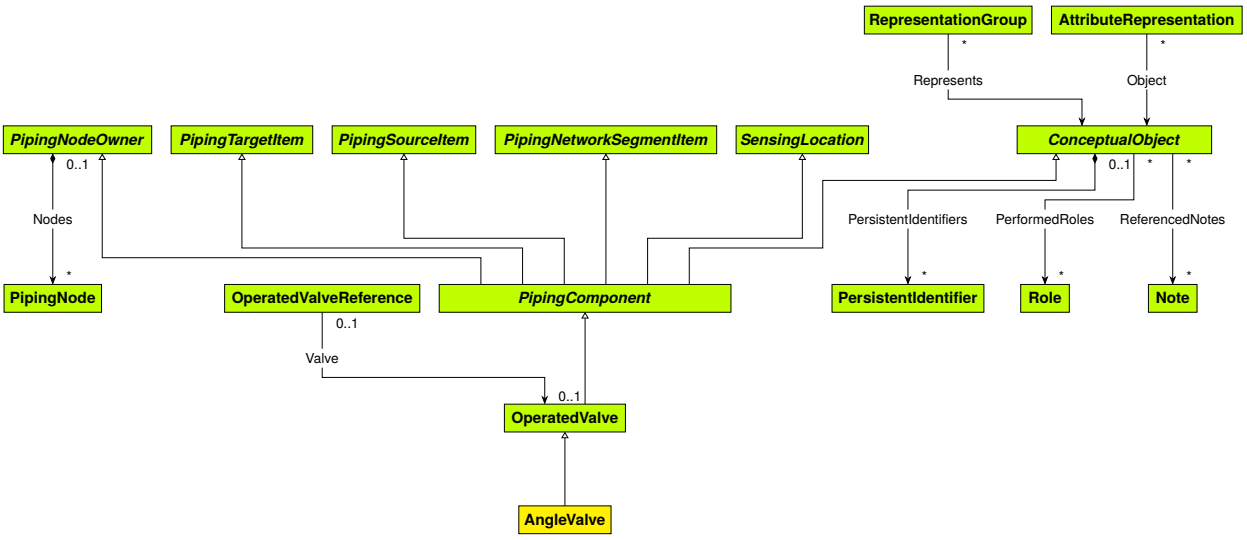
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS5789384

ANGLE VALVE

A valve that has valve ports which are not in-line (from http://data.posccaesar.org/rdl/RDS5789384).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.AngleValve"/>
```

BallValve

Plant::*Piping*::BallValve

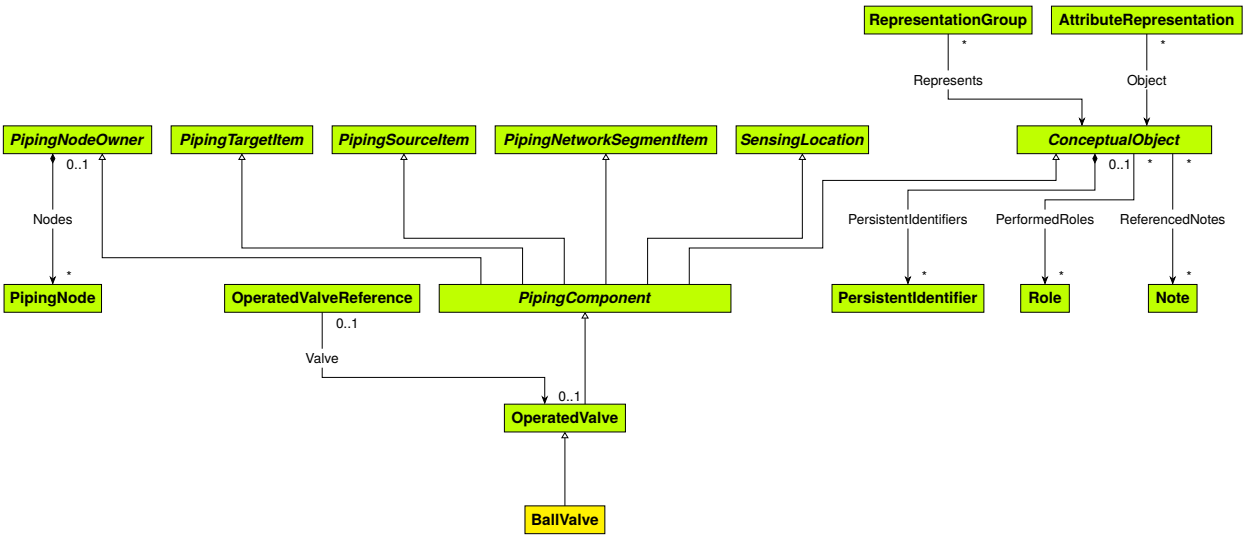
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416654

BALL VALVE

A rotary valve that has a ball closure member (from http://data.posccaesar.org/rdl/RDS416654).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.BallValve"/>
```

BlindFlange

Plant::*Piping*::BlindFlange

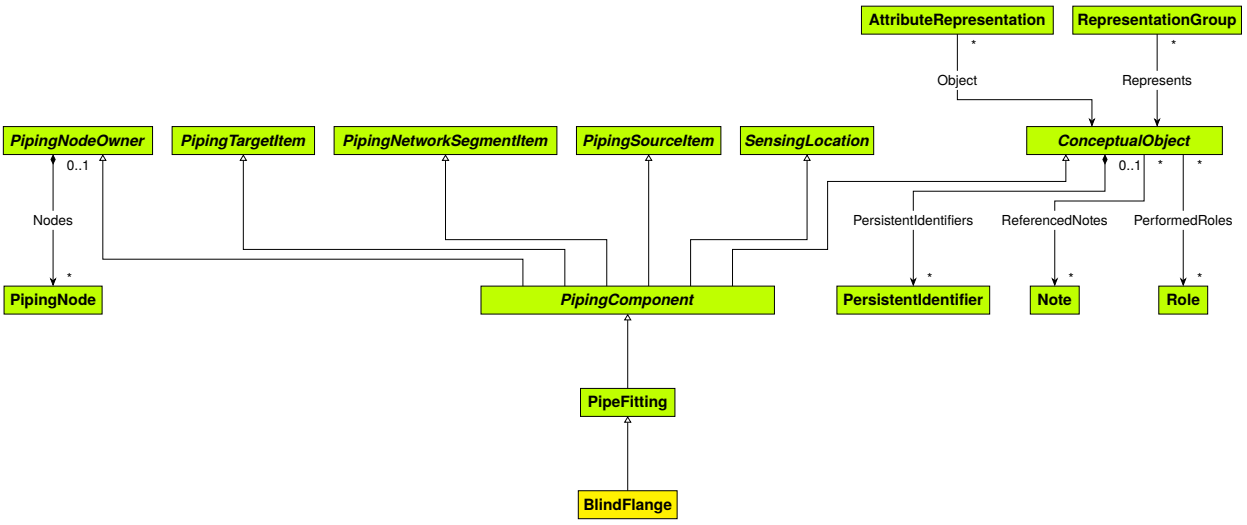
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS414719

BLIND FLANGE

A pipe flange that is without a central opening and used to shut off a flanged pipe end (from http://data.posccaesar.org/rdl/RDS414719).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.BlindFlange"/>
```

BreatherValve

Plant::*Piping*::BreatherValve

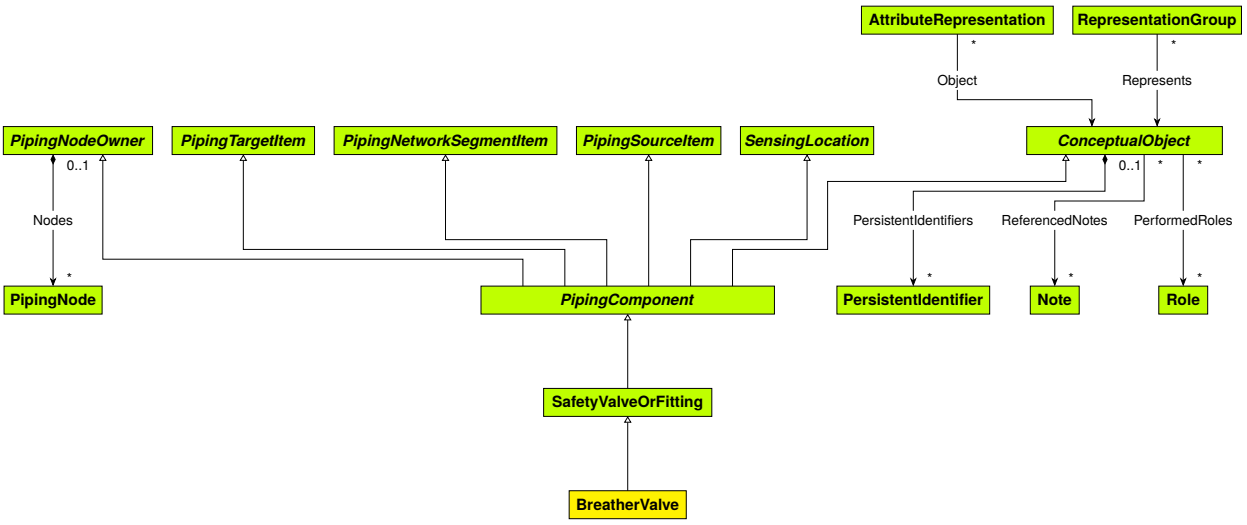
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/BreatherValve

BREATHER VALVE

A BreatherValve is PRESSURE RELIEF DEVICE and a VACUUM RELIEF DEVICE that automatically releases excess pressure or admits pressure to prevent a vacuum (from http://data.15926.org/rdl/RDS6330659).



Supertypes

- *SafetyValveOrFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.BreatherValve"/>
```

ButterflyValve

Plant::*Piping*::ButterflyValve

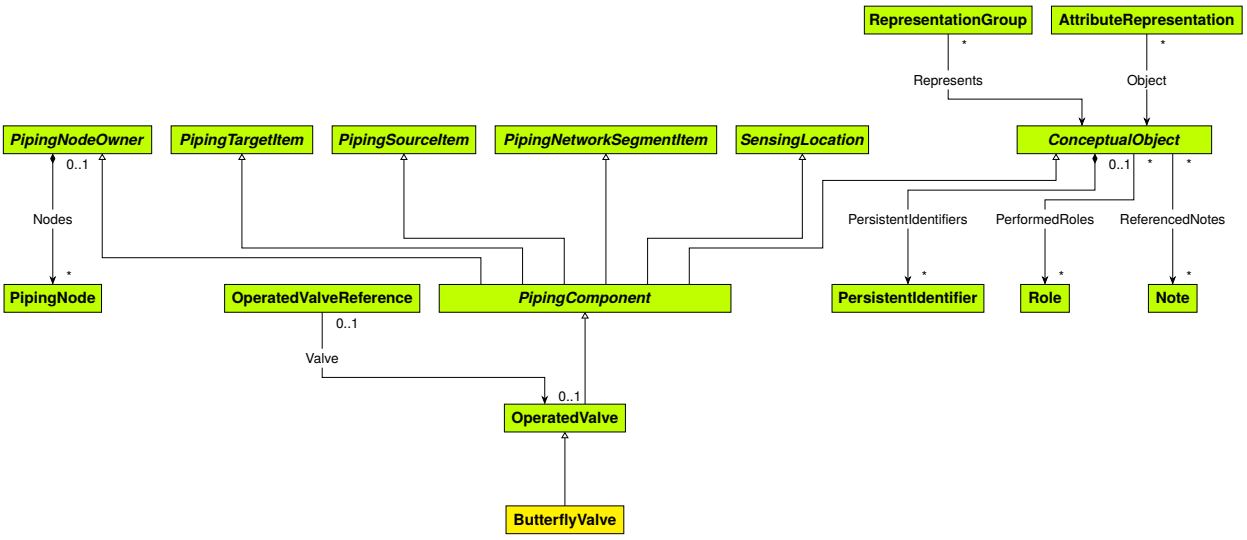
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416609

BUTTERFLY VALVE

A rotary valve that has a closure member of a disc type with a shaft parallel, or near parallel, to the plane of the disc, with an axis of rotation transverse to the flow direction (from http://data.posccaesar.org/rdl/RDS416609).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.ButterflyValve"/>
```

CheckValve

Plant::*Piping*::CheckValve

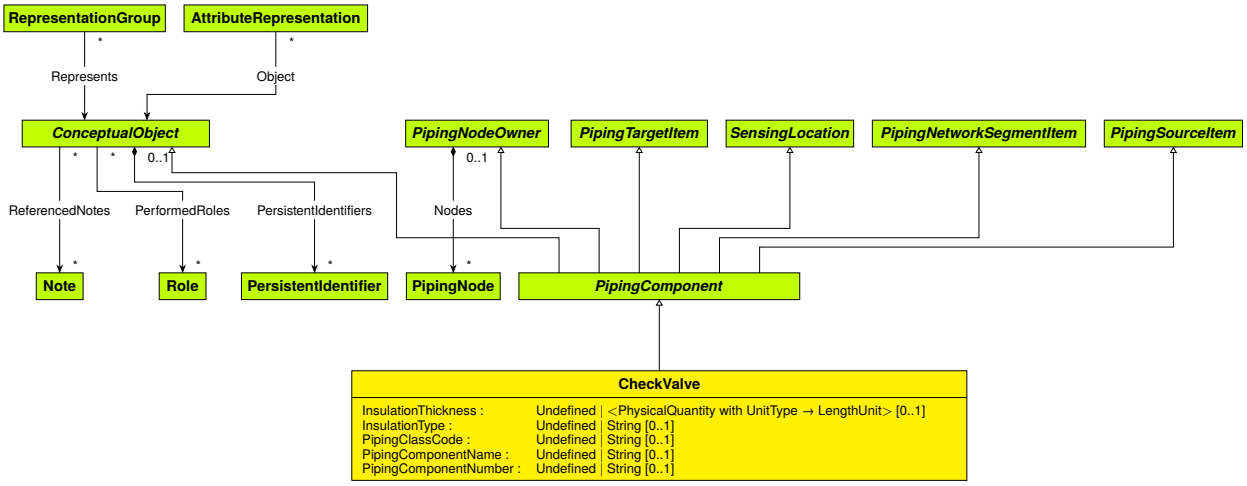
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS292229

CHECK VALVE

A valve that permits fluid to flow in one direction only (from http://data.posccaesar.org/rdl/RDS292229).



Supertypes

- *PipingComponent*

Subtypes

- *GlobeCheckValve*
- *SwingCheckValve*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
PipingClassCode	0..1	*Undefined* | *String*	no	no
PipingComponentName	0..1	*Undefined* | *String*	no	no
PipingComponentNumber	0..1	*Undefined* | *String*	no	no

InsulationThickness

Data Property

The insulation thickness of the *CheckValve*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `40.0`)

InsulationType

Data Property

The identification code for the insulation type related to the *CheckValve*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

```
"Q"
```

PipingClassCode

Data Property

The identification code of the piping class of the *CheckValve*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassCodeAssignmentClass

PIPING CLASS CODE ASSIGNMENT CLASS

Example

```
"75HB13"
```

PipingComponentName

Data Property

A string to classify the *CheckValve*. DEXPI does not prescribe the classification system. Typically, company or site site standards are used.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNameAssignmentClass

PIPING COMPONENT NAME ASSIGNMENT CLASS

Example

```
"73KH12"
```

PipingComponentNumber

Data Property

An identifier of the *CheckValve*. DEXPI does not prescribe the scope of the identifier, i.e., whether it should be unique in, e.g., a *PipingNetworkSegment* or a *PipingNetworkSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNumberAssignmentClass

PIPING COMPONENT NUMBER ASSIGNMENT CLASS

Example

"C2"

Example in DEXPI XML

```
<Object type="Plant/Piping.CheckValve">
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="PipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="PipingComponentName">
    <String>73KH12</String>
  </Data>
  <Data property="PipingComponentNumber">
    <String>C2</String>
  </Data>
</Object>
```

ClampedFlangeCoupling

Plant::*Piping*::ClampedFlangeCoupling

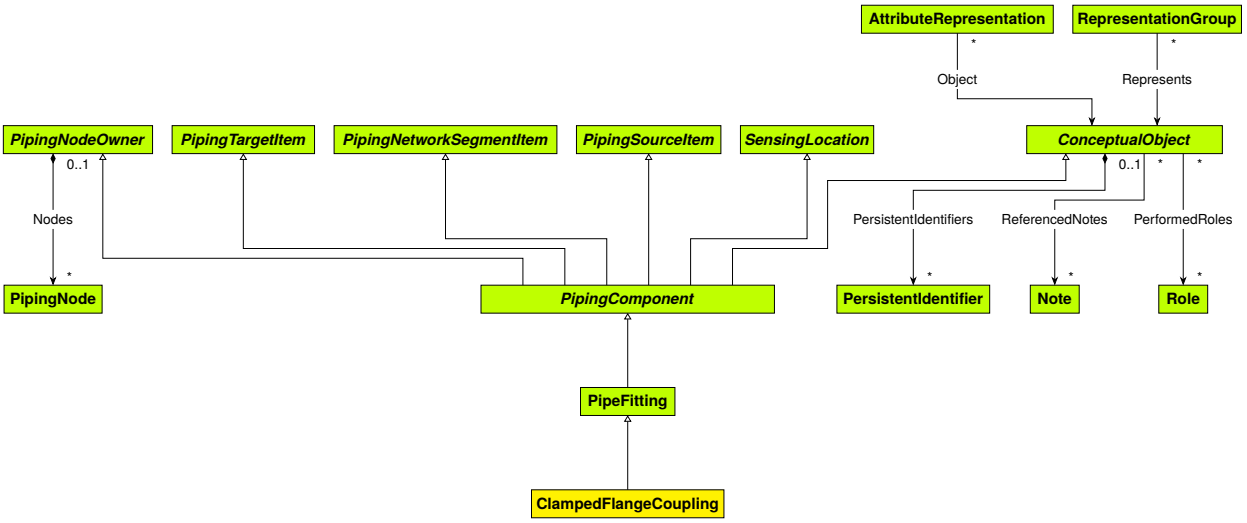
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ClampedFlangeCoupling

CLAMPED FLANGE COUPLING

A clamped flange coupling.



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.ClampedFlangeCoupling"/>
```

Compensator

Plant::*Piping*::Compensator

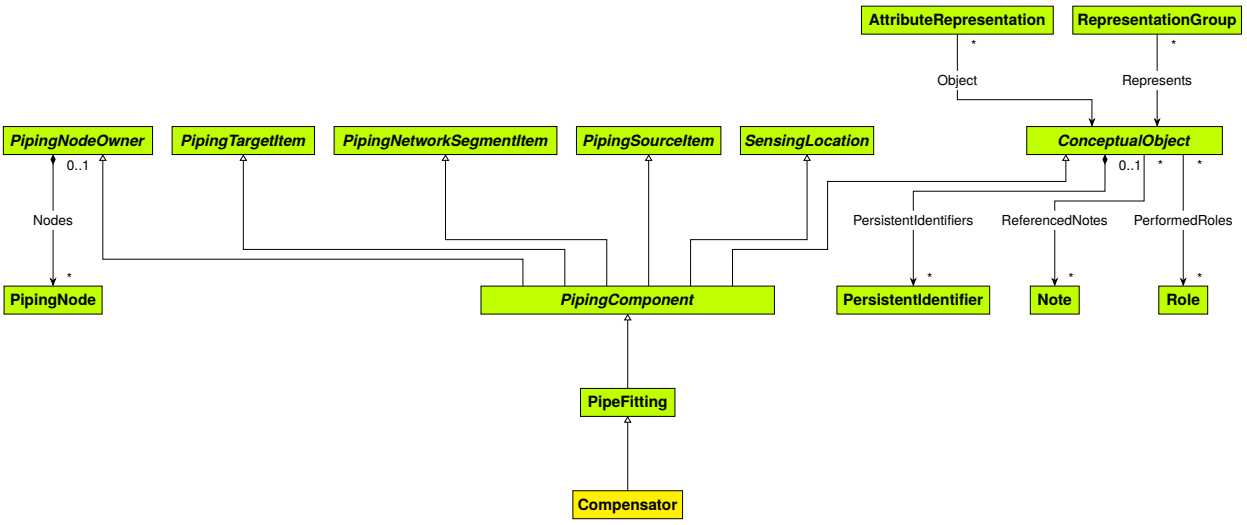
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1280084541

COMPENSATOR

A device compensating for axial or radial movement between two elements that is connected (from http://data.posccaesar.org/rdl/RDS1280084541).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Compensator"/>
```

ConicalStrainer

Plant::*Piping*::ConicalStrainer

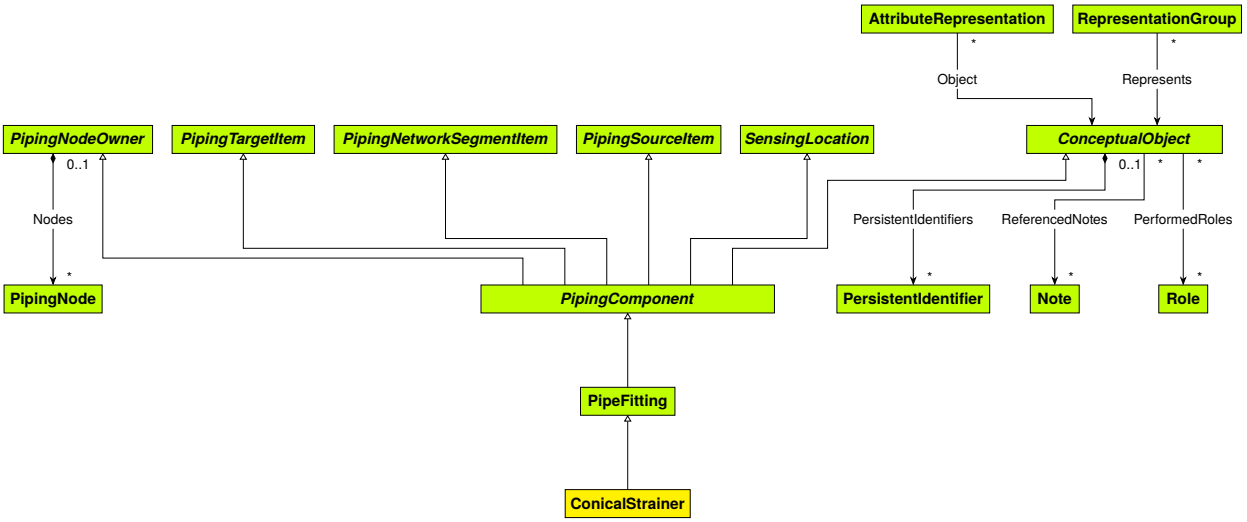
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS16044540

CONICAL STRAINER

A strainer where the screen has a conical tubular shape (from http://data.posccaesar.org/rdl/RDS16044540).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.ConicalStrainer"/>
```

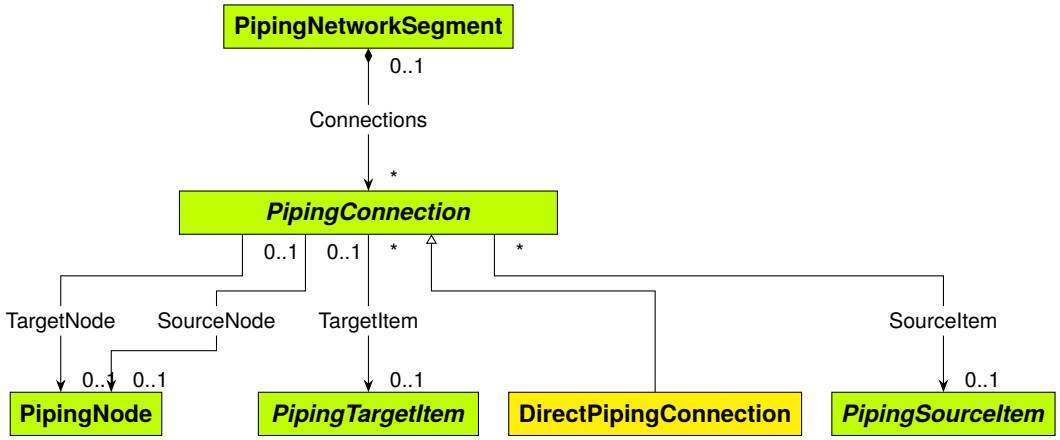
DirectPipingConnection

Plant::*Piping*::DirectPipingConnection

Overview

Concrete Class

A direct connection between two piping items, i.e. a connection that is not realized by a pipe.



Supertypes

- *PipingConnection*

Example in DEXPI XML

```
<Object type="Plant/Piping.DirectPipingConnection"/>
```

ElectromagneticFlowMeter

Plant::*Piping*::ElectromagneticFlowMeter

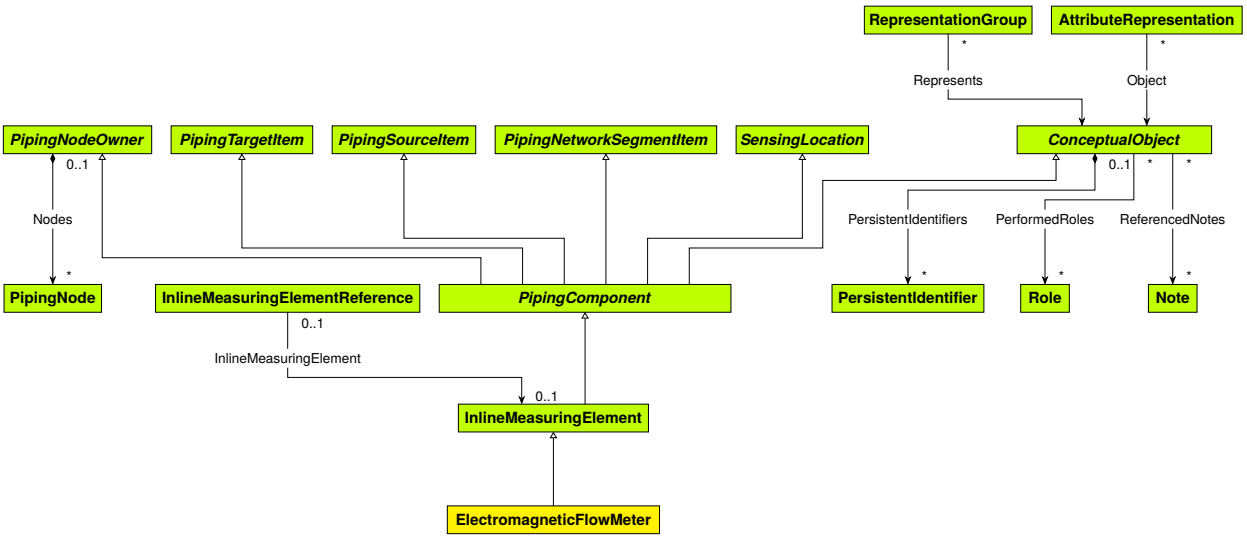
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1009664

ELECTROMAGNETIC FLOW METER

A velocity flow meter that is measuring flow rate of a conductive fluid running through a magnetic field by measuring the charge created when fluid interacting with the field (from http://data.posccaesar.org/rdl/RDS1009664).



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.ElectromagneticFlowMeter"/>
```

FlameArrestor

Plant::*Piping*::FlameArrestor

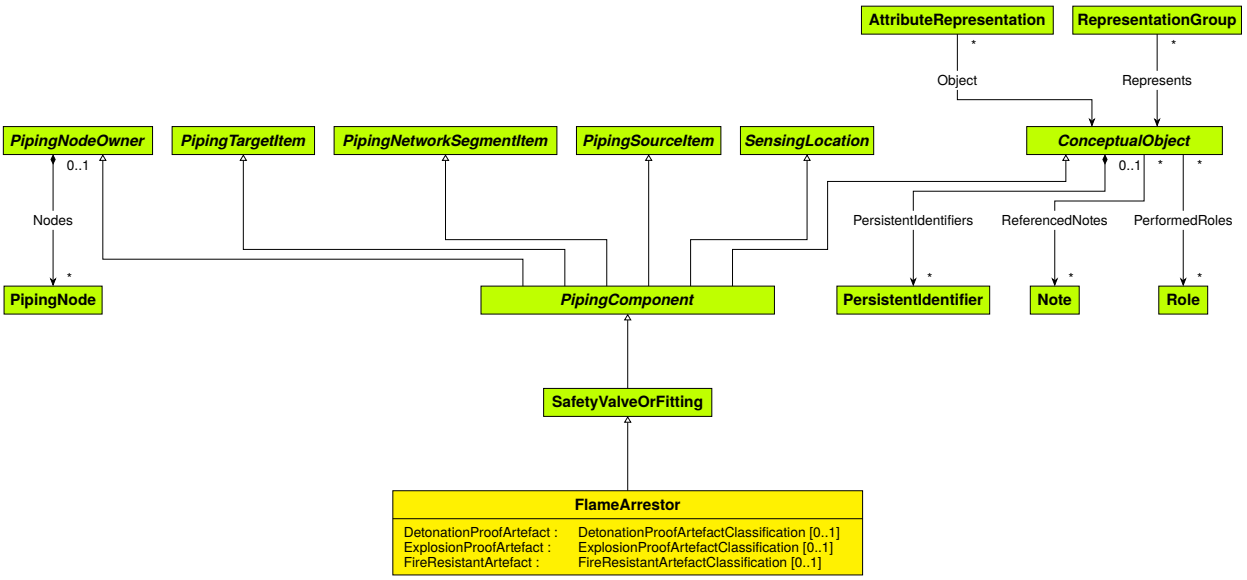
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1325028651

FLAME ARRESTOR

An ‘arrestor’ which is a trap covering an opening, e.g of a ventilation system or a pipe, to prevent flames from entering the system (from http://data.posccaesar.org/rdl/RDS1325028651).



Supertypes

- *SafetyValveOrFitting*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DetonationProofArtefact	0..1	*DetonationProofArtefactClassification*	no	no
ExplosionProofArtefact	0..1	*ExplosionProofArtefactClassification*	no	no
FireResistantArtefact	0..1	*FireResistantArtefactClassification*	no	no

DetonationProofArtefact

Data Property

A specialization indicating if the *FlameArrestor* is detonation-proof.

Type: *DetonationProofArtefactClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DetonationProofArtefactSpecialization

DETONATION PROOF ARTEFACT SPECIALIZATION

Example

NonDetonationProofArtefact

ExplosionProofArtefact

Data Property

A specialization indicating if the *FlameArrestor* is explosion-proof.

Type: *ExplosionProofArtefactClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ExplosionProofArtefactSpecialization

EXPLOSION PROOF ARTEFACT SPECIALIZATION

Example

ExplosionProofArtefact

FireResistantArtefact

Data Property

A specialization indicating if the *FlameArrestor* is fire-resistant.

Type: *FireResistantArtefactClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FireResistantArtefactSpecialization

FIRE RESISTANT ARTEFACT SPECIALIZATION

Example

FireResistantArtefact

Example in DEXPI XML

```
<Object type="Plant/Piping.FlameArrestor">
  <Data property="DetonationProofArtefact">
    <DataReference data="Plant/Enumerations.DetonationProofArtefactClassification.
↪NonDetonationProofArtefact"/>
  </Data>
  <Data property="ExplosionProofArtefact">
    <DataReference data="Plant/Enumerations.ExplosionProofArtefactClassification.
↪ExplosionProofArtefact"/>
  </Data>
  <Data property="FireResistantArtefact">
    <DataReference data="Plant/Enumerations.FireResistantArtefactClassification.
↪FireResistantArtefact"/>
  </Data>
</Object>
```

Flange

Plant::*Piping*::Flange

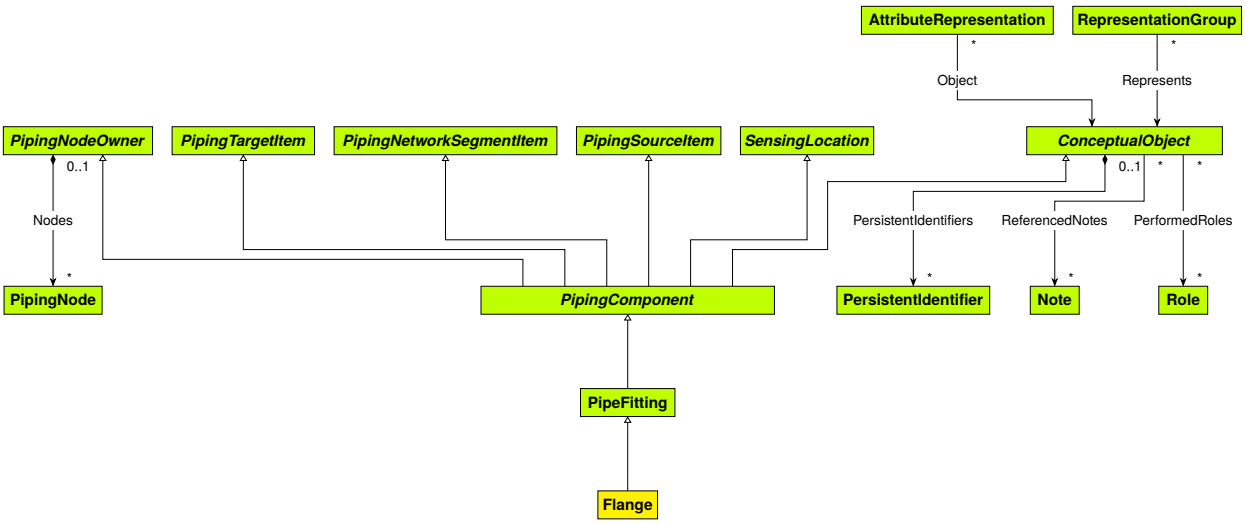
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13307654

FLANGE

A physical object that is a projecting flat rim, plate,collar, or rib



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Flange"/>
```

FlangedConnection

Plant::*Piping*::FlangedConnection

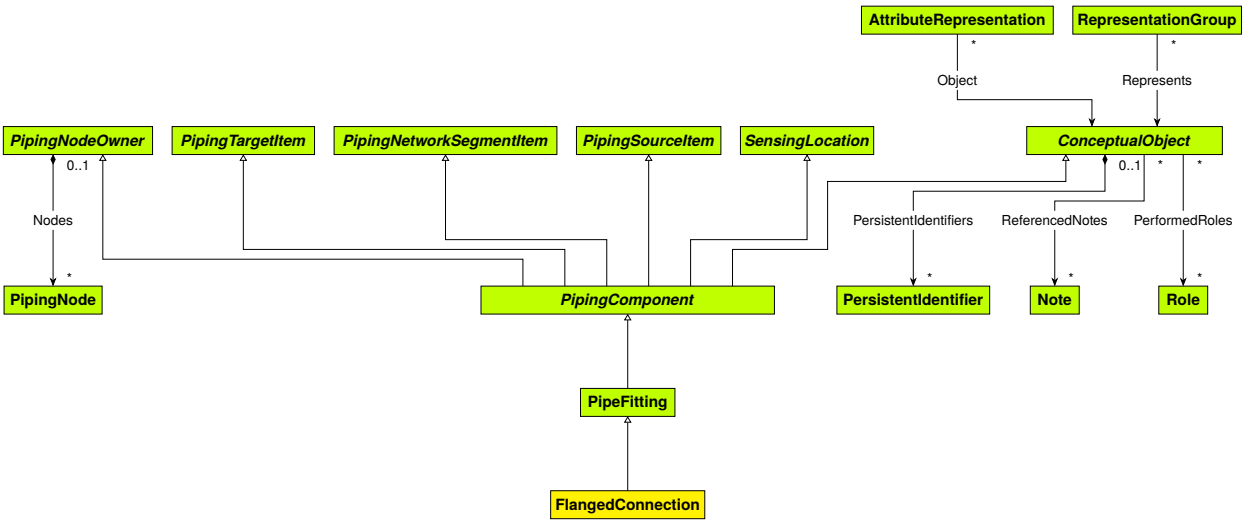
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FlangedConnection

FLANGED CONNECTION

A flanged connection.



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.FlangedConnection"/>
```

FlowInPipeOffPageConnector

Plant::*Piping*::FlowInPipeOffPageConnector

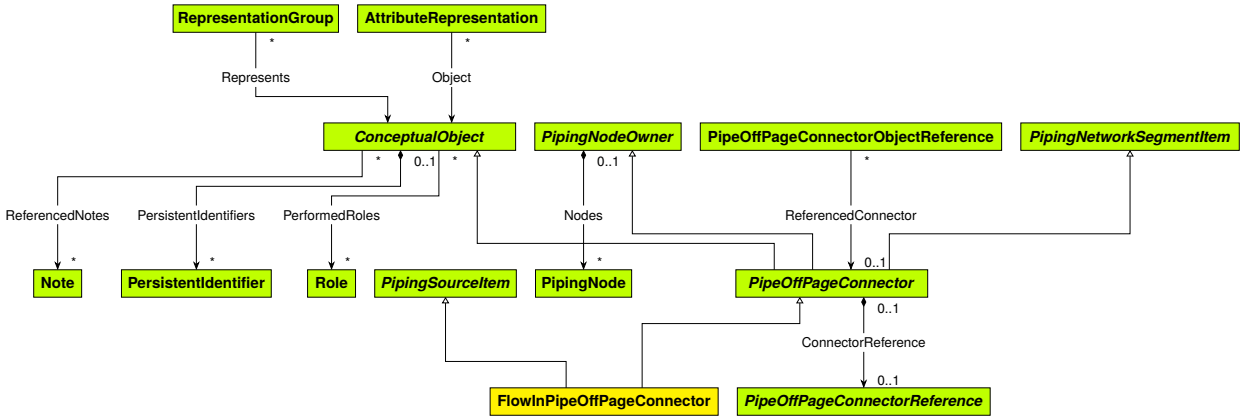
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FlowInPipeOffPageConnector

FLOW IN PIPE OFF PAGE CONNECTOR

A pipe connector that indicates that a preceding part of a piping network segment is represented somewhere else, either on the same PID, or on some other PID.



Supertypes

- *PipeOffPageConnector*
- *PipingSourceItem*

Example in DEXPI XML

```
<Object type="Plant/Piping.FlowInPipeOffPageConnector"/>
```

FlowMeasuringElement

Plant::*Piping*::FlowMeasuringElement

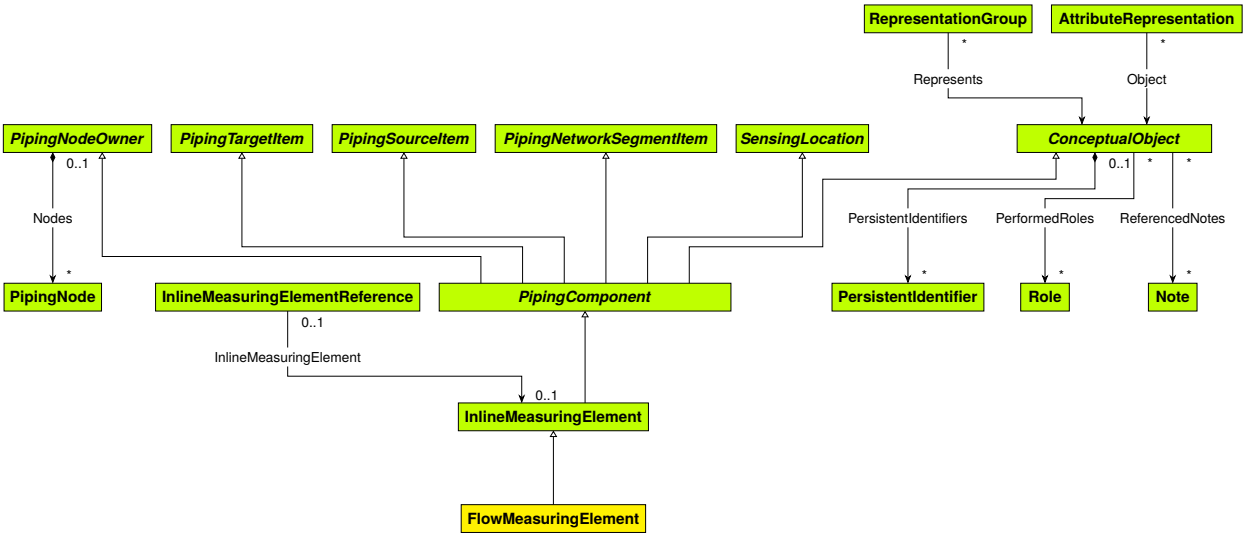
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FlowMeasuringElement

FLOW MEASURING ELEMENT

A FLOW MEASURING ELEMENT is a MEASURING ELEMENT that is used to measure FLOW RATE.



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.FlowMeasuringElement"/>
```

FlowNozzle

Plant::*Piping*::FlowNozzle

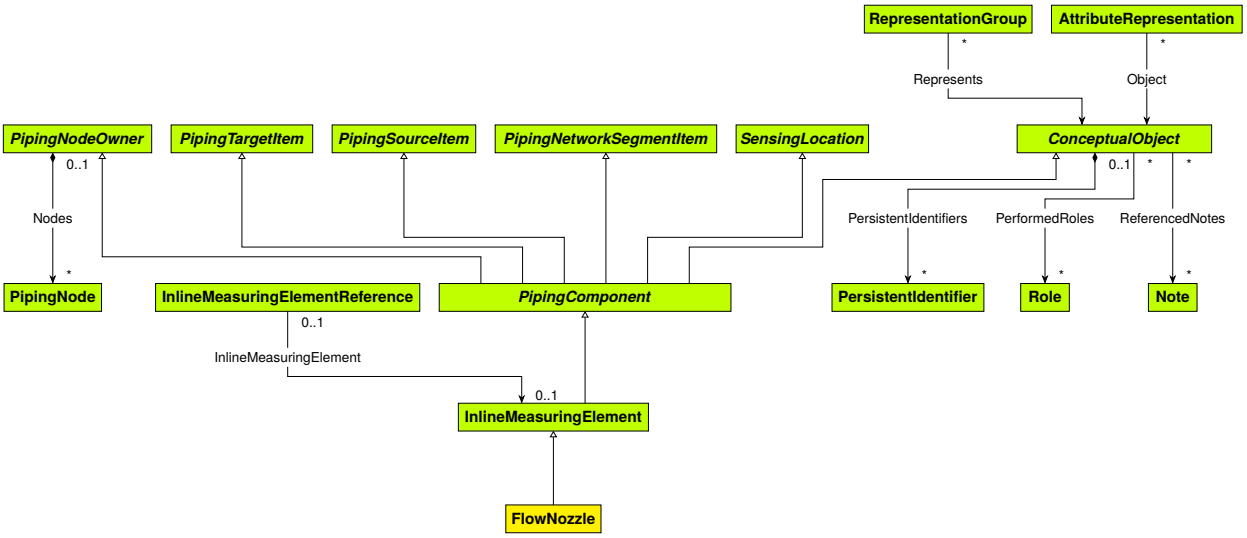
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS821024

FLOW NOZZLE

A nozzle with a smooth entry and a sharp exit



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.FlowNozzle"/>
```

FlowOutPipeOffPageConnector

Plant::*Piping*::FlowOutPipeOffPageConnector

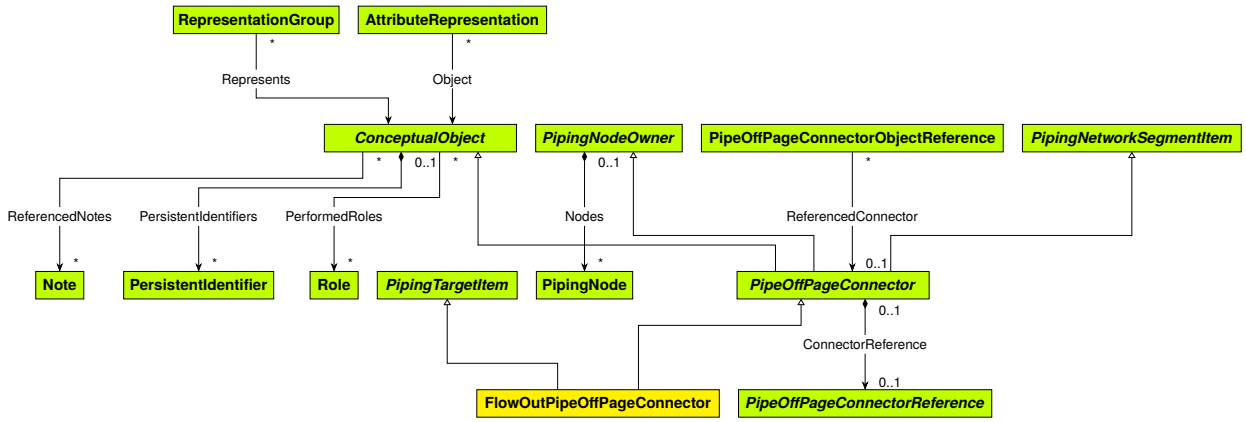
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FlowOutPipeOffPageConnector

FLOW OUT PIPE OFF PAGE CONNECTOR

A pipe connector that indicates that a subsequent part of a piping network segment is represented somewhere else, either on the same PID, or on some other PID.



Supertypes

- *PipeOffPageConnector*
- *PipingTargetItem*

Example in DEXPI XML

```
<Object type="Plant/Piping.FlowOutPipeOffPageConnector"/>
```

Funnel

Plant::*Piping*::Funnel

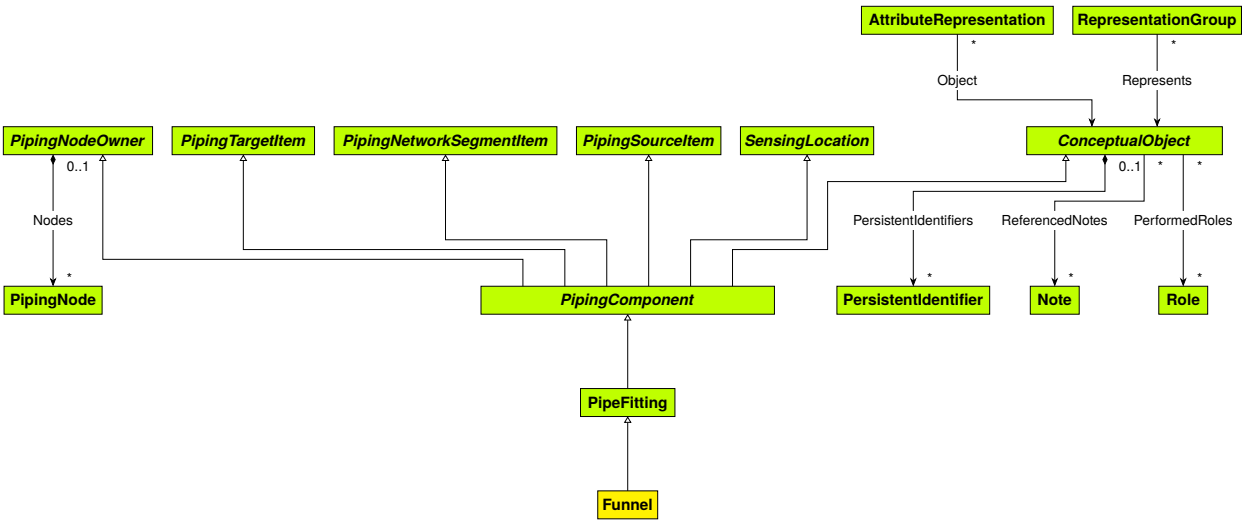
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS6689917

FUNNEL

A hollow cone with a tube extending from the smaller end and that is designed to catch and direct a downward flow



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Funnel"/>
```

GateValve

Plant::*Piping*::GateValve

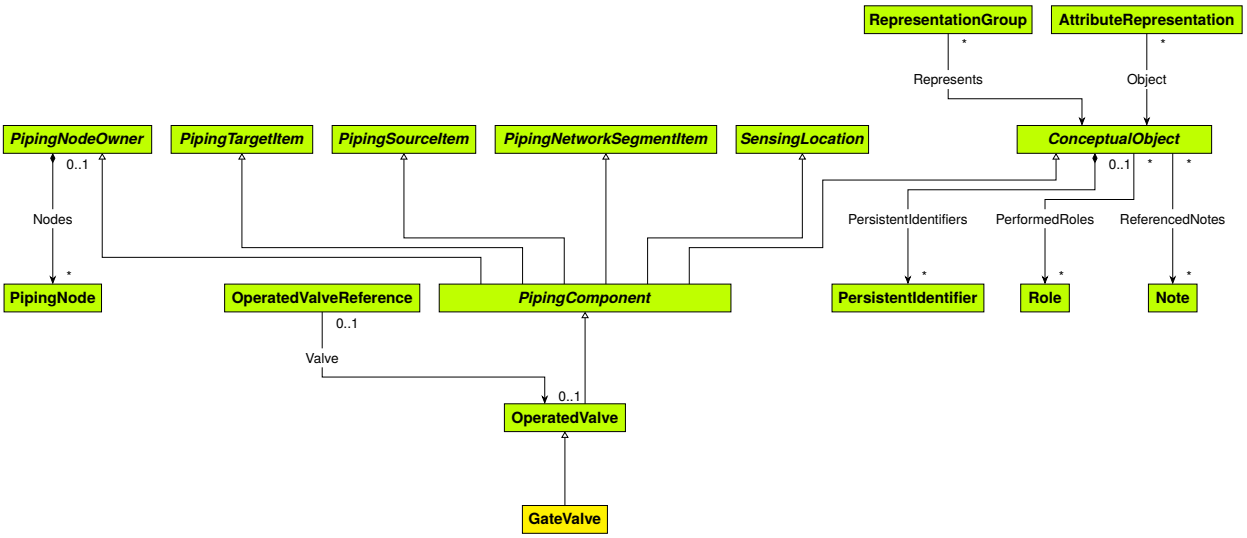
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416519

GATE VALVE

A valve that is a valve where the closure member is a gate or disc with a linear motion parallel, or nearly parallel, to the plane of flat seats, which are transverse to the direction of flow (from http://data.posccaesar.org/rdl/RDS416519).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.GateValve"/>
```

GlobeCheckValve

Plant::*Piping*::GlobeCheckValve

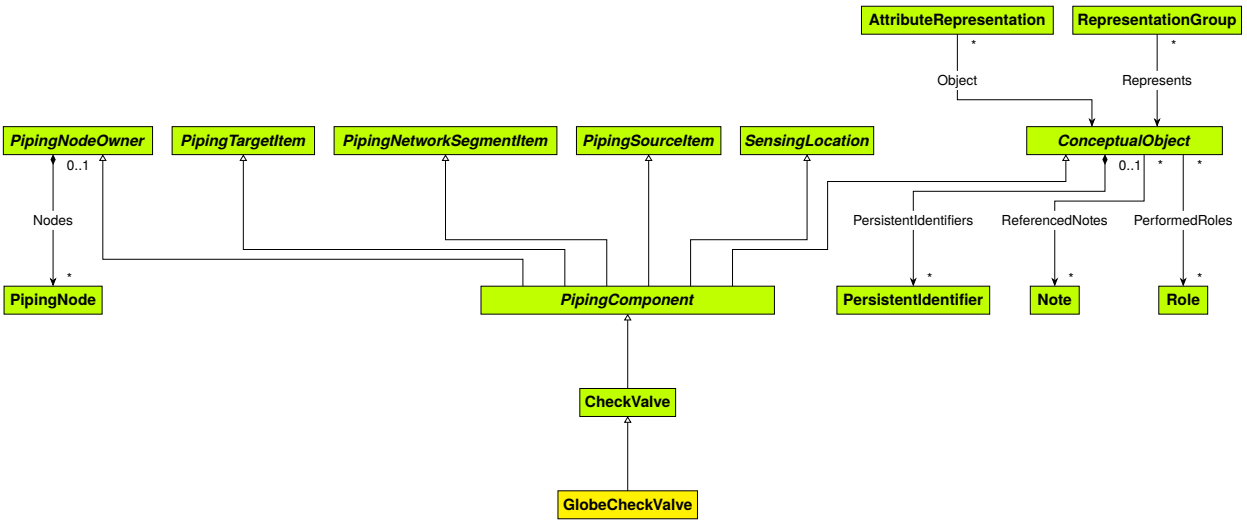
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/GlobeCheckValve

GLOBE CHECK VALVE

A globe check valve.



Supertypes

- *CheckValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.GlobeCheckValve"/>
```

GlobeValve

Plant::*Piping*::GlobeValve

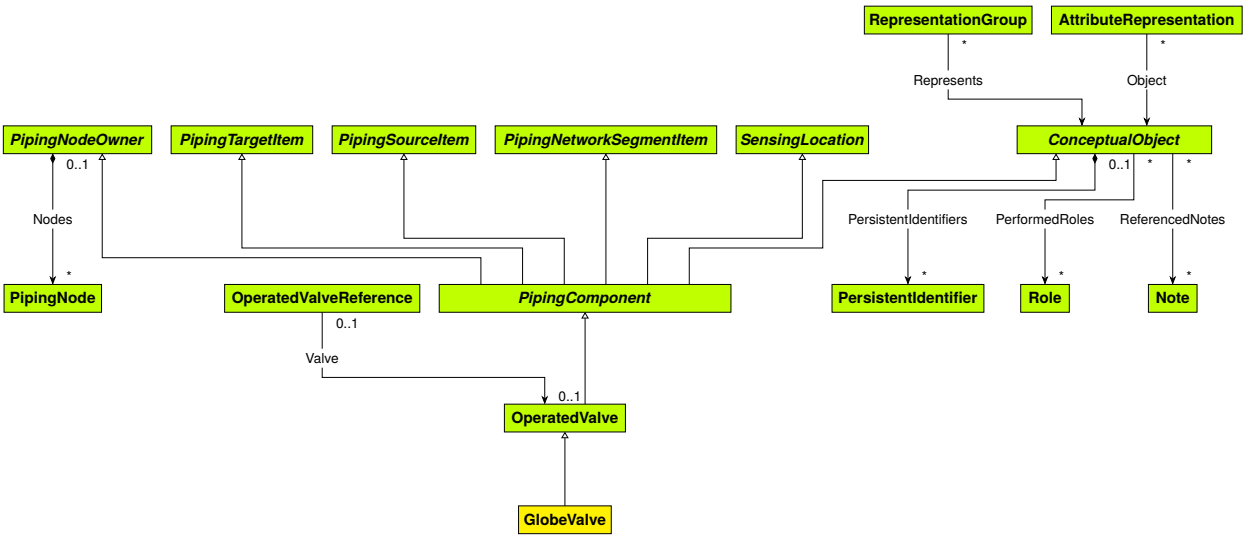
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416204

GLOBE VALVE

A valve that is a valve where the closure member is a disc or piston operating with linear motion normal to the flat or shaped seat (from http://data.posccaesar.org/rdl/RDS416204).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.GlobeValve"/>
```

Hose

Plant::*Piping*::Hose

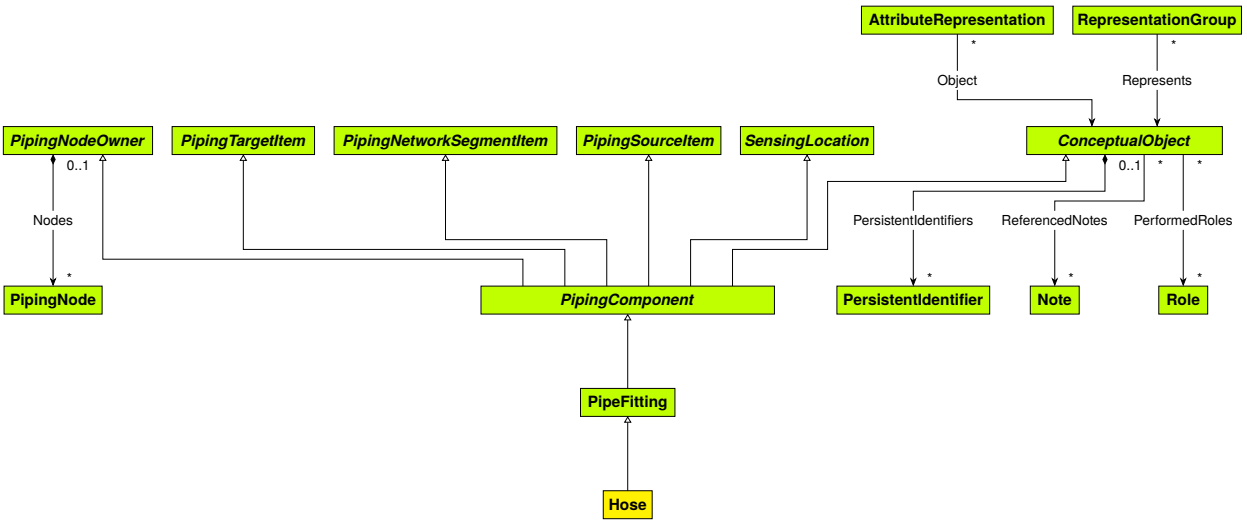
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS302174

HOSE

A tubular which is flexible and capable of conveying liquids under pressure (from http://data.posccaesar.org/rdl/RDS302174).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Hose"/>
```

IlluminatedSightGlass

Plant::*Piping*::IlluminatedSightGlass

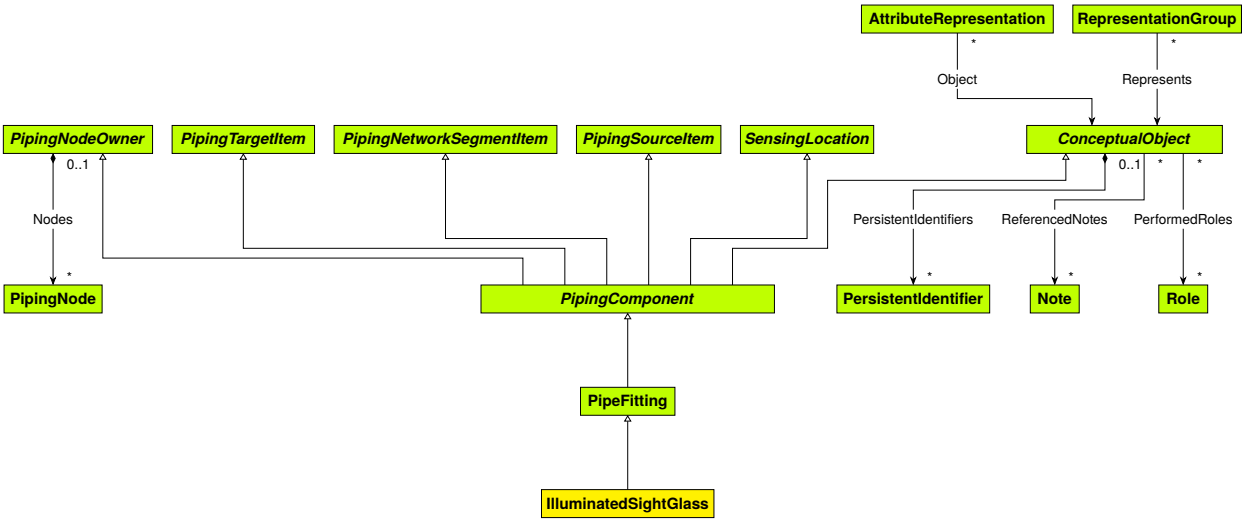
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/IlluminatedSightGlass

ILLUMINATED SIGHT GLASS

An illuminated sight glass.



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.IlluminatedSightGlass"/>
```

InLineMixer

Plant::*Piping*::InLineMixer

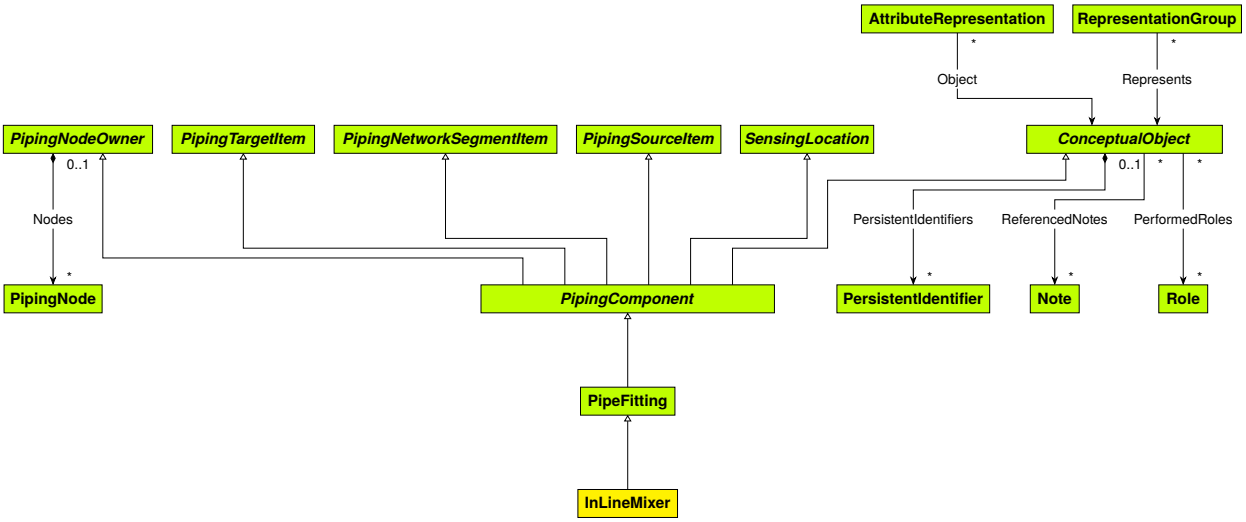
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS43167562195

IN-LINE MIXER

A static mixer that is intended to be supported by connected equipment. Typically supported by piping



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.InLineMixer"/>
```

InlineMeasuringElement

Plant::*Piping*::InlineMeasuringElement

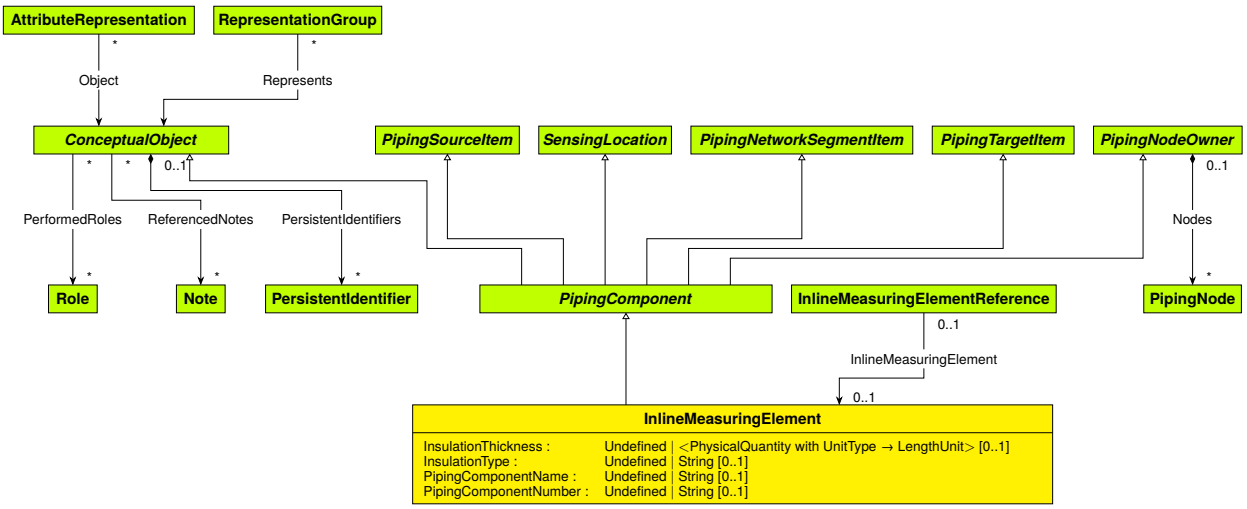
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/InlineMeasuringElement

INLINE MEASURING ELEMENT

An inline measuring element.



Supertypes

- *PipingComponent*

Subtypes

- *ElectromagneticFlowMeter*
- *FlowMeasuringElement*
- *FlowNozzle*
- *MassFlowMeasuringElement*
- *PositiveDisplacementFlowMeter*
- *TurbineFlowMeter*
- *VariableAreaFlowMeter*
- *VenturiTube*
- *VolumeFlowMeasuringElement*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
PipingComponentName	0..1	*Undefined* | *String*	no	no
PipingComponentNumber	0..1	*Undefined* | *String*	no	no

InsulationThickness

Data Property

The insulation thickness of the *InlineMeasuringElement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `40.0`)

InsulationType

Data Property

The identification code for the insulation type related to the *InlineMeasuringElement*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

"Q"

PipingComponentName

Data Property

A string to classify the *InlineMeasuringElement*. DEXPI does not prescribe the classification system. Typically, company or site site standards are used.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNameAssignmentClass

PIPING COMPONENT NAME ASSIGNMENT CLASS

Example

"73KH12"

PipingComponentNumber

Data Property

An identifier of the *InlineMeasuringElement*. DEXPI does not prescribe the scope of the identifier, i.e., whether it should be unique in, e.g., a *PipingNetworkSegment* or a *PipingNetworkSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNumberAssignmentClass

PIPING COMPONENT NUMBER ASSIGNMENT CLASS

Example

"C2"

Example in DEXPI XML

```
<Object type="Plant/Piping.InlineMeasuringElement">
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
```

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```
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="PipingComponentName">
    <String>73KH12</String>
  </Data>
  <Data property="PipingComponentNumber">
    <String>C2</String>
  </Data>
</Object>
```

LineBlind

Plant::*Piping*::LineBlind

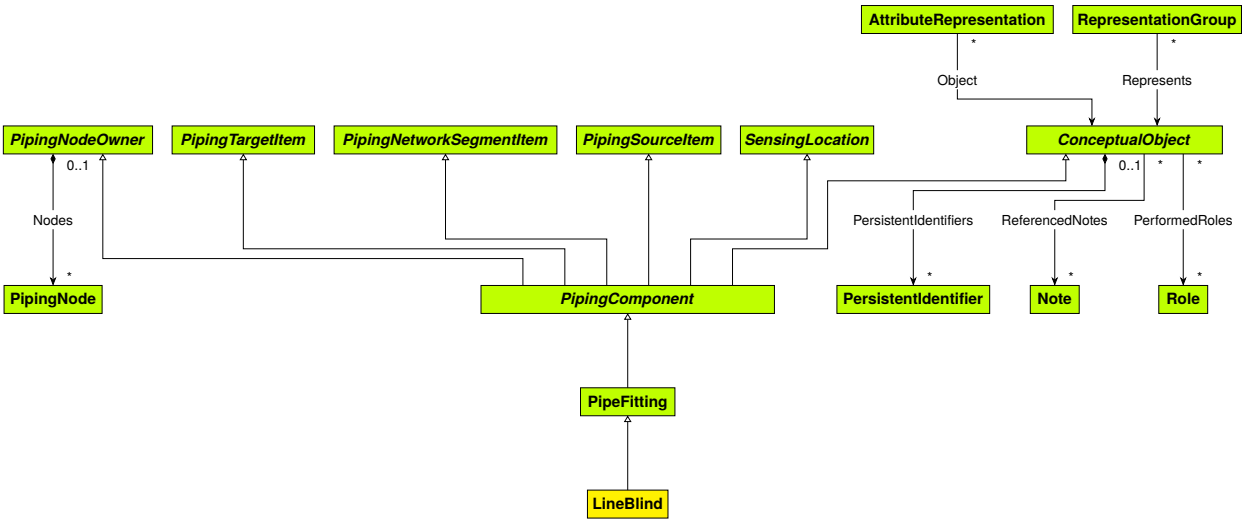
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS280034

LINE BLIND

A functional unit used to blind off a process stream (from http://data.posccaesar.org/rdl/RDS280034).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.LineBlind"/>
```

MassFlowMeasuringElement

Plant::*Piping*::MassFlowMeasuringElement

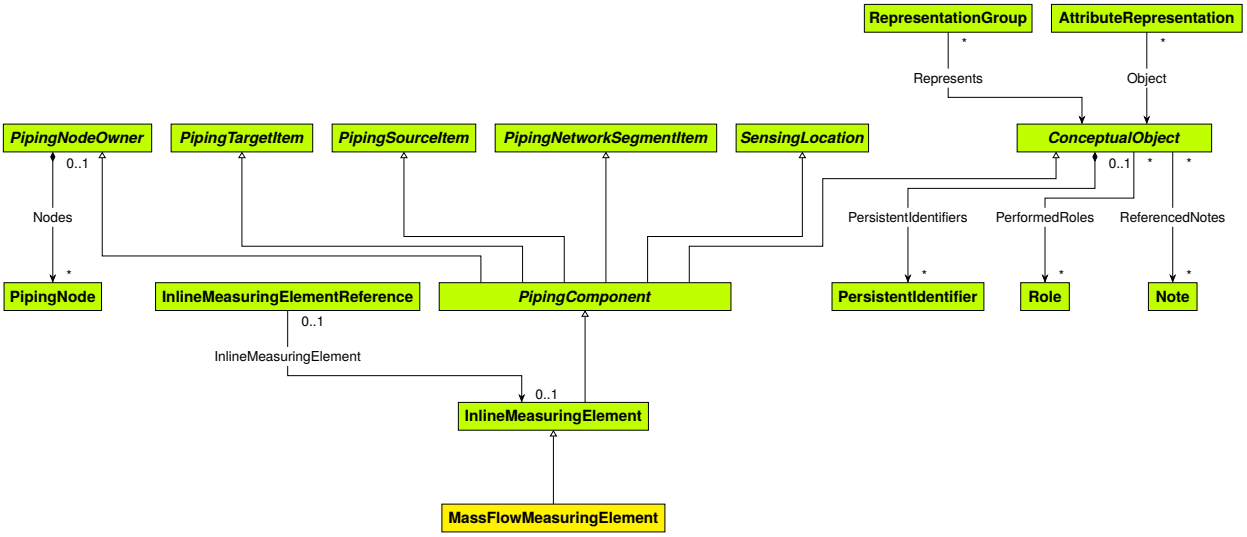
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MassFlowMeasuringElement

MASS FLOW MEASURING ELEMENT

A MASS FLOW MEASURING ELEMENT is a FLOW MEASURING ELEMENT that is used to measure MASS FLOW RATE.



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.MassFlowMeasuringElement"/>
```

NeedleValve

Plant::*Piping*::NeedleValve

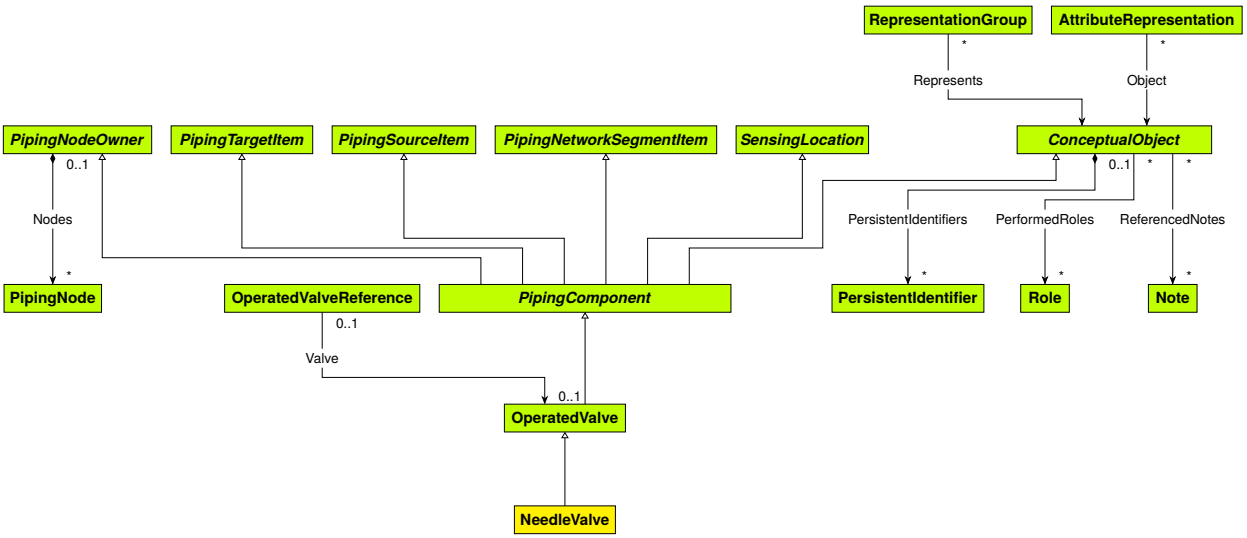
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS421064

NEEDLE VALVE

A globe valve that has a closure member with the shape of a conical plug (needle) which closes into a small seat (from http://data.posccaesar.org/rdl/RDS421064).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.NeedleValve"/>
```

OperatedValve

Plant::*Piping*::OperatedValve

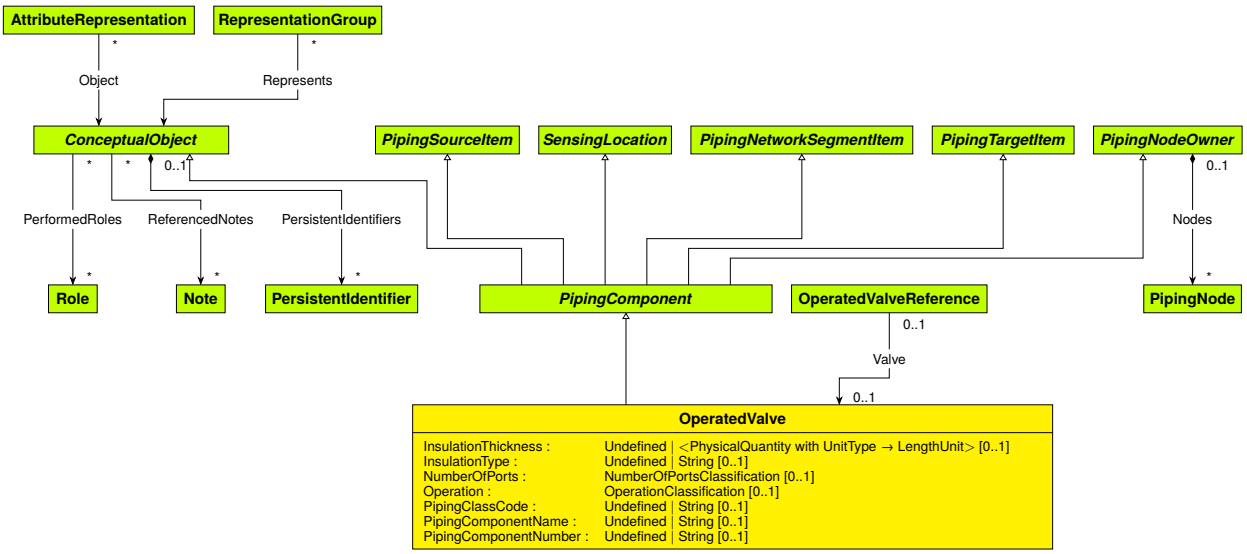
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11141590

OPERATED VALVE

A valve that includes an external means of operation. (E.g. handwheel / lever / actuator.)



Supertypes

- *PipingComponent*

Subtypes

- *AngleBallValve*
- *AngleGlobeValve*
- *AnglePlugValve*
- *AngleValve*
- *BallValve*
- *ButterflyValve*
- *GateValve*
- *GlobeValve*
- *NeedleValve*
- *PlugValve*
- *StraightwayValve*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
NumberOfPorts	0..1	*NumberOfPortsClassification*	no	no
Operation	0..1	*OperationClassification*	no	no
PipingClassCode	0..1	*Undefined* | *String*	no	no
PipingComponentName	0..1	*Undefined* | *String*	no	no
PipingComponentNumber	0..1	*Undefined* | *String*	no	no

InsulationThickness

Data Property

The insulation thickness of the *OperatedValve*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `40.0`)

InsulationType

Data Property

The identification code for the insulation type related to the *OperatedValve*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

"Q"

NumberOfPorts

Data Property

A specialization indicating the number of ports of the *OperatedValve*.

Type: *NumberOfPortsClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NumberOfPortsSpecialization

NUMBER OF PORTS SPECIALIZATION

Example

TwoPortValve

Operation

Data Property

A specialization indicating the operation of the *OperatedValve*.

Type: *OperationClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/OperationSpecialization

OPERATION SPECIALIZATION

Example

ContinuousOperation

PipingClassCode

Data Property

The identification code of the piping class of the *OperatedValve*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassCodeAssignmentClass

PIPING CLASS CODE ASSIGNMENT CLASS

Example

"75HB13"

PipingComponentName

Data Property

A string to classify the *OperatedValve*. DEXPI does not prescribe the classification system. Typically, company or site site standards are used.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNameAssignmentClass

PIPING COMPONENT NAME ASSIGNMENT CLASS

Example

"73KH12"

PipingComponentNumber

Data Property

An identifier of the *OperatedValve*. DEXPI does not prescribe the scope of the identifier, i.e., whether it should be unique in, e.g., a *PipingNetworkSegment* or a *PipingNetworkSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNumberAssignmentClass

PIPING COMPONENT NUMBER ASSIGNMENT CLASS

Example

"C2"

Example in DEXPI XML

```
<Object type="Plant/Piping.OperatedValve">
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="NumberOfPorts">
    <DataReference data="Plant/Enumerations.NumberOfPortsClassification.TwoPortValve"/>
  </Data>
  <Data property="Operation">
    <DataReference data="Plant/Enumerations.OperationClassification.ContinuousOperation"/
↪>
  </Data>
  <Data property="PipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="PipingComponentName">
    <String>73KH12</String>
  </Data>
  <Data property="PipingComponentNumber">
    <String>C2</String>
  </Data>
</Object>
```

Penetration

Plant::*Piping*::Penetration

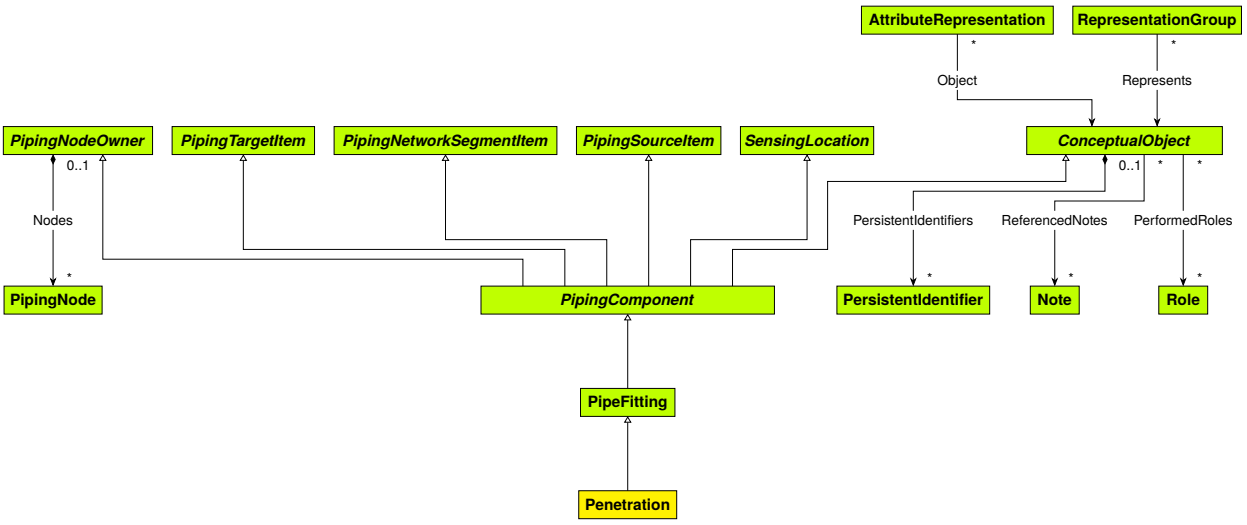
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13068275

PENETRATION

A device intended to provide a penetration (from http://data.posccaesar.org/rdl/RDS13068275).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Penetration"/>
```

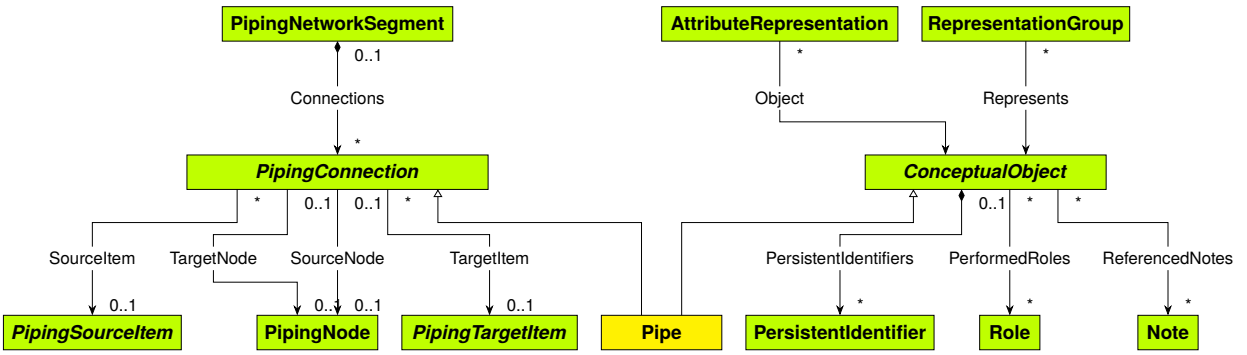
Pipe

Plant::*Piping*::Pipe

Overview

Concrete Class

An elementary piece of piping, i.e., not interrupted by any item.



Supertypes

- *ConceptualObject*
- *PipingConnection*

Example in DEXPI XML

```
<Object type="Plant/Piping.Pipe"/>
```

PipeCoupling

Plant::*Piping*::PipeCoupling

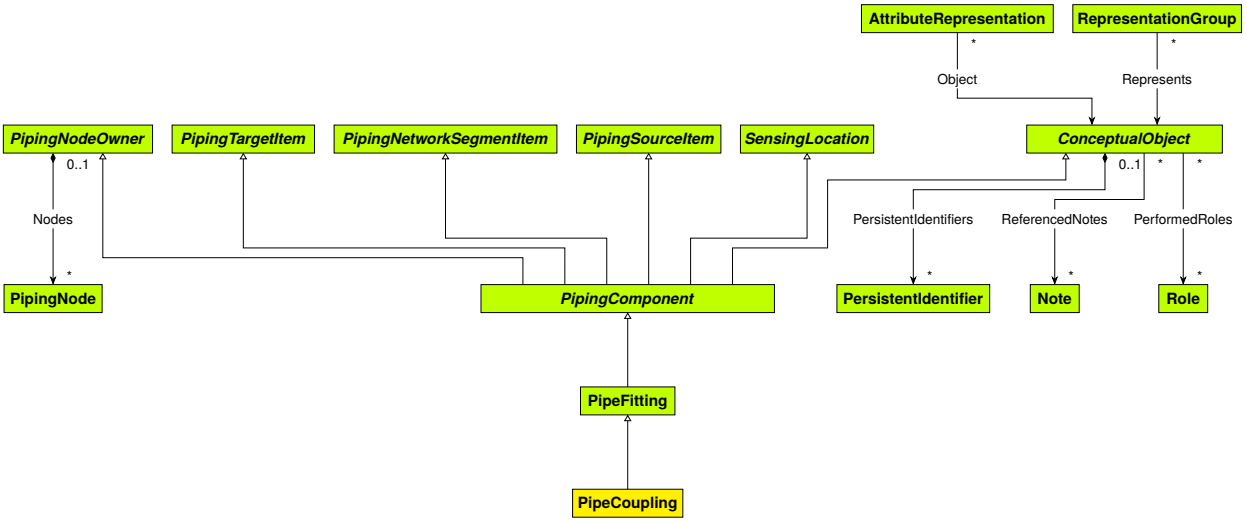
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS415664

PIPE COUPLING

An 'artefact' that is a one-piece cylindrical section intended to join pipes and/or piping components (from http://data.posccaesar.org/rdl/RDS415664).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeCoupling"/>
```

PipeFitting

Plant::*Piping*::PipeFitting

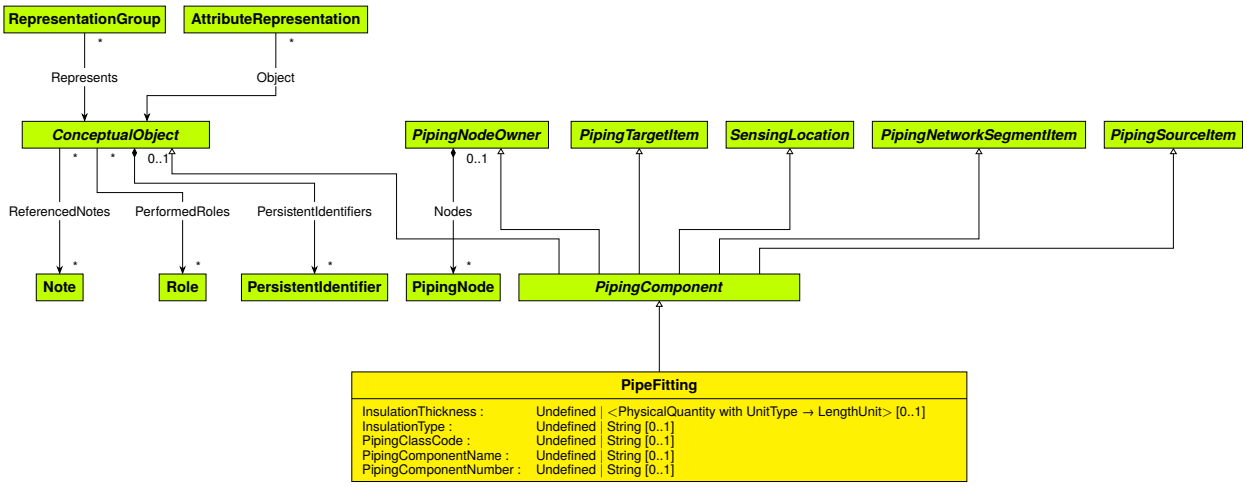
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PipeFitting

PIPE FITTING

A pipe fitting.



Supertypes

- *PipingComponent*

Subtypes

- *BlindFlange*
- *ClampedFlangeCoupling*
- *Compensator*
- *ConicalStrainer*
- *Flange*
- *FlangedConnection*
- *Funnel*
- *Hose*
- *IlluminatedSightGlass*
- *InLineMixer*
- *LineBlind*
- *Penetration*
- *PipeCoupling*
- *PipeFlangeSpacer*
- *PipeFlangeSpade*
- *PipeReducer*
- *PipeTee*
- *RestrictionOrifice*
- *Sensorwell*
- *SightGlass*
- *Silencer*
- *SteamTrap*

- *Strainer*
- *VentLine*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
PipingClassCode	0..1	*Undefined* | *String*	no	no
PipingComponentName	0..1	*Undefined* | *String*	no	no
PipingComponentNumber	0..1	*Undefined* | *String*	no	no

InsulationThickness

Data Property

The insulation thickness of the *PipeFitting*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `40.0`)

InsulationType

Data Property

The identification code for the insulation type related to the *PipeFitting*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

"Q"

PipingClassCode

Data Property

The identification code of the piping class of the *PipeFitting*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassCodeAssignmentClass

PIPING CLASS CODE ASSIGNMENT CLASS

Example

"75HB13"

PipingComponentName

Data Property

A string to classify the *PipeFitting*. DEXPI does not prescribe the classification system. Typically, company or site site standards are used.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNameAssignmentClass

PIPING COMPONENT NAME ASSIGNMENT CLASS

Example

"73KH12"

PipingComponentNumber

Data Property

An identifier of the *PipeFitting*. DEXPI does not prescribe the scope of the identifier, i.e., whether it should be unique in, e.g., a *PipingNetworkSegment* or a *PipingNetworkSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingComponentNumberAssignmentClass

PIPING COMPONENT NUMBER ASSIGNMENT CLASS

Example

"C2"

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeFitting">
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="PipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="PipingComponentName">
    <String>73KH12</String>
  </Data>
  <Data property="PipingComponentNumber">
    <String>C2</String>
  </Data>
</Object>
```

PipeFlangeSpacer

Plant::*Piping*::PipeFlangeSpacer

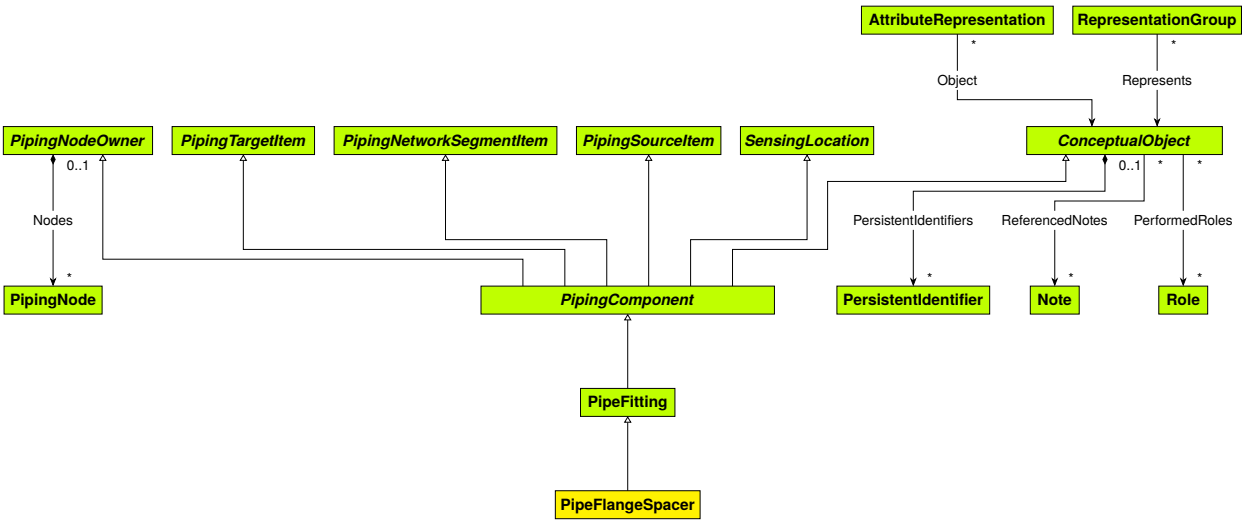
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS472724

PIPE FLANGE SPACER

A 'spacer' and an 'artefact' that is intended to be inserted between two pipe flanged ends to provide the distance between the flanges required to insert a 'pipe flange spade' (from http://data.posccaesar.org/rdl/RDS472724).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeFlangeSpacer"/>
```

PipeFlangeSpade

Plant::*Piping*::PipeFlangeSpade

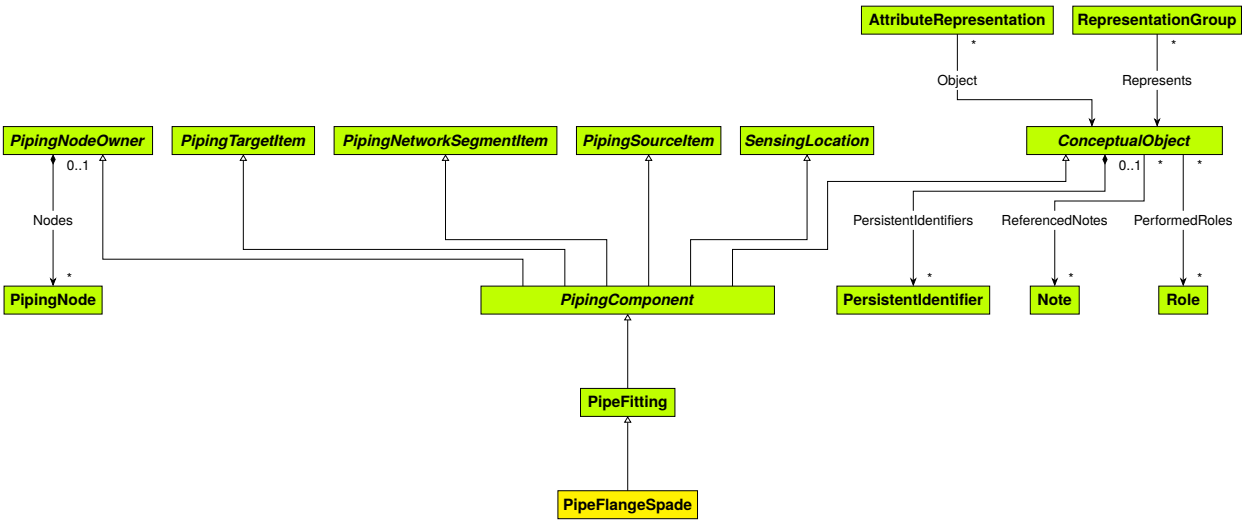
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS472679

PIPE FLANGE SPADE

A 'line blind' and an 'artefact' that is a circular plate with no central opening and holes to match mating flanged ends. It is also equipped with a handle (from http://data.posccaesar.org/rdl/RDS472679).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeFlangeSpade"/>
```

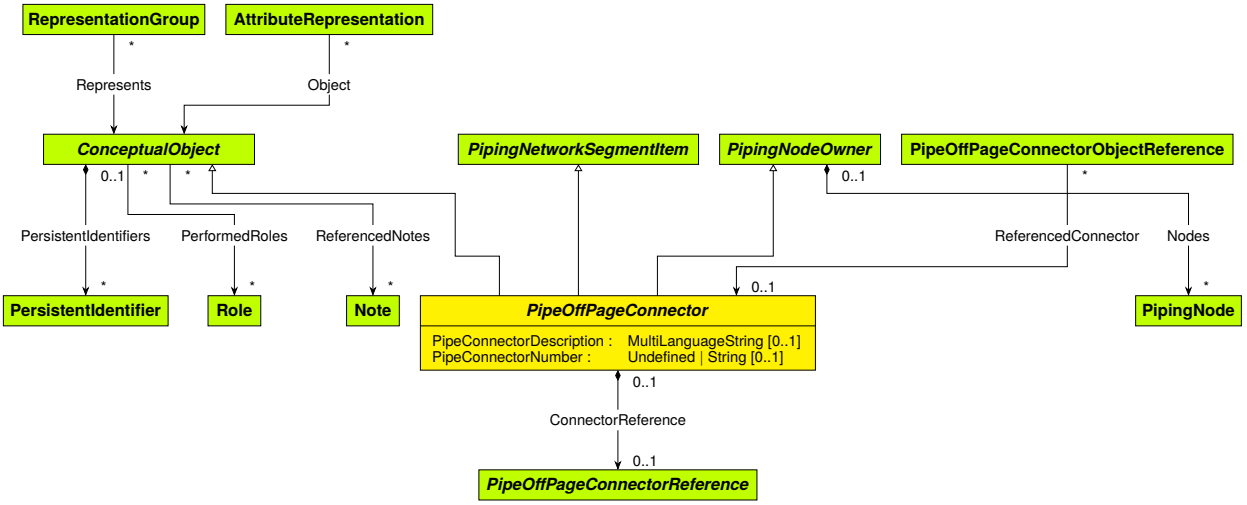
PipeOffPageConnector

Plant::*Piping*::PipeOffPageConnector

Overview

Abstract Class

A connector that indicates that a piping network segment is continued elsewhere, either on the same PID or on another PID. Graphically, it is usually represented as an arrow.



Supertypes

- *ConceptualObject*
- *PipingNetworkSegmentItem*
- *PipingNodeOwner*

Subtypes

- *FlowInPipeOffPageConnector*
- *FlowOutPipeOffPageConnector*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ConnectorReference	0..1	*PipeOffPageConnectorReference*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
PipeConnectorDescription	0..1	*MultiLanguageString*	no	no
PipeConnectorNumber	0..1	*Undefined* | *String*	no	no

ConnectorReference

Composition Property

A reference indicating to which other Plant.ProcessEquipment.PipeOffPageConnector this Plant.ProcessEquipment.PipeOffPageConnector is connected.

Type: *PipeOffPageConnectorReference*

Multiplicity: 0..1

Ordered: no

PipeConnectorDescription

Data Property

A description of the *PipeOffPageConnector*.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipeConnectorDescriptionAssignmentClass

PIPE CONNECTOR DESCRIPTION ASSIGNMENT CLASS

Example

```
" (('en', 'from reaction unit'), ('de', 'von Reaktionseinheit')) "
```

PipeConnectorNumber

Data Property

The number of the *PipeOffPageConnector*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipeConnectorNumberAssignmentClass

PIPE CONNECTOR NUMBER ASSIGNMENT CLASS

Example

```
"123"
```

PipeOffPageConnectorObjectReference

Plant::*Piping*::PipeOffPageConnectorObjectReference

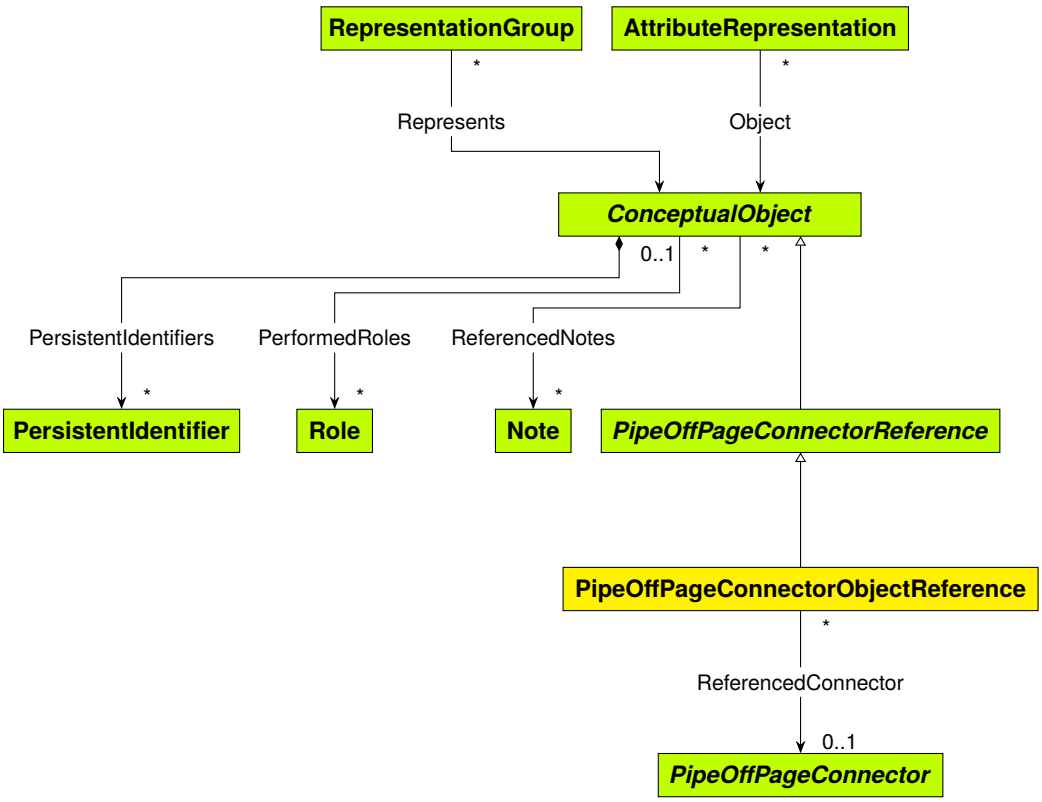
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PipeOffPageConnectorObjectReference

PIPE OFF PAGE CONNECTOR OBJECT REFERENCE

A reference to a *PipeOffPageConnector* by an association.



Supertypes

- *PipeOffPageConnectorReference*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ReferencedConnector	0..1	*PipeOffPageConnector*	no	no	*

ReferencedConnector

Reference Property

The Plant.ProcessEquipment.PipeOffPageConnector referenced.

Type: *PipeOffPageConnector*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeOffPageConnectorObjectReference"/>
```

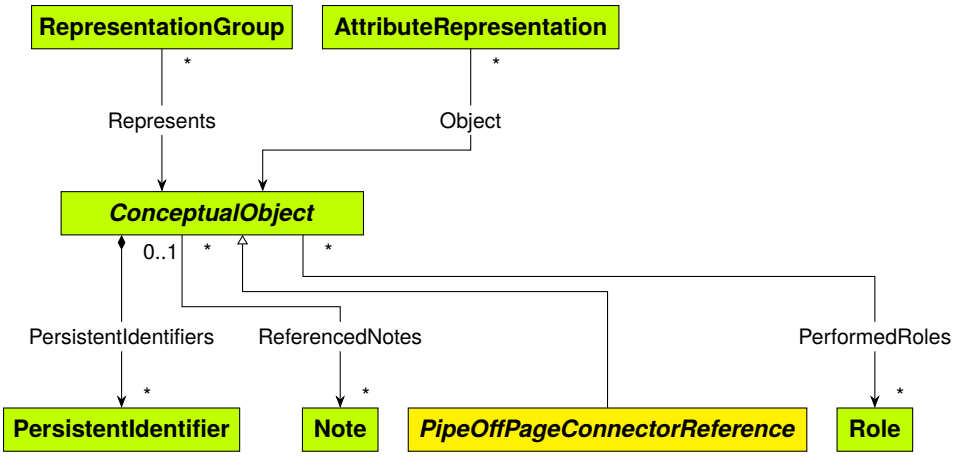
PipeOffPageConnectorReference

Plant::*Piping*::PipeOffPageConnectorReference

Overview

Abstract Class

A reference to a *PipeOffPageConnector*.



Supertypes

- *ConceptualObject*

Subtypes

- *PipeOffPageConnectorObjectReference*
- *PipeOffPageConnectorReferenceByNumber*

PipeOffPageConnectorReferenceByNumber

Plant::*Piping*::PipeOffPageConnectorReferenceByNumber

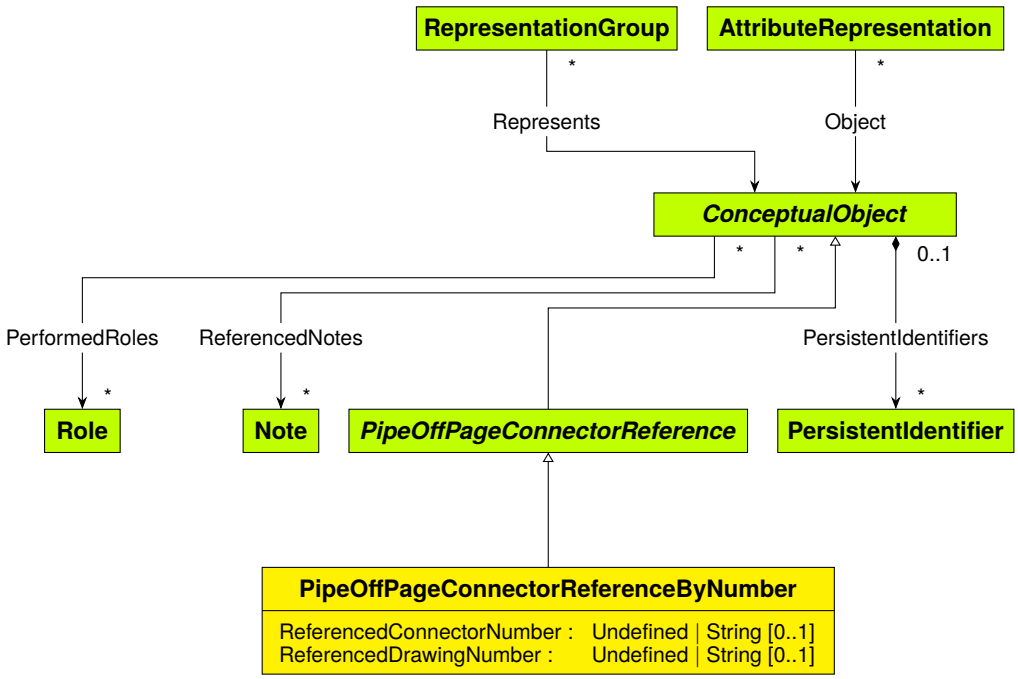
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PipeOffPageConnectorReferenceByNumber

PIPE OFF PAGE CONNECTOR REFERENCE BY NUMBER

A reference to a *PipeOffPageConnector* by drawing and connector number.



Supertypes

- *PipeOffPageConnectorReference*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ReferencedConnectorNumber	0..1	*Undefined* | *String*	no	no
ReferencedDrawingNumber	0..1	*Undefined* | *String*	no	no

ReferencedConnectorNumber

Data Property

The connector number of the referenced connector.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ReferencedConnectorNumberAssignmentClass

REFERENCED CONNECTOR NUMBER ASSIGNMENT CLASS

Example

"97"

ReferencedDrawingNumber

Data Property

The Core.Diagram.MetaData.DrawingNumberAssignmentClass of the PID that contains the referenced connector.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ReferencedDrawingNumberAssignmentClass

REFERENCED DRAWING NUMBER ASSIGNMENT CLASS

Example

"123/A93"

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeOffPageConnectorReferenceByNumber">
  <Data property="ReferencedConnectorNumber">
    <String>97</String>
  </Data>
  <Data property="ReferencedDrawingNumber">
    <String>123/A93</String>
  </Data>
</Object>
```

PipeReducer

Plant::*Piping*::PipeReducer

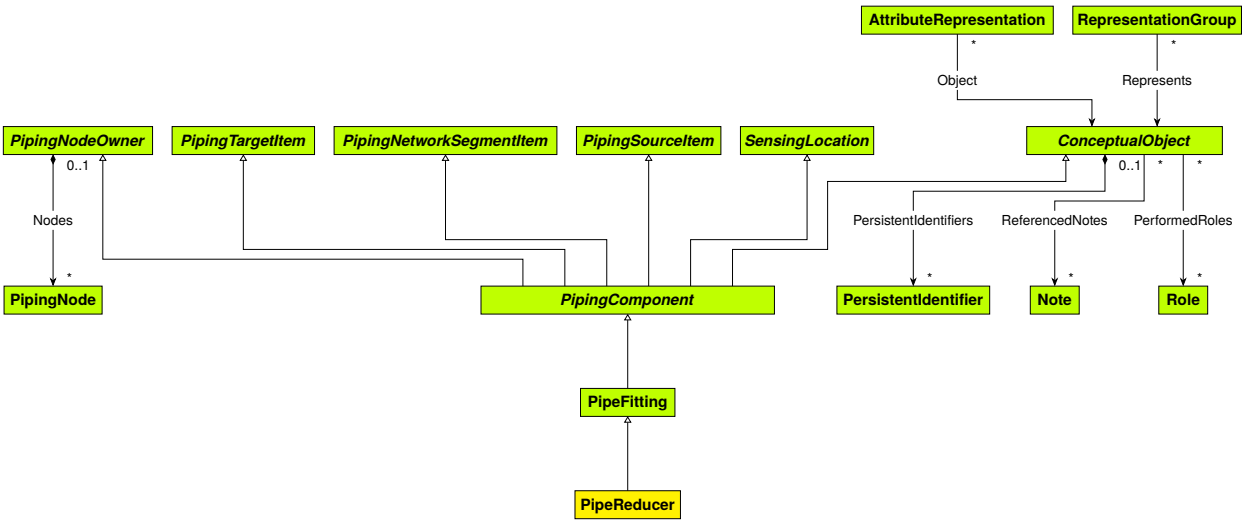
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416294

PIPE REDUCER

An 'artefact' that has different nominal pipe size at the two ends, intended to connect pipes or piping components (from http://data.posccaesar.org/rdl/RDS416294).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeReducer"/>
```

PipeTee

Plant::*Piping*::PipeTee

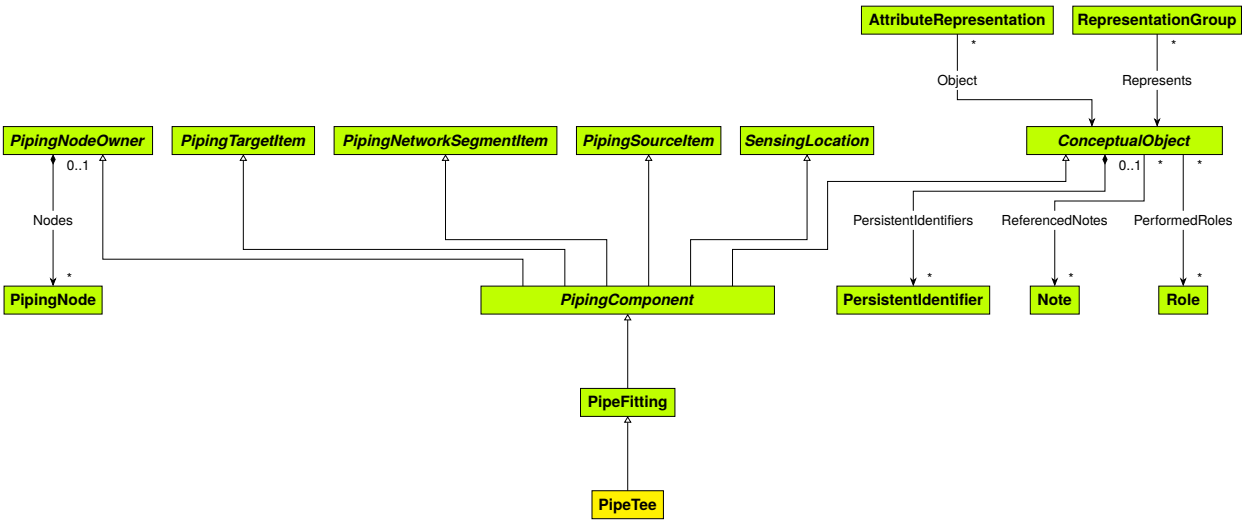
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS427724

PIPE TEE

An 'artefact' that has three piping ends in T-shape, including a branch at 90 degrees (from http://data.posccaesar.org/rdl/RDS427724).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.PipeTee"/>
```

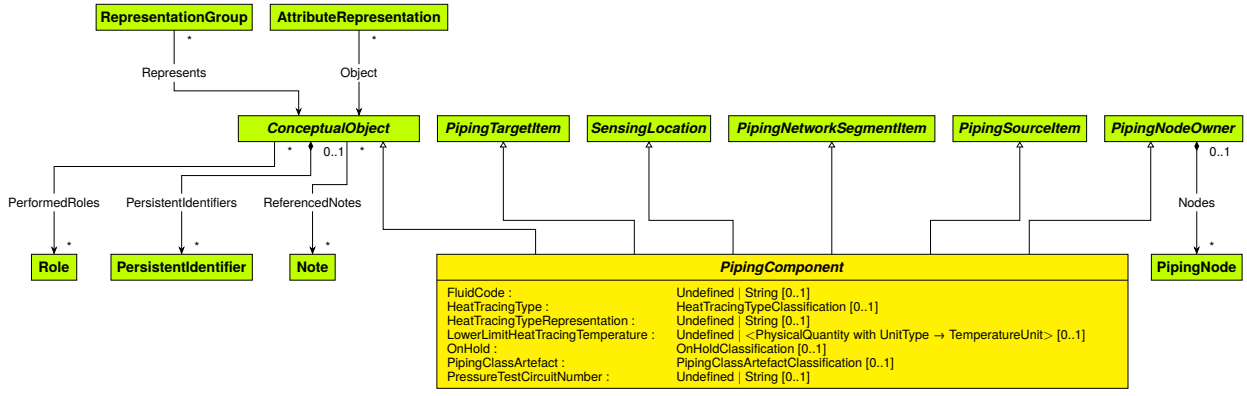
PipingComponent

Plant::*Piping*::PipingComponent

Overview

Abstract Class

A piping component



Supertypes

- *ConceptualObject*
- *PipingNetworkSegmentItem*
- *PipingNodeOwner*

- *PipingSourceItem*
- *PipingTargetItem*
- *SensingLocation*

Subtypes

- *CheckValve*
- *InlineMeasuringElement*
- *OperatedValve*
- *PipeFitting*
- *SafetyValveOrFitting*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FluidCode	0..1	*Undefined* | *String*	no	no
HeatTracingType	0..1	*HeatTracingTypeClassification*	no	no
HeatTracingTypeRepresentation	0..1	*Undefined* | *String*	no	no
LowerLimitHeatTracingTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
OnHold	0..1	*OnHoldClassification*	no	no
PipingClassArtefact	0..1	*PipingClassArtefactClassification*	no	no
PressureTestCircuitNumber	0..1	*Undefined* | *String*	no	no

FluidCode

Data Property

The identification code of the fluid related to the *PipingComponent*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FluidCodeAssignmentClass

FLUID CODE ASSIGNMENT CLASS

Example

```
"MNb"
```

HeatTracingType

Data Property

A specialization indicating the heat tracing type related to the *PipingComponent*.

Type: *HeatTracingTypeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeSpecialization

HEAT TRACING TYPE SPECIALIZATION

Example

ElectricalHeatTracingSystem

HeatTracingTypeRepresentation

Data Property

The heat tracing type related to the *PipingComponent*, represented as a string.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeRepresentationAssignmentClass

HEAT TRACING TYPE REPRESENTATION ASSIGNMENT CLASS

Example

`"E"`

LowerLimitHeatTracingTemperature

Data Property

The lower limit for the temperature that a heat tracing system must ensure for the *PipingComponent*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitHeatTracingTemperature

LOWER LIMIT HEAT TRACING TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `100.0`)

OnHold

Data Property

A specialization indicating if the *PipingComponent* is on hold or not.

Type: *OnHoldClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/OnHoldSpecialization

ON HOLD SPECIALIZATION

Example

OnHold

PipingClassArtefact

Data Property

A specialization indicating if the *PipingComponent* is an artefact that is described by a piping class.

Type: *PipingClassArtefactClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassArtefactSpecialization

PIPING CLASS ARTEFACT SPECIALIZATION

Example

PipingClassArtefact

PressureTestCircuitNumber

Data Property

The number of the pressure test circuit of the *PipingComponent*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PressureTestCircuitNumberAssignmentClass

PRESSURE TEST CIRCUIT NUMBER ASSIGNMENT CLASS

Example

"TC123"

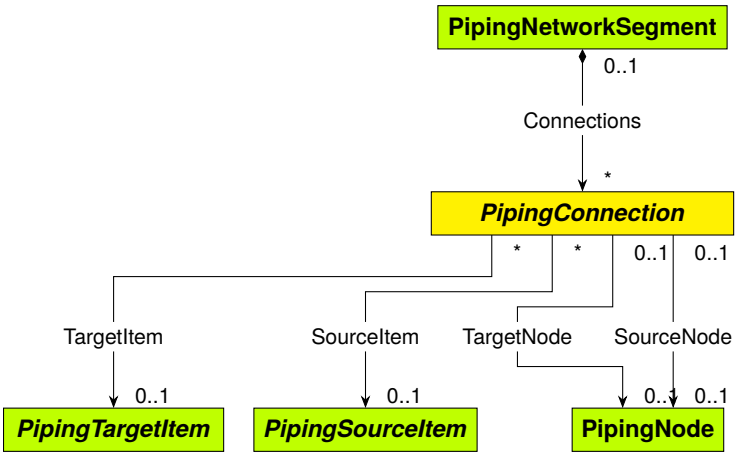
PipingConnection

Plant::*Piping*::PipingConnection

Overview

Abstract Class

An elementary connection between two piping items.



Subtypes

- *DirectPipingConnection*
- *Pipe*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
SourceItem	0..1	*PipingSourceItem*	no	no	*
SourceNode	0..1	*PipingNode*	no	no	0..1
TargetItem	0..1	*PipingTargetItem*	no	no	*
TargetNode	0..1	*PipingNode*	no	no	0..1

SourceItem

Reference Property

The *PipingSourceItem* at which the PipingConnection starts.

Type: *PipingSourceItem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

SourceNode

Reference Property

The *PipingNode* at which the PipingConnection starts. The SourceNode must belong to the *SourceItem*.

Type: *PipingNode*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

TargetItem

Reference Property

The *PipingTargetItem* at which the PipingConnection starts.

Type: *PipingTargetItem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

TargetNode

Reference Property

The *PipingNode* at which the PipingConnection ends. The TargetNode must belong to the *TargetItem*.

Type: *PipingNode*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

PipingNetworkSegment

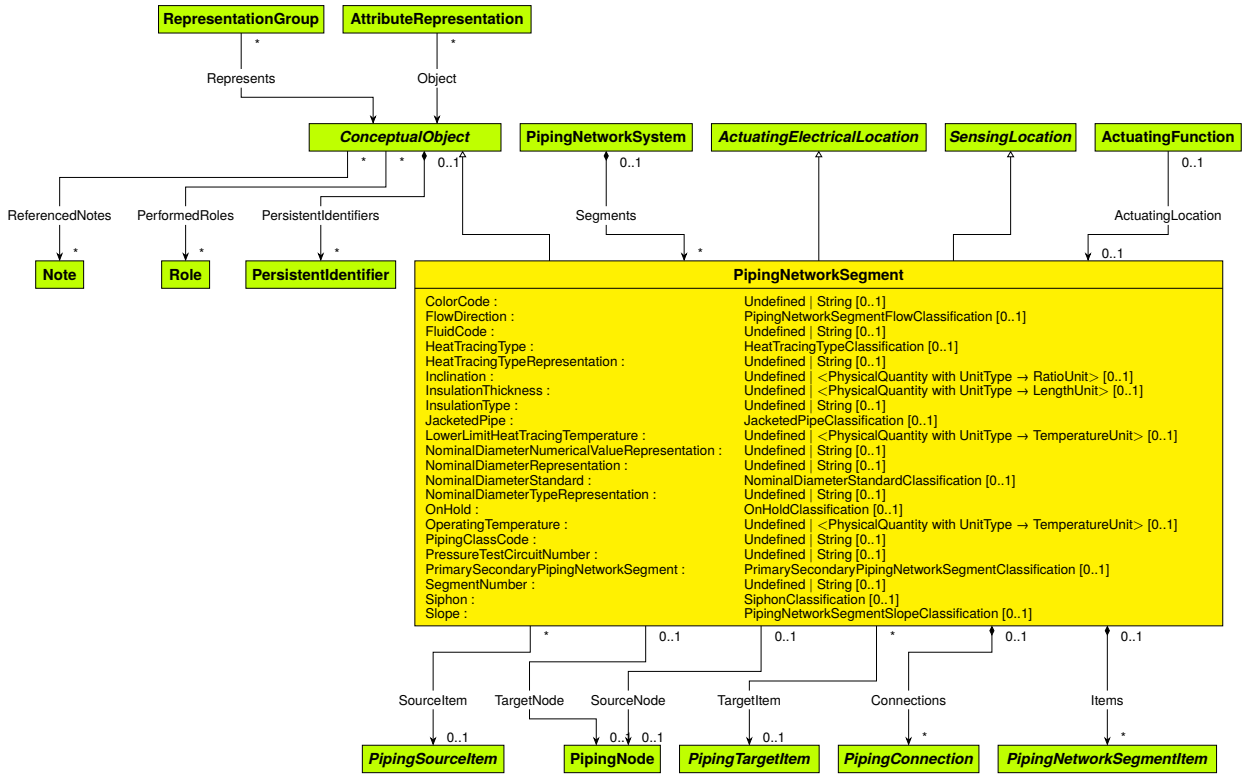
Plant::*Piping*::PipingNetworkSegment

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS267704

PIPING NETWORK SEGMENT



Supertypes

- *ActuatingElectricalLocation*
- *ConceptualObject*
- *SensingLocation*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Connections	*	*PipingConnection*	no
Items	*	*PipingNetworkSegmentItem*	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
SourceItem	0..1	*PipingSourceItem*	no	no	*
SourceNode	0..1	*PipingNode*	no	no	0..1
TargetItem	0..1	*PipingTargetItem*	no	no	*
TargetNode	0..1	*PipingNode*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ColorCode	0..1	*Undefined* | *String*	no	no
FlowDirection	0..1	*PipingNetworkSegmentFlowClassification*	no	no
FluidCode	0..1	*Undefined* | *String*	no	no
HeatTracingType	0..1	*HeatTracingTypeClassification*	no	no
HeatTracingTypeRepresentation	0..1	*Undefined* | *String*	no	no
Inclination	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
JacketedPipe	0..1	*JacketedPipeClassification*	no	no
LowerLimitHeatTracingTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
NominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
NominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
NominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
NominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no
OnHold	0..1	*OnHoldClassification*	no	no
OperatingTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
PipingClassCode	0..1	*Undefined* | *String*	no	no
PressureTestCircuitNumber	0..1	*Undefined* | *String*	no	no
PrimarySecondaryPipingNetworkSegment	0..1	*PrimarySecondaryPipingNetworkSegmentClassification*	no	no
SegmentNumber	0..1	*Undefined* | *String*	no	no
Siphon	0..1	*SiphonClassification*	no	no
Slope	0..1	*PipingNetworkSegmentSlopeClassification*	no	no

ColorCode

Data Property

The color code of the *PipingNetworkSegment*, represented as a string.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ColorCodeAssignmentClass

COLOR CODE ASSIGNMENT CLASS

Example

"C321"

Connections

Composition Property

The connections of the PipingNetworkSegment.

Type: *PipingConnection*

Multiplicity: *

Ordered: no

FlowDirection

Data Property

A specialization indicating if the *PipingNetworkSegment* enables dual flow or not.

Type: *PipingNetworkSegmentFlowClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FlowDirectionSpecialization

FLOW DIRECTION SPECIALIZATION

Example

DualFlowPipingNetworkSegment

FluidCode

Data Property

The identification code of the fluid related to the *PipingNetworkSegment*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FluidCodeAssignmentClass

FLUID CODE ASSIGNMENT CLASS

Example

"MNb"

HeatTracingType

Data Property

A specialization indicating the heat tracing type related to the *PipingNetworkSegment*.

Type: *HeatTracingTypeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeSpecialization

HEAT TRACING TYPE SPECIALIZATION

Example

ElectricalHeatTracingSystem

HeatTracingTypeRepresentation

Data Property

The heat tracing type related to the *PipingNetworkSegment*, represented as a string.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeRepresentationAssignmentClass

HEAT TRACING TYPE REPRESENTATION ASSIGNMENT CLASS

Example

"E"

Inclination

Data Property

The inclination (slope) of the *PipingNetworkSegment* in percent.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS17688057

INCLINATION

Example

PhysicalQuantity(

Unit = *Percent*,

Value = `10.0`)

InsulationThickness

Data Property

The insulation thickness of the *PipingNetworkSegment*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `40.0`)

InsulationType

Data Property

The identification code for the insulation type related to the *PipingNetworkSegment*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

`"Q"`

Items

Composition Property

The items of the PipingNetworkSegment.

Type: *PipingNetworkSegmentItem*

Multiplicity: *

Ordered: no

JacketedPipe

Data Property

A specialization indicating whether the *PipingNetworkSegment* is jacketed.

Type: *JacketedPipeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/JacketedPipeSpecialization

JACKETED PIPE SPECIALIZATION

Example

JacketedPipe

LowerLimitHeatTracingTemperature

Data Property

The lower limit for the temperature that a heat tracing system must ensure for the *PipingNetworkSegment*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitHeatTracingTemperature

LOWER LIMIT HEAT TRACING TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `100.0`)

NominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter of the *PipingNetworkSegment*, without any type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterNumericalValueRepresentationAssignmentClass

NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

```
"25"
```

NominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter of the *PipingNetworkSegment*. It normally contains a numerical value and a type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterRepresentationAssignmentClass

NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN 25"
```

NominalDiameterStandard

Data Property

The nominal diameter of the *PipingNetworkSegment*, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterStandardSpecialization

NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

NominalDiameterTypeRepresentation

Data Property

A readable representation of the type or unit of measure of the nominal diameter of the *PipingNetworkSegment*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterTypeRepresentationAssignmentClass

NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN"
```

OnHold

Data Property

A specialization indicating if the *PipingNetworkSegment* is on hold or not.

Type: *OnHoldClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/OnHoldSpecialization

ON HOLD SPECIALIZATION

Example

OnHold

OperatingTemperature

Data Property

The operating temperature of the *PipingNetworkSegment*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS357119

OPERATING TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `100.0`)

PipingClassCode

Data Property

The identification code of the piping class of the *PipingNetworkSegment*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassCodeAssignmentClass

PIPING CLASS CODE ASSIGNMENT CLASS

Example

```
"75HB13"
```

PressureTestCircuitNumber

Data Property

The number of the pressure test circuit of the *PipingNetworkSegment*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PressureTestCircuitNumberAssignmentClass

PRESSURE TEST CIRCUIT NUMBER ASSIGNMENT CLASS

Example

```
"TC123"
```

PrimarySecondaryPipingNetworkSegment

Data Property

A specialization indicating whether the *PipingNetworkSegment* is a primary or secondary *PipingNetworkSegment*.

Type: *PrimarySecondaryPipingNetworkSegmentClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PrimarySecondaryPipingNetworkSegmentSpecialization

PRIMARY SECONDARY PIPING NETWORK SEGMENT SPECIALIZATION

Example

PrimaryPipingNetworkSegment

SegmentNumber

Data Property

The segment number of a *PipingNetworkSegment*. Values are typically (but not necessarily) string representations of numbers with a prefix.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SegmentNumberAssignmentClass

SEGMENT NUMBER ASSIGNMENT CLASS

Example

```
"S3"
```

Siphon

Data Property

A specialization indicating if the *PipingNetworkSegment* is a siphon or not.

Type: *SiphonClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SiphonSpecialization

SIPHON SPECIALIZATION

Example

Siphon

Slope

Data Property

A specialization indicating if the *PipingNetworkSegment* is sloped or not.

Type: *PipingNetworkSegmentSlopeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SlopeSpecialization

SLOPE SPECIALIZATION

Example

SlopedPipingNetworkSegment

SourceItem

Reference Property

The item at which the PipingNetworkSegment starts.

Type: *PipingSourceItem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

SourceNode

Reference Property

The *PipingNode* at which the PipingNetworkSegment starts.

Type: *PipingNode*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

TargetItem

Reference Property

The item at which the PipingNetworkSegment ends.

Type: *PipingTargetItem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

TargetNode

Reference Property

The *PipingNode* at which the PipingNetworkSegment ends.

Type: *PipingNode*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Example in DEXPI XML

```
<Object type="Plant/Piping.PipingNetworkSegment">
  <Data property="ColorCode">
    <String>C321</String>
  </Data>
  <Data property="FlowDirection">
    <DataReference data="Plant/Enumerations.PipingNetworkSegmentFlowClassification.
↪DualFlowPipingNetworkSegment"/>
  </Data>
  <Data property="FluidCode">
    <String>MNb</String>
  </Data>
  <Data property="HeatTracingType">
    <DataReference data="Plant/Enumerations.HeatTracingTypeClassification.
↪ElectricalHeatTracingSystem"/>
  </Data>
  <Data property="HeatTracingTypeRepresentation">
    <String>E</String>
  </Data>
  <Data property="Inclination">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>10.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="JacketedPipe">
    <DataReference data="Plant/Enumerations.JacketedPipeClassification.JacketedPipe"/>
  </Data>
  <Data property="LowerLimitHeatTracingTemperature">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
```

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```
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
      </Data>
      <Data property="Value">
        <Double>100.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="NominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="NominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="NominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
  </Data>
  <Data property="NominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
  <Data property="OnHold">
    <DataReference data="Plant/Enumerations.OnHoldClassification.OnHold"/>
  </Data>
  <Data property="OperatingTemperature">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
      </Data>
      <Data property="Value">
        <Double>100.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="PipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="PressureTestCircuitNumber">
    <String>TC123</String>
  </Data>
  <Data property="PrimarySecondaryPipingNetworkSegment">
    <DataReference data="Plant/Enumerations.
↪PrimarySecondaryPipingNetworkSegmentClassification.PrimaryPipingNetworkSegment"/>
  </Data>
  <Data property="SegmentNumber">
    <String>S3</String>
  </Data>
  <Data property="Siphon">
    <DataReference data="Plant/Enumerations.SiphonClassification.Siphon"/>
  </Data>
  <Data property="Slope">
    <DataReference data="Plant/Enumerations.PipingNetworkSegmentSlopeClassification.
↪SlopedPipingNetworkSegment"/>
```

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```
  </Data>
</Object>
```

PipingNetworkSegmentItem

Plant::*Piping*::PipingNetworkSegmentItem

Overview

Abstract Class

An item that can be part of a *PipingNetworkSegment*.

PipingNetworkSegmentItem

Subtypes

- *PipeOffPageConnector*
- *PipingComponent*
- *PropertyBreak*

PipingNetworkSystem

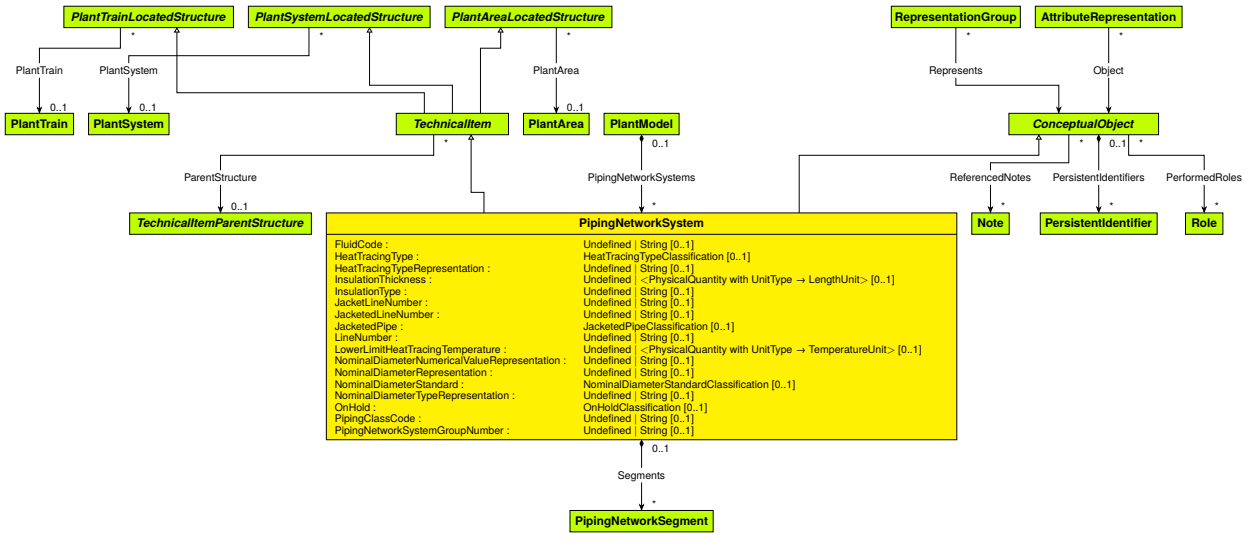
Plant::*Piping*::PipingNetworkSystem

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS270359

PIPING NETWORK SYSTEM



Supertypes

- *ConceptualObject*
- *TechnicalItem*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Segments	*	*PipingNetworkSegment*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FluidCode	0..1	*Undefined* | *String*	no	no
HeatTracingType	0..1	*HeatTracingTypeClassification*	no	no
HeatTracingTypeRepresentation	0..1	*Undefined* | *String*	no	no
InsulationThickness	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsulationType	0..1	*Undefined* | *String*	no	no
JacketLineNumber	0..1	*Undefined* | *String*	no	no
JacketedLineNumber	0..1	*Undefined* | *String*	no	no
JacketedPipe	0..1	*JacketedPipeClassification*	no	no
LineNumber	0..1	*Undefined* | *String*	no	no
LowerLimitHeatTracingTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
NominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
NominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
NominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
NominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no
OnHold	0..1	*OnHoldClassification*	no	no
PipingClassCode	0..1	*Undefined* | *String*	no	no
PipingNetworkSystemGroupNumber	0..1	*Undefined* | *String*	no	no

FluidCode

Data Property

The identification code of the fluid related to the *PipingNetworkSystem*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FluidCodeAssignmentClass

FLUID CODE ASSIGNMENT CLASS

Example

```
"MNb"
```

HeatTracingType

Data Property

A specialization indicating the heat tracing type related to the *PipingNetworkSystem*.

Type: *HeatTracingTypeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeSpecialization

HEAT TRACING TYPE SPECIALIZATION

Example

ElectricalHeatTracingSystem

HeatTracingTypeRepresentation

Data Property

The heat tracing type related to the *PipingNetworkSystem*, represented as a string.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatTracingTypeRepresentationAssignmentClass

HEAT TRACING TYPE REPRESENTATION ASSIGNMENT CLASS

Example

```
"E"
```

InsulationThickness

Data Property

The insulation thickness of the *PipingNetworkSystem*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS4238040

INSULATION THICKNESS

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `40.0`)

InsulationType

Data Property

The identification code for the insulation type related to the *PipingNetworkSystem*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationTypeAssignmentClass

INSULATION TYPE ASSIGNMENT CLASS

Example

`"Q"`

JacketLineNumber

Data Property

The line number of the PipingNetworkSystem that is the jacket of this *PipingNetworkSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/JacketLineNumberAssignmentClass

JACKET LINE NUMBER ASSIGNMENT CLASS

Example

`"47126J"`

JacketedLineNumber

Data Property

The line number of the PipingNetworkSystem for which this *PipingNetworkSystem* is the jacket.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/JacketedLineNumberAssignmentClass

JACKETED LINE NUMBER ASSIGNMENT CLASS

Example

```
"47126"
```

JacketedPipe

Data Property

A specialization indicating whether the *PipingNetworkSystem* is jacketed.

Type: *JacketedPipeClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/JacketedPipeSpecialization

JACKETED PIPE SPECIALIZATION

Example

JacketedPipe

LineNumber

Data Property

The line number of a *PipingNetworkSystem*. Values are typically (but not necessarily) string representations of numbers.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LineNumberAssignmentClass

LINE NUMBER ASSIGNMENT CLASS

Example

"47126"

LowerLimitHeatTracingTemperature

Data Property

The lower limit for the temperature that a heat tracing system must ensure for the *PipingNetworkSystem*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitHeatTracingTemperature

LOWER LIMIT HEAT TRACING TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = 100.0)

NominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter of the *PipingNetworkSystem*, without any type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterNumericalValueRepresentationAssignmentClass

NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

"25"

NominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter of the *PipingNetworkSystem*. It normally contains a numerical value and a type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterRepresentationAssignmentClass

NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN 25"
```

NominalDiameterStandard

Data Property

The nominal diameter of the *PipingNetworkSystem*, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterStandardSpecialization

NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

NominalDiameterTypeRepresentation

Data Property

A readable representation of the type or unit of measure of the nominal diameter of the *PipingNetworkSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterTypeRepresentationAssignmentClass

NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN"
```

OnHold

Data Property

A specialization indicating if the *PipingNetworkSystem* is on hold or not.

Type: *OnHoldClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/OnHoldSpecialization

ON HOLD SPECIALIZATION

Example

OnHold

PipingClassCode

Data Property

The identification code of the piping class of the *PipingNetworkSystem*. So far, DEXPI does not define restrictions for valid values.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassCodeAssignmentClass

PIPING CLASS CODE ASSIGNMENT CLASS

Example

```
"75HB13"
```

PipingNetworkSystemGroupNumber

Data Property

The number of the piping network system group of the *PipingNetworkSystem*, represented as a string.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingNetworkSystemGroupNumberAssignmentClass

PIPING NETWORK SYSTEM GROUP NUMBER ASSIGNMENT CLASS

Example

```
"G3"
```

Segments

Composition Property

The segments of the PipingNetworkSystem.

Type: *PipingNetworkSegment*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/Piping.PipingNetworkSystem">
  <Data property="FluidCode">
    <String>MNb</String>
  </Data>
  <Data property="HeatTracingType">
    <DataReference data="Plant/Enumerations.HeatTracingTypeClassification.
↪ElectricalHeatTracingSystem"/>
  </Data>
  <Data property="HeatTracingTypeRepresentation">
    <String>E</String>
  </Data>
  <Data property="InsulationThickness">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="InsulationType">
    <String>Q</String>
  </Data>
  <Data property="JacketLineNumber">
    <String>47126J</String>
  </Data>
  <Data property="JacketedLineNumber">
    <String>47126</String>
  </Data>
  <Data property="JacketedPipe">
    <DataReference data="Plant/Enumerations.JacketedPipeClassification.JacketedPipe"/>
  </Data>
  <Data property="LineNumber">
    <String>47126</String>
  </Data>
  <Data property="LowerLimitHeatTracingTemperature">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>100.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="NominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="NominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="NominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
  </Data>
  <Data property="NominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
  <Data property="OnHold">
    <DataReference data="Plant/Enumerations.OnHoldClassification.OnHold"/>
  </Data>
  <Data property="PipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="PipingNetworkSystemGroupNumber">
    <String>G3</String>
  </Data>
</Object>
```

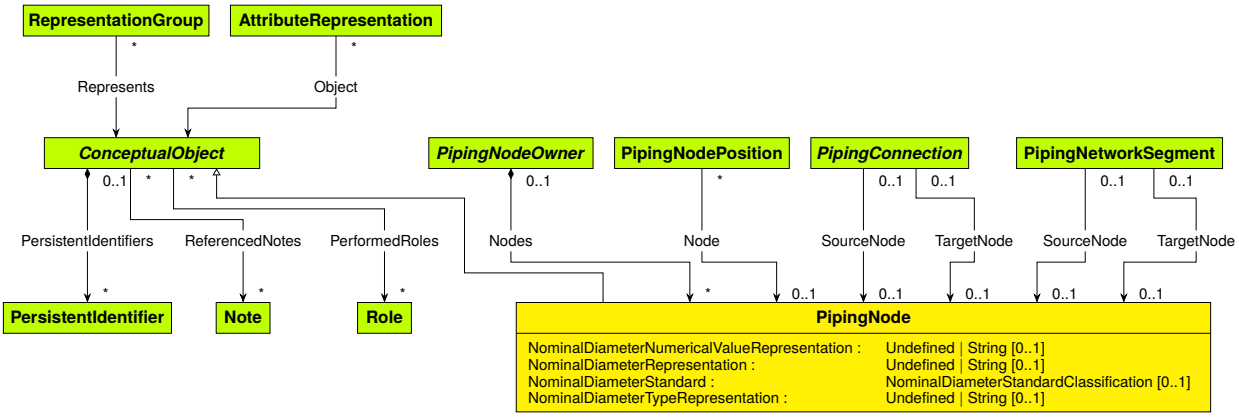
PipingNode

Plant::*Piping*::PipingNode

Overview

Concrete Class

A possible connection point for a *PipingConnection*.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
NominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
NominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
NominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no

NominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter of the *PipingNode*, without any type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterNumericalValueRepresentationAssignmentClass

NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

```
"25"
```

NominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter of the *PipingNode*. It normally contains a numerical value and a type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterRepresentationAssignmentClass

NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

"DN 25"

NominalDiameterStandard

Data Property

The nominal diameter of the *PipingNode*, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterStandardSpecialization

NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

NominalDiameterTypeRepresentation

Data Property

A readable representation of the type or unit of measure of the nominal diameter of the *PipingNode*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterTypeRepresentationAssignmentClass

NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

"DN"

Example in DEXPI XML

```
<Object type="Plant/Piping.PipingNode">
  <Data property="NominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="NominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="NominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
```

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```
  </Data>
  <Data property="NominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
</Object>
```

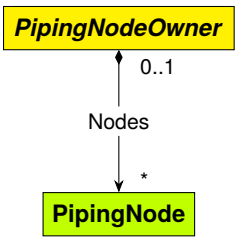
PipingNodeOwner

Plant::*Piping*::PipingNodeOwner

Overview

Abstract Class

An object that can have *PipingNodes*.



Subtypes

- *Nozzle*
- *PipeOffPageConnector*
- *PipingComponent*
- *PropertyBreak*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Nodes	*	*PipingNode*	no

Nodes

Composition Property

The *PipingNodes* of the PipingNodeOwner.

Type: *PipingNode*

Multiplicity: *

Ordered: no

PipingSourceItem

Plant::*Piping*::PipingSourceItem

Overview

Abstract Class

An item that can be the source of a *PipingConnection* (attribute *SourceItem*) or a *PipingNetworkSegment* (attribute *SourceItem*).

PipingSourceItem

Subtypes

- *FlowInPipeOffPageConnector*
- *Nozzle*
- *PipingComponent*
- *PropertyBreak*

PipingTargetItem

Plant::*Piping*::PipingTargetItem

Overview

Abstract Class

An item that can be the target of a *PipingConnection* (attribute *TargetItem*) or a *PipingNetworkSegment* (attribute *TargetItem*).

PipingTargetItem

Subtypes

- *FlowOutPipeOffPageConnector*
- *Nozzle*
- *PipingComponent*
- *PropertyBreak*

PlugValve

Plant::*Piping*::PlugValve

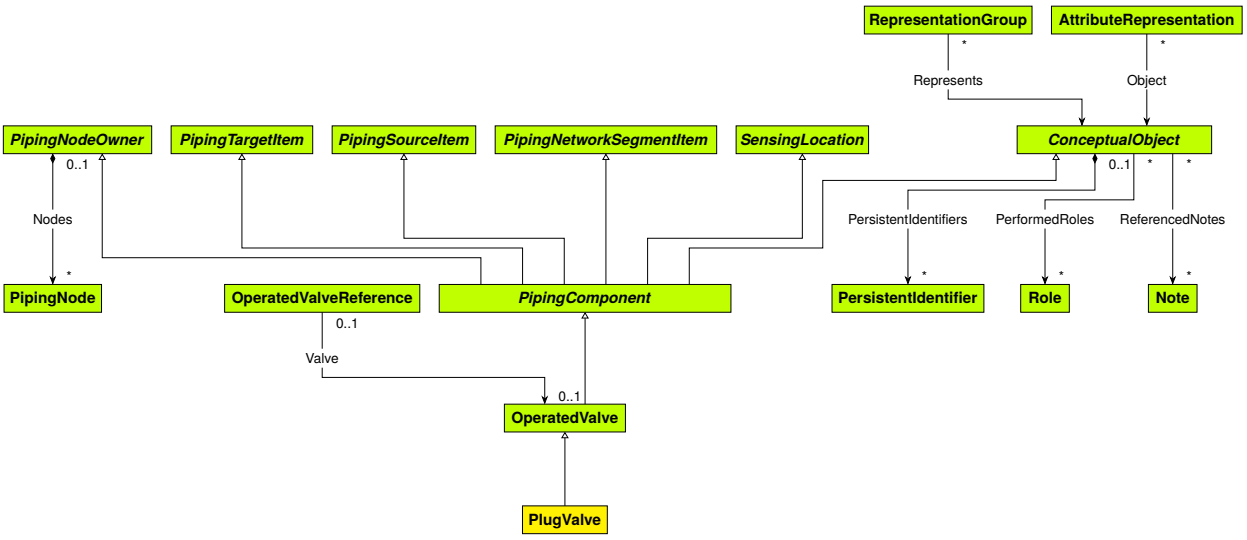
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS421109

PLUG VALVE

A rotary valve that has a quarter turn action in which the closure member is a cylindrical or tapered plug which operates by rotating on its axis and sealing against a downstream seat (from http://data.posccaesar.org/rdl/RDS421109).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.PlugValve"/>
```

PositiveDisplacementFlowMeter

Plant::*Piping*::PositiveDisplacementFlowMeter

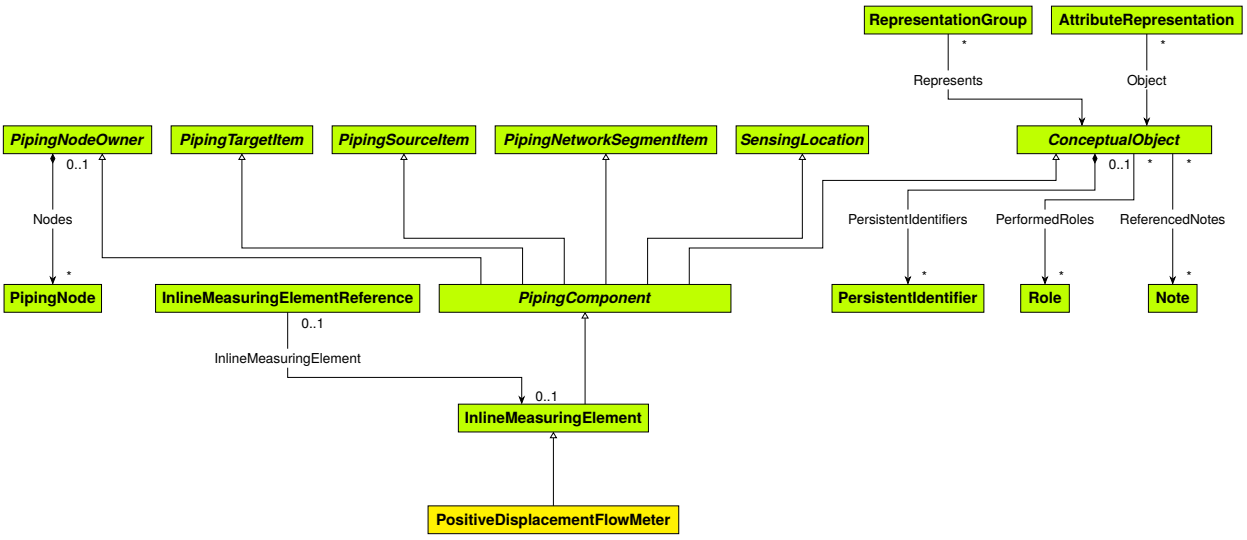
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS418094

POSITIVE DISPLACEMENT FLOW METER

A flow meter that measures the volumetric flow rate of a liquid or gas by separating the flow stream into known volumes and counting them over time (from http://data.posccaesar.org/rdl/RDS418094).



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.PositiveDisplacementFlowMeter"/>
```

PropertyBreak

Plant::*Piping*::PropertyBreak

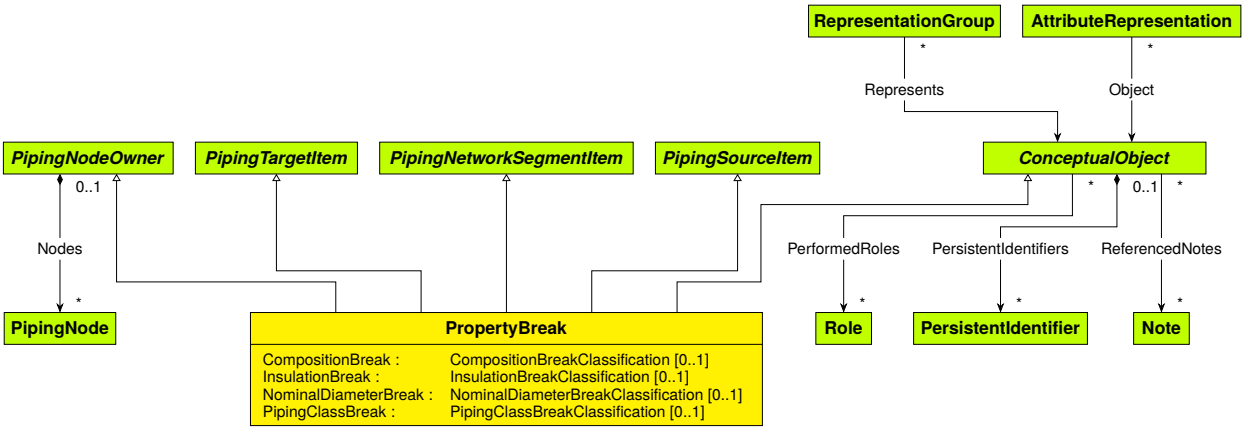
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PropertyBreak

PROPERTY BREAK

An explicit indication of a change of piping properties.



Supertypes

- *ConceptualObject*
- *PipingNetworkSegmentItem*
- *PipingNodeOwner*
- *PipingSourceItem*
- *PipingTargetItem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
CompositionBreak	0..1	*CompositionBreakClassification*	no	no
InsulationBreak	0..1	*InsulationBreakClassification*	no	no
NominalDiameterBreak	0..1	*NominalDiameterBreakClassification*	no	no
PipingClassBreak	0..1	*PipingClassBreakClassification*	no	no

This specification does not prescribe the use of PropertyBreaks whenever piping properties change. For example, consider a *PipeReducer* where, by definition, the nominal diameter is changed. According to the Proteus Specification, a new *PipingNetworkSegment* must begin immediately after the *PipeReducer*. This *PipingNetworkSegment* will have a different nominal diameter than the one before. Thus, the property break information is available without an explicit PropertyBreak. A PropertyBreak shall be used to emphasize such a change. In a *Diagram*, a PropertyBreak is typically visualized by a Core.Diagram.PropertyBreakShape.

A single PropertyBreak can indicate the change of *several* properties e.g., the nominal diameter *and* the piping class. It is recommended to avoid such PropertyBreaks that concern several properties. Instead, for each changed property a separate PropertyBreak should be used. These PropertyBreaks should then be connected with *DirectPipingConnections*. In a *Diagram*, each PropertyBreak can then be visualized by a separate Core.Diagram.PropertyBreakShape symbol. In case a diagram contains dedicated symbols for certain combinations of changed properties, it is still admissible to use a single PropertyBreak for these combinations.

CompositionBreak

Data Property

A specialization indicating if the *PropertyBreak* is a composition break or not.

Type: *CompositionBreakClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CompositionBreakSpecialization

COMPOSITION BREAK SPECIALIZATION

Example

NoCompositionBreak

InsulationBreak

Data Property

A specialization indicating if the *PropertyBreak* is an insulation break or not.

Type: *InsulationBreakClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/InsulationBreakSpecialization

INSULATION BREAK SPECIALIZATION

Example

InsulationBreak

NominalDiameterBreak

Data Property

A specialization indicating if the *PropertyBreak* is a nominal diameter break or not.

Type: *NominalDiameterBreakClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterBreakSpecialization

NOMINAL DIAMETER BREAK SPECIALIZATION

Example

NoNominalDiameterBreak

PipingClassBreak

Data Property

A specialization indicating if the *PropertyBreak* is a piping class break or not.

Type: *PipingClassBreakClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PipingClassBreakSpecialization

PIPING CLASS BREAK SPECIALIZATION

Example

PipingClassBreak

Example in DEXPI XML

```
<Object type="Plant/Piping.PropertyBreak">
  <Data property="CompositionBreak">
    <DataReference data="Plant/Enumerations.CompositionBreakClassification.
↪NoCompositionBreak"/>
  </Data>
  <Data property="InsulationBreak">
    <DataReference data="Plant/Enumerations.InsulationBreakClassification.InsulationBreak
↪"/>
  </Data>
  <Data property="NominalDiameterBreak">
    <DataReference data="Plant/Enumerations.NominalDiameterBreakClassification.
↪NoNominalDiameterBreak"/>
  </Data>
  <Data property="PipingClassBreak">
    <DataReference data="Plant/Enumerations.PipingClassBreakClassification.
↪PipingClassBreak"/>
  </Data>
</Object>
```

RestrictionOrifice

Plant::*Piping*::RestrictionOrifice

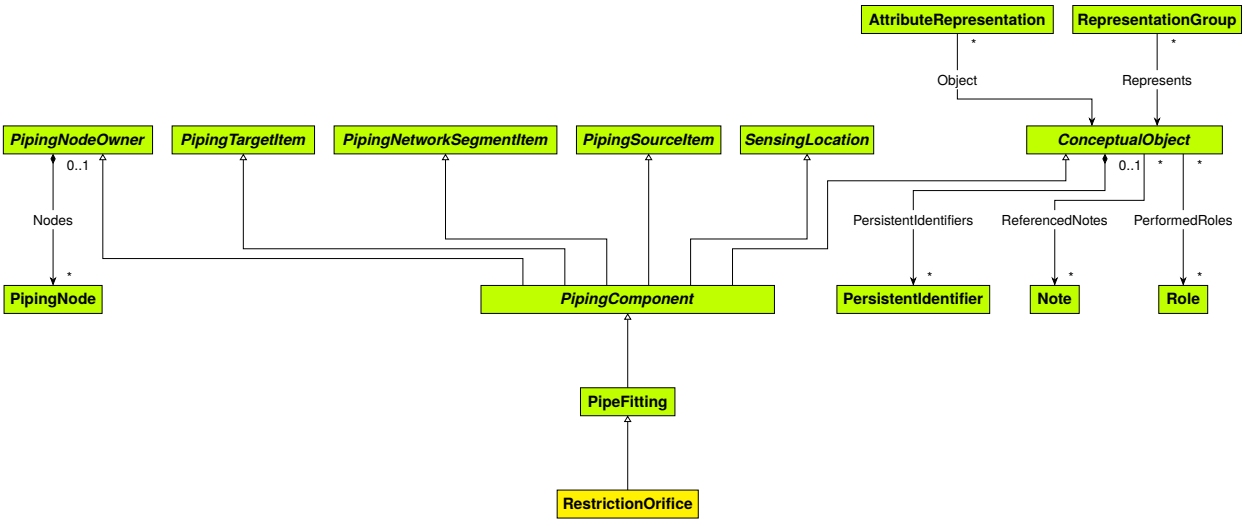
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/RestrictionOrifice

RESTRICTION ORIFICE

A RESTRICTION ORIFICE is an ORIFICE PLATE that is intended for use as a restrictor.



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.RestrictionOrifice"/>
```

RuptureDisc

Plant::*Piping*::RuptureDisc

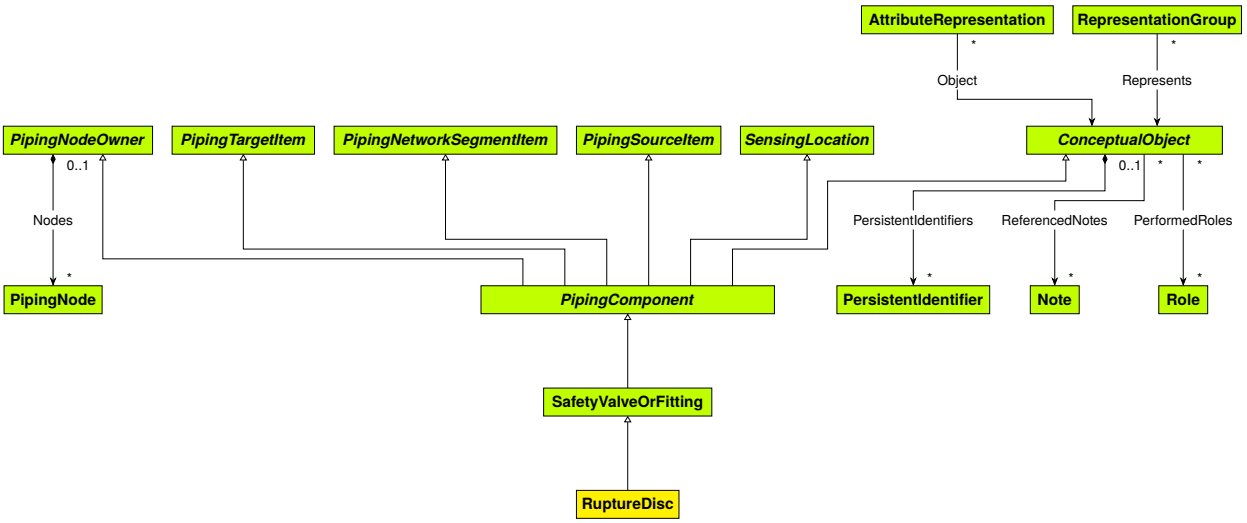
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS8372601

RUPTURE DISC

A physical object that is designed to burst at a certain excess pressure. It is part of a rupture disc assembly (from http://data.posccaesar.org/rdl/RDS8372601).



Supertypes

- *SafetyValveOrFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.RuptureDisc"/>
```

SafetyValveOrFitting

Plant::*Piping*::SafetyValveOrFitting

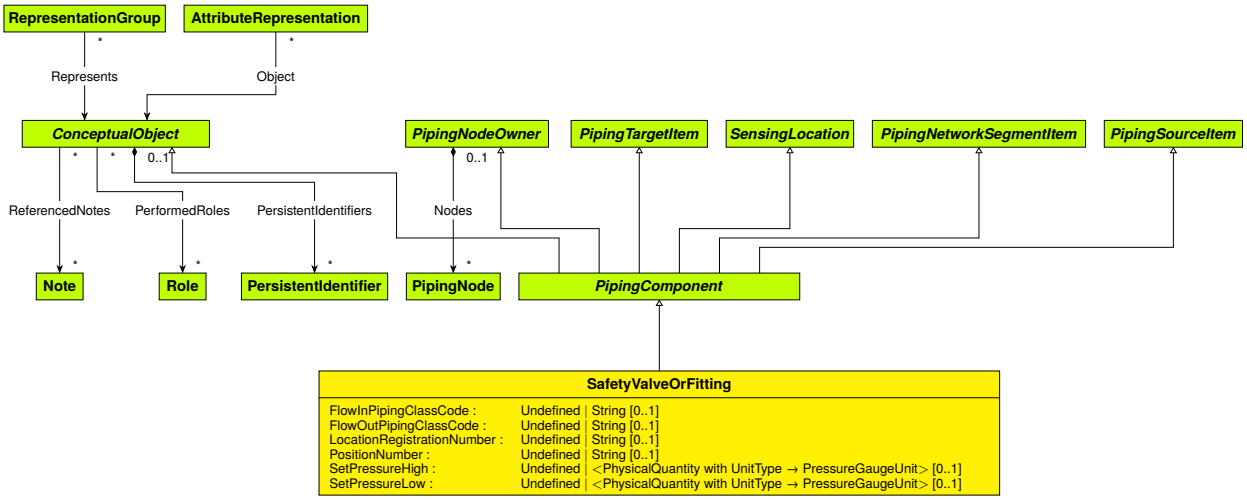
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SafetyValveOrFitting

SAFETY VALVE OR FITTING

A safety valve or fitting.



Supertypes

- *PipingComponent*

Subtypes

- *BreatherValve*
- *FlameArrestor*
- *RuptureDisc*
- *SpringLoadedAngleGlobeSafetyValve*
- *SpringLoadedGlobeSafetyValve*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FlowInPipingClassCode	0..1	*Undefined* | *String*	no	no
FlowOutPipingClassCode	0..1	*Undefined* | *String*	no	no
LocationRegistrationNumber	0..1	*Undefined* | *String*	no	no
PositionNumber	0..1	*Undefined* | *String*	no	no
SetPressureHigh	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>	no	no
SetPressureLow	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>	no	no

FlowInPipingClassCode

Data Property

The code of the piping class at the flow in side of *SafetyValveOrFitting*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FlowInPipingClassCodeAssignmentClass

FLOW IN PIPING CLASS CODE ASSIGNMENT CLASS

Example

```
"75HB13"
```

FlowOutPipingClassCode

Data Property

The code of the piping class at the flow out side of *SafetyValveOrFitting*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FlowOutPipingClassCodeAssignmentClass

FLOW OUT PIPING CLASS CODE ASSIGNMENT CLASS

Example

```
"75HB13"
```

LocationRegistrationNumber

Data Property

The location registration number of the *SafetyValveOrFitting*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationRegistrationNumberAssignmentClass

LOCATION REGISTRATION NUMBER ASSIGNMENT CLASS

Example

```
"L-N123"
```

PositionNumber

Data Property

The position number of the *SafetyValveOrFitting*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PositionNumberAssignmentClass

POSITION NUMBER ASSIGNMENT CLASS

Example

```
"SV 104.01"
```

SetPressureHigh

Data Property

The high pressure at which the *SafetyValveOrFitting* is activated.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SetPressureHigh

SET PRESSURE HIGH

Example

PhysicalQuantity(

Unit = *Bar*,

Value = 30.0)

SetPressureLow

Data Property

The low pressure at which the *SafetyValveOrFitting* is activated.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SetPressureLow

SET PRESSURE LOW

Example

PhysicalQuantity(

Unit = *Bar*,

Value = 0.0)

Example in DEXPI XML

```
<Object type="Plant/Piping.SafetyValveOrFitting">
  <Data property="FlowInPipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="FlowOutPipingClassCode">
    <String>75HB13</String>
  </Data>
  <Data property="LocationRegistrationNumber">
    <String>L-N123</String>
  </Data>
  <Data property="PositionNumber">
    <String>SV 104.01</String>
  </Data>
  <Data property="SetPressureHigh">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureGaugeUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>30.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
```

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```
  <Data property="SetPressureLow">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureGaugeUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>0.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Sensorwell

Plant::*Piping*::Sensorwell

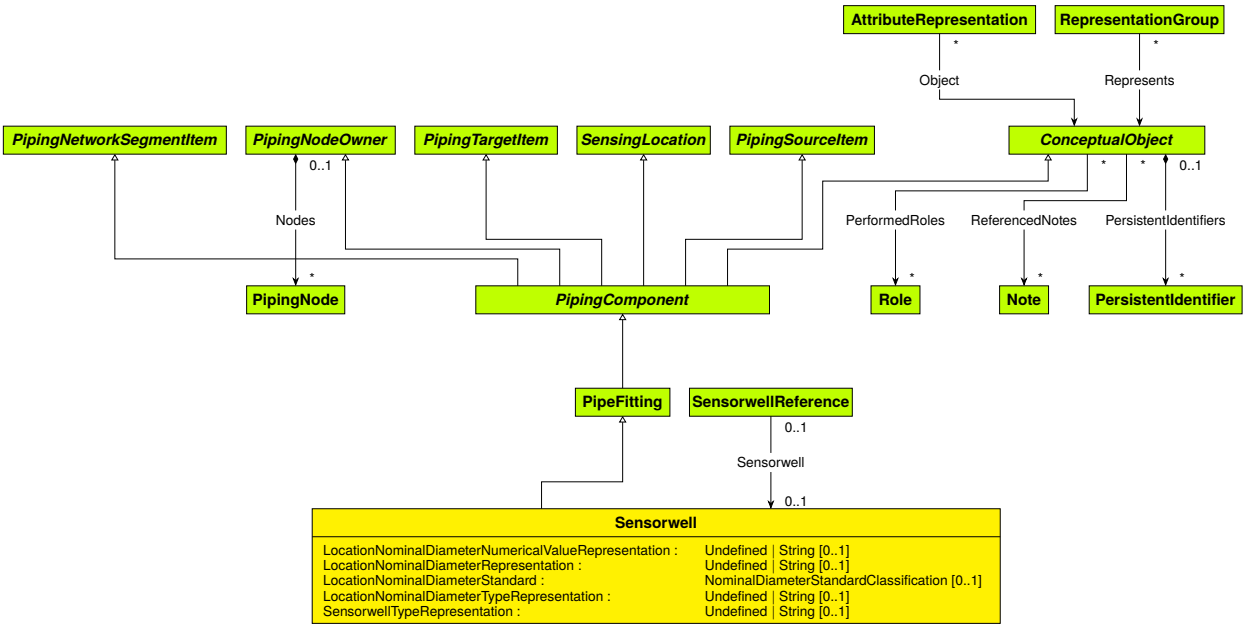
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Sensorwell

SENSORWELL

A Sensorwell is a pressure-tight receptacle adapted to receive a sensing element, provided with external threads or other means for pressure-tight attachment to a vessel or pipe.



Supertypes

- *PipeFitting*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
LocationNominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
LocationNominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
LocationNominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
LocationNominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no
SensorwellTypeRepresentation	0..1	*Undefined* | *String*	no	no

LocationNominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter at the location of the *Sensorwell*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterNumericalValueRepresentationAssignmentClass

LOCATION NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

```
"25"
```

LocationNominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter at the location of the *Sensorwell*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterRepresentationAssignmentClass

LOCATION NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN 25"
```

LocationNominalDiameterStandard

Data Property

The nominal diameter of the location of the *Sensorwell*, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterStandardSpecialization

LOCATION NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

LocationNominalDiameterTypeRepresentation

Data Property

A readable representation of the type of the nominal diameter at the location of the *Sensorwell*. The purpose of this value is to give a textual representation of the nominal diameter to be used in the graphics of a PID.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LocationNominalDiameterTypeRepresentationAssignmentClass

LOCATION NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN"
```

SensorwellTypeRepresentation

Data Property

A textual representation of the type of the *Sensorwell*.

In principle, this attribute can have arbitrary string values to describe the type. However, for certain types, the exact string is prescribed:

- If the sensorwell is a thermowell, the type representation shall be `Thermowell`.
- If the sensorwell is a levelwell, the type representation shall be `Levelwell`.
- If the sensorwell is an analysiswell, the type representation shall be `Analysiswell`.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SensorwellTypeRepresentationAssignmentClass

SENSORWELL TYPE REPRESENTATION ASSIGNMENT CLASS

Example

```
"Thermowell"
```

Example in DEXPI XML

```
<Object type="Plant/Piping.Sensorwell">
  <Data property="LocationNominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="LocationNominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="LocationNominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
  </Data>
  <Data property="LocationNominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
  <Data property="SensorwellTypeRepresentation">
    <String>Thermowell</String>
  </Data>
</Object>
```

SightGlass

Plant::*Piping*::SightGlass

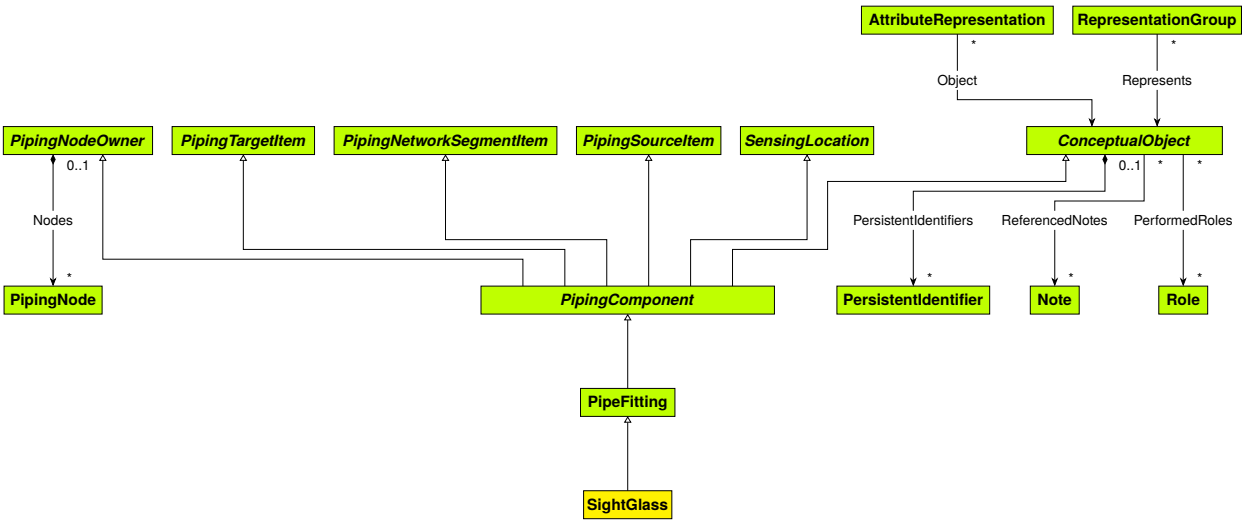
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS648674

SIGHT GLASS

A physical object that is transparent and intended for viewing a vessel or piping system interior (from http://data.posccaesar.org/rdl/RDS648674).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.SightGlass"/>
```

Silencer

Plant::*Piping*::Silencer

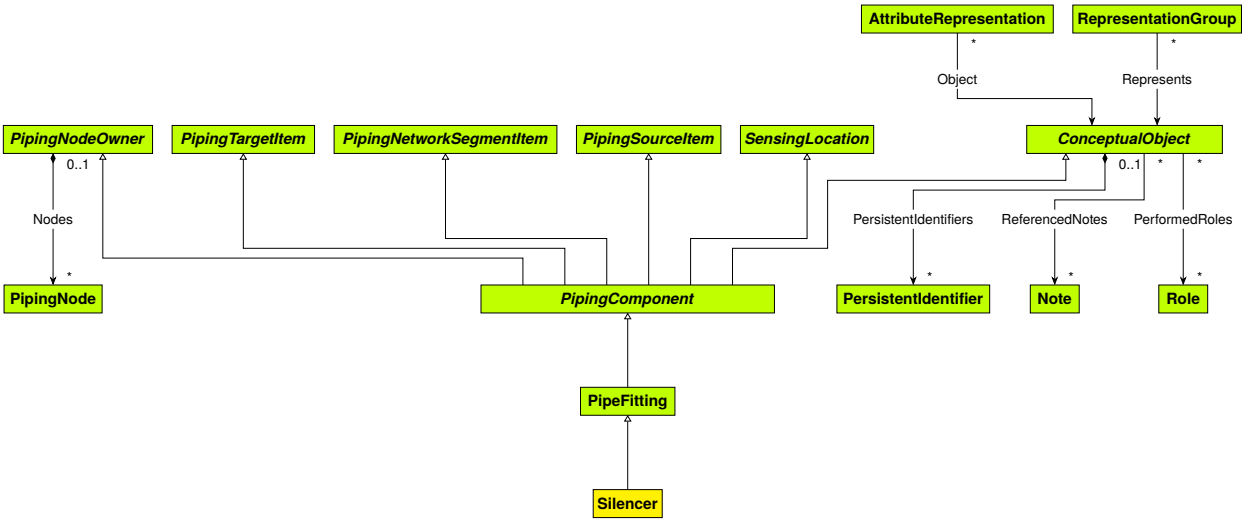
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1049368591

SILENCER

A device intended to reduce a noise level (from http://data.posccaesar.org/rdl/RDS1049368591).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Silencer"/>
```

SpringLoadedAngleGlobeSafetyValve

Plant::*Piping*::SpringLoadedAngleGlobeSafetyValve

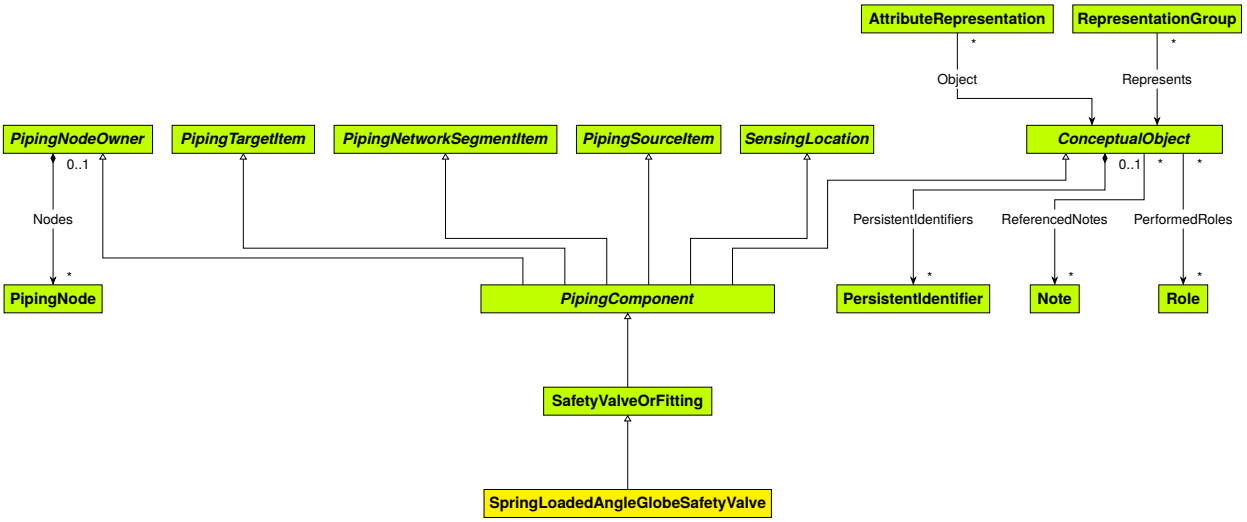
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SpringLoadedAngleGlobeSafetyValve

SPRING LOADED ANGLE GLOBE SAFETY VALVE

A spring-loaded angle globe safety valve.



Supertypes

- *SafetyValveOrFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.SpringLoadedAngleGlobeSafetyValve"/>
```

SpringLoadedGlobeSafetyValve

Plant::*Piping*::SpringLoadedGlobeSafetyValve

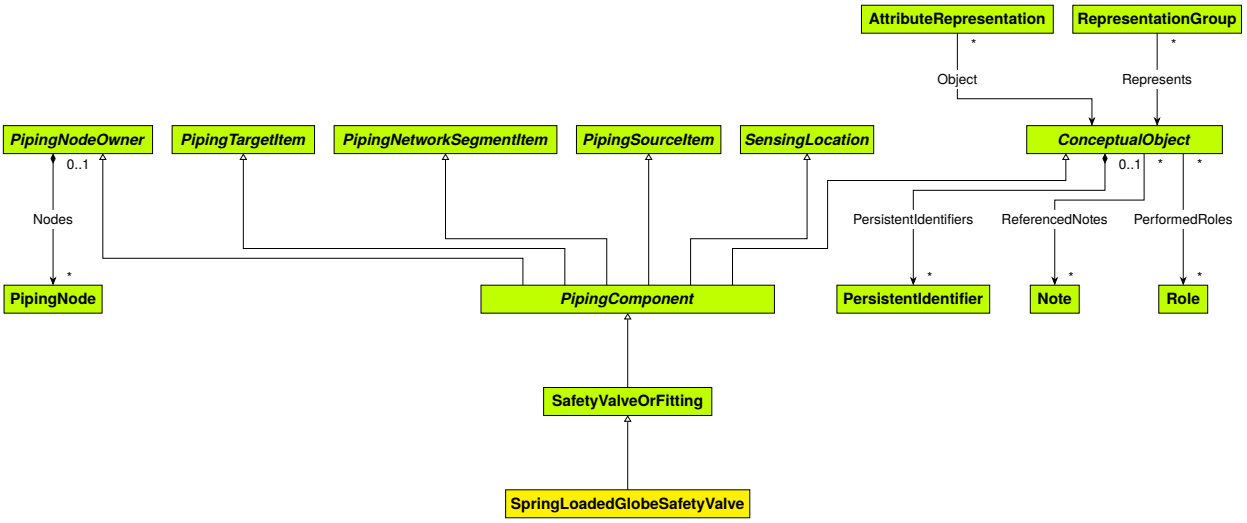
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SpringLoadedGlobeSafetyValve

SPRING LOADED GLOBE SAFETY VALVE

A spring-loaded globe safety valve.



Supertypes

- *SafetyValveOrFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.SpringLoadedGlobeSafetyValve"/>
```

SteamTrap

Plant::*Piping*::SteamTrap

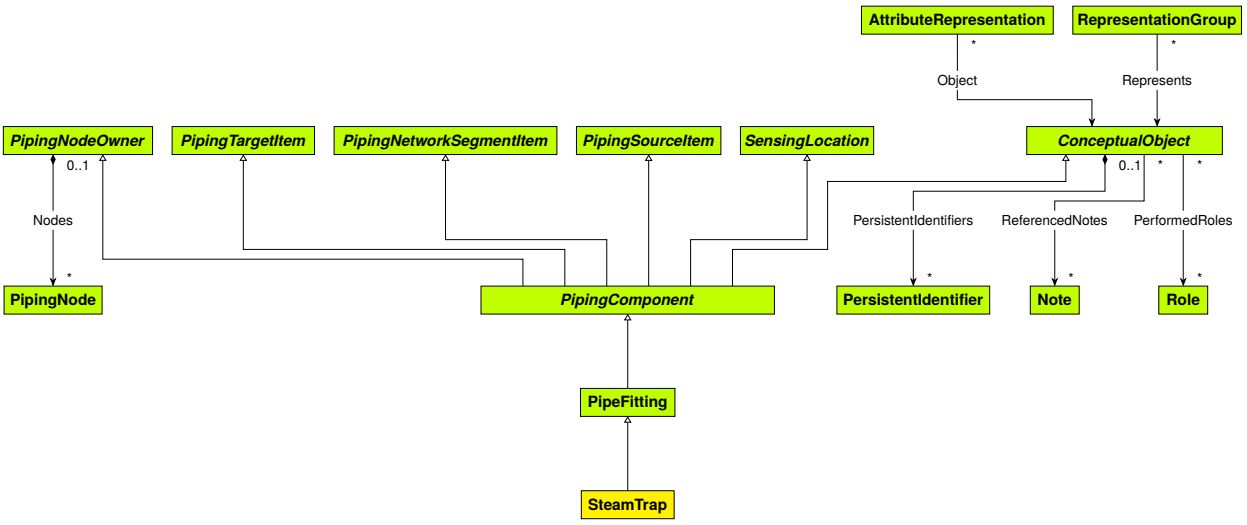
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS5782388

STEAM TRAP

A trap that consists of a chamber into which condensed steam from steam pipes etc. is allowed to drain, and which automatically ejects it without permitting the escape of steam (from http://data.posccaesar.org/rdl/RDS5782388).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.SteamTrap"/>
```

StraightwayValve

Plant::*Piping*::StraightwayValve

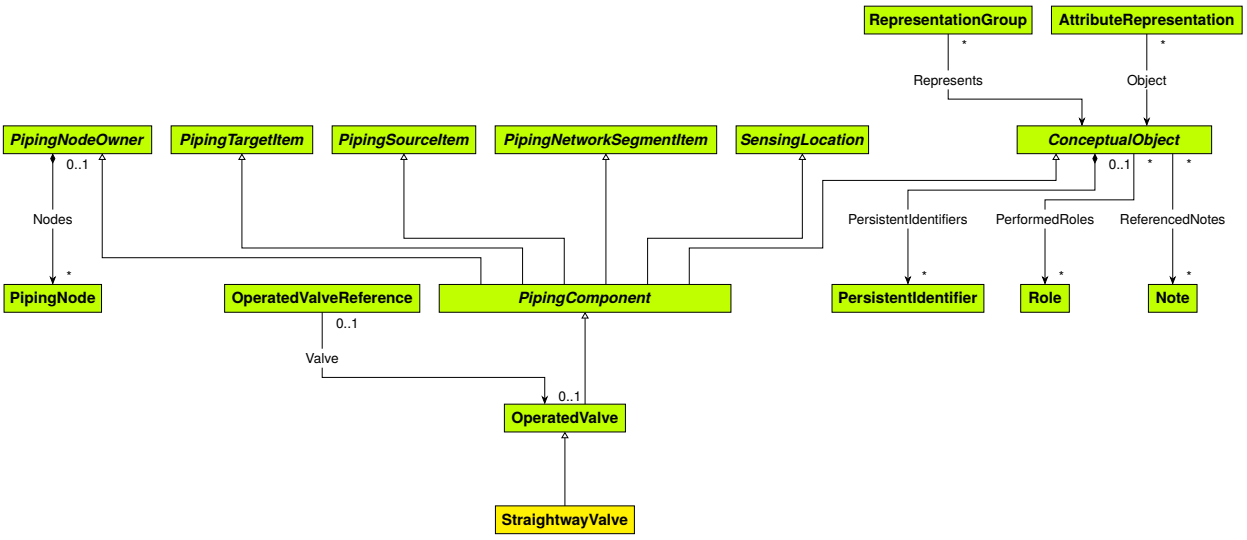
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS9390905

STRAIGHTWAY VALVE

A valve that is straight, i.e. the centerlines perpendicular to the ends are in-line with no offset (from http://data.posccaesar.org/rdl/RDS9390905).



Supertypes

- *OperatedValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.StraightwayValve"/>
```

Strainer

Plant::*Piping*::Strainer

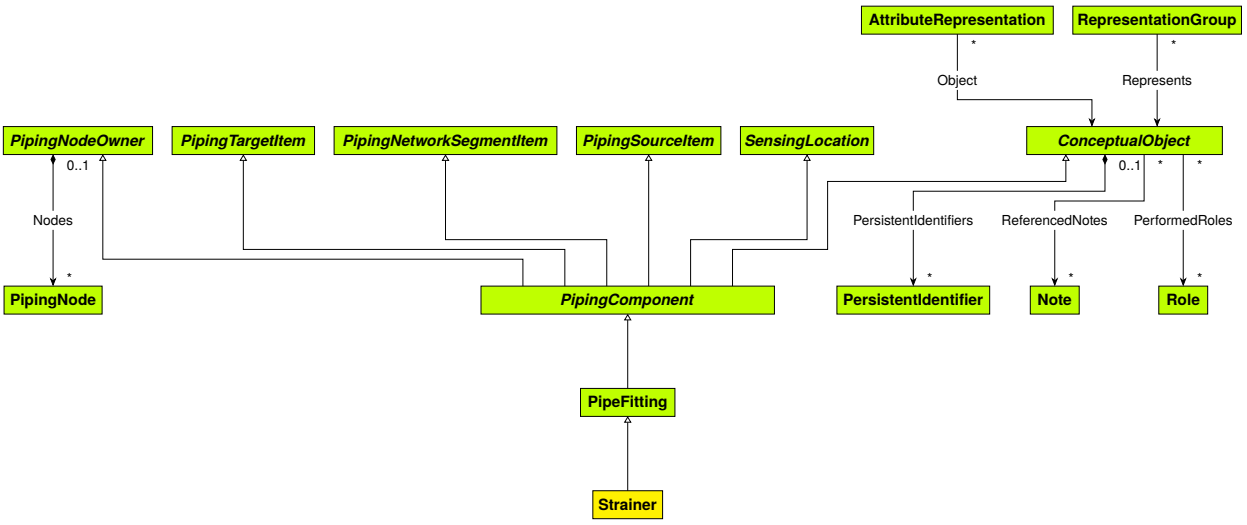
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS422504

STRAINER

A mechanical separator that is separating solid particles from a fluid by passing the fluid through a wire mesh, screen or metal plates containing perforations or slits (from http://data.posccaesar.org/rdl/RDS422504).



Supertypes

- *PipeFitting*

Example in DEXPI XML

```
<Object type="Plant/Piping.Strainer"/>
```

SwingCheckValve

Plant::*Piping*::SwingCheckValve

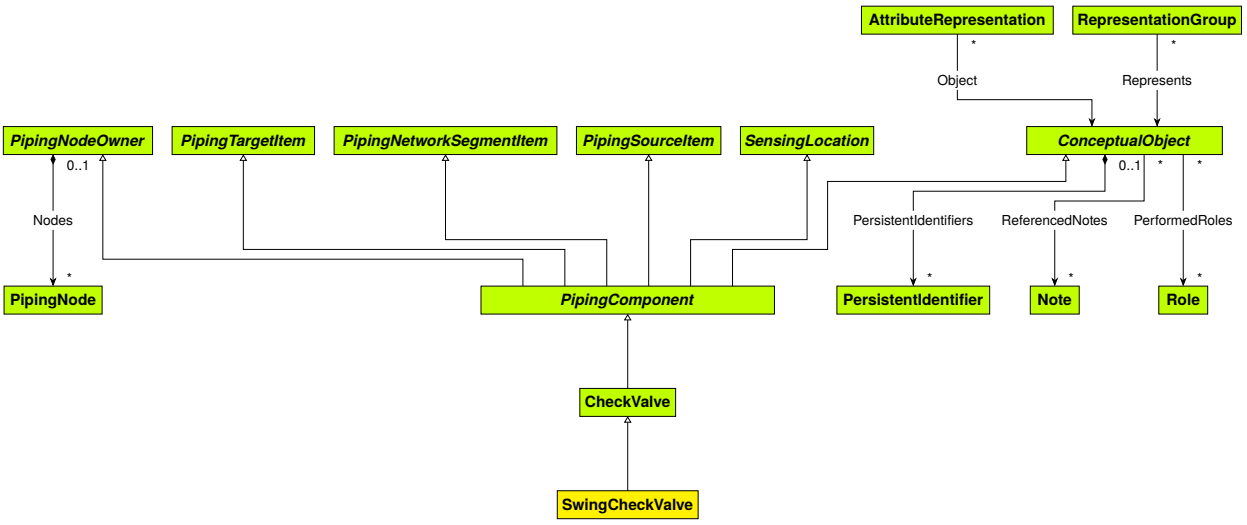
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS610424

SWING CHECK VALVE

A check valve that is a check valve where the closure member is a disc which swings freely on a hinge and which opens automatically when flow is established and closes automatically when flow ceases or is reversed (from http://data.posccaesar.org/rdl/RDS610424).



Supertypes

- *CheckValve*

Example in DEXPI XML

```
<Object type="Plant/Piping.SwingCheckValve"/>
```

TurbineFlowMeter

Plant::*Piping*::TurbineFlowMeter

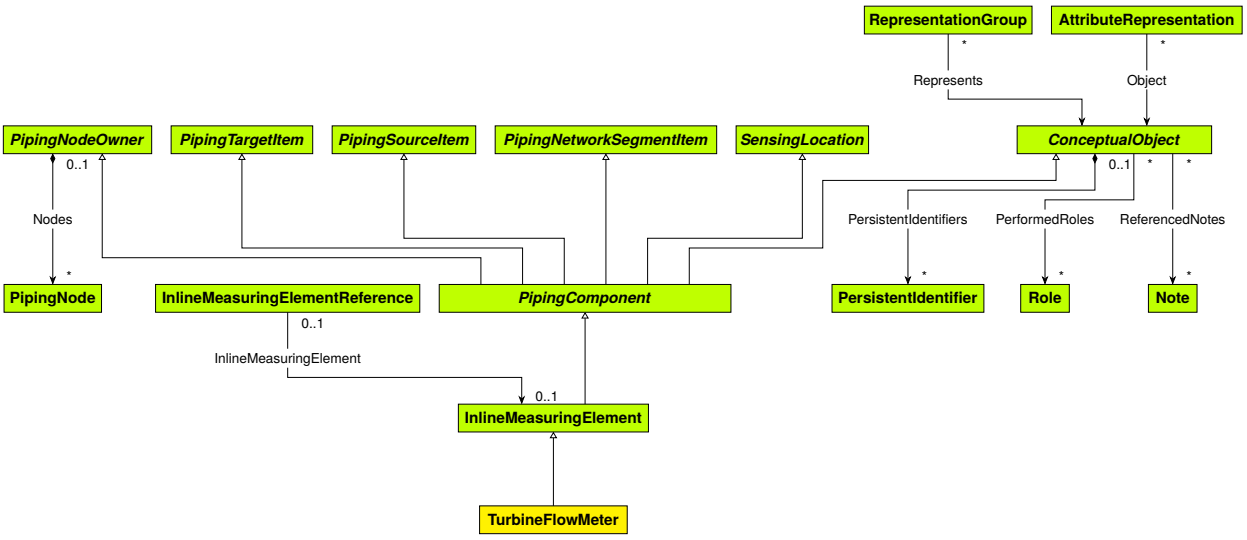
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS417914

TURBINE FLOW METER

A velocity flow meter that uses a multi bladed rotor to measure fluid flow rate in units of volumetric flow through a closed conduit (from http://data.posccaesar.org/rdl/RDS417914).



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.TurbineFlowMeter"/>
```

VariableAreaFlowMeter

Plant::*Piping*::VariableAreaFlowMeter

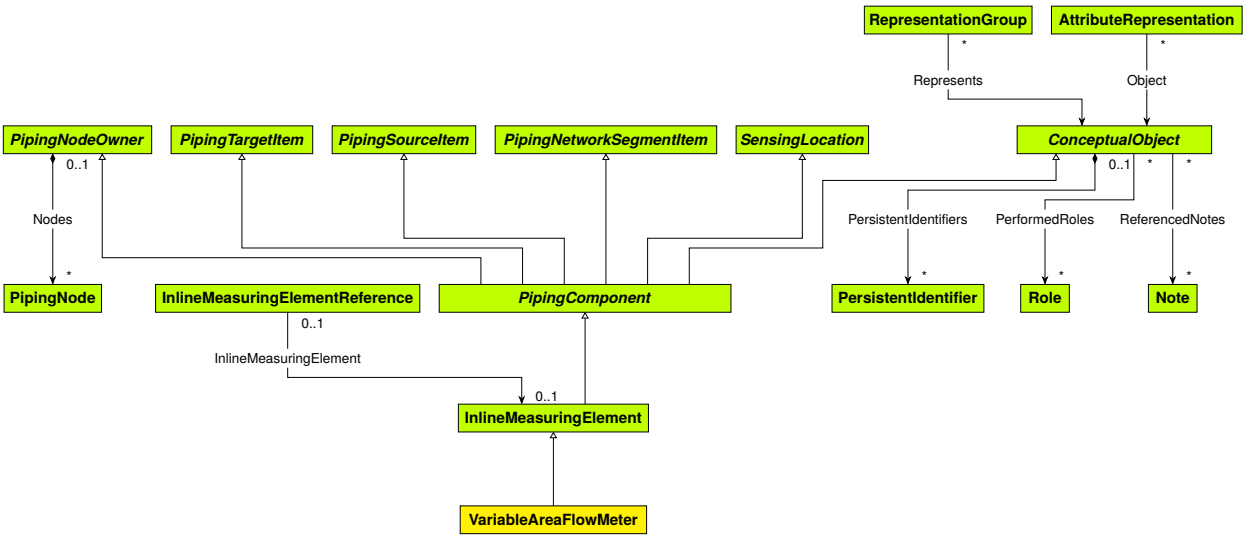
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS418229

VARIABLE AREA FLOW METER

A flow meter consisting of a vertical tube with a conically shaped bore which widens to the top in which a solid body (float) is supported by the force exerted by the fluid stream (from http://data.posccaesar.org/rdl/RDS418229).



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.VariableAreaFlowMeter"/>
```

VentLine

Plant::*Piping*::VentLine

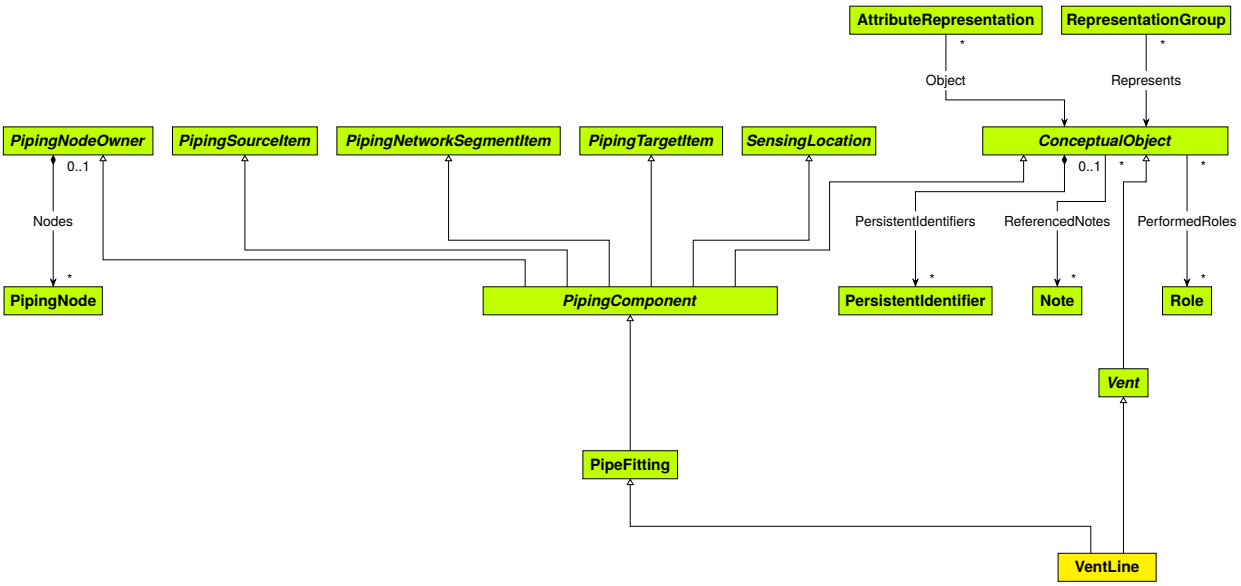
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS905841131

VENT LINE

A *Vent* that is intended for transport of vented gas from a fluid container, e.g. a vessel or a pipeline, to a vent stack or to a safe area.



Supertypes

- *PipeFitting*
- *Vent*

Example in DEXPI XML

```
<Object type="Plant/Piping.VentLine"/>
```

VenturiTube

Plant::*Piping*::VenturiTube

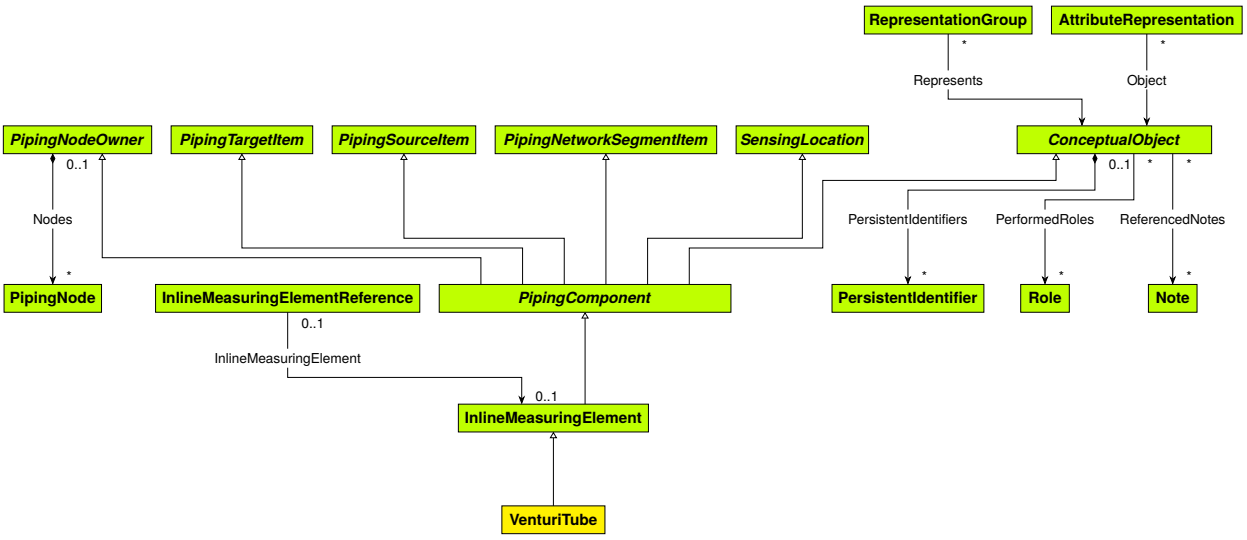
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS648044

VENTURI TUBE

A 'measuring device' that has a constriction with a relative long passage with a smooth coned entry and exit (from http://data.posccaesar.org/rdl/RDS648044).



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.VenturiTube"/>
```

VolumeFlowMeasuringElement

Plant::*Piping*::VolumeFlowMeasuringElement

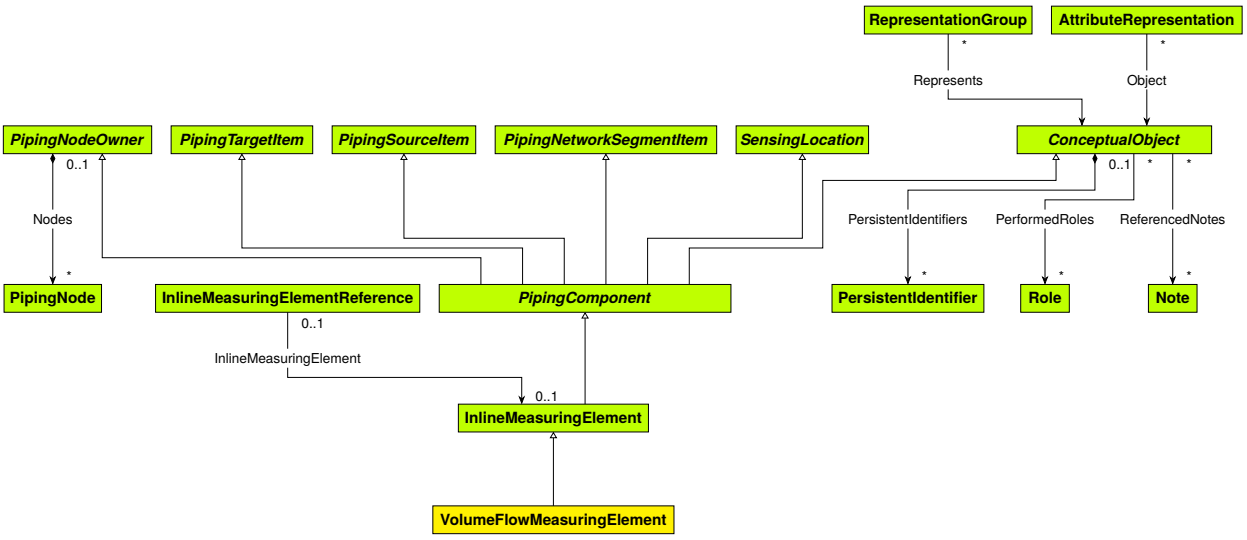
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/VolumeFlowMeasuringElement

VOLUME FLOW MEASURING ELEMENT

A VOLUME FLOW MEASURING ELEMENT is a FLOW MEASURING ELEMENT that is used to measure VOLUME FLOW RATE.



Supertypes

- *InlineMeasuringElement*

Example in DEXPI XML

```
<Object type="Plant/Piping.VolumeFlowMeasuringElement"/>
```

Plant::Piping

Overview

Package

Members

Classes

Name	Type
AngleBallValve	Concrete Class
AngleGlobeValve	Concrete Class
AnglePlugValve	Concrete Class
AngleValve	Concrete Class
BallValve	Concrete Class
BlindFlange	Concrete Class
BreatherValve	Concrete Class
ButterflyValve	Concrete Class
CheckValve	Concrete Class
ClampedFlangeCoupling	Concrete Class
Compensator	Concrete Class
ConicalStrainer	Concrete Class
DirectPipingConnection	Concrete Class
ElectromagneticFlowMeter	Concrete Class
FlameArrestor	Concrete Class
Flange	Concrete Class

continues on next page

Table 8 – continued from previous page

Name	Type
FlangedConnection	Concrete Class
FlowInPipeOffPageConnector	Concrete Class
FlowMeasuringElement	Concrete Class
FlowNozzle	Concrete Class
FlowOutPipeOffPageConnector	Concrete Class
Funnel	Concrete Class
GateValve	Concrete Class
GlobeCheckValve	Concrete Class
GlobeValve	Concrete Class
Hose	Concrete Class
IlluminatedSightGlass	Concrete Class
InLineMixer	Concrete Class
InlineMeasuringElement	Concrete Class
LineBlind	Concrete Class
MassFlowMeasuringElement	Concrete Class
NeedleValve	Concrete Class
OperatedValve	Concrete Class
Penetration	Concrete Class
Pipe	Concrete Class
PipeCoupling	Concrete Class
PipeFitting	Concrete Class
PipeFlangeSpacer	Concrete Class
PipeFlangeSpade	Concrete Class
PipeOffPageConnector	Abstract Class
PipeOffPageConnectorObjectReference	Concrete Class
PipeOffPageConnectorReference	Abstract Class
PipeOffPageConnectorReferenceByNumber	Concrete Class
PipeReducer	Concrete Class
PipeTee	Concrete Class
PipingComponent	Abstract Class
PipingConnection	Abstract Class
PipingNetworkSegment	Concrete Class
PipingNetworkSegmentItem	Abstract Class
PipingNetworkSystem	Concrete Class
PipingNode	Concrete Class
PipingNodeOwner	Abstract Class
PipingSourceItem	Abstract Class
PipingTargetItem	Abstract Class
PlugValve	Concrete Class
PositiveDisplacementFlowMeter	Concrete Class
PropertyBreak	Concrete Class
RestrictionOrifice	Concrete Class
RuptureDisc	Concrete Class
SafetyValveOrFitting	Concrete Class
Sensorwell	Concrete Class
SightGlass	Concrete Class
Silencer	Concrete Class
SpringLoadedAngleGlobeSafetyValve	Concrete Class
SpringLoadedGlobeSafetyValve	Concrete Class
SteamTrap	Concrete Class

continues on next page

Table 8 – continued from previous page

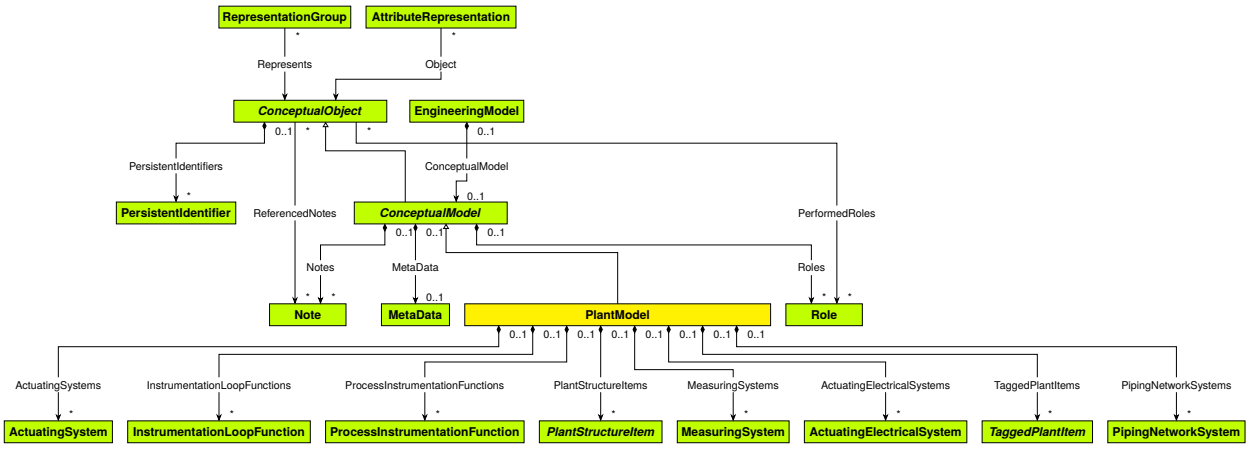
Name	Type
StraightwayValve	Concrete Class
Strainer	Concrete Class
SwingCheckValve	Concrete Class
TurbineFlowMeter	Concrete Class
VariableAreaFlowMeter	Concrete Class
VentLine	Concrete Class
VenturiTube	Concrete Class
VolumeFlowMeasuringElement	Concrete Class

3.2.5 PlantModel

Plant::PlantModel

Overview

Concrete Class



Supertypes

- *ConceptualModel*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ActuatingElectricalSystems	*	*ActuatingElectricalSystem*	no
ActuatingSystems	*	*ActuatingSystem*	no
InstrumentationLoopFunctions	*	*InstrumentationLoopFunction*	no
MeasuringSystems	*	*MeasuringSystem*	no
PipingNetworkSystems	*	*PipingNetworkSystem*	no
PlantStructureItems	*	*PlantStructureItem*	no
ProcessInstrumentationFunctions	*	*ProcessInstrumentationFunction*	no
TaggedPlantItems	*	*TaggedPlantItem*	no

ActuatingElectricalSystems

Composition Property

The *ActuatingElectricalSystems* of the *PlantModel*.

Type: *ActuatingElectricalSystem*

Multiplicity: *

Ordered: no

ActuatingSystems

Composition Property

The *ActuatingSystems* of the *PlantModel*.

Type: *ActuatingSystem*

Multiplicity: *

Ordered: no

InstrumentationLoopFunctions

Composition Property

The *InstrumentationLoopFunctions* of the *PlantModel*.

Type: *InstrumentationLoopFunction*

Multiplicity: *

Ordered: no

MeasuringSystems

Composition Property

The *MeasuringSystems* of the *PlantModel*.

Type: *MeasuringSystem*

Multiplicity: *

Ordered: no

PipingNetworkSystems

Composition Property

The *PipingNetworkSystems* of the *PlantModel*.

Type: *PipingNetworkSystem*

Multiplicity: *

Ordered: no

PlantStructureItems

Composition Property

The *PlantStructureItems* of the *PlantModel*.

Type: *PlantStructureItem*

Multiplicity: *

Ordered: no

ProcessInstrumentationFunctions

Composition Property

The *ProcessInstrumentationFunctions* of the *PlantModel*.

Type: *ProcessInstrumentationFunction*

Multiplicity: *

Ordered: no

TaggedPlantItems

Composition Property

The *TaggedPlantItems* of the *PlantModel*.

Type: *TaggedPlantItem*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/PlantModel"/>
```

3.2.6 PlantStructure

Enterprise

Plant::*PlantStructure*::Enterprise

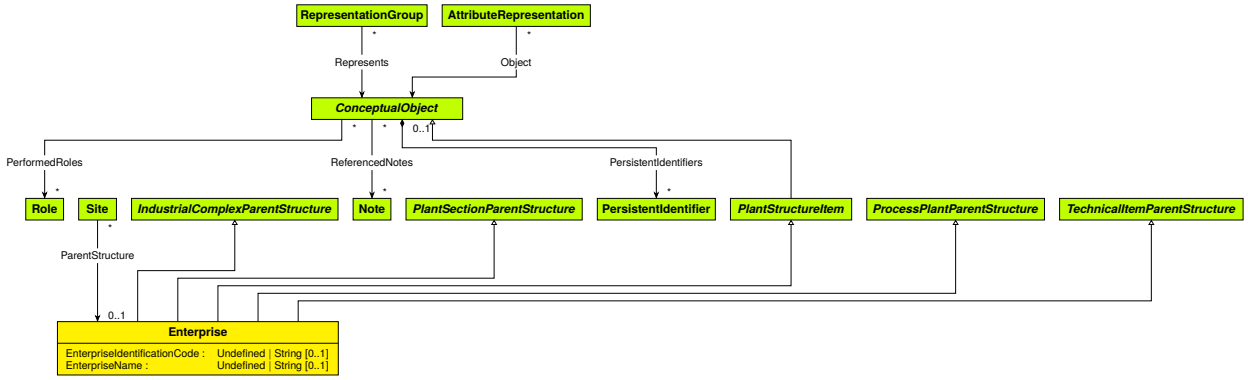
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS10418236543

ISA95 ENTERPRISE

An enterprise as defined by ISA 95.



Supertypes

- *IndustrialComplexParentStructure*
- *PlantSectionParentStructure*
- *PlantStructureItem*
- *ProcessPlantParentStructure*
- *TechnicalItemParentStructure*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
EnterpriseIdentificationCode	0..1	*Undefined* | *String*	no	no
EnterpriseName	0..1	*Undefined* | *String*	no	no

EnterpriseIdentificationCode

Data Property

The identification code of the enterprise.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/EnterpriseIdentificationCodeAssignmentClass

ENTERPRISE IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"C1248"
```

EnterpriseName

Data Property

The name of the enterprise.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/EnterpriseNameAssignmentClass

ENTERPRISE NAME ASSIGNMENT CLASS

Example

"CompAny Ltd."

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.Enterprise">
  <Data property="EnterpriseIdentificationCode">
    <String>C1248</String>
  </Data>
  <Data property="EnterpriseName">
    <String>CompAny Ltd.</String>
  </Data>
</Object>
```

IndustrialComplex

Plant::*PlantStructure*::IndustrialComplex

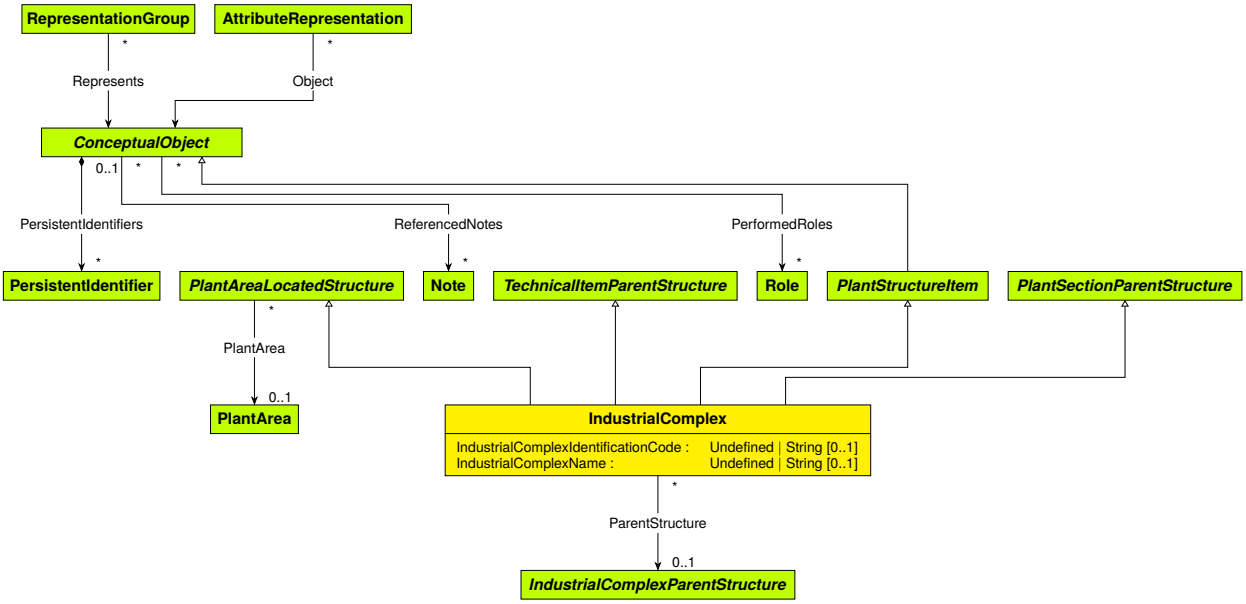
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/IndustrialComplexIso10209-2012

INDUSTRIAL COMPLEX ISO10209-2012

An industrial complex as defined by ISO 10209:2012.



Supertypes

- *PlantAreaLocatedStructure*
- *PlantSectionParentStructure*
- *PlantStructureItem*
- *TechnicalItemParentStructure*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite	Multiplicity
ParentStructure	0..1	*IndustrialComplexParentStructure*	no	no	*	

Data Properties

Name	Multiplicity	Type	Ordered	Unique
IndustrialComplexIdentificationCode	0..1	*Undefined* | *String*	no	no
IndustrialComplexName	0..1	*Undefined* | *String*	no	no

IndustrialComplexIdentificationCode

Data Property

The identification code of the industrial complex.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/IndustrialComplexIdentificationCodeAssignmentClass

INDUSTRIAL COMPLEX IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"I-Chain"
```

IndustrialComplexName

Data Property

The name of the industrial complex.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/IndustrialComplexNameAssignmentClass

INDUSTRIAL COMPLEX NAME ASSIGNMENT CLASS

Example

"Isophorone Chain"

ParentStructure

Reference Property

A superordinate structure of which the IndustrialComplex is a part.

Type: *IndustrialComplexParentStructure*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.IndustrialComplex">
  <Data property="IndustrialComplexIdentificationCode">
    <String>I-Chain</String>
  </Data>
  <Data property="IndustrialComplexName">
    <String>Isophorone Chain</String>
  </Data>
</Object>
```

IndustrialComplexParentStructure

Plant::*PlantStructure*::IndustrialComplexParentStructure

Overview

Abstract Class

A *PlantStructureItem* that is a suitable *ParentStructure* of an *IndustrialComplex*.

IndustrialComplexParentStructure

Subtypes

- *Enterprise*
- *Site*

PlantArea

Plant::*PlantStructure*::PlantArea

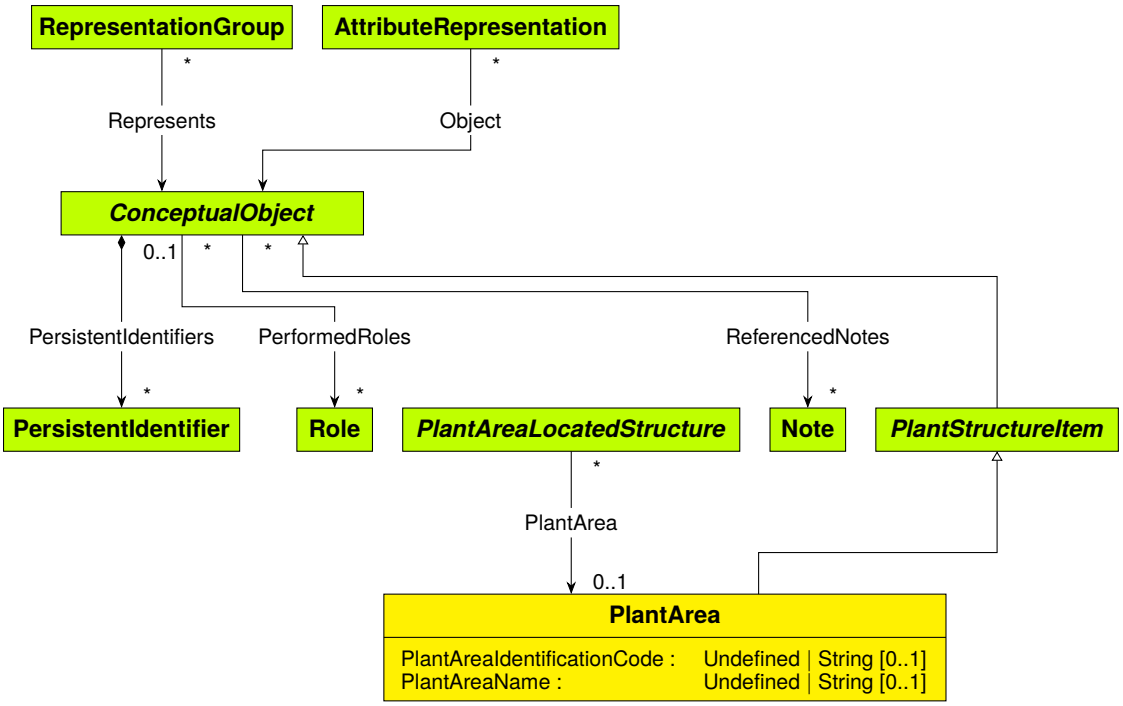
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS10418236534

AREA ISA95

An area as defined by ISA 95.



Supertypes

- *PlantStructureItem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
PlantAreaIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantAreaName	0..1	*Undefined* | *String*	no	no

PlantAreaIdentificationCode

Data Property

The identification code of the plant area according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantAreaIdentificationCodeAssignmentClass

PLANT AREA IDENTIFICATION CODE ASSIGNMENT CLASS

Example

"F4"

PlantAreaName

Data Property

The name of the plant area according to ISA-95.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/AreaIsa95NameAssignmentClass

AREA ISA95 NAME ASSIGNMENT CLASS

Example

"Area F4"

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.PlantArea">
  <Data property="PlantAreaIdentificationCode">
    <String>F4</String>
  </Data>
  <Data property="PlantAreaName">
    <String>Area F4</String>
  </Data>
</Object>
```

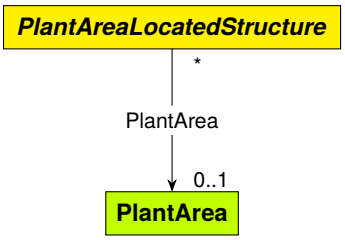
PlantAreaLocatedStructure

Plant::*PlantStructure*::PlantAreaLocatedStructure

Overview

Abstract Class

A structure that can be located in a *PlantArea*.



Subtypes

- *IndustrialComplex*
- *PlantSection*
- *ProcessPlant*
- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
PlantArea	0..1	*PlantArea*	no	no	*

PlantArea

Reference Property

The *PlantArea* in which the PlantAreaLocatedStructure is located.

Type: *PlantArea*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

PlantSection

Plant::*PlantStructure*::PlantSection

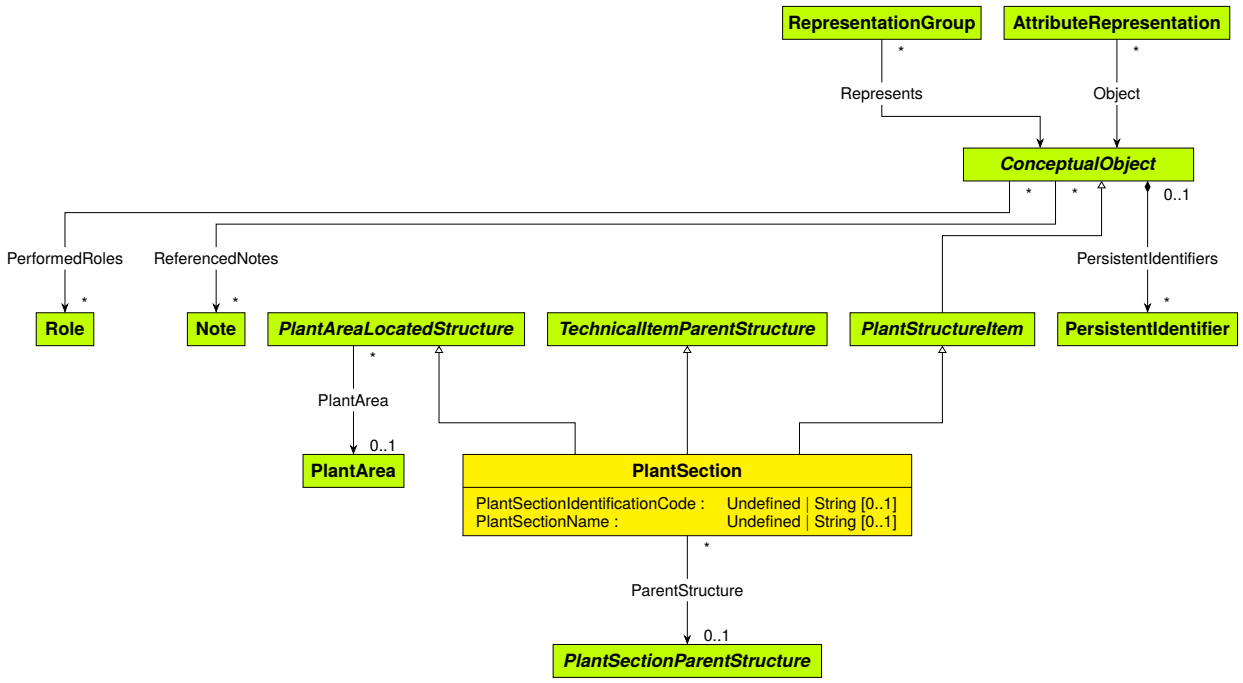
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PlantSectionIso10209-2012

PLANT SECTION ISO10209-2012

A plant section as defined by ISO 10209:2012.



Supertypes

- *PlantAreaLocatedStructure*
- *PlantStructureItem*
- *TechnicalItemParentStructure*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ParentStructure	0..1	*PlantSectionParentStructure*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
PlantSectionIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantSectionName	0..1	*Undefined* | *String*	no	no

ParentStructure

Reference Property

A superordinate structure of which the PlantSection is a part.

Type: *PlantSectionParentStructure*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

PlantSectionIdentificationCode

Data Property

The identification code of the plant section.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSectionIdentificationCodeAssignmentClass

PLANT SECTION IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"10"
```

PlantSectionName

Data Property

The name of the plant section.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSectionNameAssignmentClass

PLANT SECTION NAME ASSIGNMENT CLASS

Example

```
"Utilities"
```

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.PlantSection">
  <Data property="PlantSectionIdentificationCode">
    <String>10</String>
  </Data>
  <Data property="PlantSectionName">
    <String>Utilities</String>
  </Data>
</Object>
```

PlantSectionParentStructure

Plant::*PlantStructure*::PlantSectionParentStructure

Overview

Abstract Class

A *PlantStructureItem* that is a suitable *ParentStructure* of a *PlantSection*.

PlantSectionParentStructure

Subtypes

- *Enterprise*
- *IndustrialComplex*
- *ProcessPlant*
- *Site*

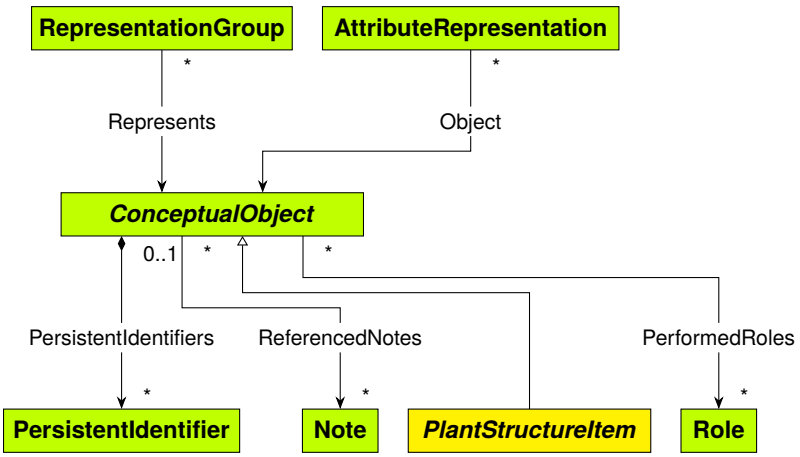
PlantStructureItem

Plant::*PlantStructure*::PlantStructureItem

Overview

Abstract Class

Item of the plant break down structure.



Supertypes

- *ConceptualObject*

Subtypes

- *Enterprise*
- *IndustrialComplex*
- *PlantArea*
- *PlantSection*

- *PlantSystem*
- *PlantTrain*
- *ProcessPlant*
- *Site*

PlantSystem

Plant::*PlantStructure*::PlantSystem

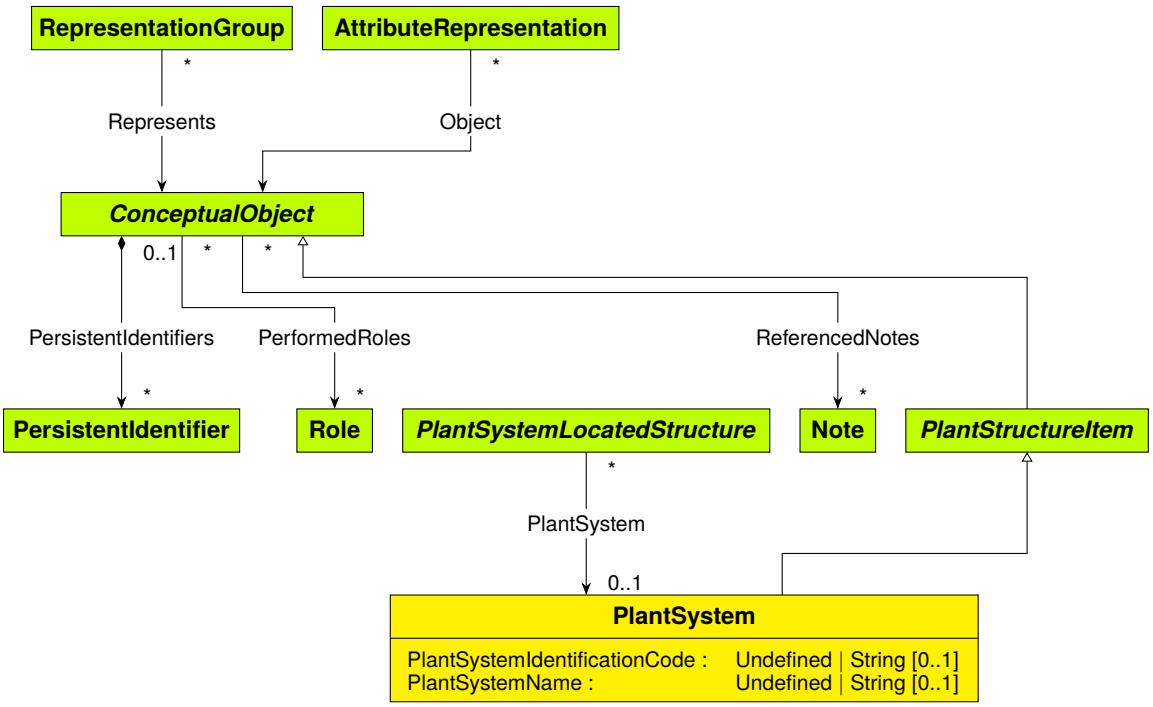
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PlantSystem

PLANT SYSTEM

A plant system.



Supertypes

- *PlantStructureItem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
PlantSystemIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantSystemName	0..1	*Undefined* | *String*	no	no

PlantSystemIdentificationCode

Data Property

The identification code of the plant system.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSystemIdentificationCodeAssignmentClass

PLANT SYSTEM IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"X123"
```

PlantSystemName

Data Property

The name of the plant system.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantSystemNameAssignmentClass

PLANT SYSTEM NAME ASSIGNMENT CLASS

Example

```
"System X123"
```

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.PlantSystem">
  <Data property="PlantSystemIdentificationCode">
    <String>X123</String>
  </Data>
  <Data property="PlantSystemName">
    <String>System X123</String>
  </Data>
</Object>
```

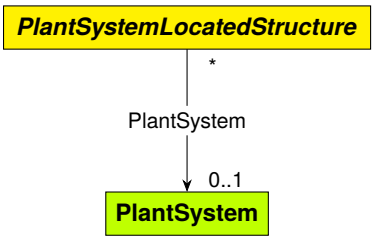
PlantSystemLocatedStructure

Plant::*PlantStructure*::PlantSystemLocatedStructure

Overview

Abstract Class

A structure that can be located in a *PlantSystem*.



Subtypes

- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
PlantSystem	0..1	*PlantSystem*	no	no	*

PlantSystem

Reference Property

The *PlantSystem* in which the PlantSystemLocatedStructure is located.

Type: *PlantSystem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

PlantTrain

Plant::*PlantStructure*::PlantTrain

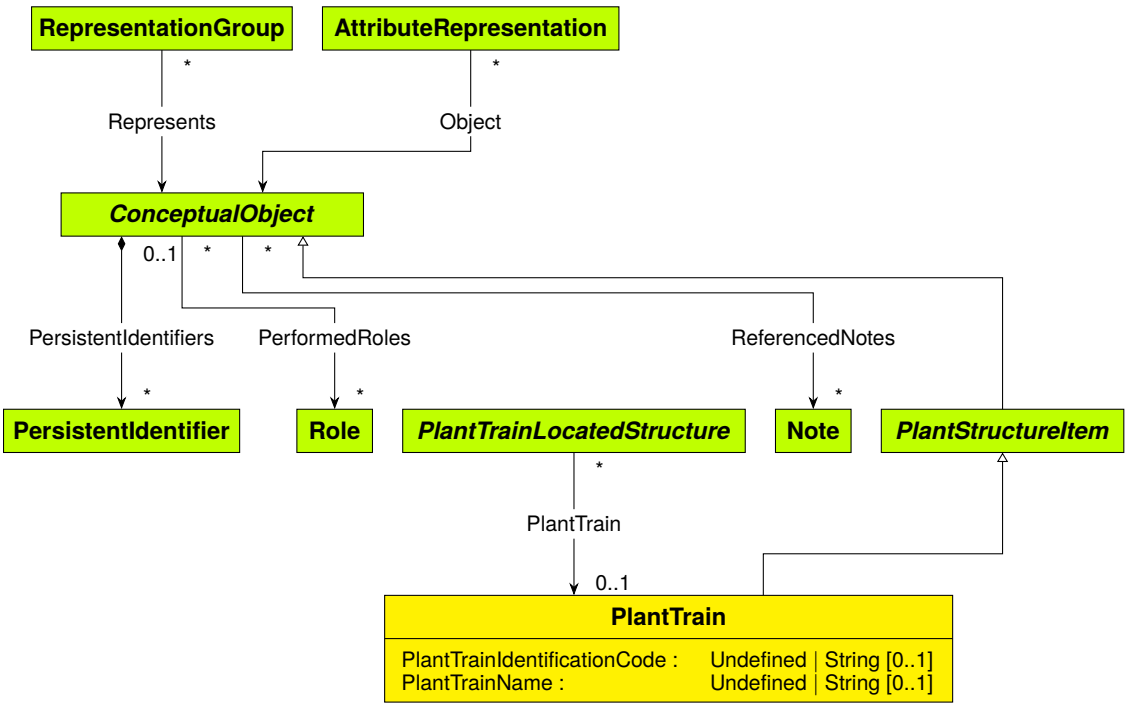
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PlantTrain

PLANT TRAIN

A plant train.



Supertypes

- *PlantStructureItem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
PlantTrainIdentificationCode	0..1	*Undefined* | *String*	no	no
PlantTrainName	0..1	*Undefined* | *String*	no	no

PlantTrainIdentificationCode

Data Property

The identification code of the plant train.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantTrainIdentificationCodeAssignmentClass

PLANT TRAIN IDENTIFICATION CODE ASSIGNMENT CLASS

Example

"T456"

PlantTrainName

Data Property

The name of the plant train.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlantTrainNameAssignmentClass

PLANT TRAIN NAME ASSIGNMENT CLASS

Example

"Train T456"

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.PlantTrain">
  <Data property="PlantTrainIdentificationCode">
    <String>T456</String>
  </Data>
  <Data property="PlantTrainName">
    <String>Train T456</String>
  </Data>
</Object>
```

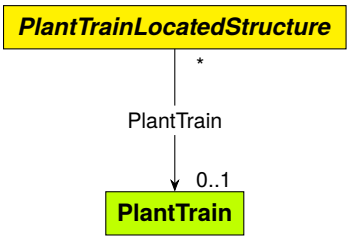
PlantTrainLocatedStructure

Plant::*PlantStructure*::PlantTrainLocatedStructure

Overview

Abstract Class

A structure that can be located in a *PlantTrain*.



Subtypes

- *TechnicalItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
PlantTrain	0..1	*PlantTrain*	no	no	*

PlantTrain

Reference Property

The *PlantTrain* in which the PlantTrainLocatedStructure is located.

Type: *PlantTrain*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

ProcessPlant

Plant::*PlantStructure*::ProcessPlant

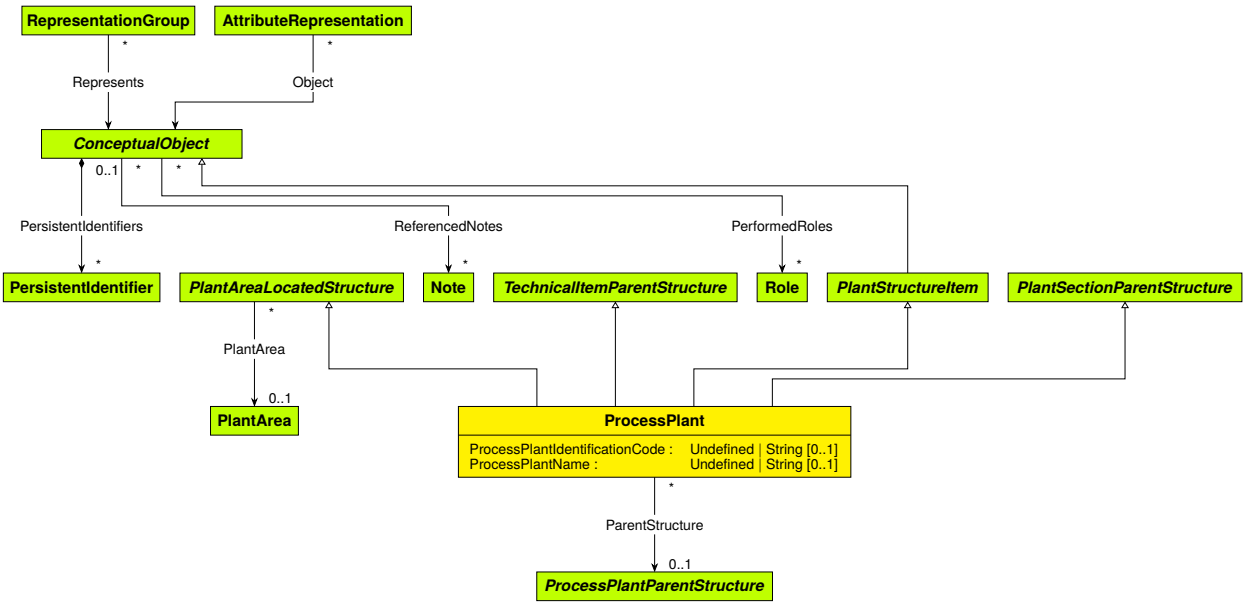
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS7151859

PROCESS PLANT

A plant employed in carrying out chemical processes, including the required supporting processes (from http://data.posccaesar.org/rdl/RDS7151859).



Supertypes

- *PlantAreaLocatedStructure*
- *PlantSectionParentStructure*
- *PlantStructureItem*
- *TechnicalItemParentStructure*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ParentStructure	0..1	*ProcessPlantParentStructure*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ProcessPlantIdentificationCode	0..1	*Undefined* | *String*	no	no
ProcessPlantName	0..1	*Undefined* | *String*	no	no

ParentStructure

Reference Property

A superordinate structure of which the ProcessPlant is a part.

Type: *ProcessPlantParentStructure*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

ProcessPlantIdentificationCode

Data Property

The identification code of the process plant.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessPlantIdentificationCodeAssignmentClass

PROCESS PLANT IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"ABC"
```

ProcessPlantName

Data Property

The name of the process plant.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ProcessPlantNameAssignmentClass

PROCESS PLANT NAME ASSIGNMENT CLASS

Example

```
"ABC Plant"
```

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.ProcessPlant">
  <Data property="ProcessPlantIdentificationCode">
    <String>ABC</String>
  </Data>
  <Data property="ProcessPlantName">
    <String>ABC Plant</String>
  </Data>
</Object>
```

ProcessPlantParentStructure

Plant::*PlantStructure*::ProcessPlantParentStructure

Overview

Abstract Class

A *PlantStructureItem* that is a suitable *ParentStructure* of a *ProcessPlant*.

ProcessPlantParentStructure

Subtypes

- *Enterprise*
- *Site*

Site

Plant::*PlantStructure*::Site

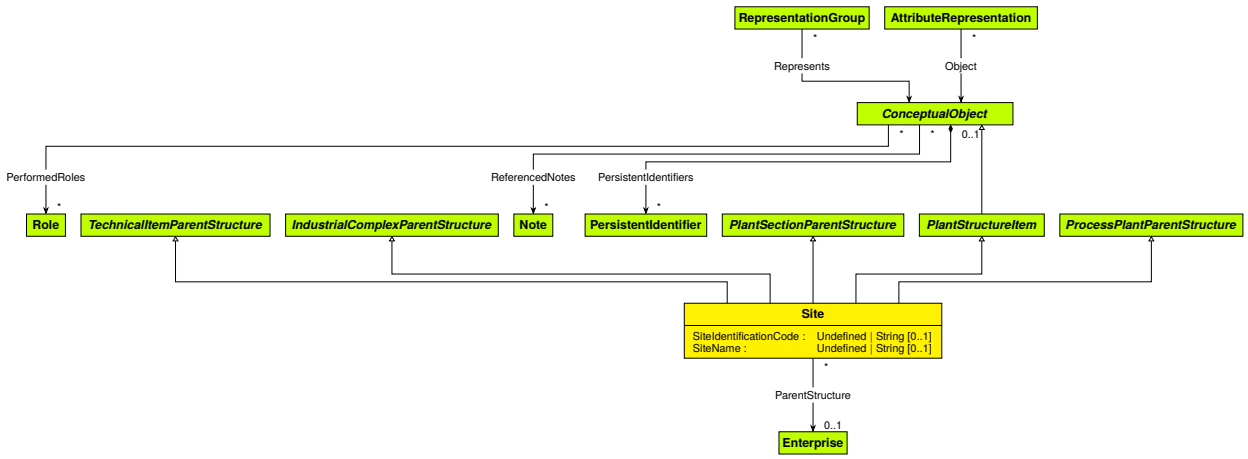
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS10418236632

SITE ISA95

A site as defined by ISA 95.



Supertypes

- *IndustrialComplexParentStructure*
- *PlantSectionParentStructure*
- *PlantStructureItem*
- *ProcessPlantParentStructure*
- *TechnicalItemParentStructure*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ParentStructure	0..1	*Enterprise*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SiteIdentificationCode	0..1	*Undefined* | *String*	no	no
SiteName	0..1	*Undefined* | *String*	no	no

ParentStructure

Reference Property

A superordinate structure of which the Site is a part.

Type: *Enterprise*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

SiteIdentificationCode

Data Property

The identification code of the site.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SiteIdentificationCodeAssignmentClass

SITE IDENTIFICATION CODE ASSIGNMENT CLASS

Example

```
"DC"
```

SiteName

Data Property

The name of the site.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SiteNameAssignmentClass

SITE NAME ASSIGNMENT CLASS

Example

```
"Dexpi City"
```

Example in DEXPI XML

```
<Object type="Plant/PlantStructure.Site">
  <Data property="SiteIdentificationCode">
    <String>DC</String>
  </Data>
  <Data property="SiteName">
    <String>Dexpi City</String>
  </Data>
</Object>
```

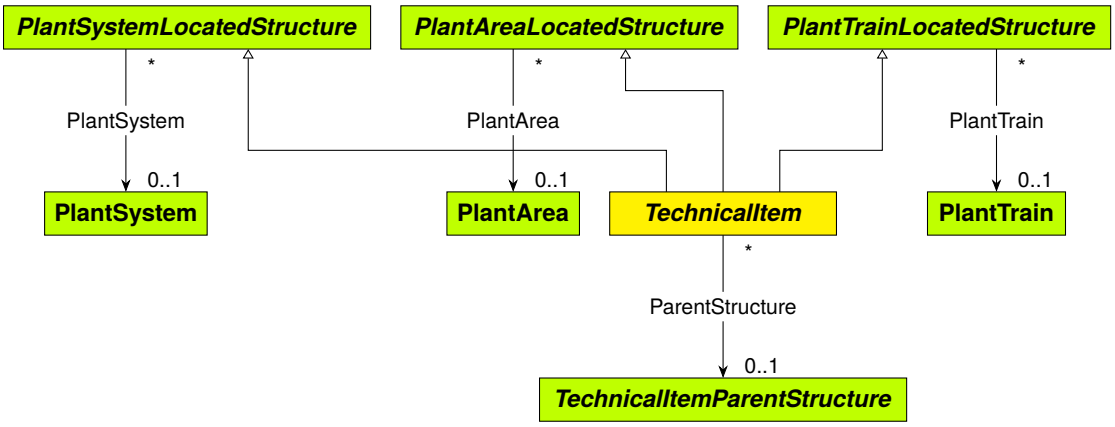
TechnicalItem

Plant::*PlantStructure*::TechnicalItem

Overview

Abstract Class

An item at the lowest level of the plant structure.



Supertypes

- *PlantAreaLocatedStructure*
- *PlantSystemLocatedStructure*
- *PlantTrainLocatedStructure*

Subtypes

- *ActuatingElectricalFunction*
- *ActuatingElectricalSystem*
- *ActuatingFunction*
- *ActuatingSystem*
- *InstrumentationLoopFunction*
- *MeasuringSystem*
- *PipingNetworkSystem*
- *ProcessInstrumentationFunction*
- *ProcessSignalGeneratingFunction*
- *TaggedPlantItem*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ParentStructure	0..1	*TechnicalItemParentStructure*	no	no	*

ParentStructure

Reference Property

A superordinate structure of which the TechnicalItem is a part.

Type: *TechnicalItemParentStructure*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

TechnicalItemParentStructure

Plant::*PlantStructure*::TechnicalItemParentStructure

Overview

Abstract Class

A *PlantStructureItem* that is a suitable *ParentStructure* of a *TechnicalItem*.

TechnicalItemParentStructure

Subtypes

- *Enterprise*
- *IndustrialComplex*
- *PlantSection*
- *ProcessPlant*
- *Site*

Plant::PlantStructure

Overview

Package

Members

Classes

Name	Type
Enterprise	Concrete Class
IndustrialComplex	Concrete Class
IndustrialComplexParentStructure	Abstract Class
PlantArea	Concrete Class
PlantAreaLocatedStructure	Abstract Class
PlantSection	Concrete Class
PlantSectionParentStructure	Abstract Class
PlantStructureItem	Abstract Class
PlantSystem	Concrete Class
PlantSystemLocatedStructure	Abstract Class
PlantTrain	Concrete Class
PlantTrainLocatedStructure	Abstract Class
ProcessPlant	Concrete Class
ProcessPlantParentStructure	Abstract Class
Site	Concrete Class
TechnicalItem	Abstract Class
TechnicalItemParentStructure	Abstract Class

3.2.7 ProcessEquipment

AccessNozzle

Plant::*ProcessEquipment*::AccessNozzle

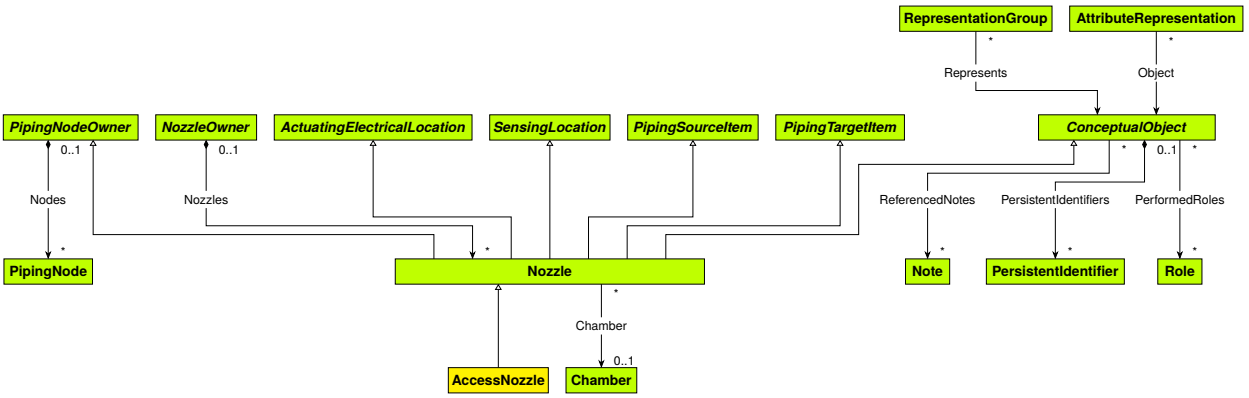
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/AccessNozzle

ACCESS NOZZLE

A *Nozzle* intended to enable or facilitate access to the interior of its owner. This comprises especially inspection holes like manholes, handholes, and sight holes (for equipment); see *SightGlass* for piping components.



Supertypes

- *Nozzle*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AccessNozzle"/>
```

Agglomerator

Plant::*ProcessEquipment*::Agglomerator

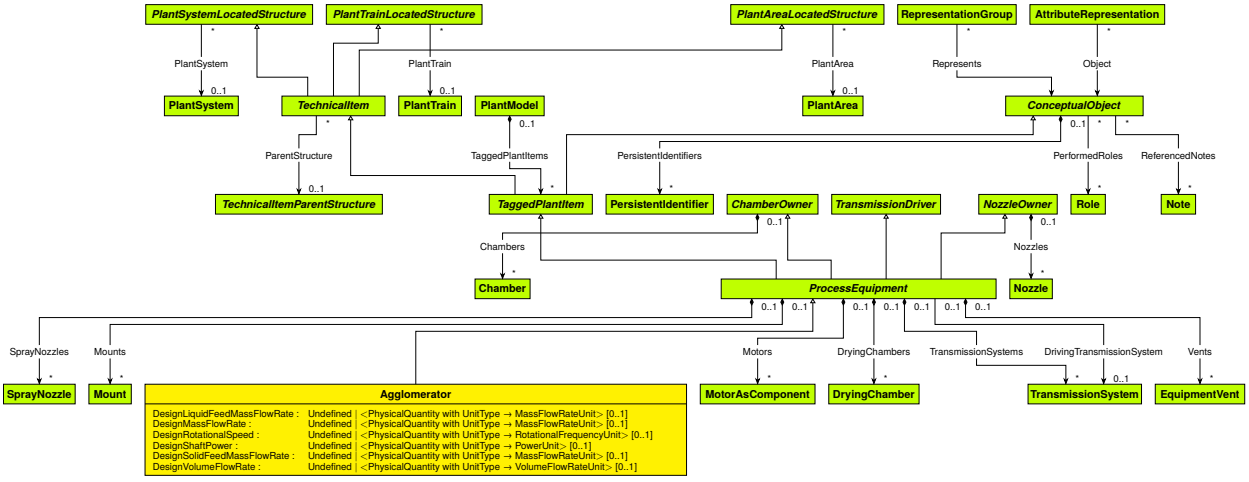
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Agglomerator

AGGLOMERATOR

A machine that is capable of agglomerating. It is usually vertically aligned.



Supertypes

- *ProcessEquipment*

Subtypes

- *ReciprocatingPressureAgglomerator*
- *RotatingGrowthAgglomerator*
- *RotatingPressureAgglomerator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignLiquidFeedMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignSolidFeedMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignLiquidFeedMassFlowRate

Data Property

The liquid feed mass flow rate for which the *Agglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignLiquidFeedMassFlowRate

DESIGN LIQUID FEED MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerHour*,

Value = `240.0`)

DesignMassFlowRate

Data Property

The mass flow rate for which the *Agglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Agglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Agglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

DesignSolidFeedMassFlowRate

Data Property

The solid feed mass flow rate for which the *Agglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignSolidFeedMassFlowRate

DESIGN SOLID FEED MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerHour*,

Value = `220.0`)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Agglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Agglomerator">
  <Data property="DesignLiquidFeedMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour"/>
      </Data>
      <Data property="Value">
        <Double>240.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignSolidFeedMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour"/>
      </Data>
      <Data property="Value">
        <Double>220.0</Double>
      </Data>
```

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```
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Agitator

Plant::*ProcessEquipment*::Agitator

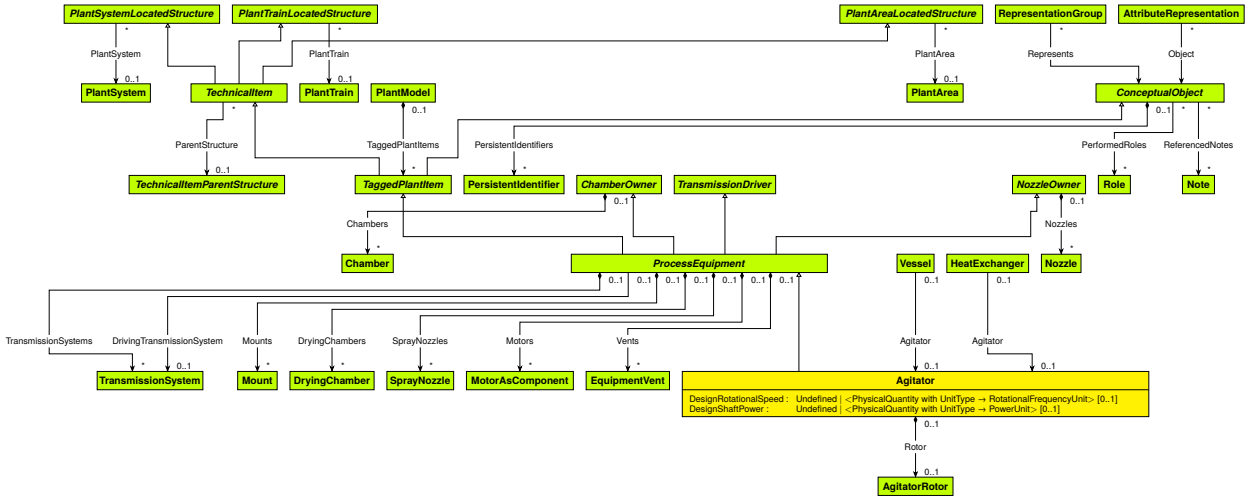
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS16045622

AGITATOR

An Agitator is a dynamic mixer that stirs or shakes fluids by reaction force from moving vanes.



Supertypes

- *ProcessEquipment*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Rotor	0..1	*AgitatorRotor*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *Agitator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Agitator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

Rotor

Composition Property

The rotor of the Agitator.

Type: *AgitatorRotor*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Agitator">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AgitatorRotor

Plant::*ProcessEquipment*::AgitatorRotor

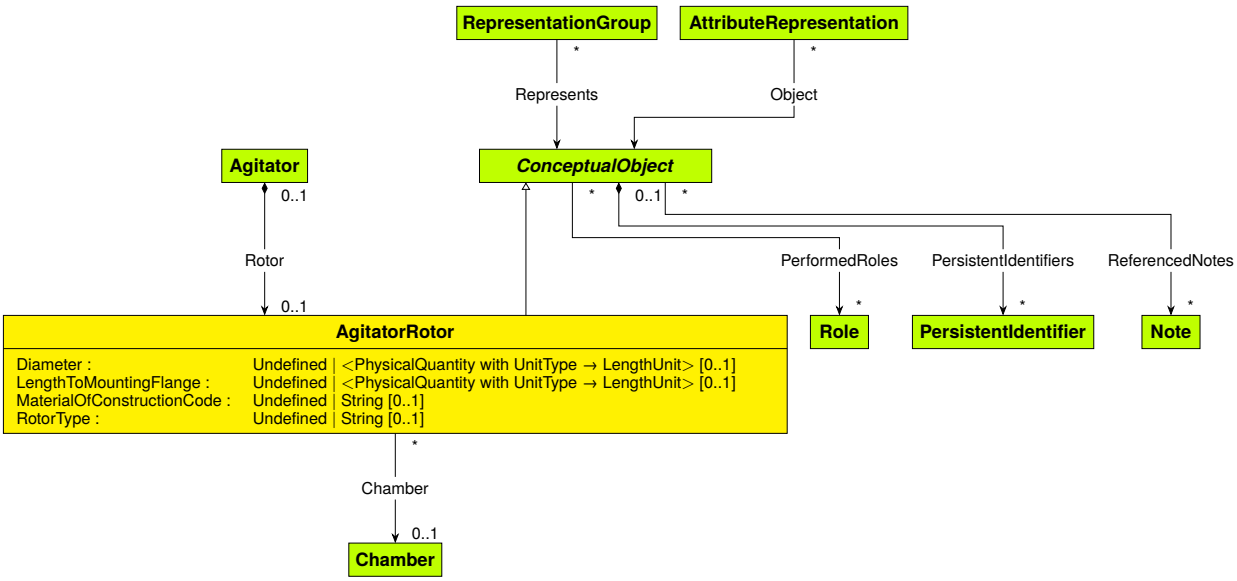
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/AgitatorRotor

AGITATOR ROTOR

The machine component that is the rotating portion of an *Agitator*.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
LengthToMountingFlange	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
RotorType	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the AgitatorRotor is located, if applicable. The Chamber must be a component of the same object as the AgitatorRotor.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Diameter

Data Property

The diameter of the *AgitatorRotor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

LengthToMountingFlange

Data Property

The length to the mounting flange of the *AgitatorRotor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LengthToMountingFlange

LENGTH TO MOUNTING FLANGE

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `80.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *AgitatorRotor*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

RotorType

Data Property

The rotor type of the *AgitatorRotor*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/RotorTypeAssignmentClass

ROTOR TYPE ASSIGNMENT CLASS

Example

```
"xy1"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AgitatorRotor">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="LengthToMountingFlange">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
```

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```
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>80.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="RotorType">
    <String>xy1</String>
  </Data>
</Object>
```

AirCoolingSystem

Plant::*ProcessEquipment*::AirCoolingSystem

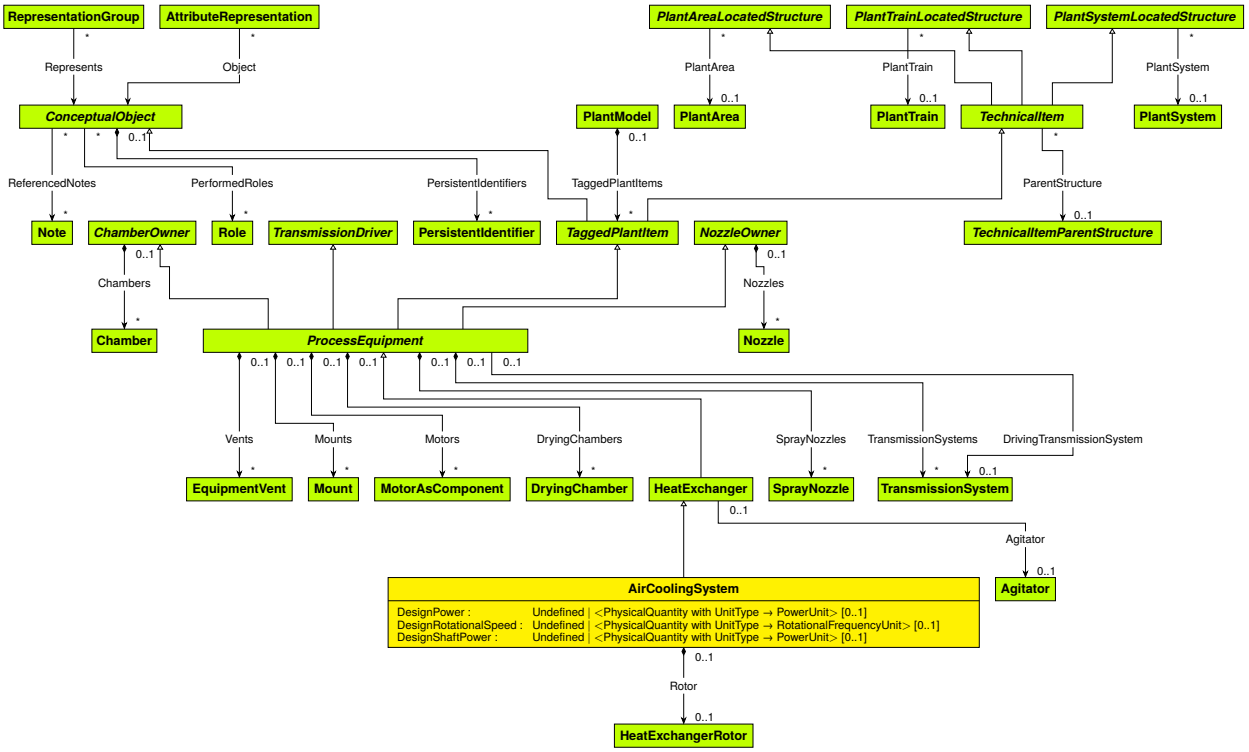
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS277379

AIR COOLING SYSTEM

A cooling system which uses air as the cooling medium (from http://data.posccaesar.org/rdl/RDS277379).



Supertypes

- *HeatExchanger*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Rotor	0..1	*HeatExchangerRotor*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *AirCoolingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *AirCoolingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *AirCoolingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Rotor

Composition Property

The rotor of the AirCoolingSystem.

Type: *HeatExchangerRotor*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AirCoolingSystem">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
```

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```
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AirEjector

Plant::*ProcessEquipment*::AirEjector

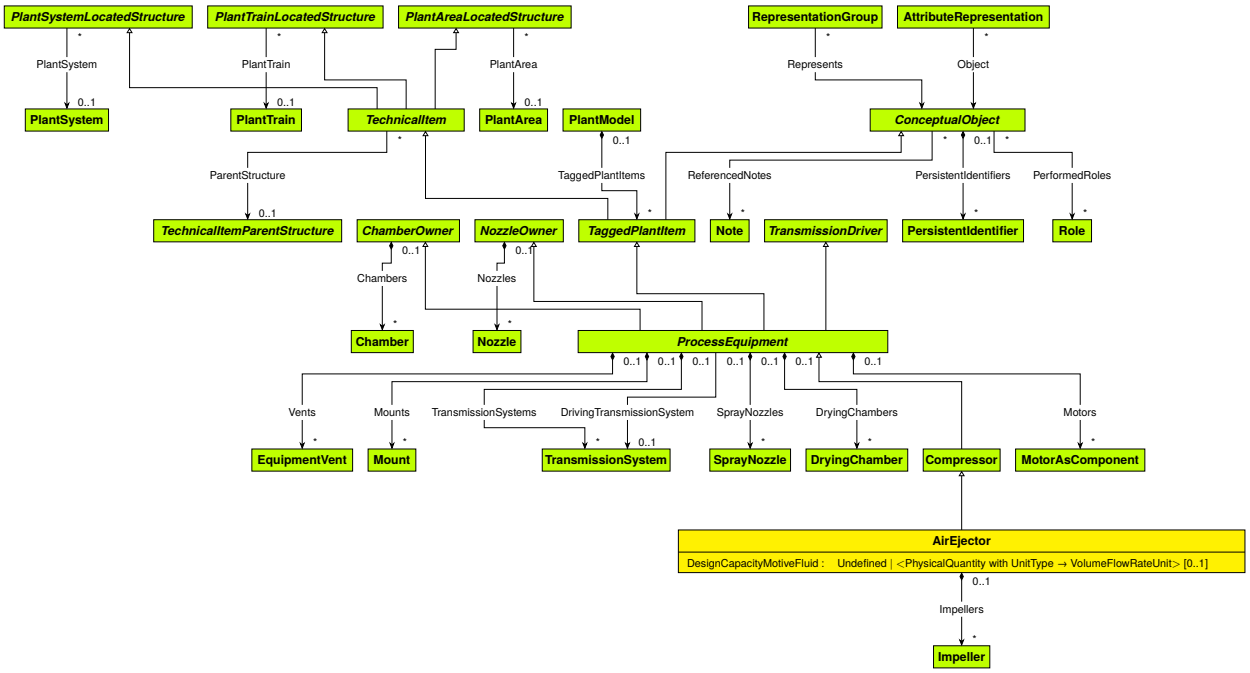
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS5770157

AIR EJECTOR

An ejector intended to create vacuum using compressed air (from http://data.posccaesar.org/rdl/RDS5770157).



Supertypes

- *Compressor*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityMotiveFluid	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignCapacityMotiveFluid

Data Property

The capacity of the volume flow rate for the motive fluid for which the *AirEjector* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityMotiveFluid

DESIGN CAPACITY MOTIVE FLUID

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `40.0`)

Impellers

Composition Property

The impellers of the AirEjector.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AirEjector">
  <Data property="DesignCapacityMotiveFluid">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AlternatingCurrentGenerator

Plant::*ProcessEquipment*::AlternatingCurrentGenerator

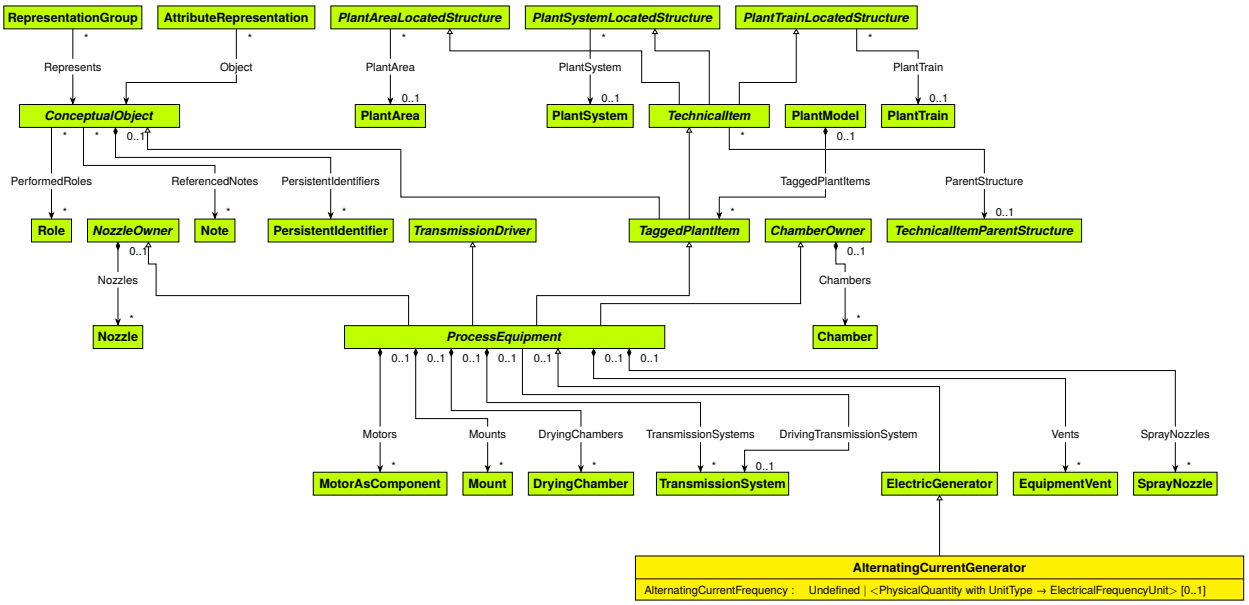
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS873359

ALTERNATING CURRENT GENERATOR

An electric generator for the production of alternating current and voltage (from http://data.posccaesar.org/rdl/RDS873359).



Supertypes

- *ElectricGenerator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
AlternatingCurrentFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>	no	no

AlternatingCurrentFrequency

Data Property

The alternating current frequency of the *AlternatingCurrentGenerator*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/AlternatingCurrentFrequency

ALTERNATING CURRENT FREQUENCY

Example

PhysicalQuantity(

Unit = *Hertz*,

Value = 180.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AlternatingCurrentGenerator">
  <Data property="AlternatingCurrentFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ElectricalFrequencyUnit.Hertz"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AlternatingCurrentMotor

Plant::*ProcessEquipment*::AlternatingCurrentMotor

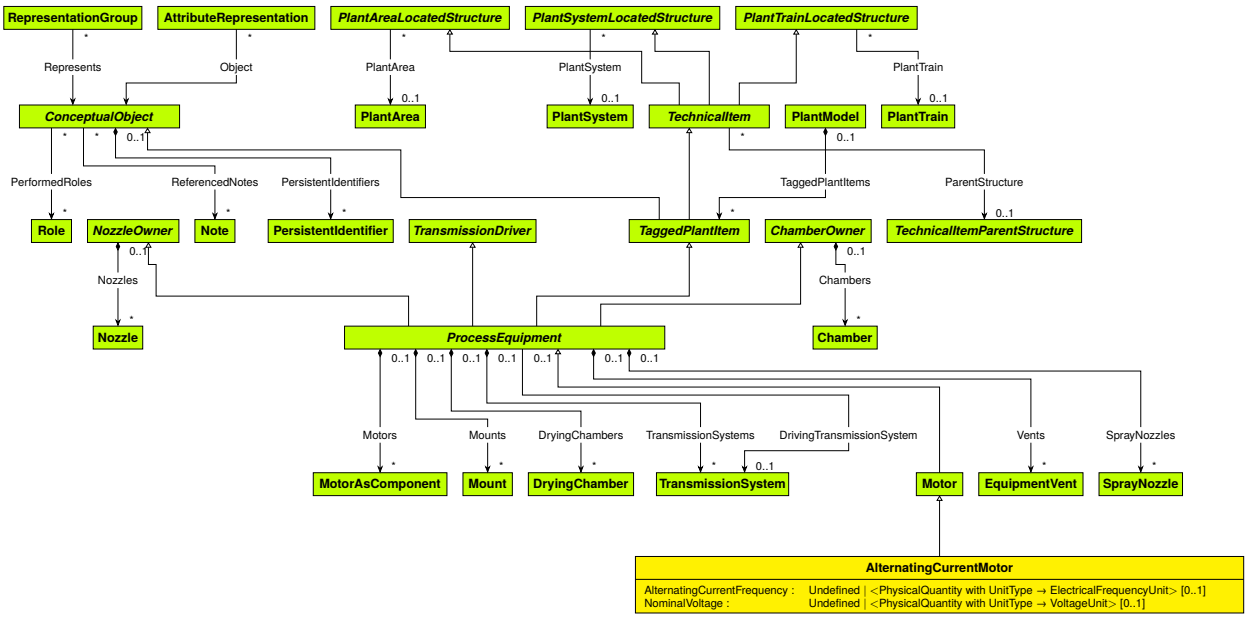
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS472994

ALTERNATING CURRENT MOTOR

An electric motor driven by alternating electric current



Supertypes

- *Motor*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
AlternatingCurrentFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>	no	no
NominalVoltage	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>	no	no

AlternatingCurrentFrequency

Data Property

The alternating current frequency of the *AlternatingCurrentMotor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/AlternatingCurrentFrequency

ALTERNATING CURRENT FREQUENCY

Example

PhysicalQuantity(

Unit = *Hertz*,

Value = `180.0`)

NominalVoltage

Data Property

The nominal voltage of the *AlternatingCurrentMotor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS369449

NOMINAL VOLTAGE

Example

PhysicalQuantity(

Unit = *Volt*,

Value = 230.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AlternatingCurrentMotor">
  <Data property="AlternatingCurrentFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ElectricalFrequencyUnit.Hertz"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="NominalVoltage">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
      </Data>
      <Data property="Value">
        <Double>230.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AlternatingCurrentMotorAsComponent

Plant::*ProcessEquipment*::AlternatingCurrentMotorAsComponent

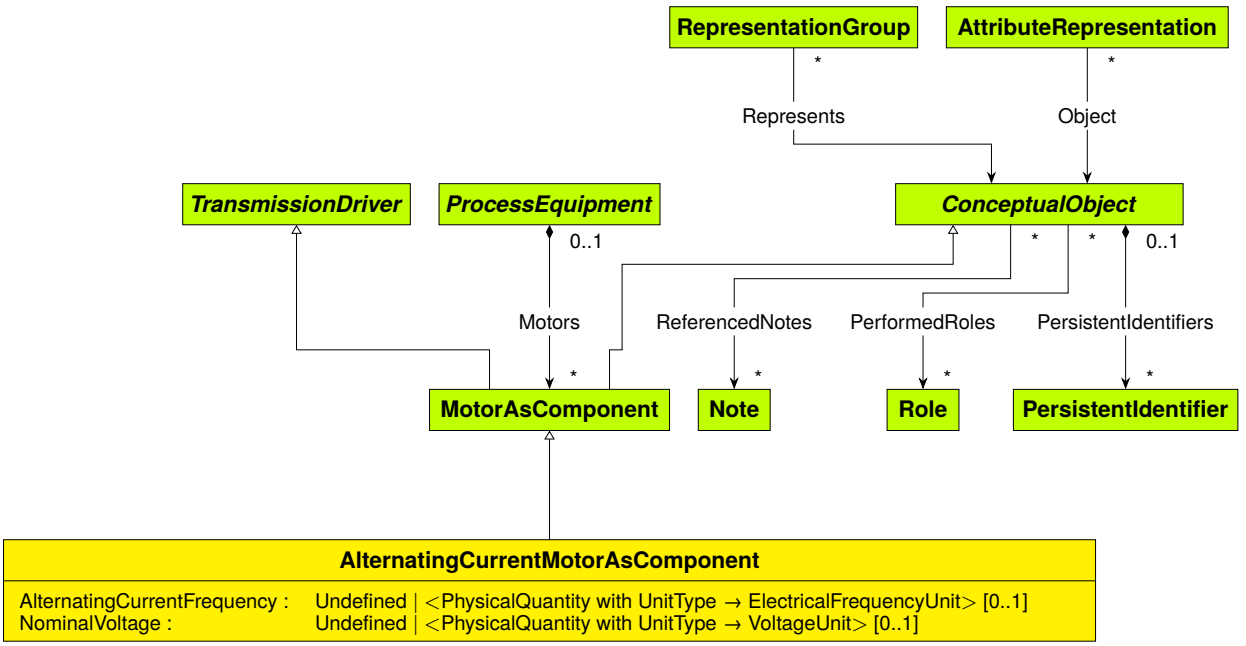
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/AlternatingCurrentMotorAsComponent

ALTERNATING CURRENT MOTOR AS COMPONENT

An electric motor driven by alternating electric current that is used as a component of an apparatus or of a machine.



Supertypes

- *MotorAsComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
AlternatingCurrentFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>	no	no
NominalVoltage	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>	no	no

AlternatingCurrentFrequency

Data Property

The alternating current frequency of the *AlternatingCurrentMotorAsComponent*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/AlternatingCurrentFrequency

ALTERNATING CURRENT FREQUENCY

Example

PhysicalQuantity(

Unit = *Hertz*,

Value = 180.0)

NominalVoltage

Data Property

The nominal voltage of the *AlternatingCurrentMotorAsComponent*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS369449

NOMINAL VOLTAGE

Example

PhysicalQuantity(

Unit = *Volt*,

Value = 230.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AlternatingCurrentMotorAsComponent">
  <Data property="AlternatingCurrentFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ElectricalFrequencyUnit.Hertz"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="NominalVoltage">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
      </Data>
      <Data property="Value">
        <Double>230.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AxialBlower

Plant::*ProcessEquipment*::AxialBlower

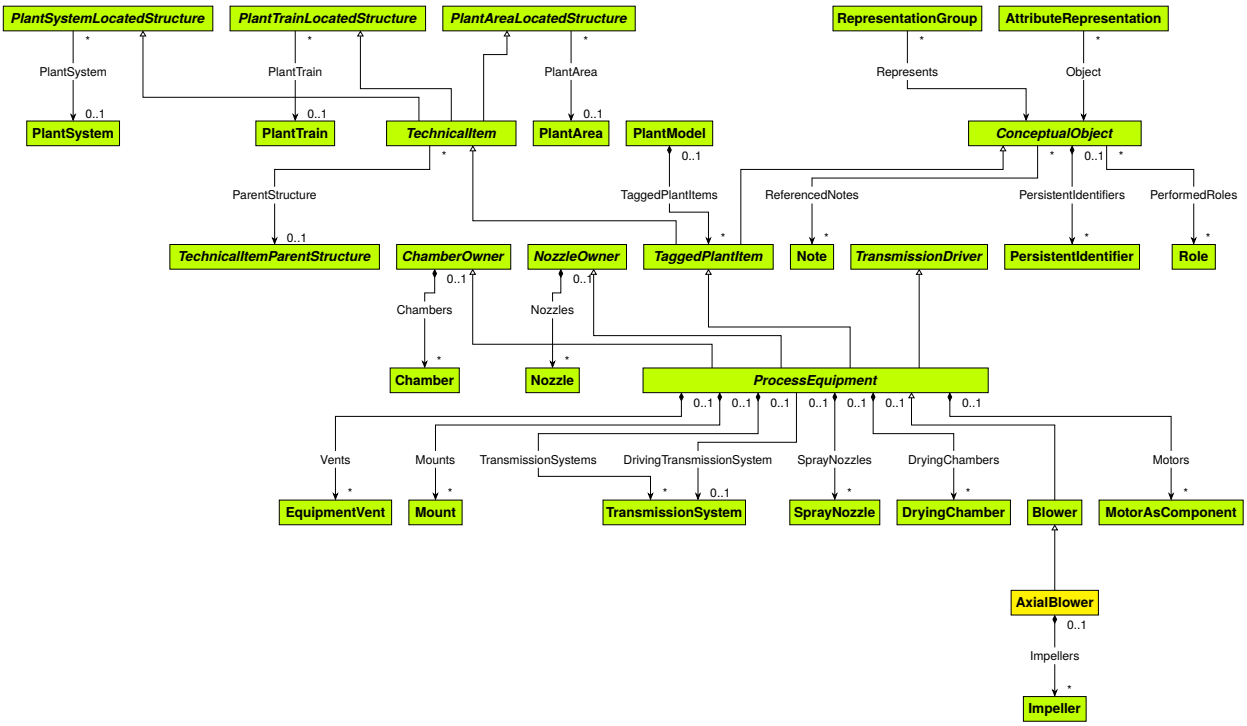
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS433259

AXIAL BLOWER

A blower in which the flow direction is parallel to the shaft (from http://data.posccaesar.org/rdl/RDS433259).



Supertypes

- *Blower*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Impellers

Composition Property

The impellers of the AxialBlower.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AxialBlower"/>
```

AxialCompressor

Plant::*ProcessEquipment*::AxialCompressor

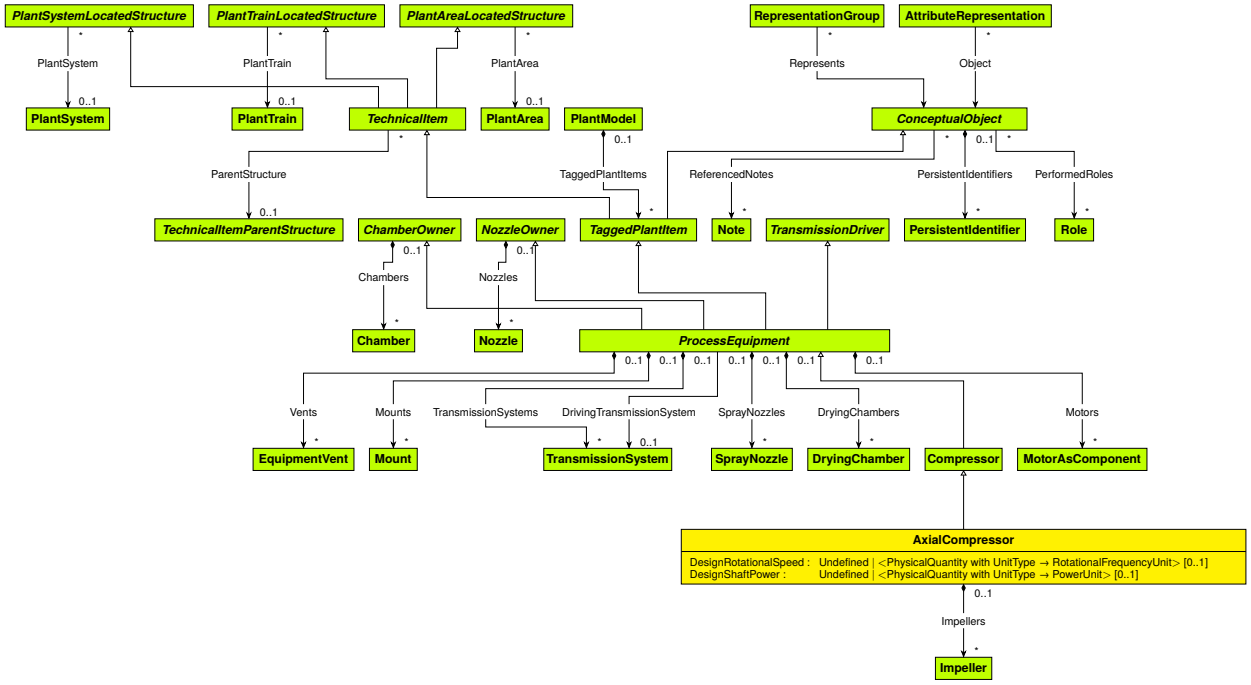
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS417239

AXIAL COMPRESSOR

A *Compressor* in which the gas is accelerated by the action of a bladed rotor and where the main flow is along the rotation axis of the rotor.



Supertypes

- *Compressor*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *AxialCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *AxialCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Impellers

Composition Property

The impellers of the AxialCompressor.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AxialCompressor">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

AxialFan

Plant::*ProcessEquipment*::AxialFan

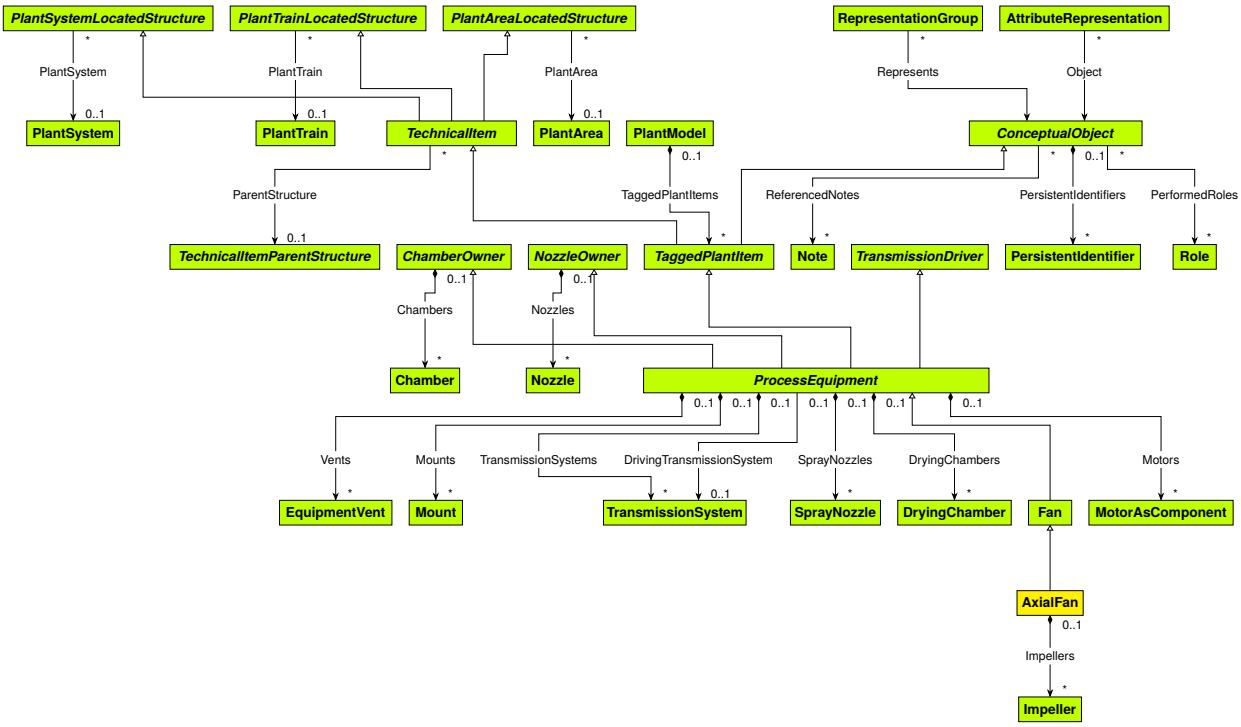
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS414044

AXIAL FAN

A fan where the flow is along axis of shaft and the pressure ratio is relatively low (from http://data.posccaesar.org/rdl/RDS414044).



Supertypes

- *Fan*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Impellers

Composition Property

The impellers of the AxialFan.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.AxialFan"/>
```

BatchWeigher

Plant::*ProcessEquipment*::BatchWeigher

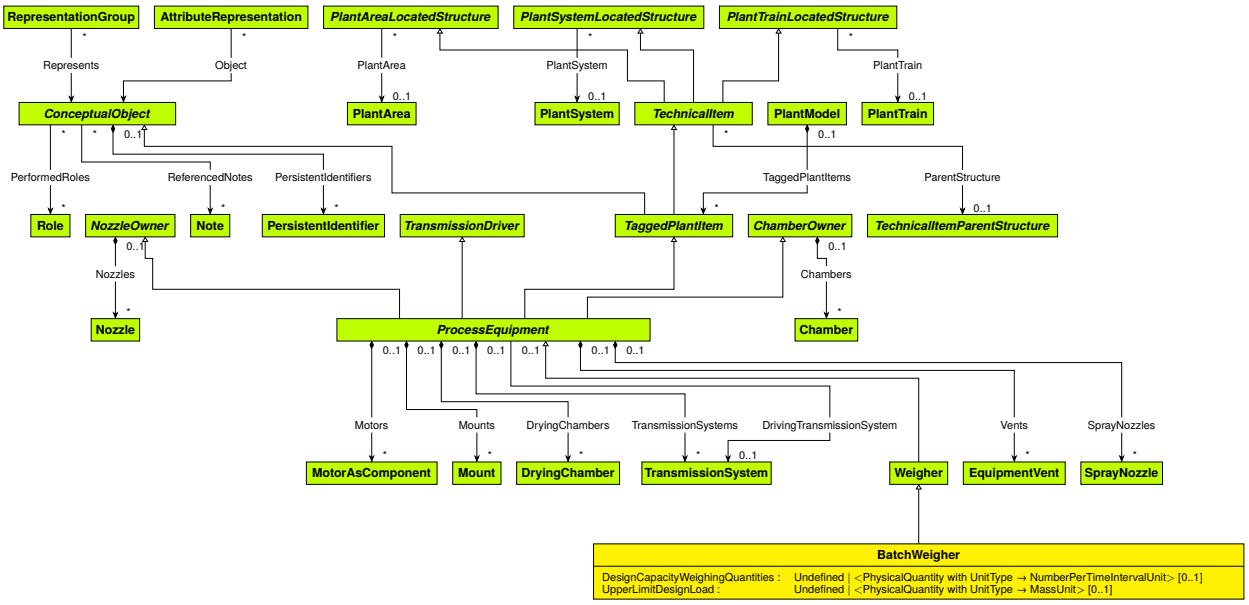
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/BatchWeigher

BATCH WEIGHER

A *Weigher* that is operating in batch mode.



Supertypes

- *Weigher*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityWeighingQuantities	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *NumberPerTimeIntervalUnit*>	no	no
UpperLimitDesignLoad	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>	no	no

DesignCapacityWeighingQuantities

Data Property

The capacity for the number of weighing quantities per time for which the *BatchWeigher* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *NumberPerTimeIntervalUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityWeighingQuantities

DESIGN CAPACITY WEIGHING QUANTITIES

Example

PhysicalQuantity(

Unit = *ReciprocalSecond*,

Value = `42.0`)

UpperLimitDesignLoad

Data Property

The upper limit for the load for which the *BatchWeigher* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDesignLoad

UPPER LIMIT DESIGN LOAD

Example

PhysicalQuantity(

Unit = *Kilogram*,

Value = `900.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.BatchWeigher">
  <Data property="DesignCapacityWeighingQuantities">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.NumberPerTimeIntervalUnit.
↪ReciprocalSecond"/>
      </Data>
      <Data property="Value">
        <Double>42.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignLoad">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
```

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```
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
      </Data>
      <Data property="Value">
        <Double>900.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Blower

Plant::*ProcessEquipment*::Blower

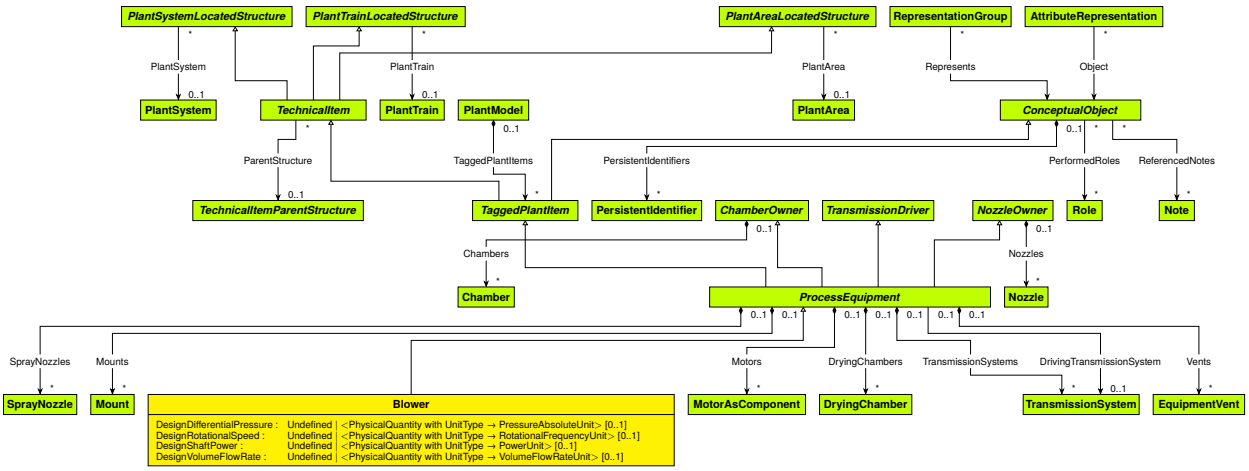
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS417149

BLOWER

A physical object intended to compress and supply air or gas at medium pressure and medium volume flow (from http://data.posccaesar.org/rdl/RDS417149).



Supertypes

- *ProcessEquipment*

Subtypes

- *AxialBlower*
- *CentrifugalBlower*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignDifferentialPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignDifferentialPressure

Data Property

The differential pressure for which the *Blower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignDifferentialPressure

DESIGN DIFFERENTIAL PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `4.8`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Blower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Blower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Blower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Blower">
  <Data property="DesignDifferentialPressure">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>4.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Boiler

Plant::*ProcessEquipment*::Boiler

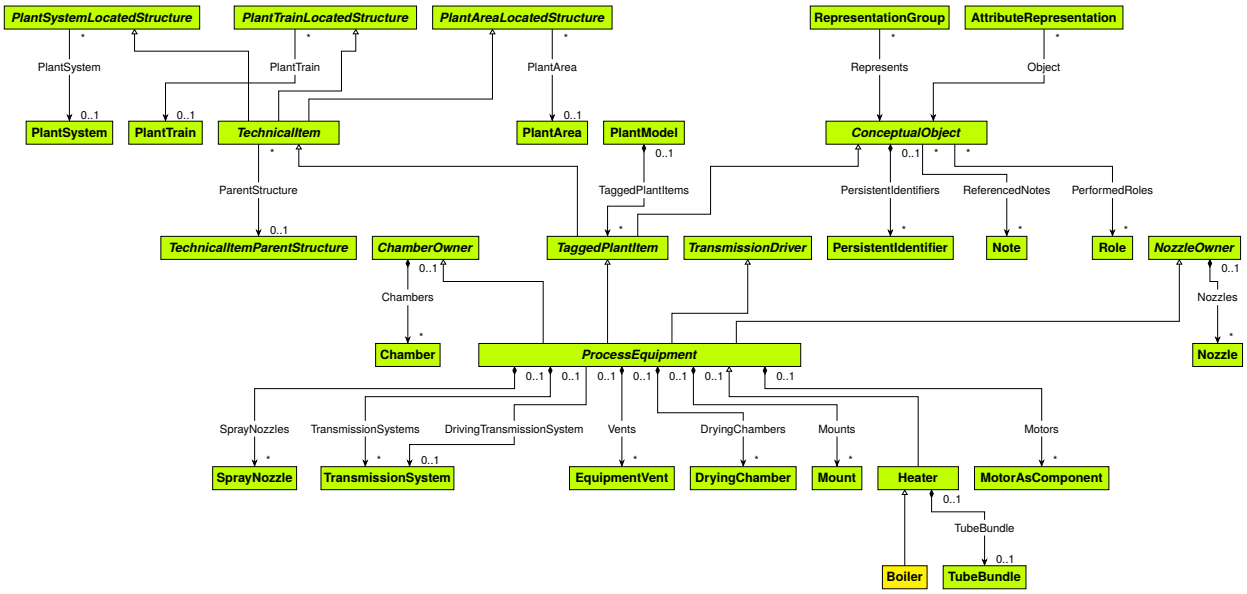
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS14058190

BOILER

A *Heater* that brings a liquid to its boiling point.



Supertypes

- *Heater*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Boiler"/>
```

BriquettingRoller

Plant::*ProcessEquipment*::BriquettingRoller

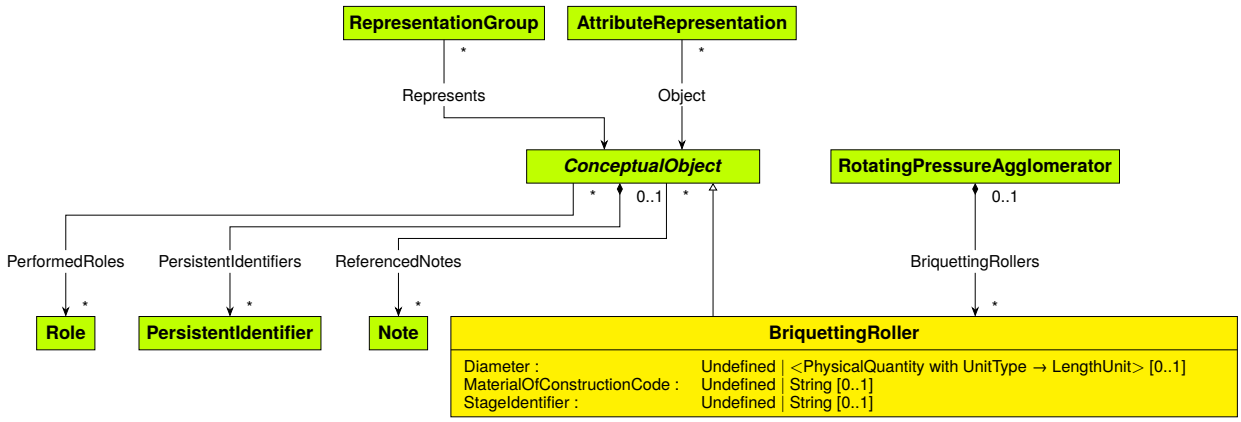
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/BriquettingRoller

BRIQUETTING ROLLER

An element of an *Agglomerator* that compresses bulk material into briquettes.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no

Diameter

Data Property

The diameter of the *BriquettingRoller*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *BriquettingRoller*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

StageIdentifier

Data Property

The stage identifier of the *BriquettingRoller*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

```
"s1"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.BriquettingRoller">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
```

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```
  <Data property="StageIdentifier">
    <String>s1</String>
  </Data>
</Object>
```

Burner

Plant::*ProcessEquipment*::Burner

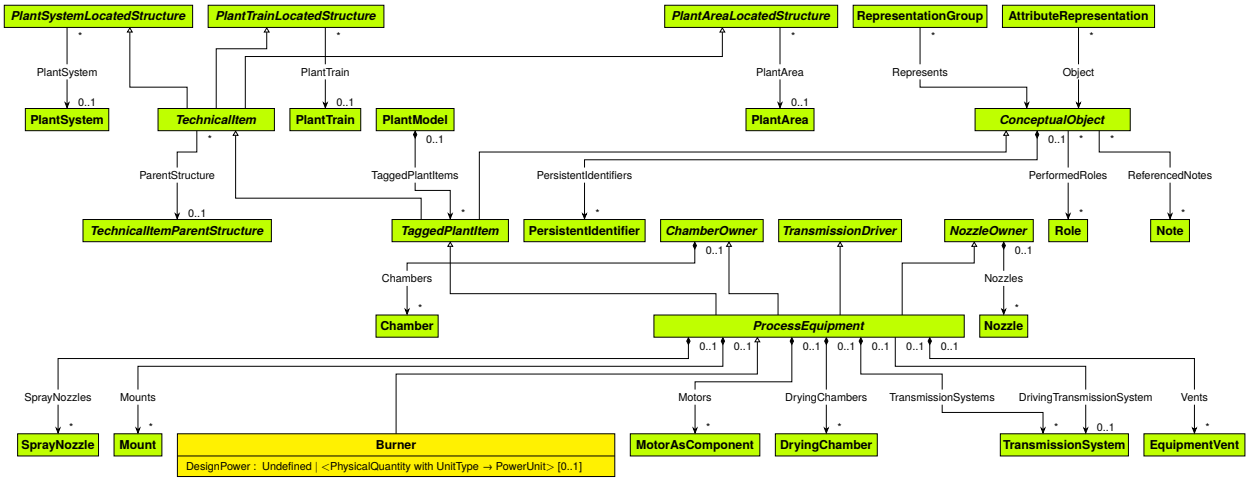
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS284399

BURNER

A physical object that is intended to release thermal energy by burning a combustible mixture (from http://data.posccaesar.org/rdl/RDS284399).



Supertypes

- *ProcessEquipment*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *Burner* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 500.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Burner">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

CentrifugalBlower

Plant::*ProcessEquipment*::CentrifugalBlower

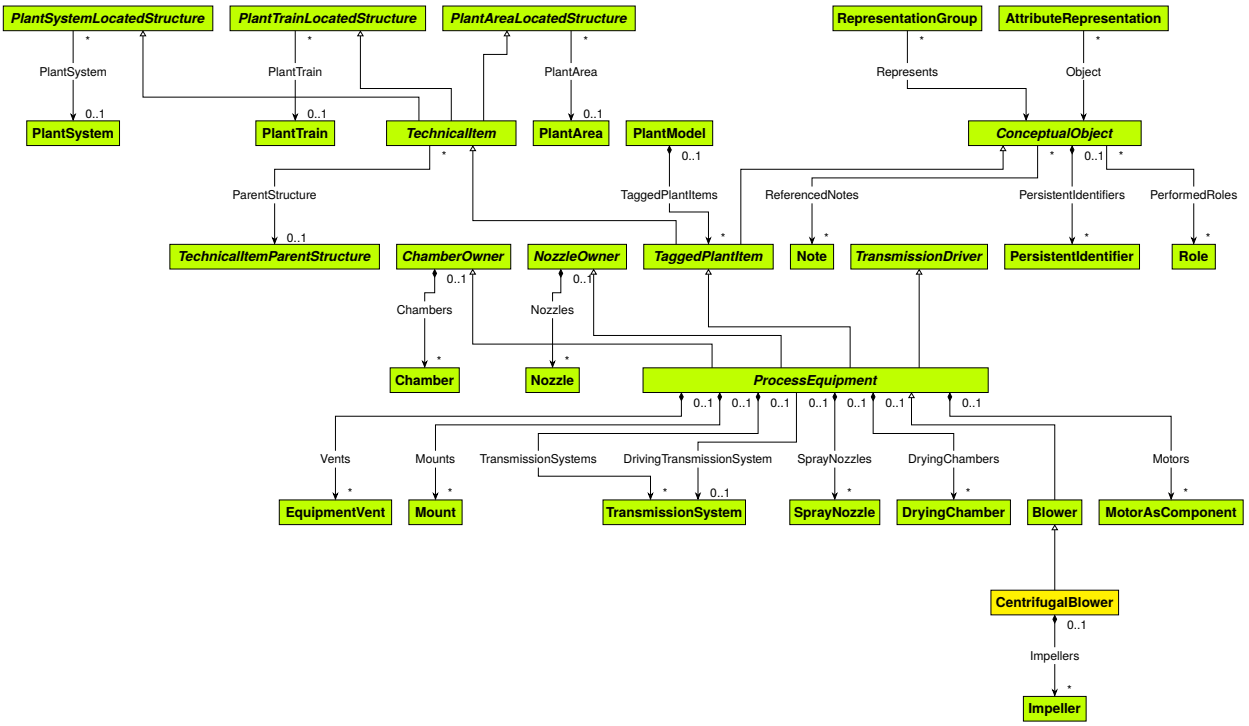
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS16766514

CENTRIFUGAL BLOWER

A blower in which one ore more impellers accelerate the flow and where the main flow through the impeller is radial.



Supertypes

- *Blower*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Impellers

Composition Property

The impellers of the CentrifugalBlower.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CentrifugalBlower"/>
```

CentrifugalCompressor

Plant::*ProcessEquipment*::CentrifugalCompressor

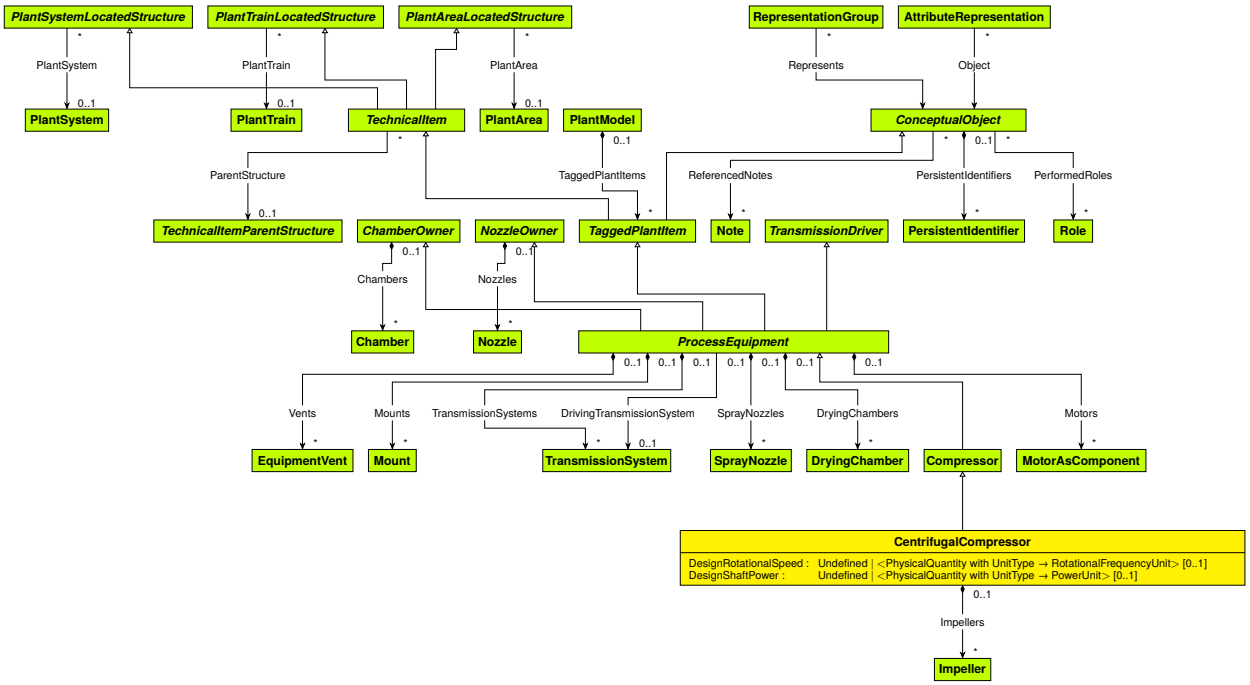
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS417194

CENTRIFUGAL COMPRESSOR

A dynamic compressor in which one ore more impellers accelerate the gas and where the main flow through the impeller is radial (from http://data.posccaesar.org/rdl/RDS417194).



Supertypes

- *Compressor*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *CentrifugalCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *CentrifugalCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Impellers

Composition Property

The impellers of the CentrifugalCompressor.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CentrifugalCompressor">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

CentrifugalPump

Plant::*ProcessEquipment*::CentrifugalPump

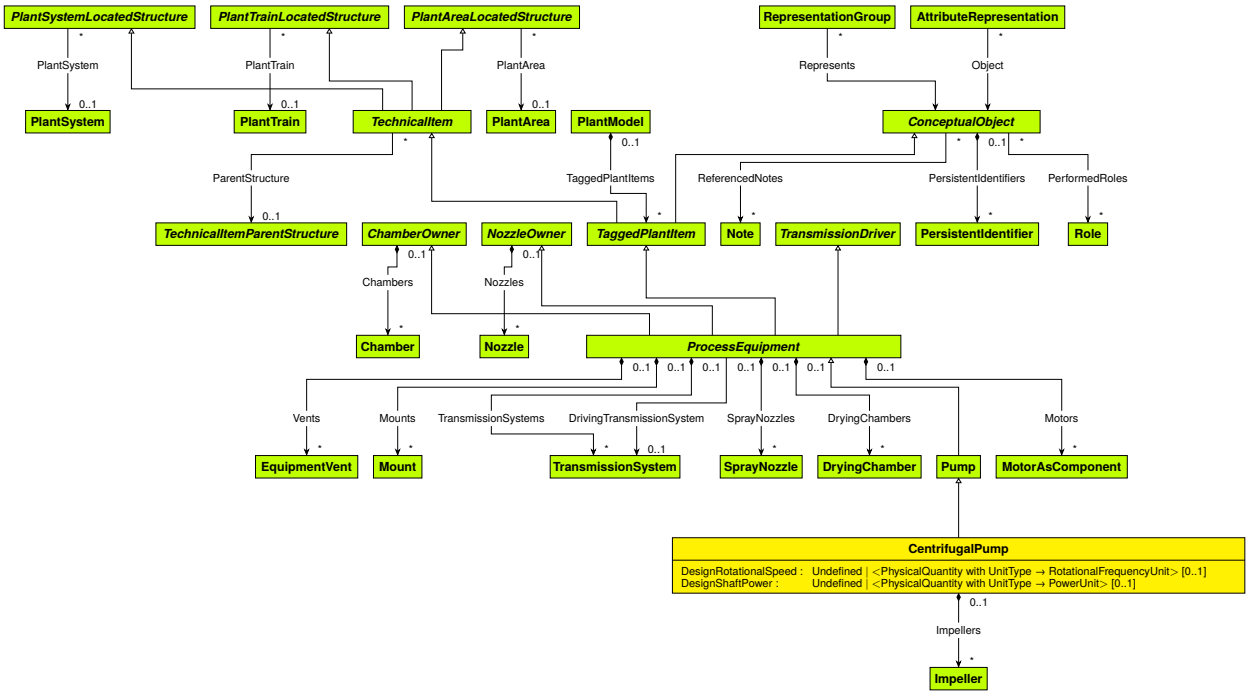
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416834

CENTRIFUGAL PUMP

A dynamic pump utilizing impellers provided with vanes generating centrifugal force to achieve the required pressure head (from http://data.posccaesar.org/rdl/RDS416834).



Supertypes

- *Pump*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *CentrifugalPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *CentrifugalPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Impellers

Composition Property

The impellers of the CentrifugalPump.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CentrifugalPump">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Centrifuge

Plant::*ProcessEquipment*::Centrifuge

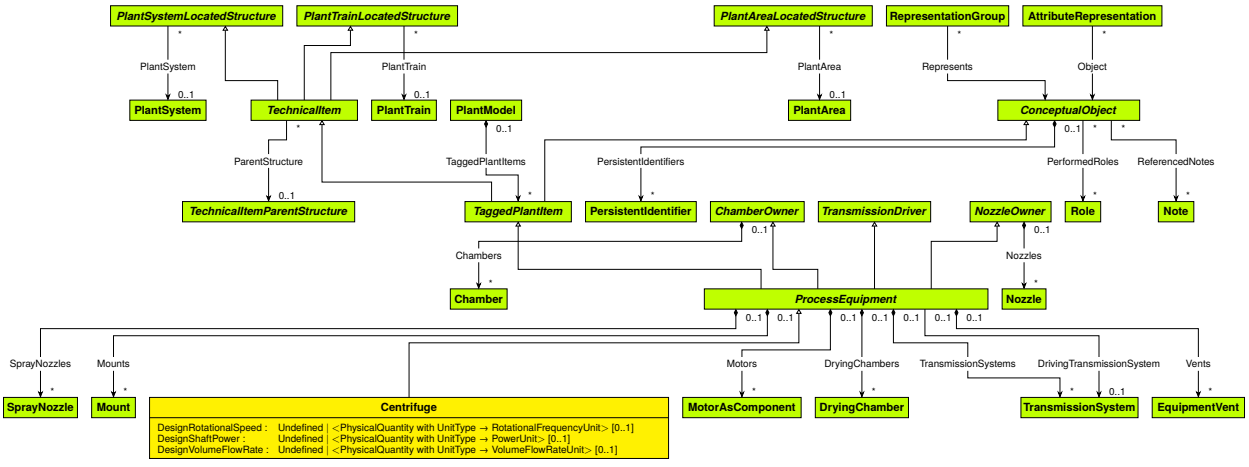
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS420974

CENTRIFUGE

A 'separator' and 'machine' that uses centrifugal force to separate phases of different densities (from http://data.posccaesar.org/rdl/RDS420974).



Supertypes

- *ProcessEquipment*

Subtypes

- *FilteringCentrifuge*
- *SedimentalCentrifuge*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *Centrifuge* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Centrifuge* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Centrifuge* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = 420.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Centrifuge">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
```

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```
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Chamber

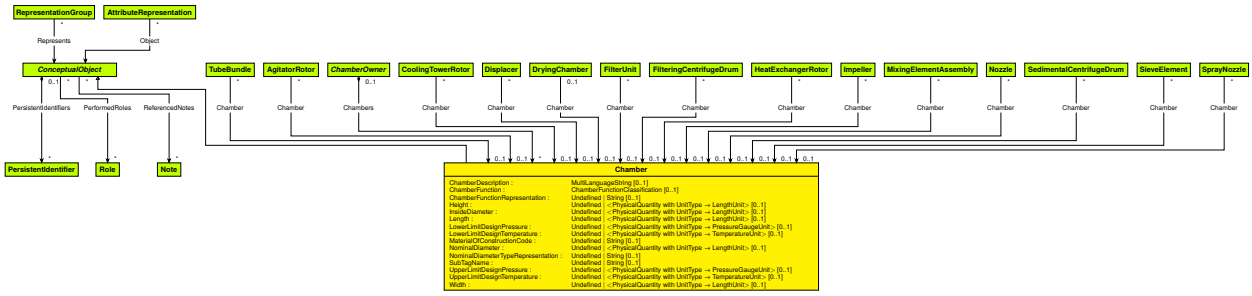
Plant::*ProcessEquipment*::Chamber

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS903151421

CHAMBER



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ChamberDescription	0..1	*MultiLanguageString*	no	no
ChamberFunction	0..1	*ChamberFunctionClassification*	no	no
ChamberFunctionRepresentation	0..1	*Undefined* | *String*	no	no
Height	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsideDiameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
Length	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
LowerLimitDesignPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>	no	no
LowerLimitDesignTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
NominalDiameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
NominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no
SubTagName	0..1	*Undefined* | *String*	no	no
UpperLimitDesignPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>	no	no
UpperLimitDesignTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
Width	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

ChamberDescription

Data Property

The description of the *Chamber*.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ChamberDescriptionAssignmentClass

CHAMBER DESCRIPTION ASSIGNMENT CLASS

Example

MultiLanguageString(

SingleLanguageStrings = [

SingleLanguageString(

Language = "en",

Value = "jacket chamber")])

ChamberFunction

Data Property

A specialization indicating the function of the *Chamber*.

Type: *ChamberFunctionClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ChamberFunctionSpecialization

CHAMBER FUNCTION SPECIALIZATION

Example

Heating

ChamberFunctionRepresentation

Data Property

A short textual description of the function of the *Chamber*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ChamberFunctionAssignmentClass

CHAMBER FUNCTION ASSIGNMENT CLASS

Example

"cooling"

Height

Data Property

The height of the *Chamber*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS357704

HEIGHT

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `220.0`)

InsideDiameter

Data Property

The inside diameter of the *Chamber*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS357209

INSIDE DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `60.0`)

Length

Data Property

The length of the *Chamber*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS373094

LENGTH

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `160.0`)

LowerLimitDesignPressure

Data Property

The lower limit for the pressure for which the *Chamber* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS360674

LOWER LIMIT DESIGN PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `-0.5`)

LowerLimitDesignTemperature

Data Property

The lower limit for the temperature for which the *Chamber* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS360494

LOWER LIMIT DESIGN TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `-45.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *Chamber*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

NominalDiameter

Data Property

The nominal diameter of the *Chamber*, given as a length. See also *NominalDiameterTypeRepresentation*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS366794

NOMINAL DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `80.0`)

NominalDiameterTypeRepresentation

Data Property

A readable representation of the type or unit of measure of the nominal diameter of the *Chamber*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalDiameterTypeRepresentationAssignmentClass

NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN"
```

SubTagName

Data Property

The sub tag name of the *Chamber*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

```
"ST1"
```

UpperLimitDesignPressure

Data Property

The upper limit for the pressure for which the *Chamber* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1470835011

UPPER LIMIT DESIGN PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `60.0`)

UpperLimitDesignTemperature

Data Property

The upper limit for the temperature for which the *Chamber* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS360449

UPPER LIMIT DESIGN TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `100.0`)

Width

Data Property

The width of the *Chamber*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS361709

WIDTH

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = 180.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Chamber">
  <Data property="ChamberDescription">
    <AggregatedDataValue type="Core/DataTypes.MultiLanguageString">
      <Data property="SingleLanguageStrings">
        <AggregatedDataValue type="Core/DataTypes.SingleLanguageString">
          <Data property="Language">
            <String>en</String>
          </Data>
          <Data property="Value">
            <String>jacket chamber</String>
          </Data>
        </AggregatedDataValue>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="ChamberFunction">
    <DataReference data="Plant/Enumerations.ChamberFunctionClassification.Heating"/>
  </Data>
  <Data property="ChamberFunctionRepresentation">
    <String>cooling</String>
  </Data>
  <Data property="Height">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>220.0</Double>
      </Data>
    </AggregatedDataValue>
```

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```
</Data>
<Data property="InsideDiameter">
  <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
    <Data property="Unit">
      <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
    </Data>
    <Data property="Value">
      <Double>60.0</Double>
    </Data>
  </AggregatedDataValue>
</Data>
<Data property="Length">
  <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
    <Data property="Unit">
      <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
    </Data>
    <Data property="Value">
      <Double>160.0</Double>
    </Data>
  </AggregatedDataValue>
</Data>
<Data property="LowerLimitDesignPressure">
  <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
    <Data property="Unit">
      <DataReference data="Core/PhysicalQuantities.PressureGaugeUnit.Bar"/>
    </Data>
    <Data property="Value">
      <Double>-0.5</Double>
    </Data>
  </AggregatedDataValue>
</Data>
<Data property="LowerLimitDesignTemperature">
  <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
    <Data property="Unit">
      <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
    </Data>
    <Data property="Value">
      <Double>-45.0</Double>
    </Data>
  </AggregatedDataValue>
</Data>
<Data property="MaterialOfConstructionCode">
  <String>1.4306</String>
</Data>
<Data property="NominalDiameter">
  <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
    <Data property="Unit">
      <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
    </Data>
    <Data property="Value">
      <Double>80.0</Double>
    </Data>
```

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```
    </AggregatedDataValue>
  </Data>
  <Data property="NominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
  <Data property="UpperLimitDesignPressure">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureGaugeUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>60.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignTemperature">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
      </Data>
      <Data property="Value">
        <Double>100.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Width">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

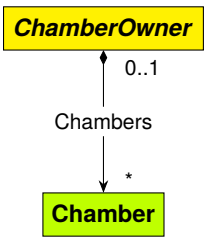
ChamberOwner

Plant::*ProcessEquipment*::ChamberOwner

Overview

Abstract Class

An object that can have chambers.



Subtypes

- *ProcessEquipment*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Chambers	*	*Chamber*	no

Chambers

Composition Property

The Chambers of the ChamberOwner.

Type: *Chamber*

Multiplicity: *

Ordered: no

Chimney

Plant::*ProcessEquipment*::Chimney

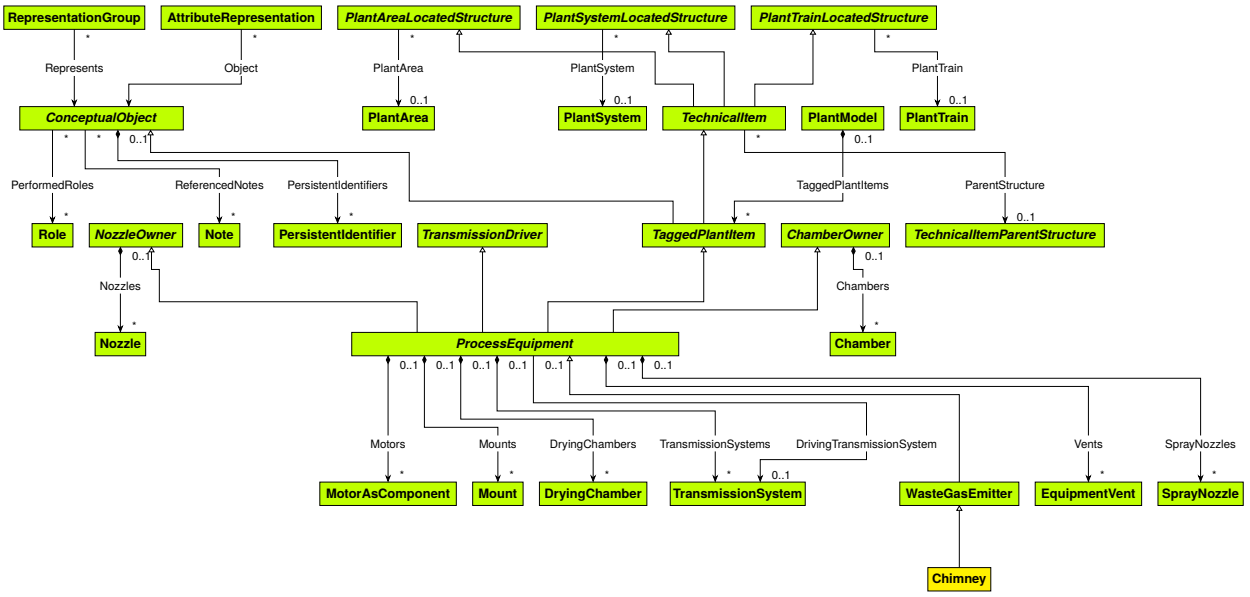
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Chimney

CHIMNEY

A *WasteGasEmitter* that is intended to transport waste gas to a high location in the atmosphere.



Supertypes

- *WasteGasEmitter*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Chimney"/>
```

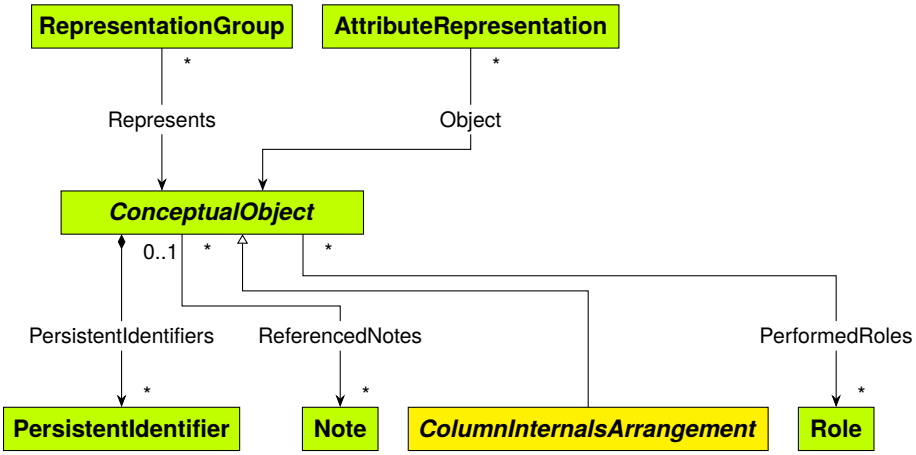
ColumnInternalsArrangement

Plant::*ProcessEquipment*::ColumnInternalsArrangement

Overview

Abstract Class

The internals of a column, e.g., trays or packings.



Supertypes

- *ConceptualObject*

Subtypes

- *ColumnPackingsArrangement*
- *ColumnTraysArrangement*

ColumnPackingsArrangement

Plant::*ProcessEquipment*::ColumnPackingsArrangement

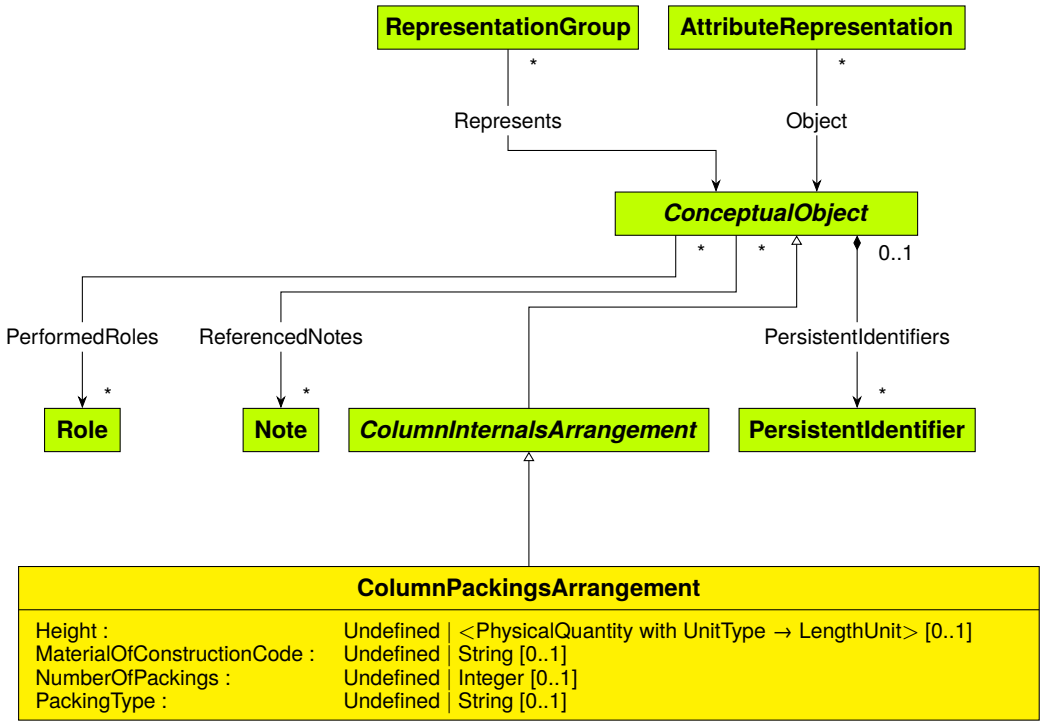
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ColumnPackingsArrangement

COLUMN PACKINGS ARRANGEMENT

The packings of a column.



Supertypes

- *ColumnInternalsArrangement*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Height	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
NumberOfPackings	0..1	*Undefined* | *Integer*	no	no
PackingType	0..1	*Undefined* | *String*	no	no

Height

Data Property

The height of the *ColumnPackingsArrangement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS357704

HEIGHT

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `220.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *ColumnPackingsArrangement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

NumberOfPackings

Data Property

The number of packings in the *ColumnPackingsArrangement*.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NumberOfPackings

NUMBER OF PACKINGS

Example

```
300
```

PackingType

Data Property

The type of the packings in the *ColumnPackingsArrangement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PackingTypeAssignmentClass

PACKING TYPE ASSIGNMENT CLASS

Example

```
"rings"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ColumnPackingsArrangement">
  <Data property="Height">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>220.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
```

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```
  <Data property="NumberOfPackings">
    <Integer>300</Integer>
  </Data>
  <Data property="PackingType">
    <String>rings</String>
  </Data>
</Object>
```

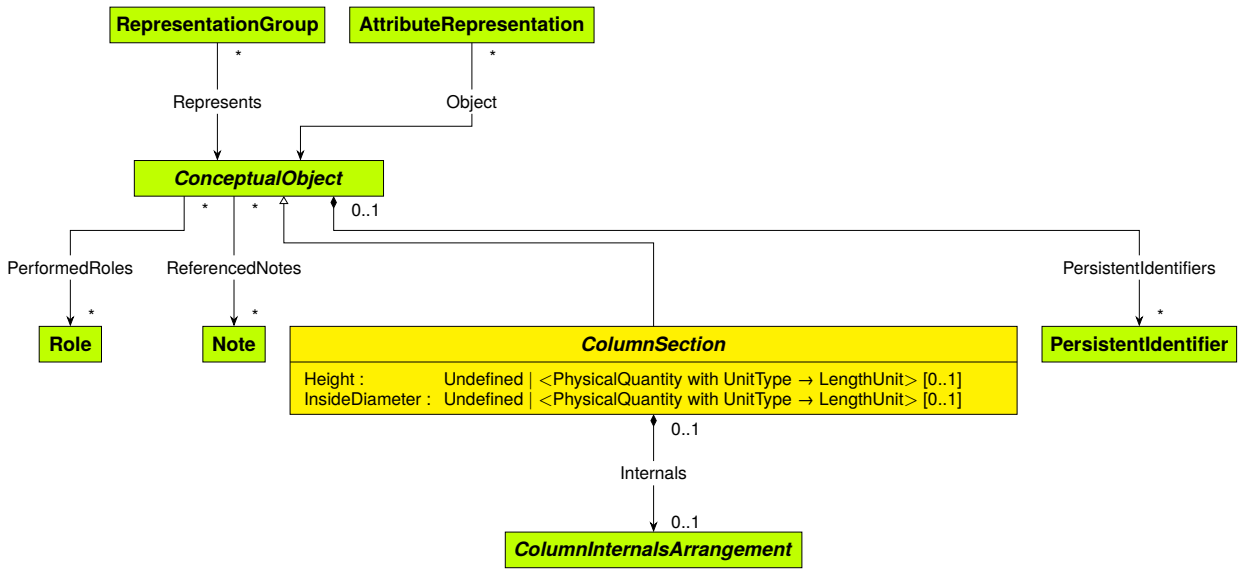
ColumnSection

Plant::*ProcessEquipment*::ColumnSection

Overview

Abstract Class

A column section.



Supertypes

- *ConceptualObject*

Subtypes

- *SubTaggedColumnSection*
- *TaggedColumnSection*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Internals	0..1	*ColumnInternalsArrangement*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Height	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
InsideDiameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

Height

Data Property

The height of the *ColumnSection*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS357704

HEIGHT

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `220.0`)

InsideDiameter

Data Property

The inside diameter of the *ColumnSection*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS357209

INSIDE DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `60.0`)

Internals

Composition Property

The *ColumnInternalsArrangement* of the ColumnSection.

Type: *ColumnInternalsArrangement*

Multiplicity: 0..1

Ordered: no

ColumnTraysArrangement

Plant::*ProcessEquipment*::ColumnTraysArrangement

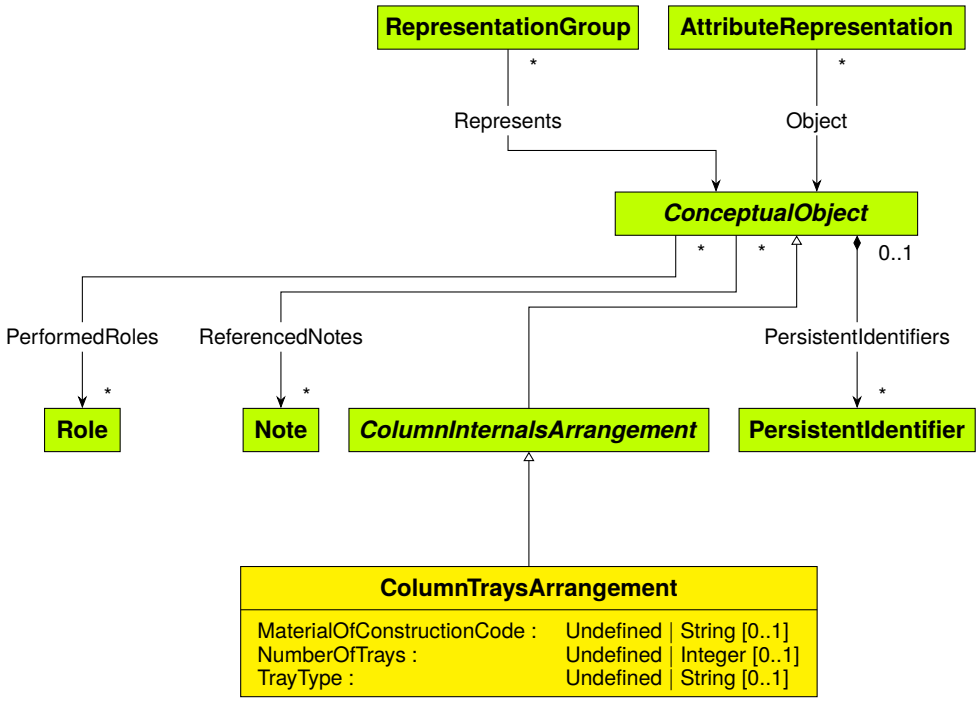
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ColumnTraysArrangement

COLUMN TRAYS ARRANGEMENT

The trays of a column.



Supertypes

- *ColumnInternalsArrangement*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
NumberOfTrays	0..1	*Undefined* | *Integer*	no	no
TrayType	0..1	*Undefined* | *String*	no	no

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *ColumnTraysArrangement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

NumberOfTrays

Data Property

The number of trays in the *ColumnTraysArrangement*.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NumberOfTrays

NUMBER OF TRAYS

Example

```
16
```

TrayType

Data Property

The type of the trays in the *ColumnTraysArrangement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TrayTypeAssignmentClass

TRAY TYPE ASSIGNMENT CLASS

Example

```
"sieve trays"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ColumnTraysArrangement">
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="NumberOfTrays">
    <Integer>16</Integer>
  </Data>
  <Data property="TrayType">
    <String>sieve trays</String>
  </Data>
</Object>
```

CombustionEngine

Plant::*ProcessEquipment*::CombustionEngine

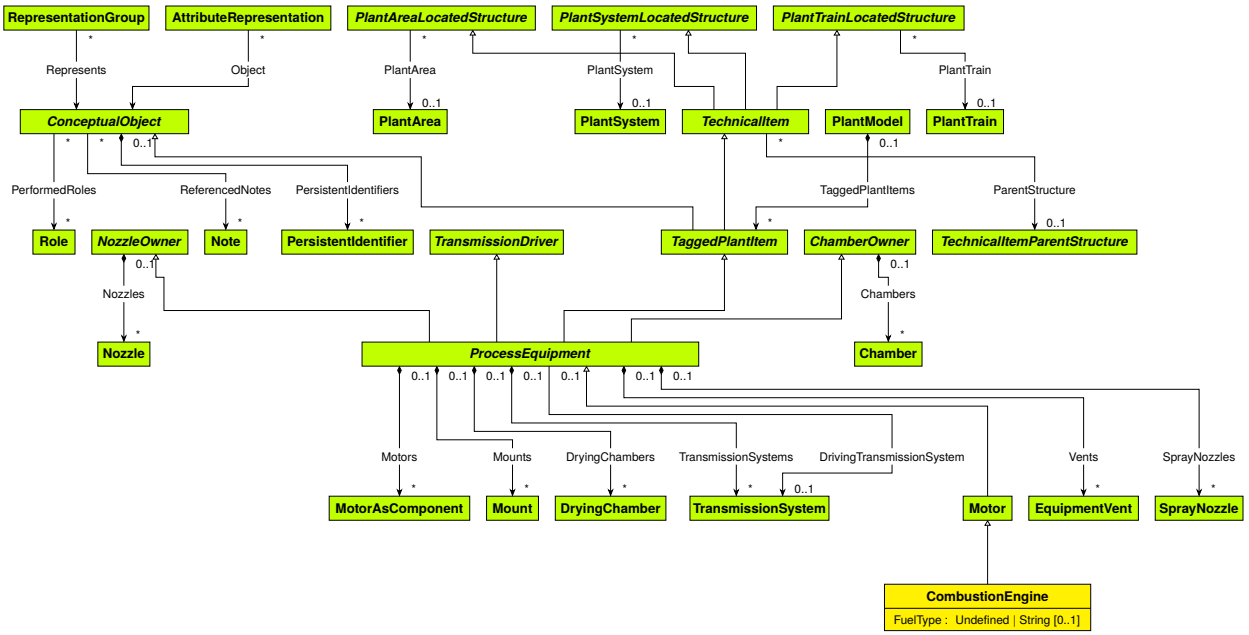
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1083734

COMBUSTION ENGINE

An engine intended to deliver power by means of burning fuels (from http://data.posccaesar.org/rdl/RDS1083734).



Supertypes

- *Motor*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FuelType	0..1	*Undefined* | *String*	no	no

FuelType

Data Property

The fuel type of the *CombustionEngine*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FuelType

FUEL TYPE

Example

```
"Diesel fuel"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CombustionEngine">
  <Data property="FuelType">
    <String>Diesel fuel</String>
  </Data>
</Object>
```

CombustionEngineAsComponent

Plant::*ProcessEquipment*::CombustionEngineAsComponent

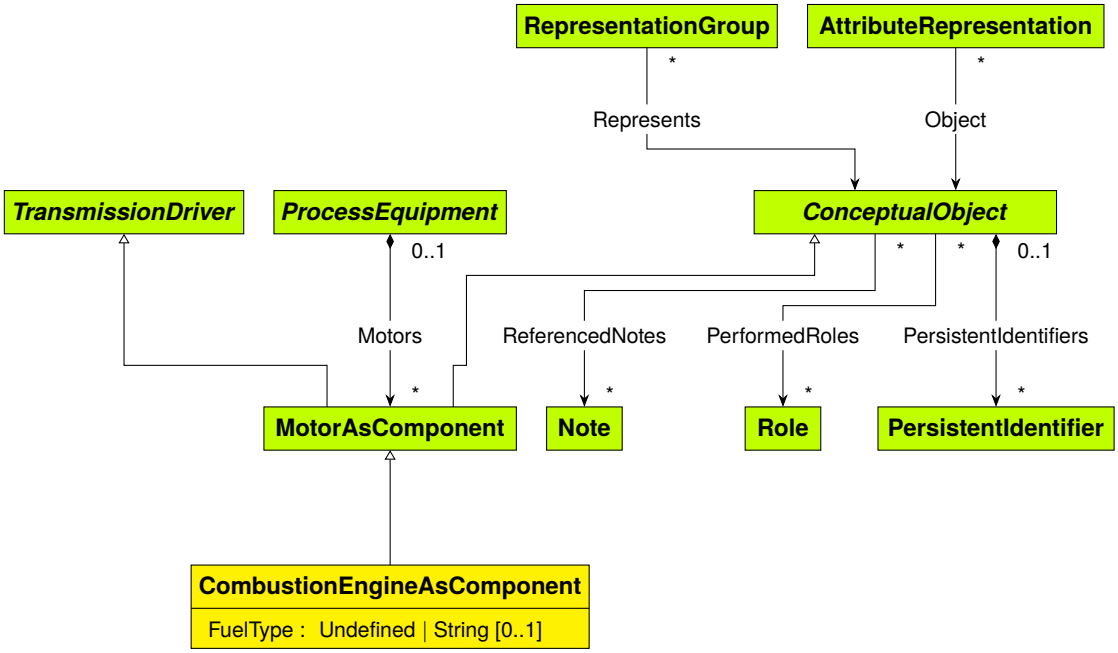
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/CombustionEngineAsComponent

COMBUSTION ENGINE AS COMPONENT

An engine intended to deliver power by means of burning fuels that is used as component of an apparatus or of a machine.



Supertypes

- *MotorAsComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FuelType	0..1	*Undefined* | *String*	no	no

FuelType

Data Property

The fuel type of the *CombustionEngineAsComponent*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FuelType

FUEL TYPE

Example

```
"Diesel fuel"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CombustionEngineAsComponent">
  <Data property="FuelType">
    <String>Diesel fuel</String>
  </Data>
</Object>
```

Compressor

Plant::*ProcessEquipment*::Compressor

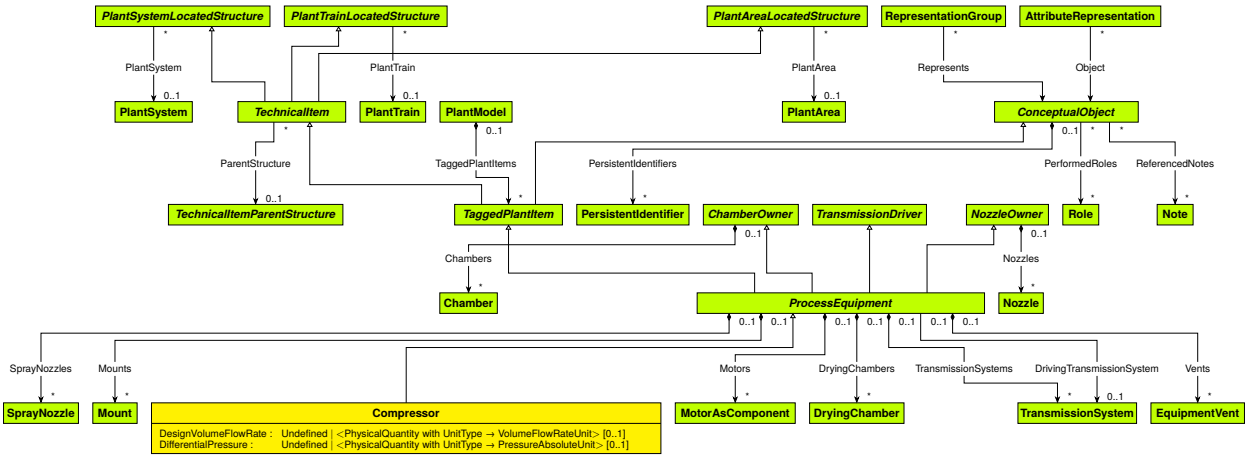
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS14286497

COMPRESSOR

A machine that has the capability of compressing a gas.



Supertypes

- *ProcessEquipment*

Subtypes

- *AirEjector*
- *AxialCompressor*
- *CentrifugalCompressor*
- *ReciprocatingCompressor*
- *RotaryCompressor*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
DifferentialPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Compressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

DifferentialPressure

Data Property

The differential pressure of the *Compressor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS361574

DIFFERENTIAL PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = 4.8)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Compressor">
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DifferentialPressure">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>4.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ContinuousWeigher

Plant::*ProcessEquipment*::ContinuousWeigher

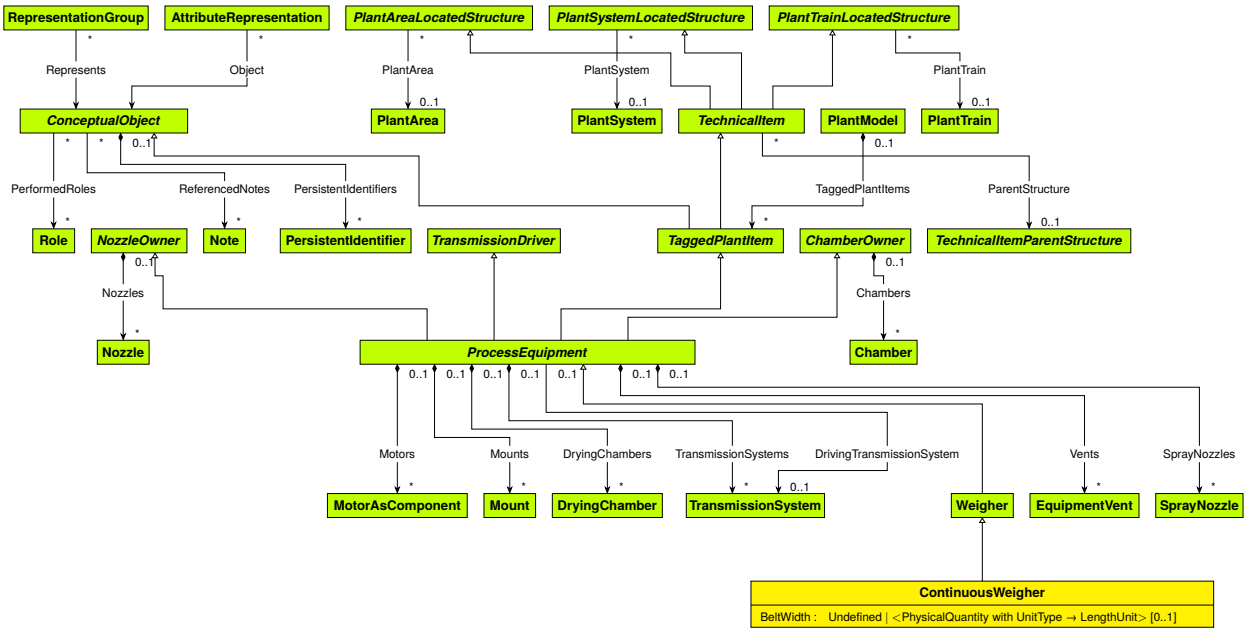
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ContinuousWeigher

CONTINUOUS WEIGHER

A *Weigher* that weighs a mass flow rate in continuous mode.



Supertypes

- *Weigher*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
BeltWidth	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

BeltWidth

Data Property

The belt width of the *ContinuousWeigher*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/BeltWidth

BELT WIDTH

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `180.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ContinuousWeigher">
  <Data property="BeltWidth">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ConvectionDryer

Plant::*ProcessEquipment*::ConvectionDryer

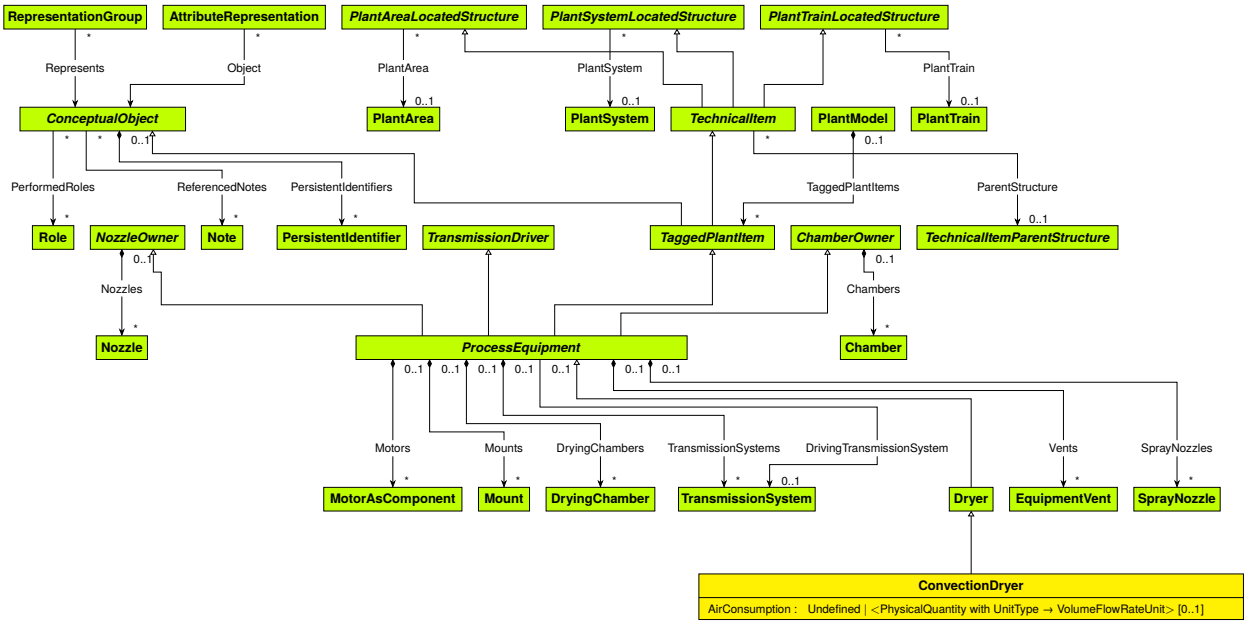
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ConvectionDryer

CONVECTION DRYER

A *Dryer* that dries a material by bringing it in contact with a drying gas.



Supertypes

- *Dryer*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
AirConsumption	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

AirConsumption

Data Property

The consumed air flow of the *ConvectionDryer*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS5875300

AIR CONSUMPTION

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `40.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ConvectionDryer">
  <Data property="AirConsumption">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Conveyor

Plant::*ProcessEquipment*::Conveyor

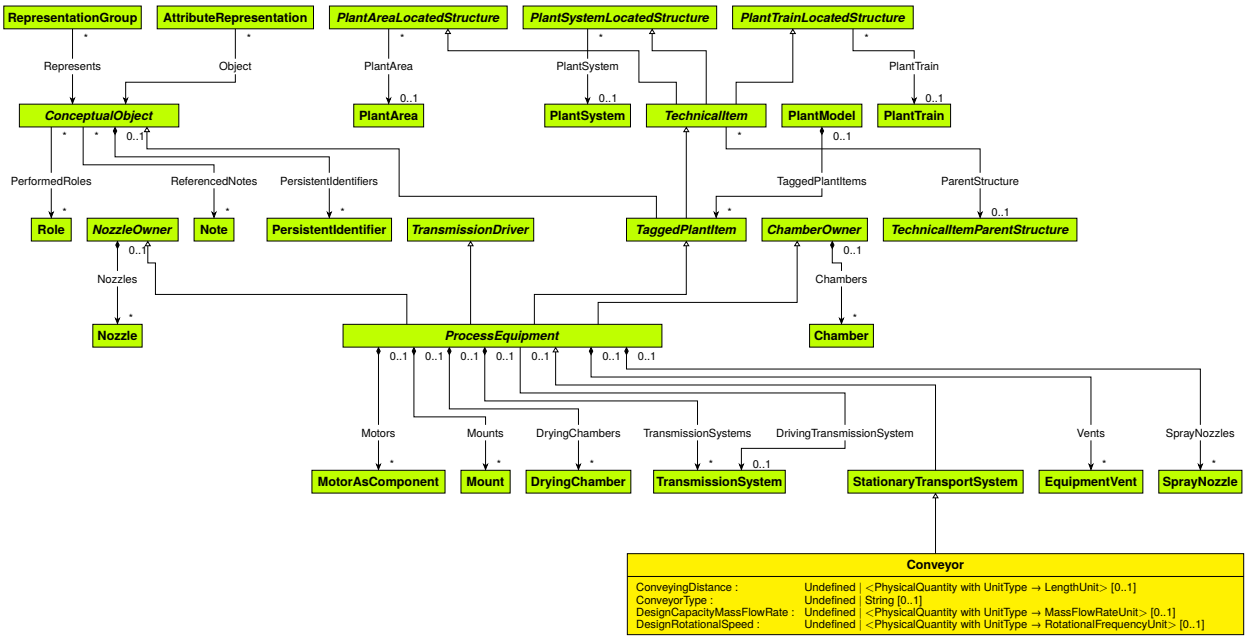
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11589895

CONVEYOR

A machine that is capable of conveying material.



Supertypes

- *StationaryTransportSystem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ConveyingDistance	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
ConveyorType	0..1	*Undefined* | *String*	no	no
DesignCapacityMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no

ConveyingDistance

Data Property

The conveying distance of the *Conveyor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConveyingDistance

CONVEYING DISTANCE

Example

PhysicalQuantity(

Unit = *Metre*,

Value = `12.0`)

ConveyorType

Data Property

The type of the conveyor.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ConveyorTypeAssignmentClass

CONVEYOR TYPE ASSIGNMENT CLASS

Example

`"Chain Conveyor"`

DesignCapacityMassFlowRate

Data Property

The capacity for the mass flow rate for which the *Conveyor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityMassFlowRate

DESIGN CAPACITY MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerMinute*,

Value = `40.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Conveyor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = 180.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Conveyor">
  <Data property="ConveyingDistance">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
      </Data>
      <Data property="Value">
        <Double>12.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="ConveyorType">
    <String>Chain Conveyor</String>
  </Data>
  <Data property="DesignCapacityMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerMinute"/
↪>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
```

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```
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

CoolingTower

Plant::*ProcessEquipment*::CoolingTower

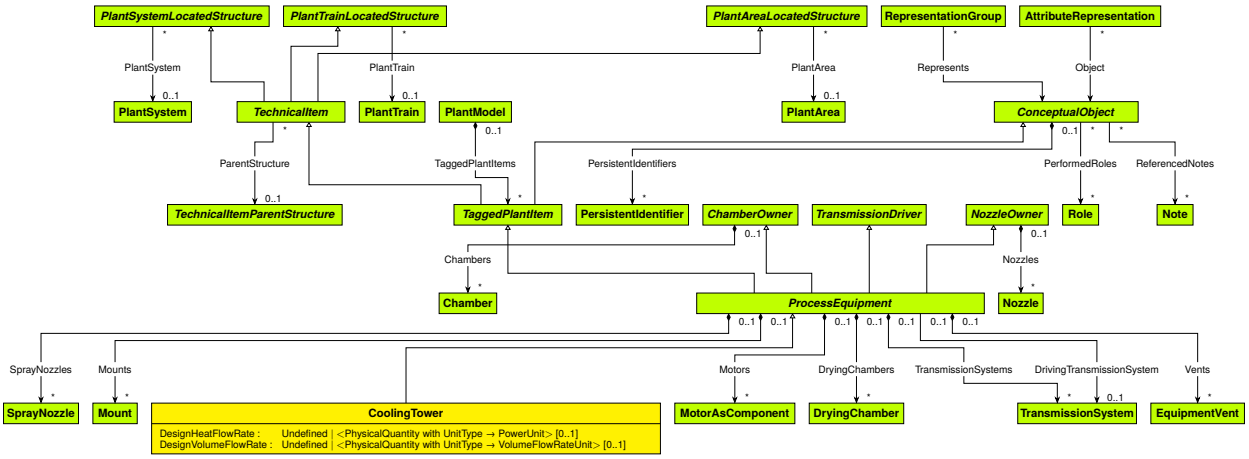
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS14072341

COOLING TOWER

A cooler and an air cooled heat exchanger that is a tall structure through which air circulates by convection



Supertypes

- *ProcessEquipment*

Subtypes

- *DryCoolingTower*
- *SprayCooler*
- *WetCoolingTower*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignHeatFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignHeatFlowRate

Data Property

The heat flow rate for which the *CoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatFlowRate

DESIGN HEAT FLOW RATE

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `313.0`)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *CoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CoolingTower">
  <Data property="DesignHeatFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>313.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

CoolingTowerRotor

Plant::*ProcessEquipment*::CoolingTowerRotor

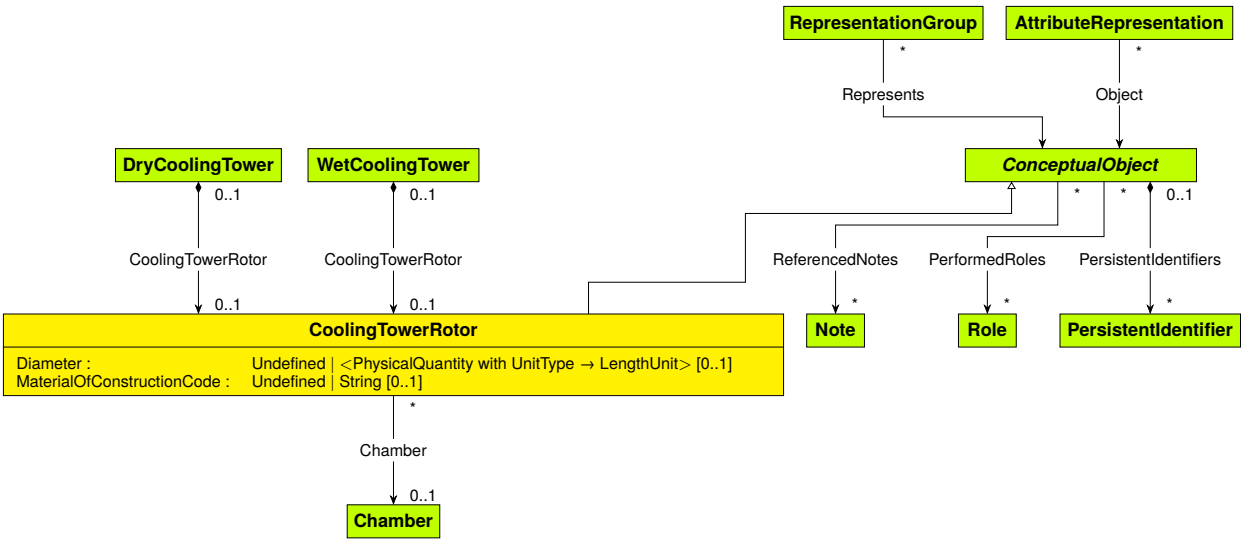
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/CoolingTowerRotor

COOLING TOWER ROTOR

A rotor of a cooling tower.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstruction-Code	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the CoolingTowerRotor is located, if applicable. The Chamber must be a component of the same object as the CoolingTowerRotor.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Diameter

Data Property

The diameter of the *CoolingTowerRotor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *CoolingTowerRotor*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

`"1.4306"`

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CoolingTowerRotor">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
```

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```
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
</Object>
```

Crusher

Plant::*ProcessEquipment*::Crusher

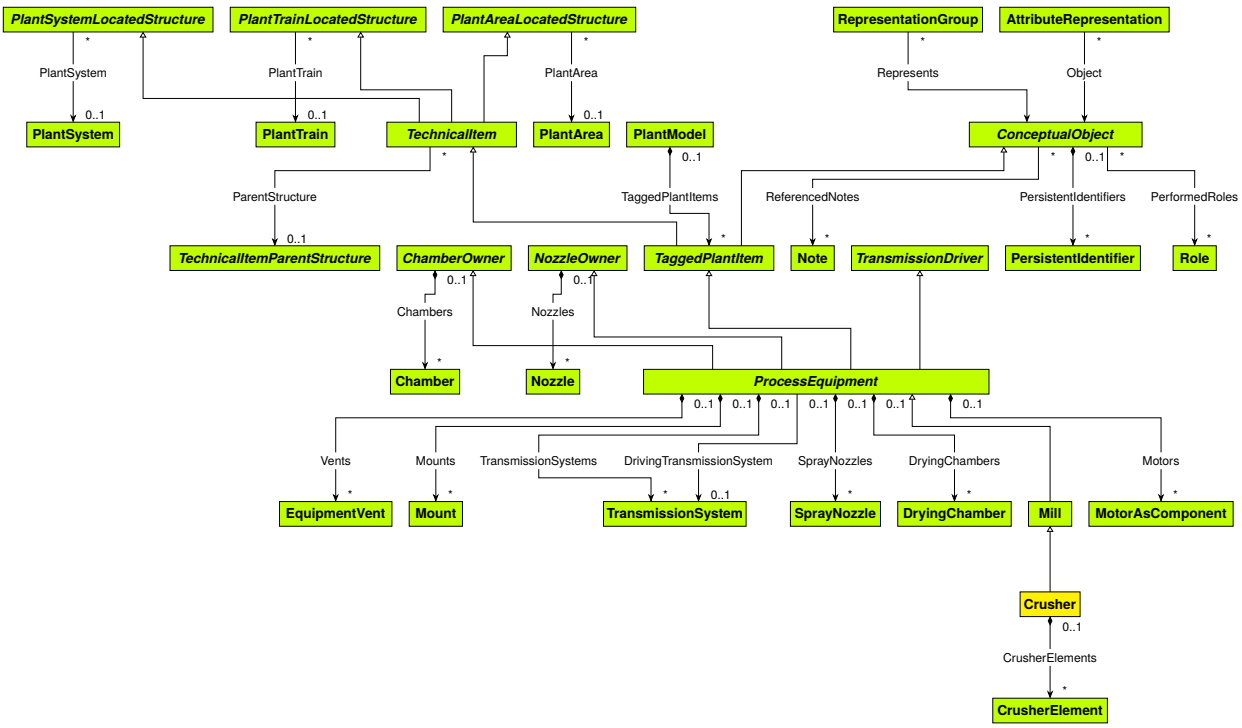
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11589940

CRUSHER

A mill that uses pressure or impact to reduce the particle size of solid materials (from http://data.posccaesar.org/rdl/RDS11589940).



Supertypes

- *Mill*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
CrusherElements	*	*CrusherElement*	no

CrusherElements

Composition Property

The crusher elements of the Crusher.

Type: *CrusherElement*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Crusher"/>
```

CrusherElement

Plant::*ProcessEquipment*::CrusherElement

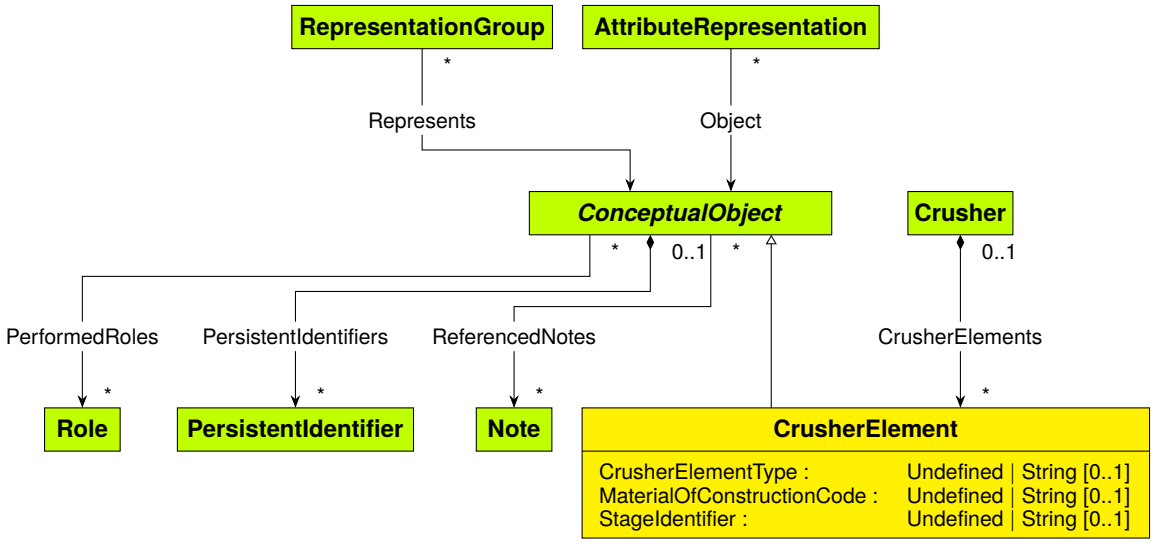
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/CrusherUnit

CRUSHER UNIT

A functional component of a *Crusher*.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
CrusherElementType	0..1	*Undefined* | *String*	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no

CrusherElementType

Data Property

The type of the *CrusherElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CrusherElementTypeAssignmentClass

CRUSHER ELEMENT TYPE ASSIGNMENT CLASS

Example

```
"Cone Crusher"
```

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *CrusherElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

StageIdentifier

Data Property

The stage identifier of the *CrusherElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

"s1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.CrusherElement">
  <Data property="CrusherElementType">
    <String>Cone Crusher</String>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="StageIdentifier">
    <String>s1</String>
  </Data>
</Object>
```

DirectCurrentGenerator

Plant::*ProcessEquipment*::DirectCurrentGenerator

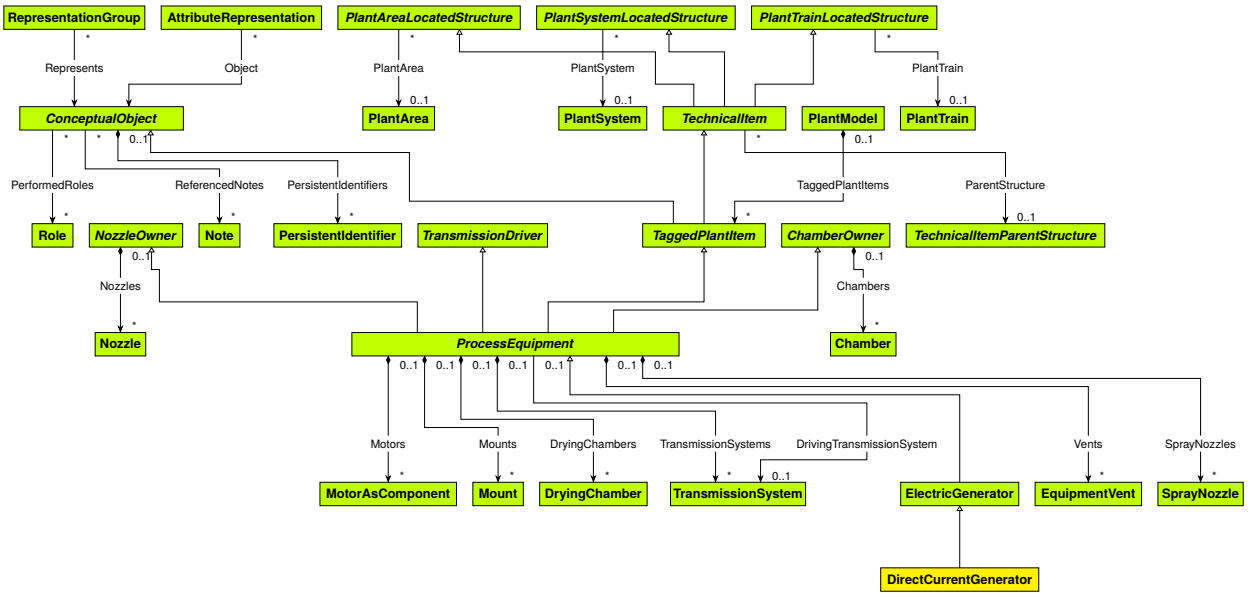
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/DirectCurrentGenerator

DIRECT CURRENT GENERATOR

An *ElectricGenerator* and current generator for the production of direct current (DC).



Supertypes

- *ElectricGenerator*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.DirectCurrentGenerator"/>
```

DirectCurrentMotor

Plant::*ProcessEquipment*::DirectCurrentMotor

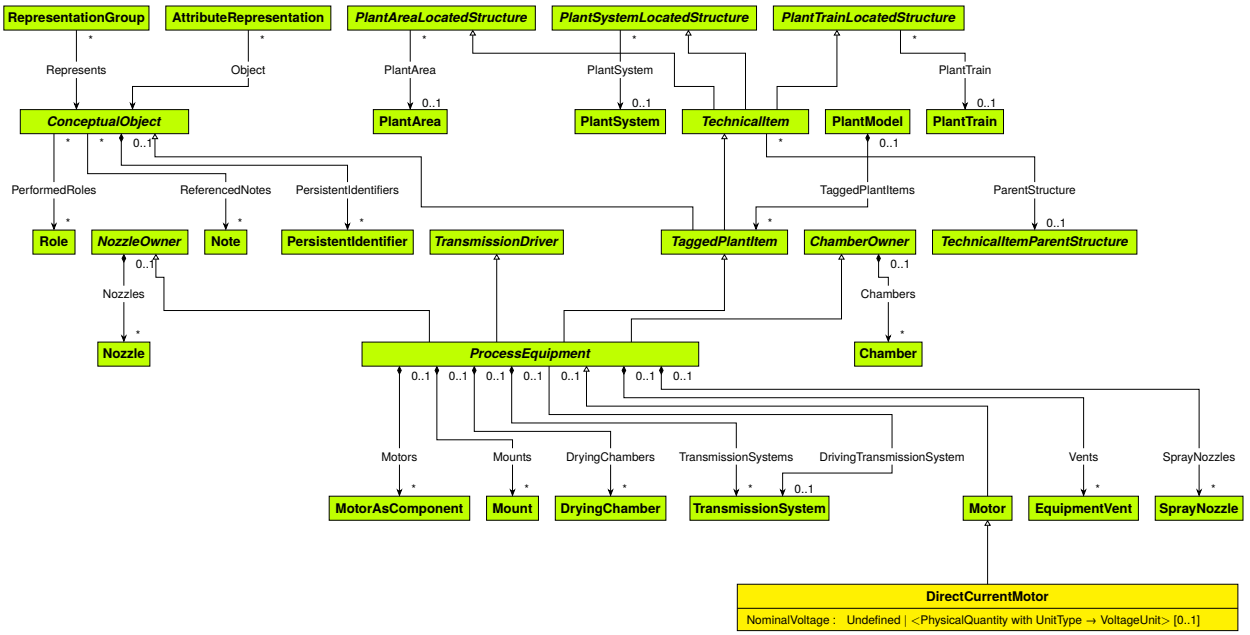
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS472949

DIRECT CURRENT MOTOR

An electric motor for operation by direct current (from http://data.posccaesar.org/rdl/RDS472949).



Supertypes

- *Motor*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalVoltage	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>	no	no

NominalVoltage

Data Property

The nominal voltage of the *DirectCurrentMotor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS369449

NOMINAL VOLTAGE

Example

PhysicalQuantity(

Unit = *Volt*,

Value = 230.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.DirectCurrentMotor">
  <Data property="NominalVoltage">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
      </Data>
      <Data property="Value">
        <Double>230.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

DirectCurrentMotorAsComponent

Plant::*ProcessEquipment*::DirectCurrentMotorAsComponent

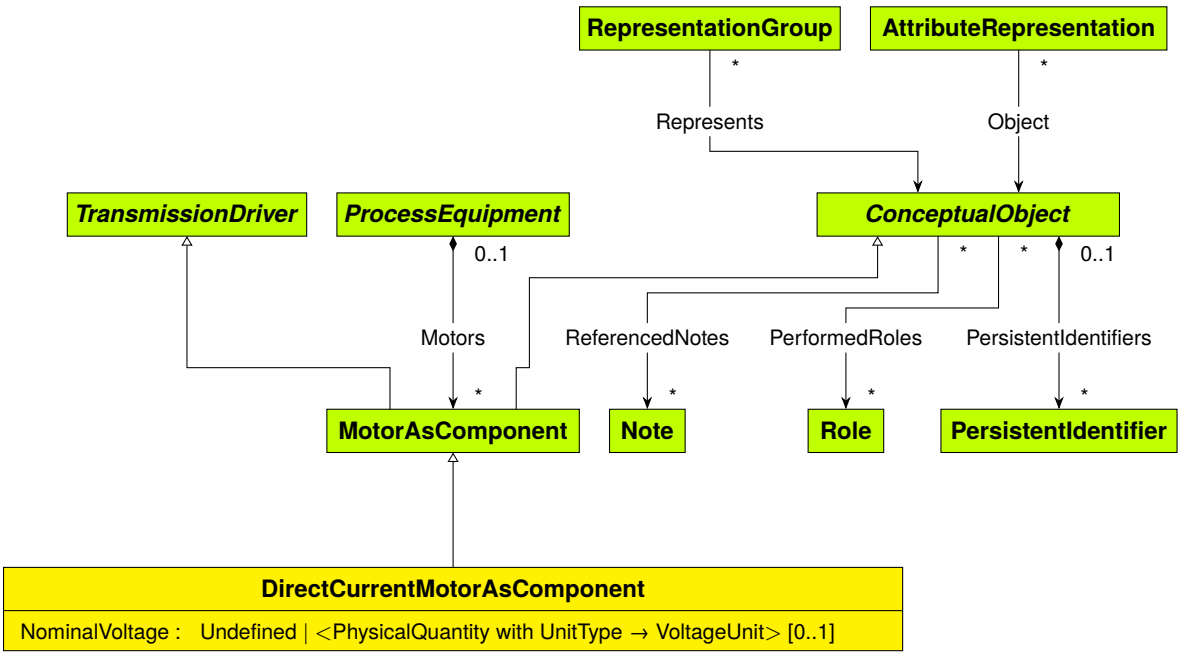
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/DirectCurrentMotorAsComponent

DIRECT CURRENT MOTOR AS COMPONENT

An electric motor for operation by direct current that is used as component of an apparatus or of a machine.



Supertypes

- *MotorAsComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalVoltage	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>	no	no

NominalVoltage

Data Property

The nominal voltage of the *DirectCurrentMotorAsComponent*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS369449

NOMINAL VOLTAGE

Example

PhysicalQuantity(

Unit = *Volt*,

Value = 230.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.DirectCurrentMotorAsComponent">
  <Data property="NominalVoltage">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
      </Data>
      <Data property="Value">
        <Double>230.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Displacer

Plant::*ProcessEquipment*::Displacer

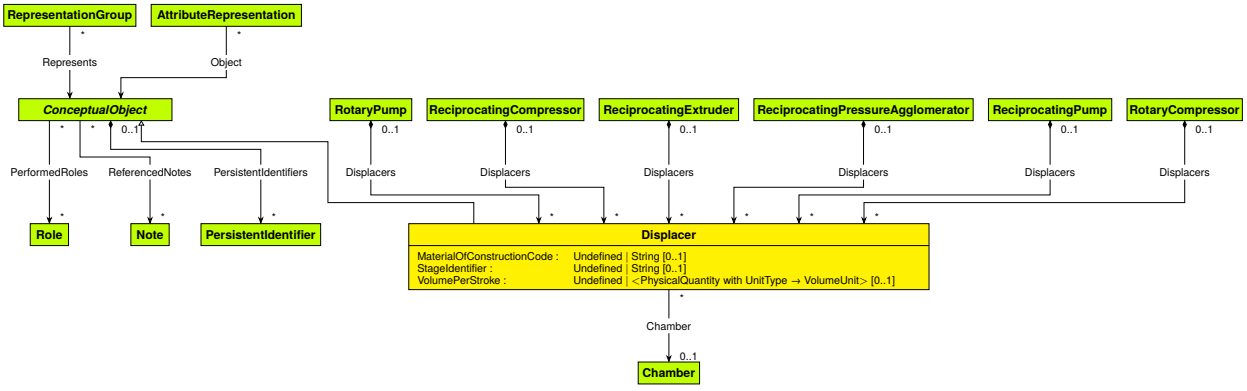
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Displacer

DISPLACER

An object that has the purpose of displacing a fluid.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no
VolumePerStroke	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>	no	no

Chamber

Reference Property

The *Chamber* in which the Displacer is located, if applicable. The Chamber must be a component of the same object as the Displacer.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *Displacer*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

"1.4306"

StageIdentifier

Data Property

The stage identifier of the *Displacer*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

"s1"

VolumePerStroke

Data Property

The volume per stroke of the *Displacer*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS7503244

VOLUME PER STROKE

Example

PhysicalQuantity(

Unit = *CentimetreCubed*,

Value = 80.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Displacer">
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="StageIdentifier">
    <String>s1</String>
  </Data>
```

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```
  <Data property="VolumePerStroke">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeUnit.CentimetreCubed"/>
      </Data>
      <Data property="Value">
        <Double>80.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

DryCoolingTower

Plant::*ProcessEquipment*::DryCoolingTower

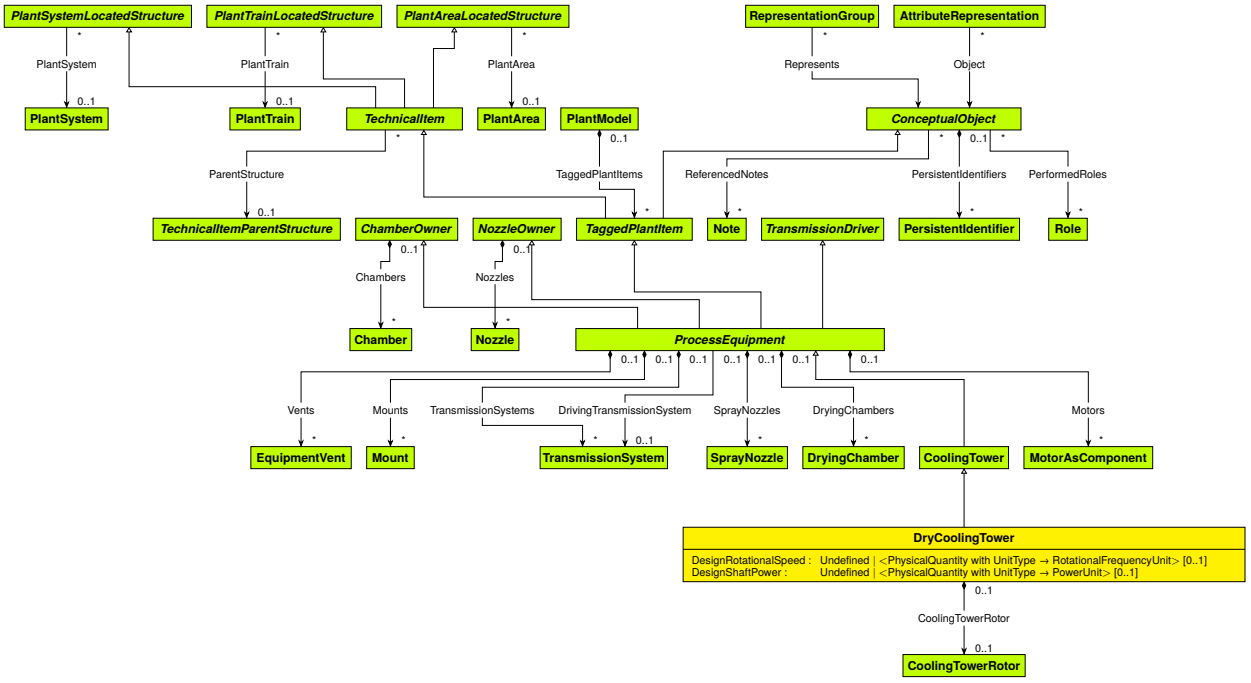
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS14072386

DRY COOLING TOWER

A *CoolingTower* that is an indirect contact heat exchanger where, by full utilization of dry surface coil sections, no direct contact (and no evaporation) occurs between air and water; hence the water is cooled totally by sensible heat transfer (from http://data.15926.org/rdl/RDS14072386).



Supertypes

- *CoolingTower*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
CoolingTowerRotor	0..1	*CoolingTowerRotor*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

CoolingTowerRotor

Composition Property

The cooling tower rotor of the DryCoolingTower.

Type: *CoolingTowerRotor*

Multiplicity: 0..1

Ordered: no

DesignRotationalSpeed

Data Property

The rotational speed for which the *DryCoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *DryCoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.DryCoolingTower">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Dryer

Plant::*ProcessEquipment*::Dryer

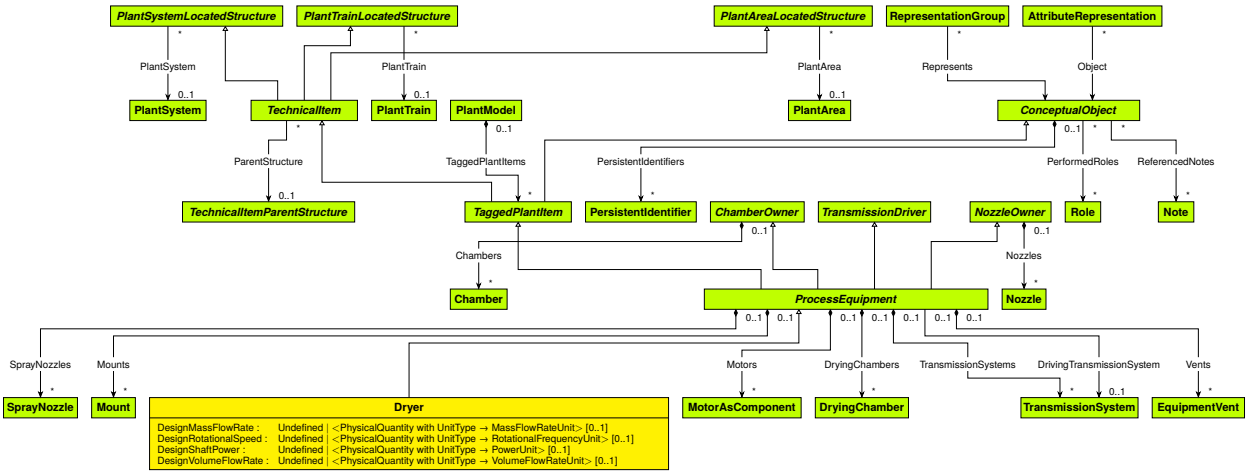
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1066939451

DRIER

An object that has the capability of drying (from http://data.15926.org/rdl/RDS1066939451).



Supertypes

- *ProcessEquipment*

Subtypes

- *ConvectionDryer*
- *HeatedSurfaceDryer*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignMassFlowRate

Data Property

The mass flow rate for which the *Dryer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Dryer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Dryer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Dryer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = 420.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Dryer">
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
```

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```
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

DryingChamber

Plant::*ProcessEquipment*::DryingChamber

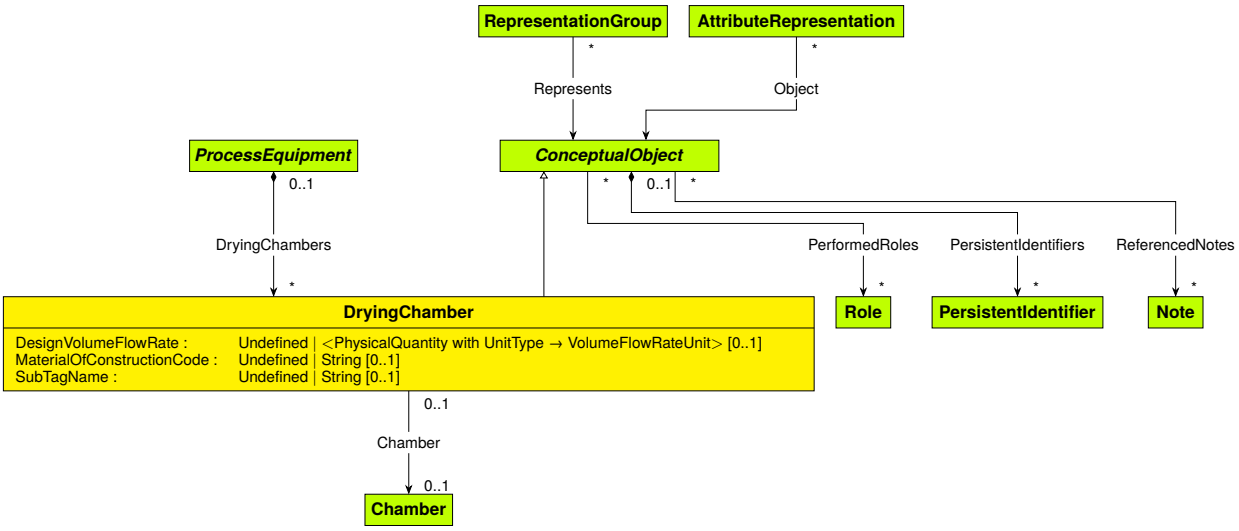
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/DryingChamber

DRYING CHAMBER

A device that is a chamber, fixed or portable, for drying used as a component of an apparatus or a machine.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the DryingChamber is located, if applicable. The Chamber must be a component of the same object as the DryingChamber.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *DryingChamber* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *DryingChamber*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

`"1.4306"`

SubTagName

Data Property

The sub tag name of the *DryingChamber*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

`"ST1"`

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.DryingChamber">
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

EjectorPump

Plant::*ProcessEquipment*::EjectorPump

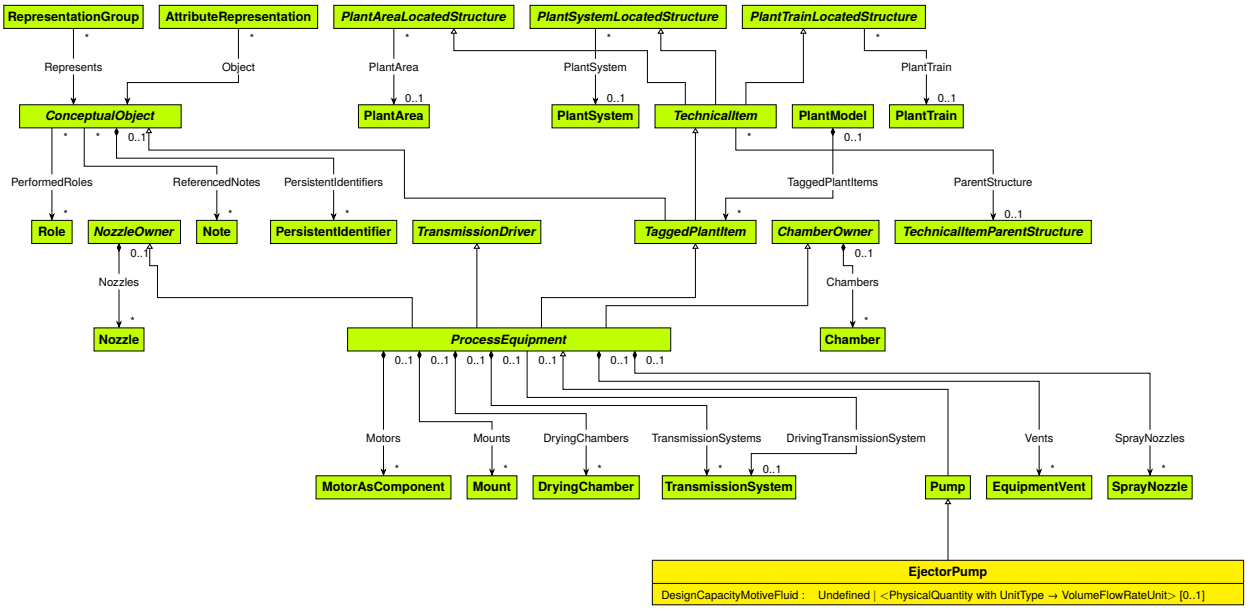
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS860624

EJECTOR PUMP

A pump which uses pressurized gas or liquid passing through an ejector to transport liquid (from http://data.posccaesar.org/rdl/RDS860624).



Supertypes

- *Pump*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityMotiveFluid	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignCapacityMotiveFluid

Data Property

The capacity of the volume flow rate for the motive fluid for which the *EjectorPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityMotiveFluid

DESIGN CAPACITY MOTIVE FLUID

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `40.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.EjectorPump">
  <Data property="DesignCapacityMotiveFluid">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ElectricGenerator

Plant::*ProcessEquipment*::ElectricGenerator

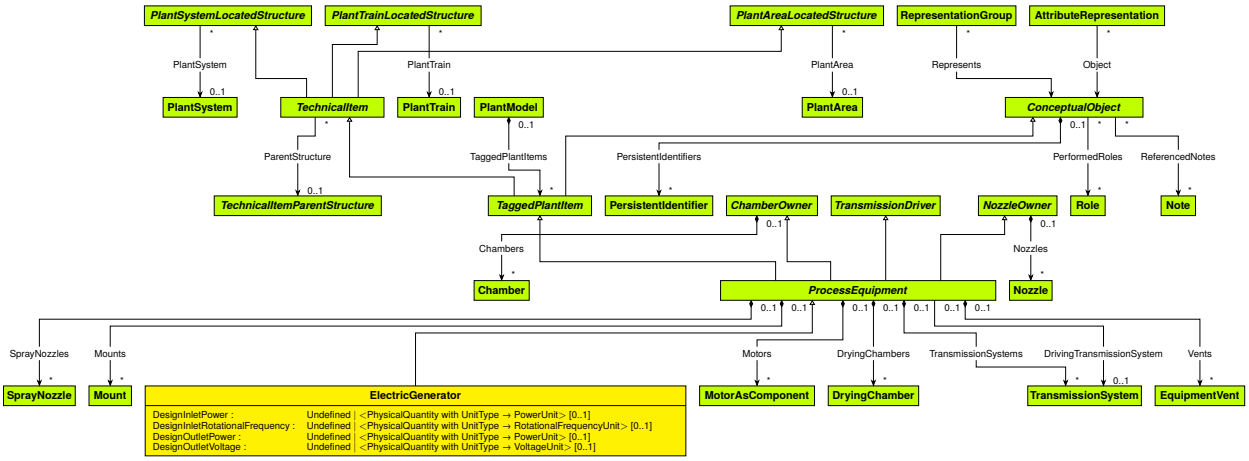
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS415709

ELECTRIC GENERATOR

An electric rotating machine that transforms non-electric energy into electric energy



Supertypes

- *ProcessEquipment*

Subtypes

- *AlternatingCurrentGenerator*
- *DirectCurrentGenerator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignInletPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignInletRotational-Frequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignOutletPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignOutletVoltage	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>	no	no

DesignInletPower

Data Property

The inlet power for which the *ElectricGenerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignInletPower

DESIGN INLET POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `300.0`)

DesignInletRotationalFrequency

Data Property

The inlet rotational frequency for which the *ElectricGenerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignInletRotationalFrequency

DESIGN INLET ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignOutletPower

Data Property

The outlet power for which the *ElectricGenerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignOutletPower

DESIGN OUTLET POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 500.0)

DesignOutletVoltage

Data Property

The outlet voltage for which the *ElectricGenerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignOutletVoltage

DESIGN OUTLET VOLTAGE

Example

PhysicalQuantity(

Unit = *Volt*,

Value = 600.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ElectricGenerator">
  <Data property="DesignInletPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>300.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignInletRotationalFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
```

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```
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignOutletPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignOutletVoltage">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
      </Data>
      <Data property="Value">
        <Double>600.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ElectricHeater

Plant::*ProcessEquipment*::ElectricHeater

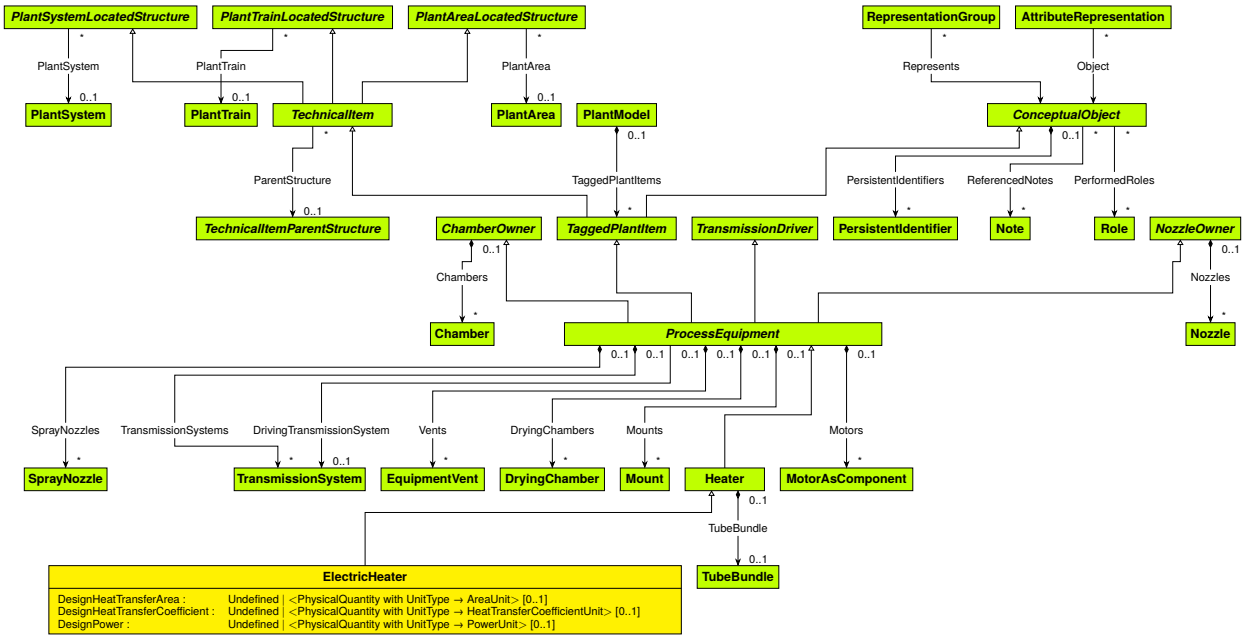
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS14070475

ELECTRIC HEATER

A heater in which electric energy is converted into heat for useful purposes (from http://data.posccaesar.org/rdl/RDS14070475).



Supertypes

- *Heater*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignHeatTransferArea	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>	no	no
DesignHeatTransferCoefficient	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>	no	no
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignHeatTransferArea

Data Property

The heat transfer area for which the *ElectricHeater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatTransferArea

DESIGN HEAT TRANSFER AREA

Example

PhysicalQuantity(

Unit = *MetreSquared*,

Value = `46.8`)

DesignHeatTransferCoefficient

Data Property

The heat transfer coefficient for which the *ElectricHeater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatTransferCoefficient

DESIGN HEAT TRANSFER COEFFICIENT

Example

PhysicalQuantity(

Unit = *KilowattPerMetreSquaredKelvin*,

Value = `1.2`)

DesignPower

Data Property

The power for which the *ElectricHeater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ElectricHeater">
  <Data property="DesignHeatTransferArea">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.AreaUnit.MetreSquared"/>
      </Data>
      <Data property="Value">
        <Double>46.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignHeatTransferCoefficient">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.HeatTransferCoefficientUnit.
↪KilowattPerMetreSquaredKelvin"/>
      </Data>
      <Data property="Value">
        <Double>1.2</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ElectricalSeparator

Plant::*ProcessEquipment*::ElectricalSeparator

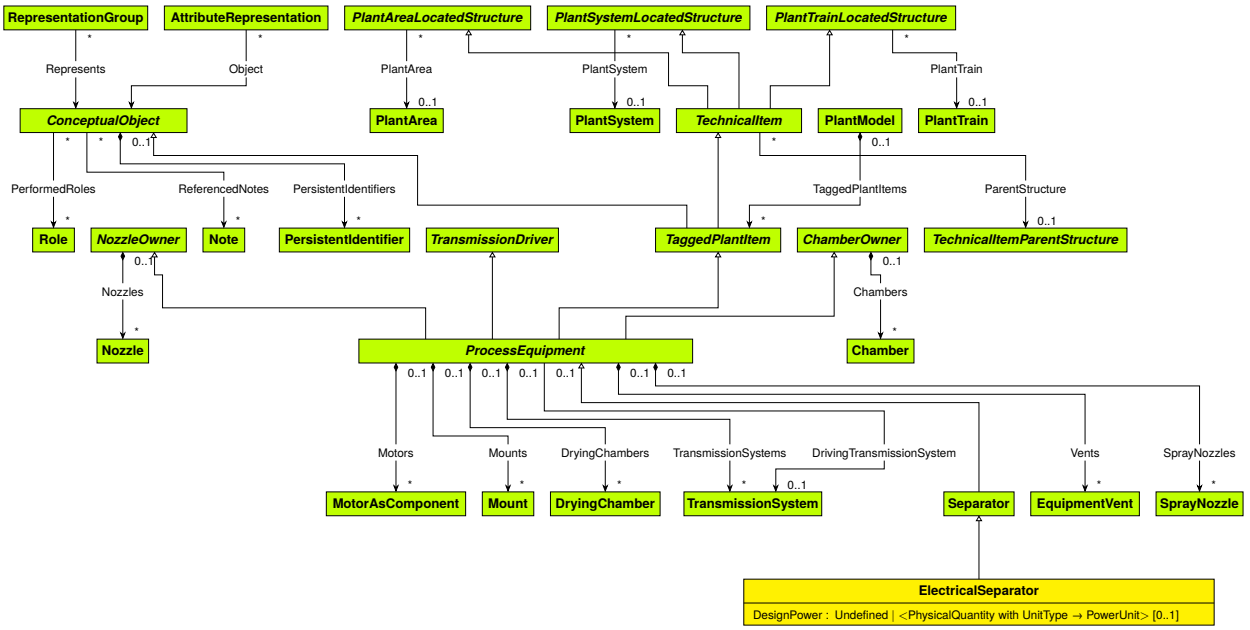
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ElectricalSeparator

ELECTRICAL SEPARATOR

A separator that uses electromagnetic, magnetic or electrostatic forces to separate phases.



Supertypes

- *Separator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *ElectricalSeparator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 500.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ElectricalSeparator">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

EquipmentVent

Plant::*ProcessEquipment*::EquipmentVent

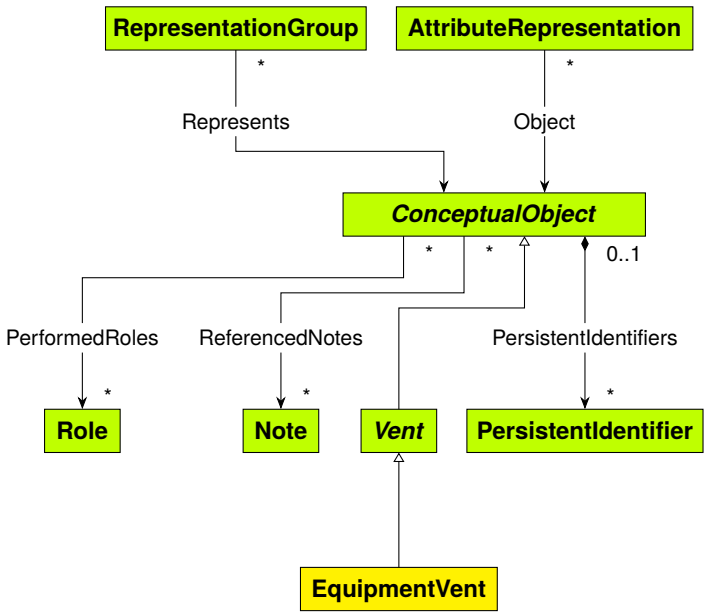
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS16766649

CASING VENT

A *Vent* that is intended to release the pressure in a casing or to prevent airlocks in a fluid, and also acts as valve to release air trapped in the casing.



Supertypes

- *Vent*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.EquipmentVent"/>
```

Extruder

Plant::*ProcessEquipment*::Extruder

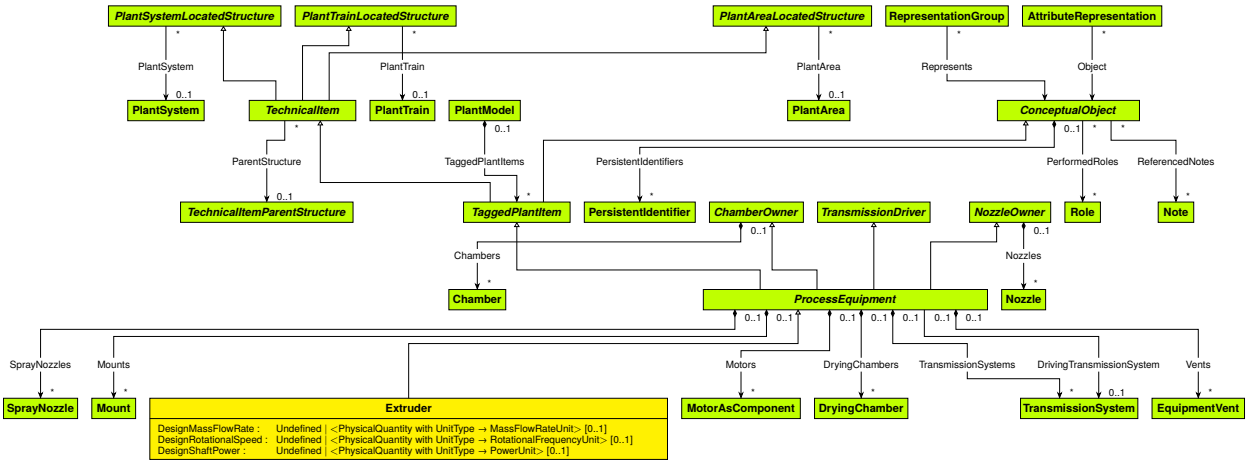
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS394044551

EXTRUDER

A machine that has the capability of extruding (from http://data.15926.org/rdl/RDS394044551).



Supertypes

- *ProcessEquipment*

Subtypes

- *ReciprocatingExtruder*
- *RotatingExtruder*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignMassFlowRate

Data Property

The mass flow rate for which the *Extruder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Extruder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Extruder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Extruder">
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Fan

Plant::*ProcessEquipment*::Fan

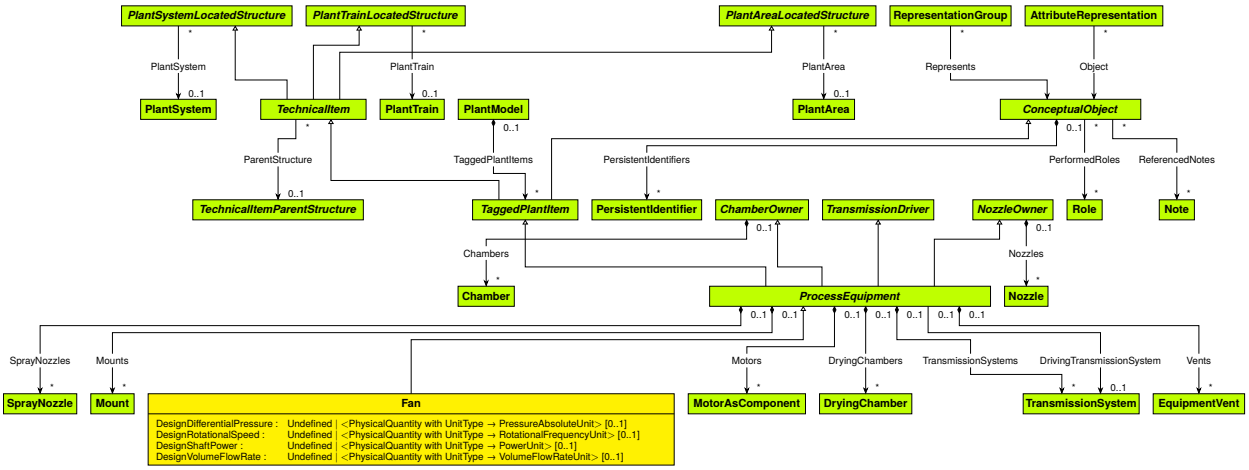
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS415169

FAN

An ‘artefact’ and a ‘gas pressure increase device’ that is intended to deliver or exhaust volumes of vapour or gas at low differential pressure (from http://data.posccaesar.org/rdl/RDS415169).



Supertypes

- *ProcessEquipment*

Subtypes

- *AxialFan*
- *RadialFan*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignDifferentialPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignDifferentialPressure

Data Property

The differential pressure for which the *Fan* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignDifferentialPressure

DESIGN DIFFERENTIAL PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `4.8`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Fan* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Fan* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Fan* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = 420.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Fan">
  <Data property="DesignDifferentialPressure">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>4.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
```

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```
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Feeder

Plant::*ProcessEquipment*::Feeder

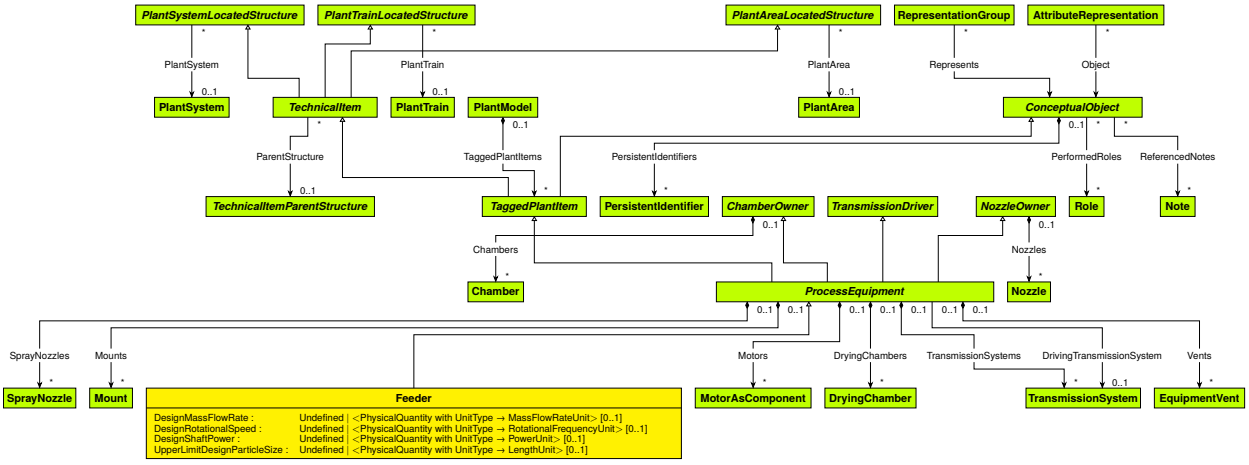
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS300644

FEEDER

A closed fluid transporter that is a gathering line tied into a trunk line (from http://data.15926.org/rdl/RDS300644).



Supertypes

- *ProcessEquipment*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
UpperLimitDesignParticleSize	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

DesignMassFlowRate

Data Property

The mass flow rate for which the *Feeder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Feeder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Feeder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

UpperLimitDesignParticleSize

Data Property

The upper limit for the particle size for which the *Feeder* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDesignParticleSize

UPPER LIMIT DESIGN PARTICLE SIZE

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = `47.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Feeder">
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignParticleSize">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>47.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Filter

Plant::*ProcessEquipment*::Filter

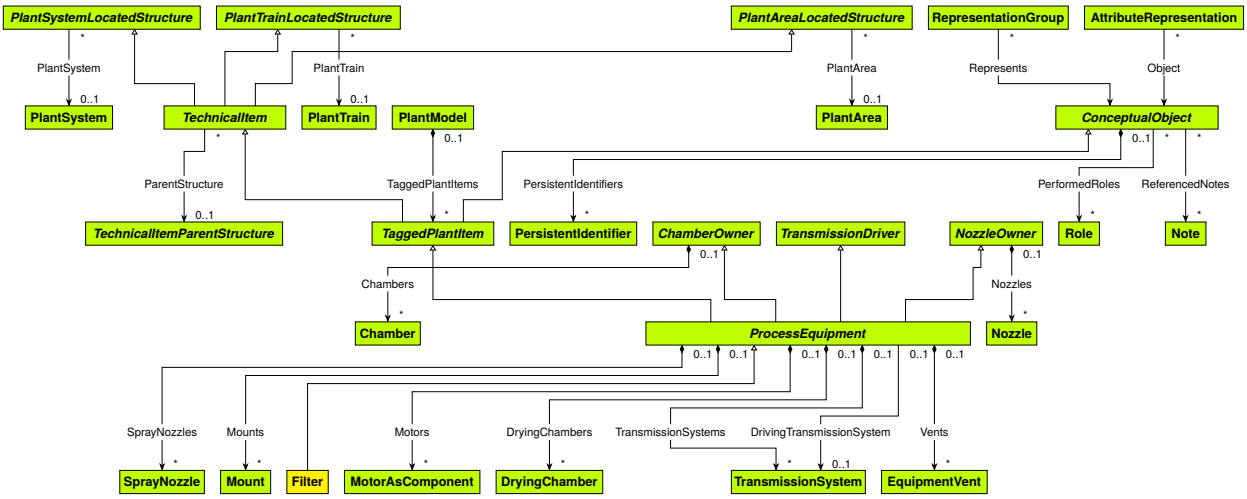
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS300689

FILTER

An apparatus or machine that is capable of filtering (from http://data.15926.org/rdl/RDS300689).



Supertypes

- *ProcessEquipment*

Subtypes

- *GasFilter*
- *LiquidFilter*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Filter"/>
```

FilterUnit

Plant::*ProcessEquipment*::FilterUnit

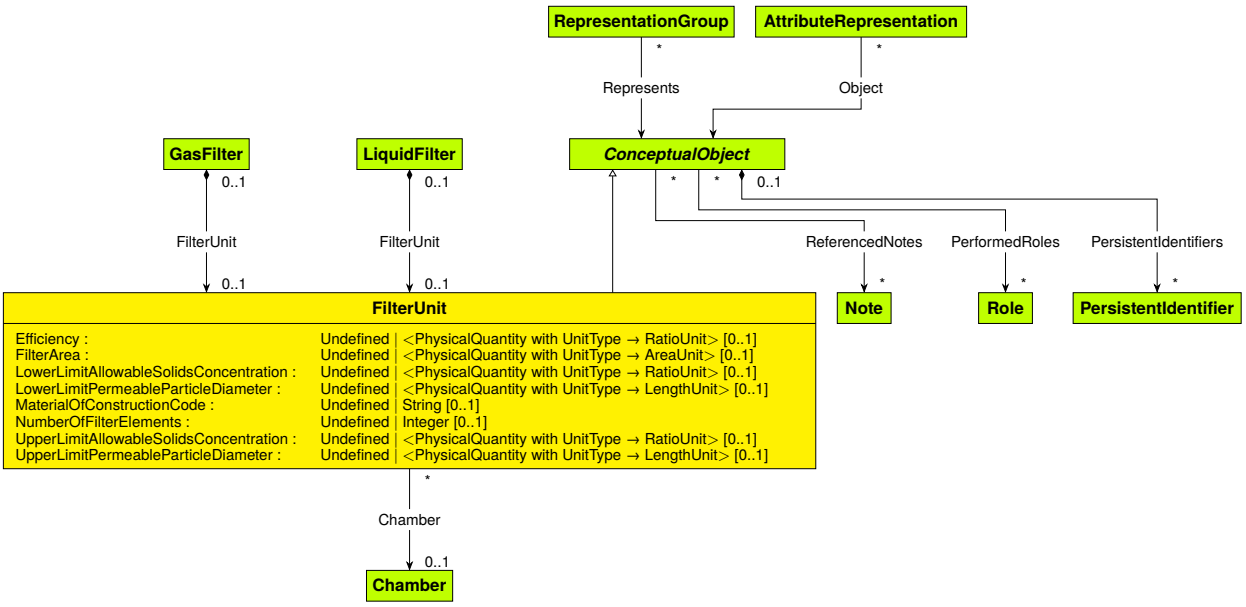
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FilterUnit

FILTER UNIT

The filtering unit as part of a filter.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Efficiency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no
FilterArea	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>	no	no
LowerLimitAllowableSolidsConcentration	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no
LowerLimitPermeableParticleDiameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
NumberOfFilterElements	0..1	*Undefined* | *Integer*	no	no
UpperLimitAllowableSolidsConcentration	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no
UpperLimitPermeableParticleDiameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

Chamber

Reference Property

The *Chamber* in which the FilterUnit is located, if applicable. The Chamber must be a component of the same object as the FilterUnit.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Efficiency

Data Property

The efficiency of the *FilterUnit*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS362654

EFFICIENCY

Example

PhysicalQuantity(

Unit = *Percent*,

Value = `90.0`)

FilterArea

Data Property

The filter area of the *FilterUnit*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FilterArea

FILTER AREA

Example

PhysicalQuantity(

Unit = *MetreSquared*,

Value = 6.0)

LowerLimitAllowableSolidsConcentration

Data Property

The lower limit for the concentration for solids.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitAllowableSolidsConcentration

LOWER LIMIT ALLOWABLE SOLIDS CONCENTRATION

Example

PhysicalQuantity(

Unit = *Percent*,

Value = 10.0)

LowerLimitPermeableParticleDiameter

Data Property

The lower limit for the particle size.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitPermeableParticleDiameter

LOWER LIMIT PERMEABLE PARTICLE DIAMETER

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = 50.0)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *FilterUnit*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

NumberOfFilterElements

Data Property

The number of filter elements in the *FilterUnit*.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NumberOfFilterElements

NUMBER OF FILTER ELEMENTS

Example

```
36
```

UpperLimitAllowableSolidsConcentration

Data Property

The upper limit for the concentration for solids.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableSolidsConcentration

UPPER LIMIT ALLOWABLE SOLIDS CONCENTRATION

Example

PhysicalQuantity(

Unit = *Percent*,

Value = 30.0)

UpperLimitPermeableParticleDiameter

Data Property

The maximum of the particle size passing through the *FilterUnit*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitPermeableParticleDiameter

UPPER LIMIT PERMEABLE PARTICLE DIAMETER

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = 400.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.FilterUnit">
  <Data property="Efficiency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>90.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="FilterArea">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.AreaUnit.MetreSquared"/>
      </Data>
      <Data property="Value">
        <Double>6.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="LowerLimitAllowableSolidsConcentration">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
```

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```
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>10.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="LowerLimitPermeableParticleDiameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>50.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="NumberOfFilterElements">
    <Integer>36</Integer>
  </Data>
  <Data property="UpperLimitAllowableSolidsConcentration">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>30.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitPermeableParticleDiameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

FilteringCentrifuge

Plant::*ProcessEquipment*::FilteringCentrifuge

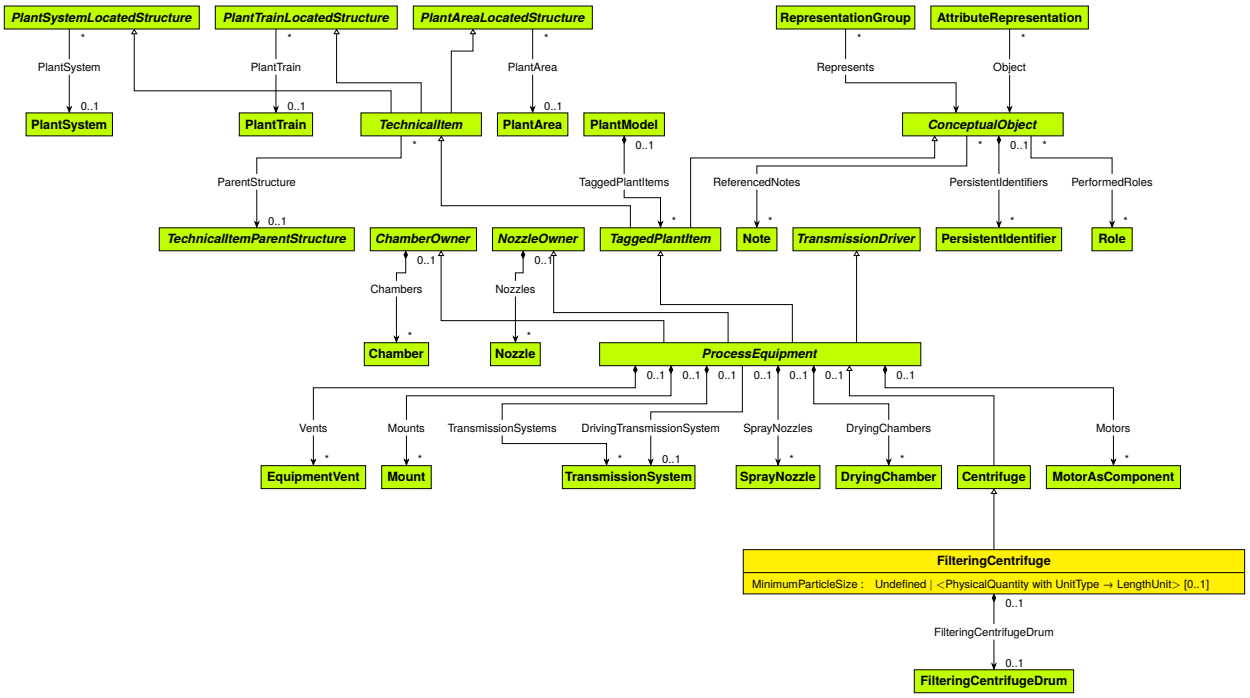
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FilteringCentrifuge

FILTERING CENTRIFUGE

A centrifuge intended to separate solids from liquids by centrifugal process based on particle size.



Supertypes

- *Centrifuge*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FilteringCentrifugeDrum	0..1	*FilteringCentrifugeDrum*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MinimumParticleSize	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

FilteringCentrifugeDrum

Composition Property

The filtering centrifuge drum of the FilteringCentrifuge.

Type: *FilteringCentrifugeDrum*

Multiplicity: 0..1

Ordered: no

MinimumParticleSize

Data Property

The minimum particle size of the *FilteringCentrifuge*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/MinimumParticleSize

MINIMUM PARTICLE SIZE

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = 7.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.FilteringCentrifuge">
  <Data property="MinimumParticleSize">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>7.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

FilteringCentrifugeDrum

Plant::*ProcessEquipment*::FilteringCentrifugeDrum

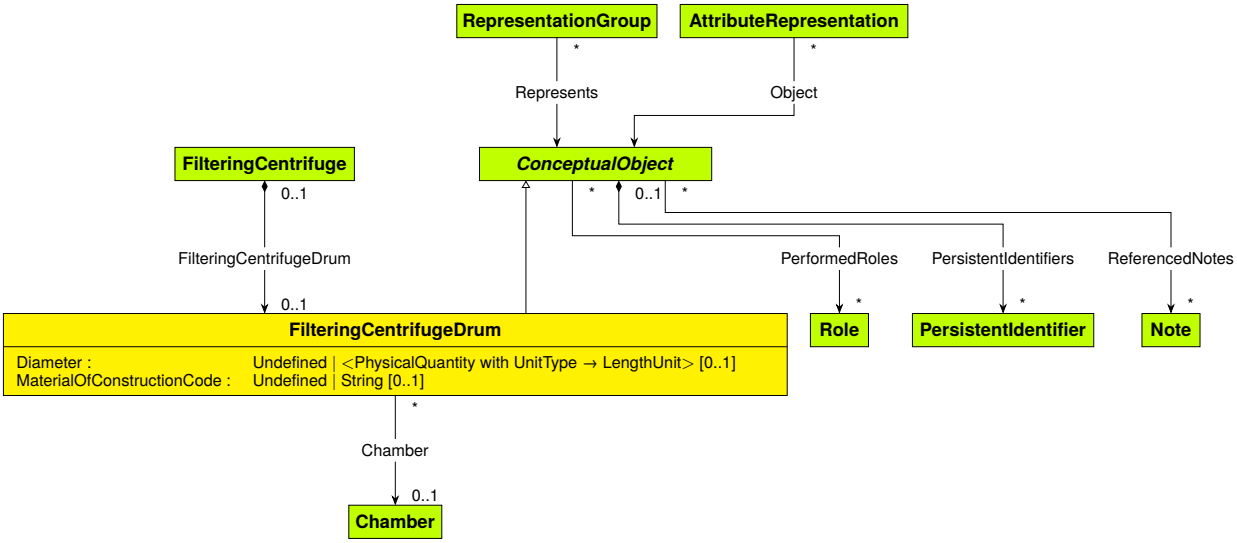
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/FilteringCentrifugeDrum

FILTERING CENTRIFUGE DRUM

A drum being a component of a FilteringCentrifuge.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the FilteringCentrifugeDrum is located, if applicable. The Chamber must be a component of the same object as the FilteringCentrifugeDrum.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Diameter

Data Property

The diameter of the *FilteringCentrifugeDrum*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *FilteringCentrifugeDrum*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

"1.4306"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.FilteringCentrifugeDrum">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
</Object>
```

Flare

Plant::*ProcessEquipment*::Flare

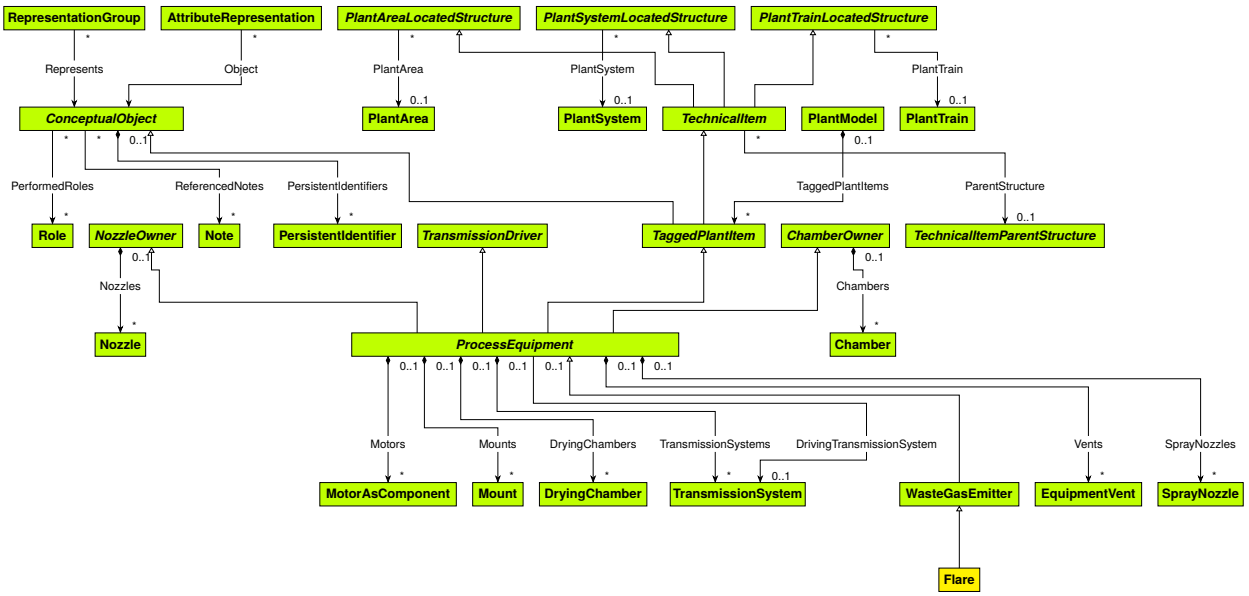
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Flare

FLARE

An artefact and waste gas emitter that is intended to burn waste gas in secure distance from the plant or platform.



Supertypes

- *WasteGasEmitter*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Flare"/>
```

ForkliftTruck

Plant::*ProcessEquipment*::ForkliftTruck

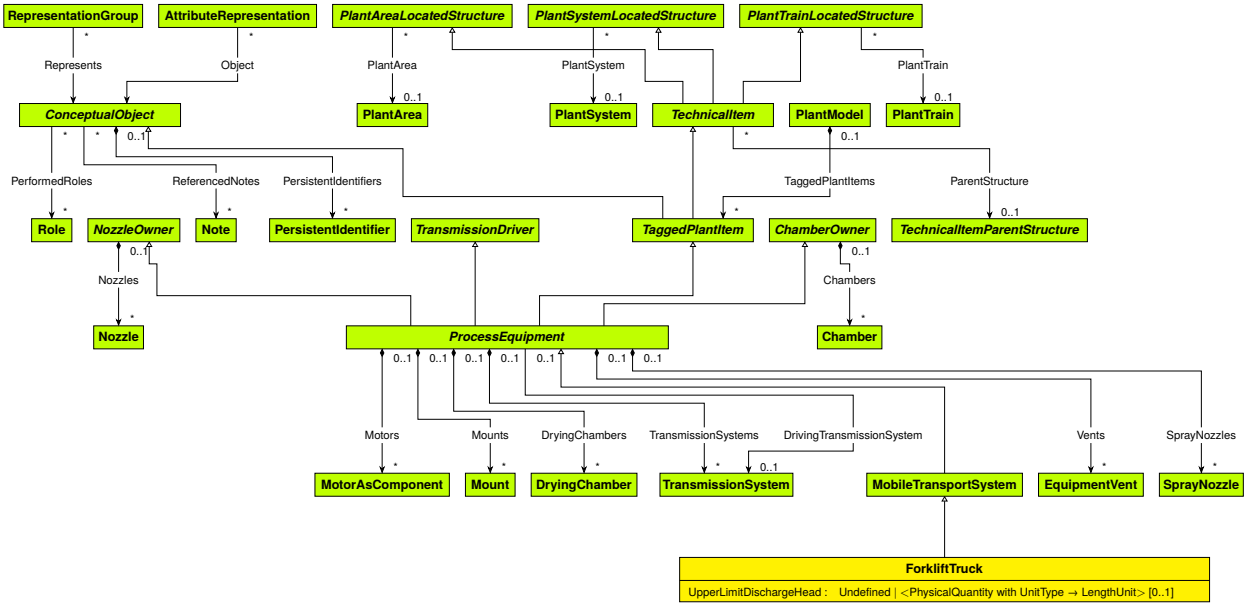
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11590075

FORKLIFT TRUCK

A *MobileTransportSystem* and vehicle with power operated prongs that can be raised and lowered by will, for loading, transporting and unloading goods (from http://data.15926.org/rdl/RDS11590075).



Supertypes

- *MobileTransportSystem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
UpperLimitDischargeHead	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

UpperLimitDischargeHead

Data Property

The upper limit for the discharge head of the *ForkliftTruck*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDischargeHead

UPPER LIMIT DISCHARGE HEAD

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = 37.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ForkliftTruck">
  <Data property="UpperLimitDischargeHead">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>37.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Furnace

Plant::*ProcessEquipment*::Furnace

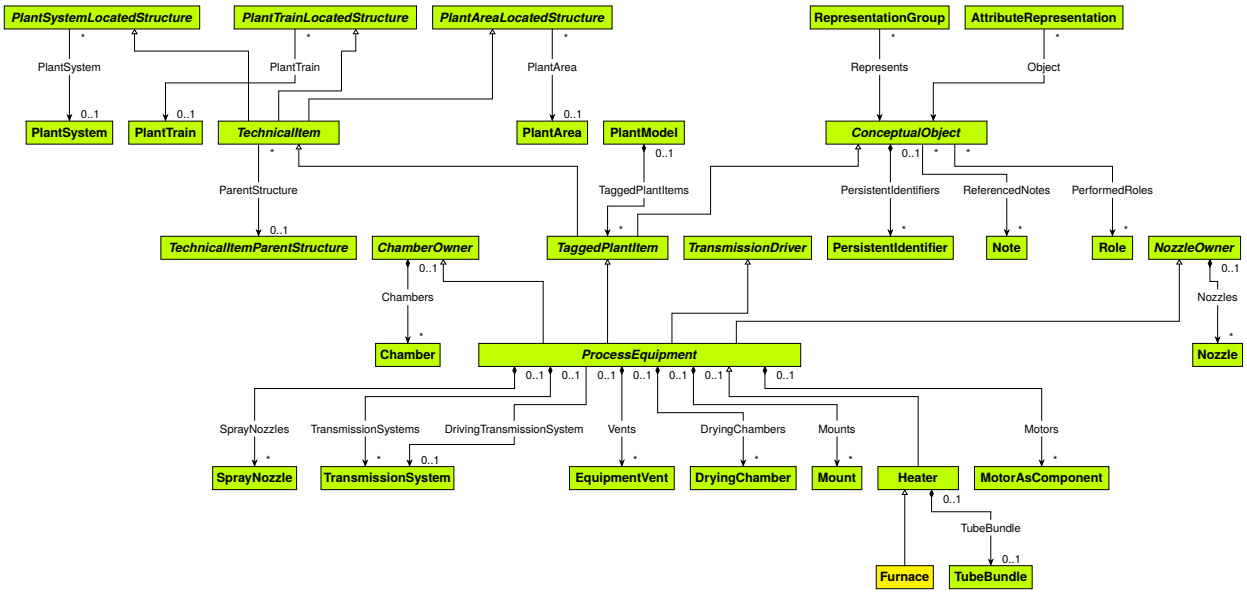
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS441134

FURNACE

A physical object that is intended to induce a reaction in a process fluid by heating it (from http://data.posccaesar.org/rdl/RDS441134).



Supertypes

- *Heater*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Furnace"/>
```

GasFilter

Plant::*ProcessEquipment*::GasFilter

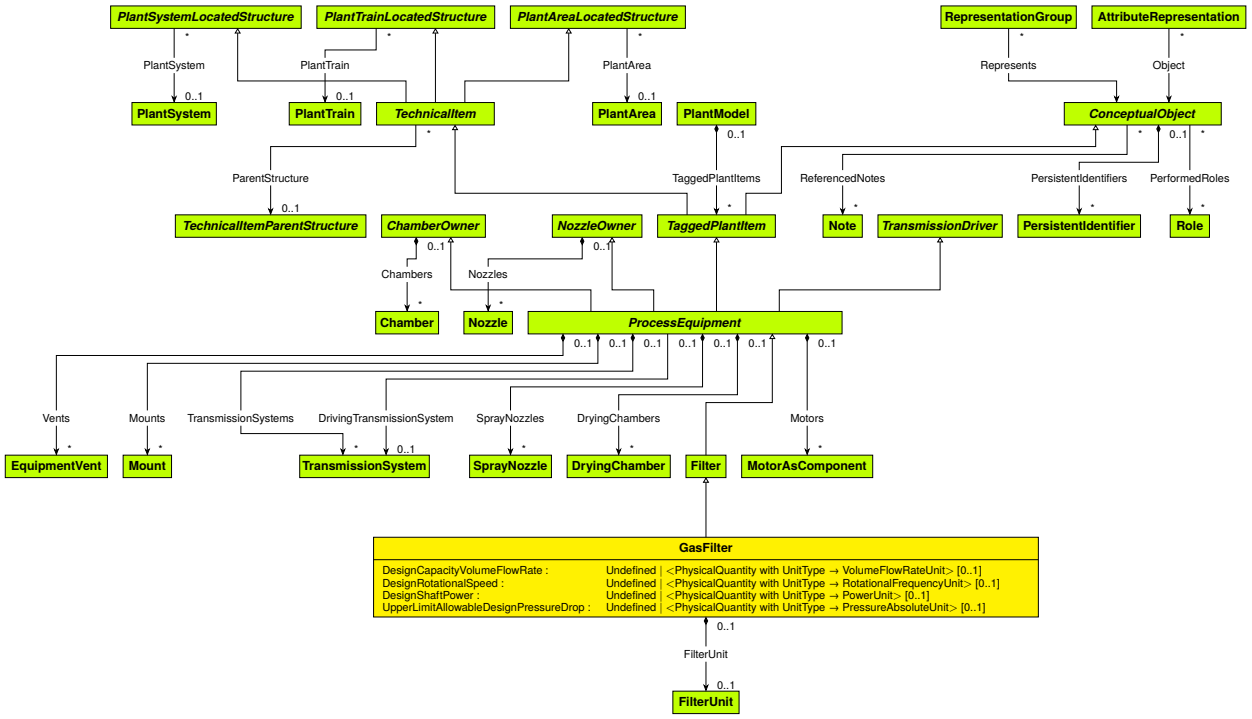
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS4316755843

GAS FILTER

A filter that is specifically designed to filter a gas.



Supertypes

- *Filter*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FilterUnit	0..1	*FilterUnit*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
UpperLimitAllowableDesignPressureDrop	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignCapacityVolumeFlowRate

Data Property

The volume flow rate for which the *GasFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityVolumeFlowRate

DESIGN CAPACITY VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *GasFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *GasFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

FilterUnit

Composition Property

The filter unit of the GasFilter.

Type: *FilterUnit*

Multiplicity: 0..1

Ordered: no

UpperLimitAllowableDesignPressureDrop

Data Property

The upper limit for the pressure drop for which the *GasFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableDesignPressureDrop

UPPER LIMIT ALLOWABLE DESIGN PRESSURE DROP

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `2.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.GasFilter">
  <Data property="DesignCapacityVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
```

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```
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitAllowableDesignPressureDrop">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

GasTurbine

Plant::*ProcessEquipment*::GasTurbine

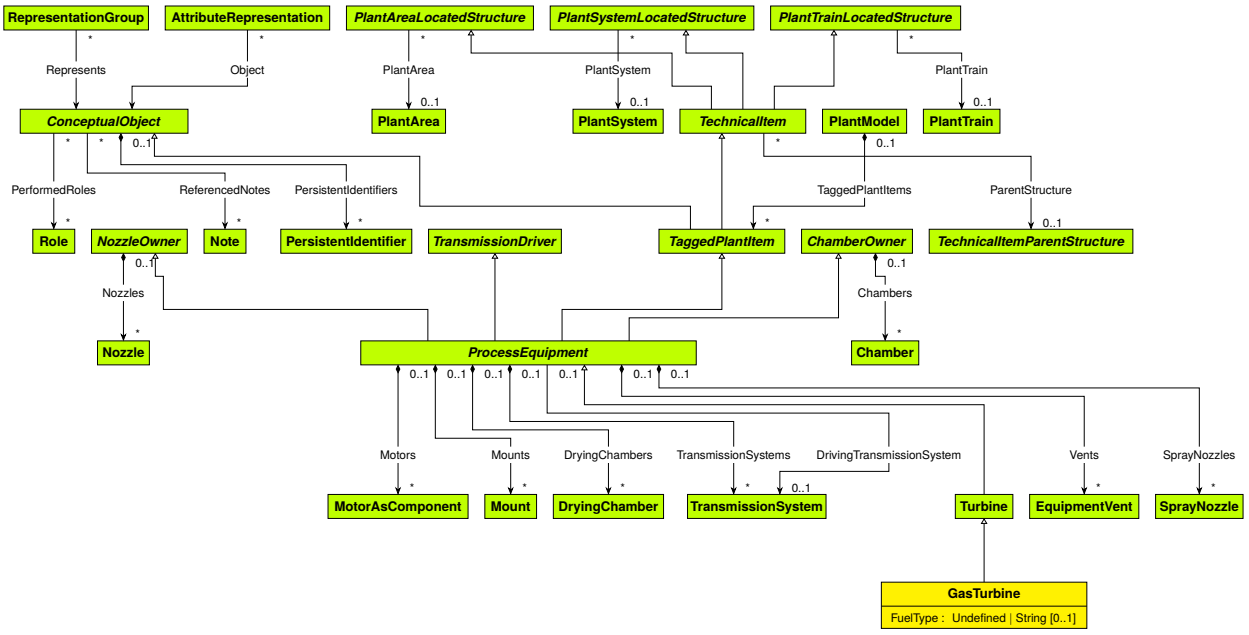
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/GasTurbine

GAS TURBINE

A machine that is a rotary mechanical device extracting energy from a gas flow and converting it into useful work.



Supertypes

- *Turbine*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
FuelType	0..1	*Undefined* | *String*	no	no

FuelType

Data Property

The fuel type of the *GasTurbine*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/FuelType

FUEL TYPE

Example

```
"Diesel fuel"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.GasTurbine">
  <Data property="FuelType">
    <String>Diesel fuel</String>
  </Data>
</Object>
```

GearBox

Plant::*ProcessEquipment*::GearBox

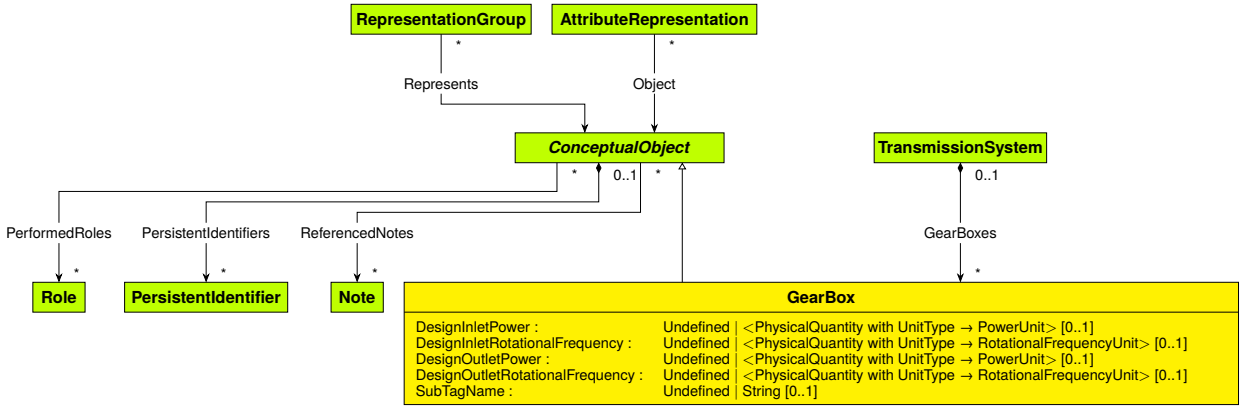
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS889514

GEARBOX

An artefact that consists of a gear casing with an arrangement of two or more gear-wheels transmitting rotating motion from the input shaft to the output shaft.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignInletPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignInletRotationalFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignOutletPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignOutletRotationalFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

DesignInletPower

Data Property

The inlet power for which the *GearBox* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignInletPower

DESIGN INLET POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `300.0`)

DesignInletRotationalFrequency

Data Property

The inlet rotational frequency for which the *GearBox* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignInletRotationalFrequency

DESIGN INLET ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignOutletPower

Data Property

The outlet power for which the *GearBox* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignOutletPower

DESIGN OUTLET POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

DesignOutletRotationalFrequency

Data Property

The outlet rotational frequency for which the *GearBox* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignOutletRotationalFrequency

DESIGN OUTLET ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `840.0`)

SubTagName

Data Property

The sub tag name of the *GearBox*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.GearBox">
  <Data property="DesignInletPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>300.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignInletRotationalFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignOutletPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignOutletRotationalFrequency">
```

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```
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>840.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

GravitationalSeparator

Plant::*ProcessEquipment*::GravitationalSeparator

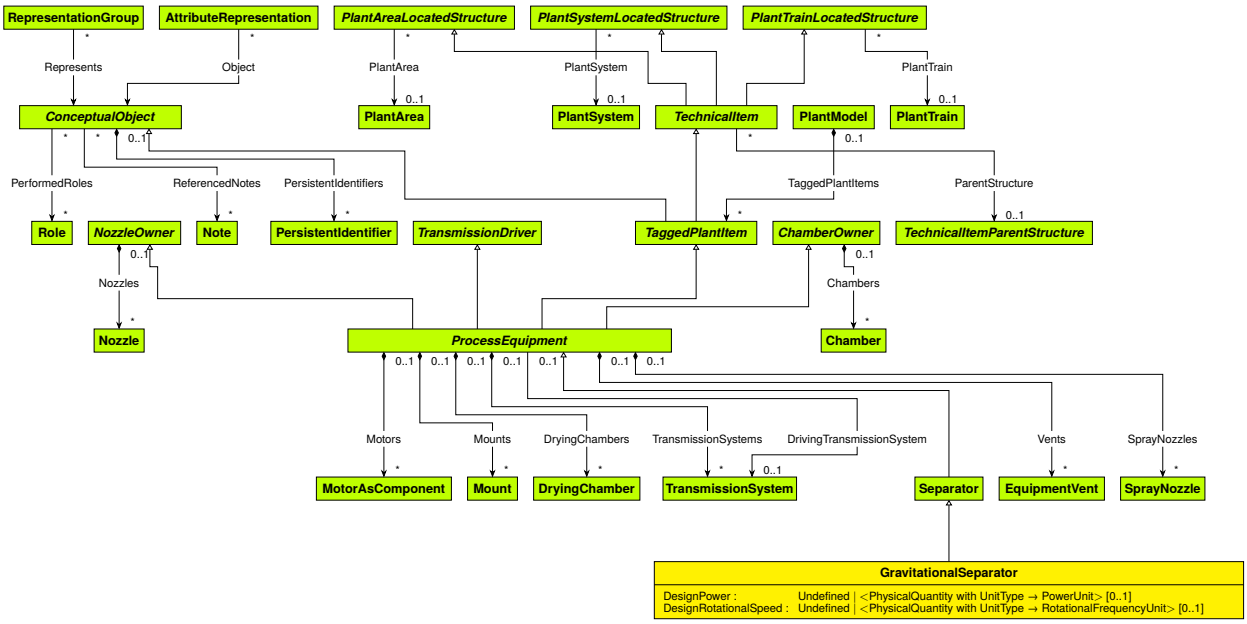
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS16042131

GRAVITY SEPARATOR

A fluid separator that is based on the difference in specific gravity for the substances to be separated (from http://data.15926.org/rdl/RDS16042131).



Supertypes

- *Separator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no

DesignPower

Data Property

The power for which the *GravitationalSeparator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *GravitationalSeparator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = 180.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.GravitationalSeparator">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Grinder

Plant::*ProcessEquipment*::Grinder

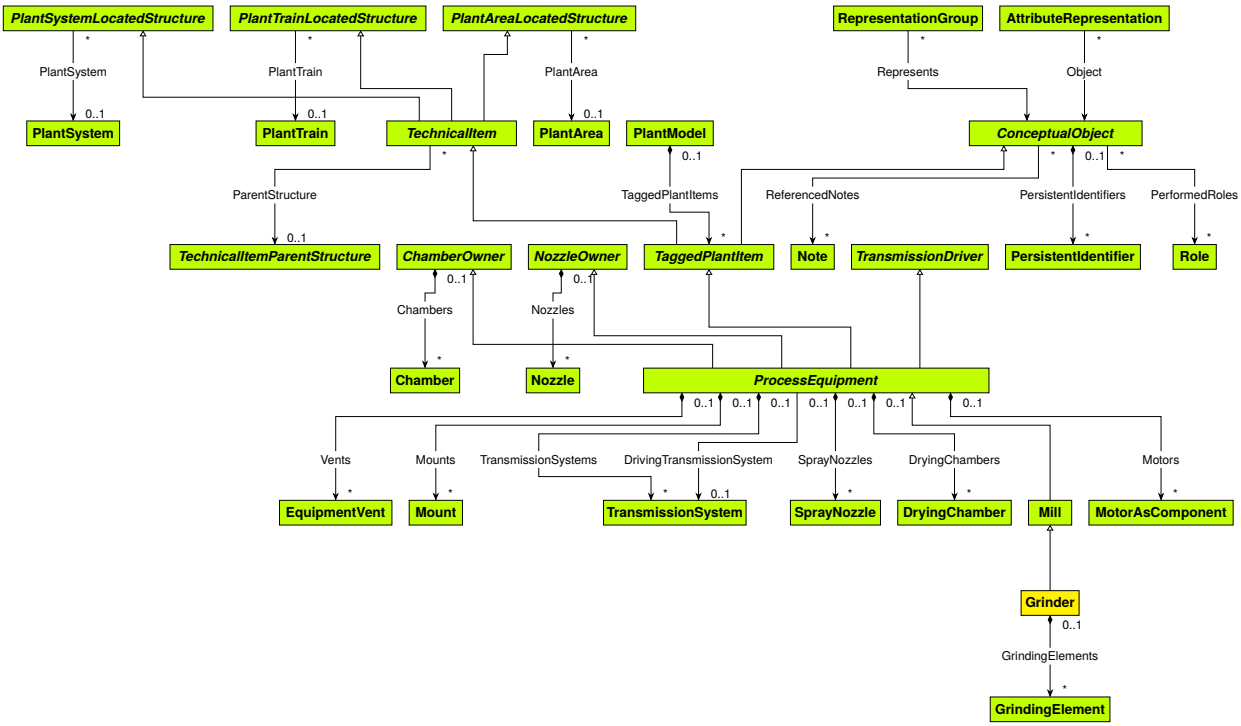
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Grinder

GRINDER

A *Mill* that has the capability of grinding.



Supertypes

- *Mill*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
GrindingElements	*	*GrindingElement*	no

GrindingElements

Composition Property

The grinding elements of the Grinder.

Type: *GrindingElement*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Grinder"/>
```

GrindingElement

Plant::*ProcessEquipment*::GrindingElement

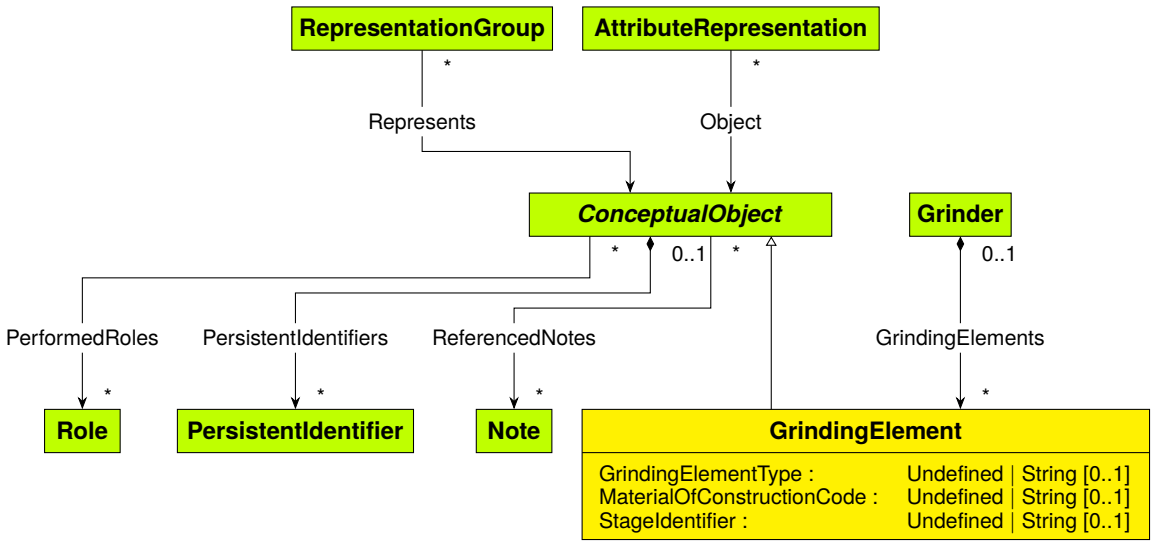
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/GrindingElement

GRINDING ELEMENT

A functional component of a *Grinder*.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
GrindingElementType	0..1	*Undefined* | *String*	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no

GrindingElementType

Data Property

A code that gives the crusher unit type of the *GrindingElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/GrindingElementTypeAssignmentClass

GRINDING ELEMENT TYPE ASSIGNMENT CLASS

Example

```
"1.4306"
```

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *GrindingElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

StageIdentifier

Data Property

The stage identifier of the *GrindingElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

```
"s1"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.GrindingElement">
  <Data property="GrindingElementType">
    <String>1.4306</String>
  </Data>
  <Data property="MaterialOfConstructionCode">
```

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```
    <String>1.4306</String>
  </Data>
  <Data property="StageIdentifier">
    <String>s1</String>
  </Data>
</Object>
```

HeatExchanger

Plant::*ProcessEquipment*::HeatExchanger

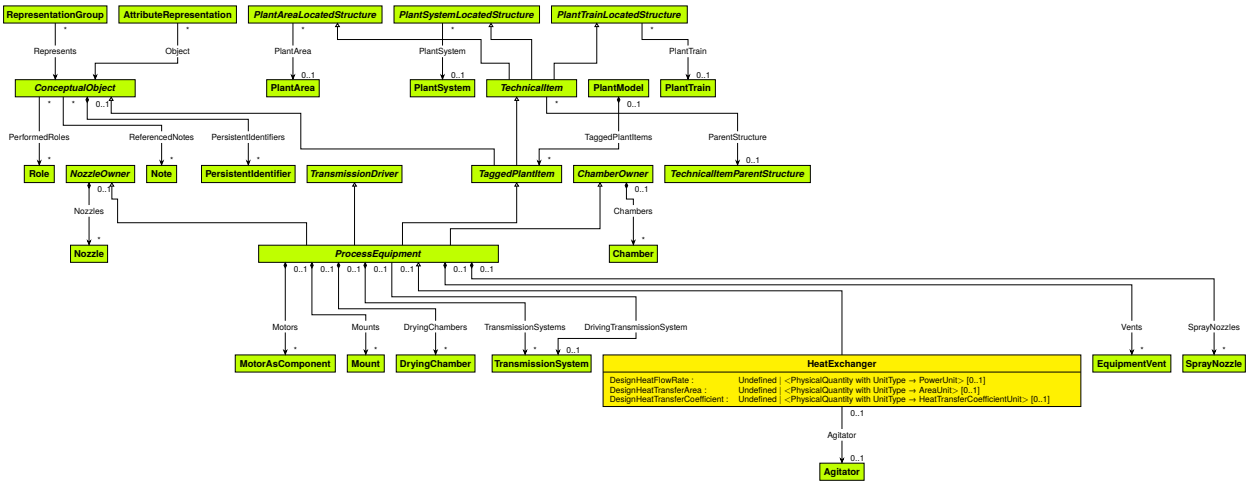
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS304199

HEAT EXCHANGER

An apparatus or machine that has the capability of heat exchanging (from http://data.15926.org/rdl/RDS304199).



Supertypes

- *ProcessEquipment*

Subtypes

- *AirCoolingSystem*
- *PlateHeatExchanger*
- *SpiralHeatExchanger*
- *ThinFilmEvaporator*
- *TubularHeatExchanger*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Agitator	0..1	*Agitator*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignHeatFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignHeatTransferArea	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>	no	no
DesignHeatTransferCoefficient	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>	no	no

Agitator

Reference Property

The *Agitator* of the HeatExchanger, if applicable.

Type: *Agitator*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

DesignHeatFlowRate

Data Property

The heat flow rate for which the *HeatExchanger* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatFlowRate

DESIGN HEAT FLOW RATE

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 313.0)

DesignHeatTransferArea

Data Property

The heat transfer area for which the *HeatExchanger* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatTransferArea

DESIGN HEAT TRANSFER AREA

Example

PhysicalQuantity(

Unit = *MetreSquared*,

Value = 46.8)

DesignHeatTransferCoefficient

Data Property

The heat transfer coefficient for which the *HeatExchanger* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatTransferCoefficient

DESIGN HEAT TRANSFER COEFFICIENT

Example

PhysicalQuantity(

Unit = *KilowattPerMetreSquaredKelvin*,

Value = 1.2)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.HeatExchanger">
  <Data property="DesignHeatFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>313.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignHeatTransferArea">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.AreaUnit.MetreSquared"/>
      </Data>
      <Data property="Value">
        <Double>46.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignHeatTransferCoefficient">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.HeatTransferCoefficientUnit.
↪KilowattPerMetreSquaredKelvin"/>
      </Data>
      <Data property="Value">
        <Double>1.2</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

HeatExchangerRotor

Plant::*ProcessEquipment*::HeatExchangerRotor

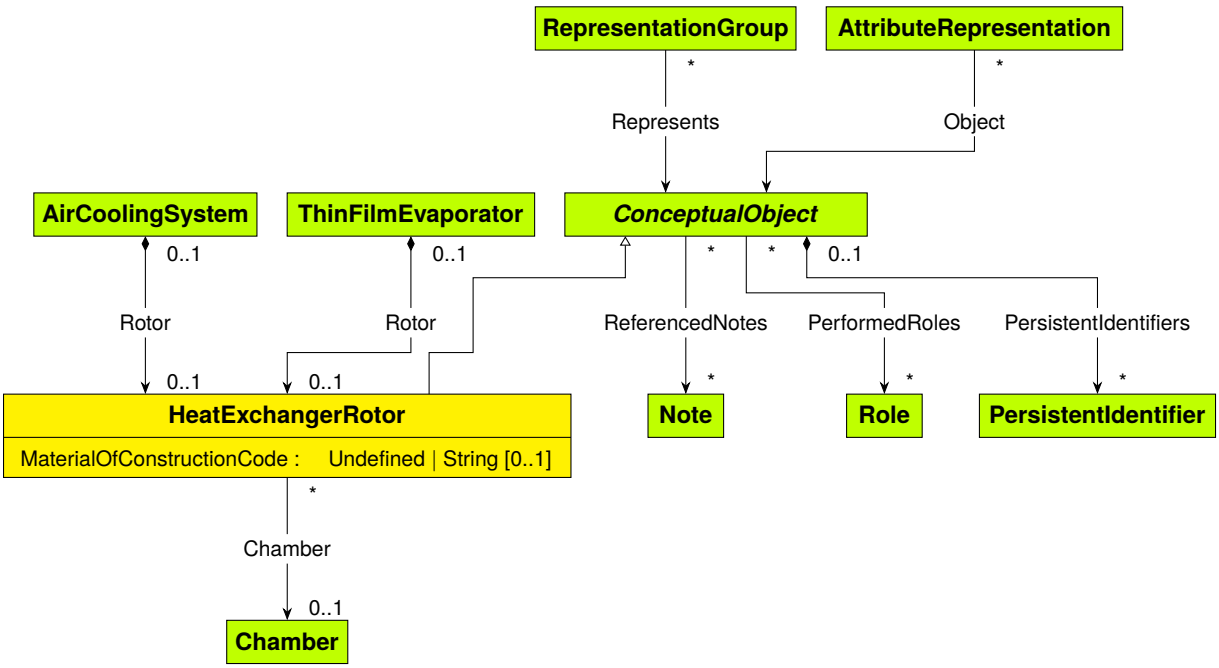
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/HeatExchangerRotor

HEAT EXCHANGER ROTOR

A rotor as a component of a *HeatExchanger*.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the HeatExchangerRotor is located, if applicable. The Chamber must be a component of the same object as the HeatExchangerRotor.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *HeatExchangerRotor*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.HeatExchangerRotor">
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
</Object>
```

HeatedSurfaceDryer

Plant::*ProcessEquipment*::HeatedSurfaceDryer

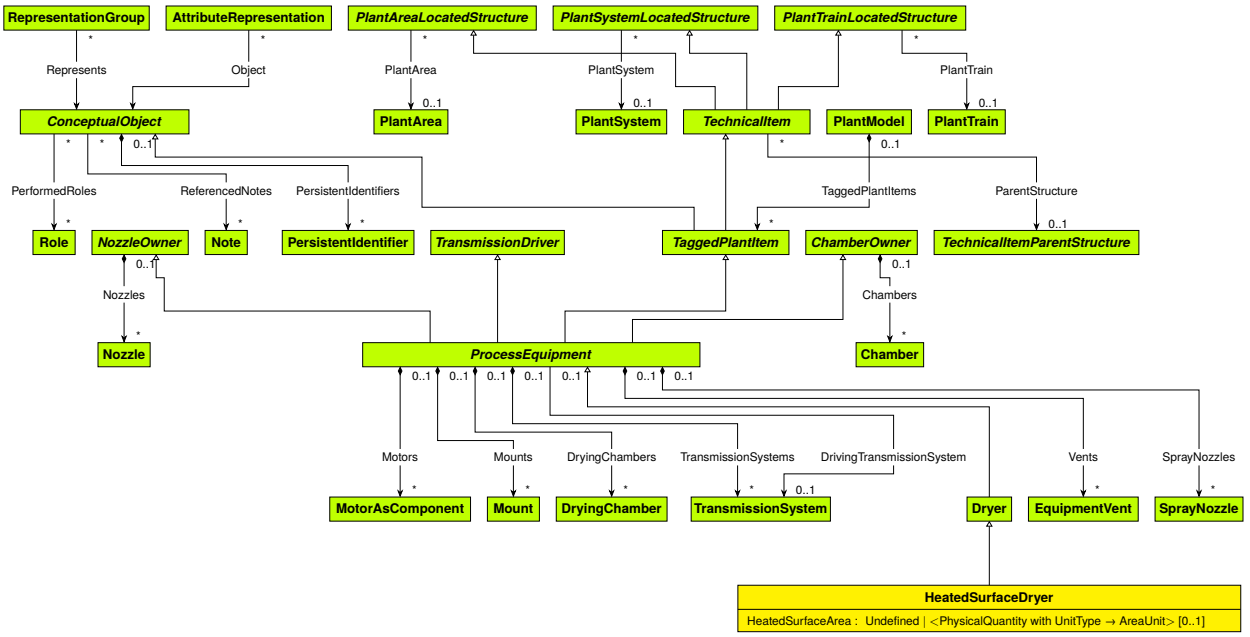
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/HeatedSurfaceDryer

HEATED SURFACE DRYER

A *Dryer* that dries a material by radiation and/or conduction caused by a heated surface (from http://data.15926.org/rdl/RDS2228449).



Supertypes

- *Dryer*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
HeatedSurfaceArea	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>	no	no

HeatedSurfaceArea

Data Property

The heated surface area of the *HeatedSurfaceDryer*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/HeatedSurfaceArea

HEATED SURFACE AREA

Example

PhysicalQuantity(

Unit = *MetreSquared*,

Value = 6.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.HeatedSurfaceDryer">
  <Data property="HeatedSurfaceArea">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.AreaUnit.MetreSquared"/>
      </Data>
      <Data property="Value">
        <Double>6.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Heater

Plant::*ProcessEquipment*::Heater

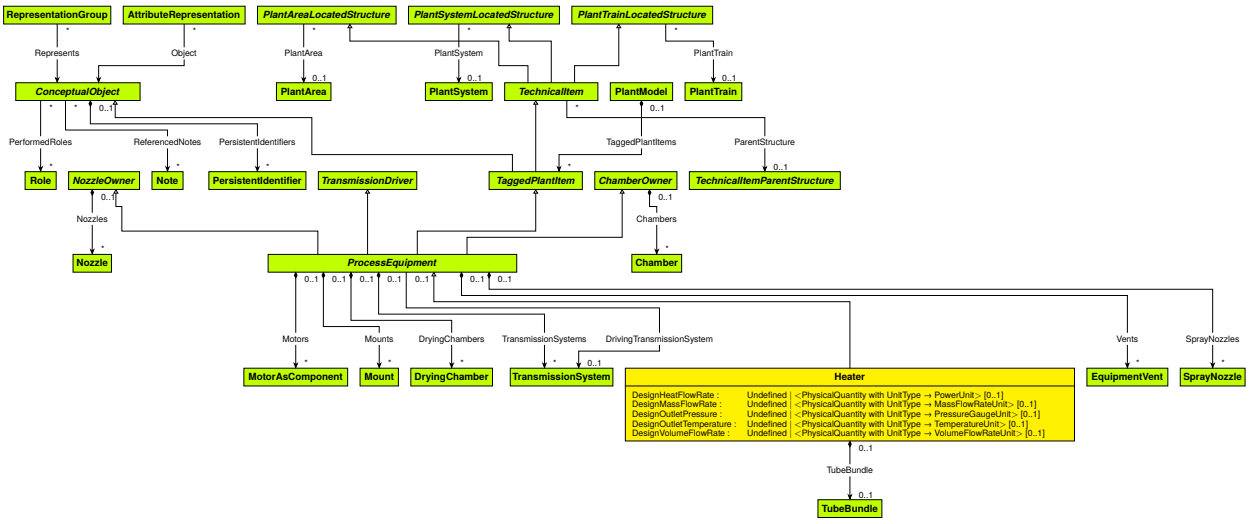
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13048646

HEATER

An apparatus or machine that has the capability of heating.



Supertypes

- *ProcessEquipment*

Subtypes

- *Boiler*
- *ElectricHeater*
- *Furnace*
- *SteamGenerator*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
TubeBundle	0..1	*TubeBundle*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignHeatFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignOutletPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>	no	no
DesignOutletTemperature	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignHeatFlowRate

Data Property

The heat flow rate for which the *Heater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignHeatFlowRate

DESIGN HEAT FLOW RATE

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `313.0`)

DesignMassFlowRate

Data Property

The mass flow rate for which the *Heater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

DesignOutletPressure

Data Property

The outlet pressure for which the *Heater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureGaugeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS7471401

OUTLET DESIGN PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `-0.5`)

DesignOutletTemperature

Data Property

The outlet temperature for which the *Heater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS7471243

OUTLET DESIGN TEMPERATURE

Example

PhysicalQuantity(

Unit = *DegreeCelsius*,

Value = `-45.0`)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Heater* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

TubeBundle

Composition Property

The tube bundle of the Heater.

Type: *TubeBundle*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Heater">
  <Data property="DesignHeatFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>313.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignOutletPressure">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureGaugeUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>-0.5</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignOutletTemperature">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
      </Data>
      <Data property="Value">
        <Double>-45.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
```

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```
    </AggregatedDataValue>
  </Data>
</Object>
```

Impeller

Plant::*ProcessEquipment*::Impeller

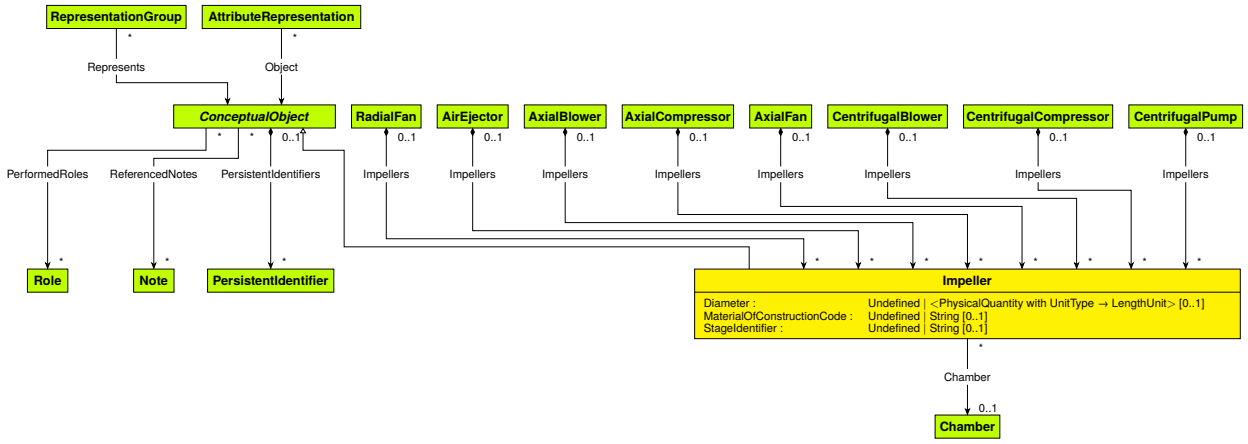
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS414539

IMPELLER

An energy converter component that is an assembly of rotating vanes within an enclosure which is used to impart energy to or derive energy from a fluid through dynamic force (from http://data.posccaesar.org/rdl/RDS414539).



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the Impeller is located, if applicable. The Chamber must be a component of the same object as the Impeller.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Diameter

Data Property

The diameter of the *Impeller*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *Impeller*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

"1.4306"

StageIdentifier

Data Property

The stage identifier of the *Impeller*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

"s1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Impeller">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="StageIdentifier">
    <String>s1</String>
  </Data>
</Object>
```

InstrumentNozzle

Plant::*ProcessEquipment*::InstrumentNozzle

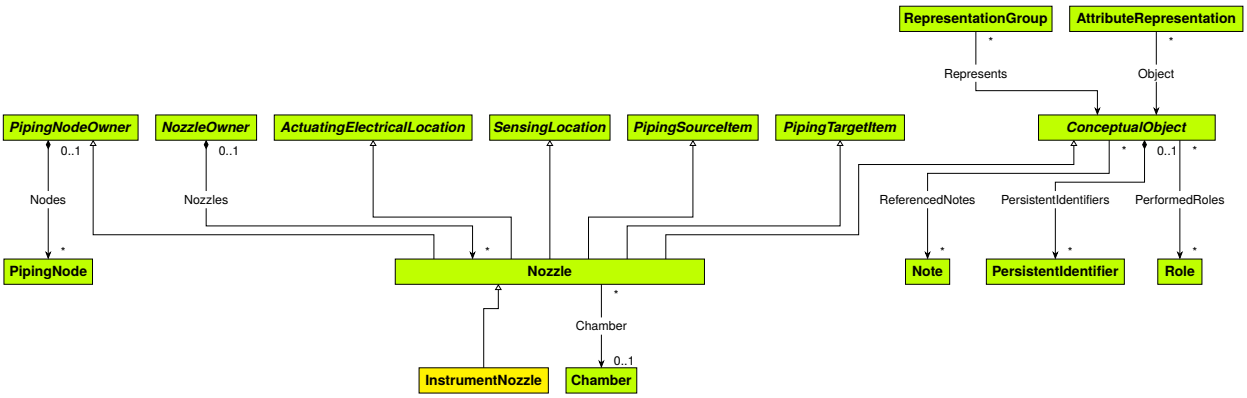
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS431675630

INSTRUMENT NOZZLE

A *Nozzle* intended for connecting an instrument (from http://data.posccaesar.org/rdl/RDS431675630).



Supertypes

- *Nozzle*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.InstrumentNozzle"/>
```

Kneader

Plant::*ProcessEquipment*::Kneader

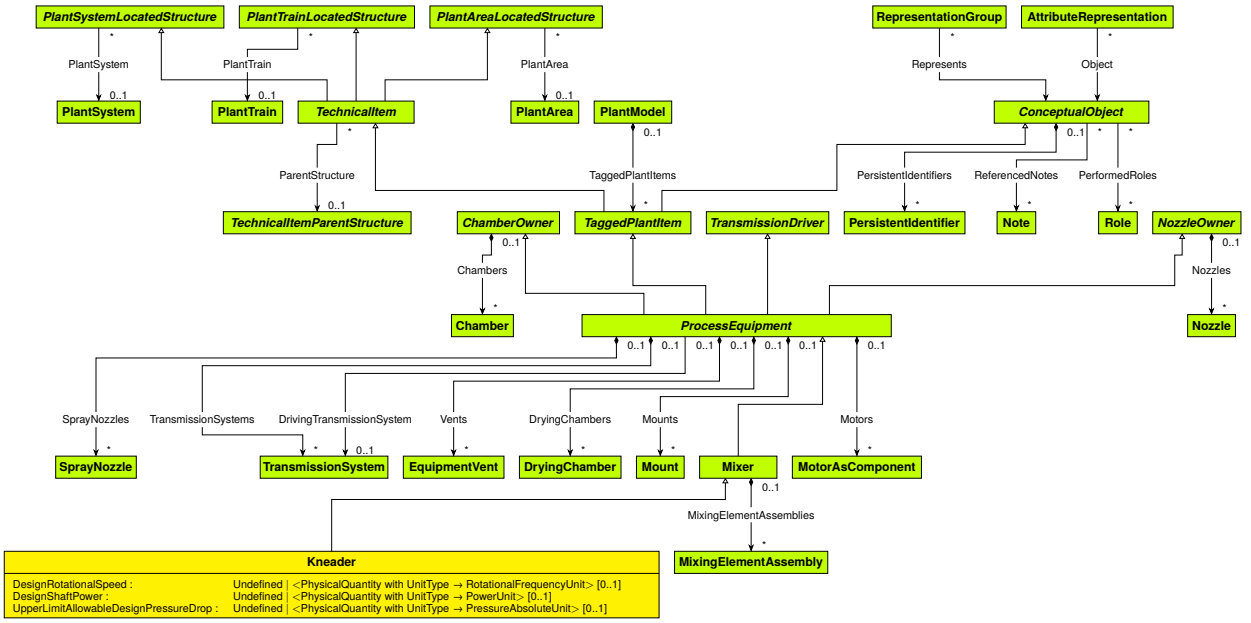
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Kneader

KNEADER

A machine that is capable of mixing and working into a uniform mass by, or as if by, folding, pressing, and stretching.



Supertypes

- *Mixer*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
UpperLimitAllowableDesignPressureDrop	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *Kneader* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Kneader* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

UpperLimitAllowableDesignPressureDrop

Data Property

The upper limit for the pressure drop for which the *Kneader* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableDesignPressureDrop

UPPER LIMIT ALLOWABLE DESIGN PRESSURE DROP

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `2.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Kneader">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitAllowableDesignPressureDrop">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Lift

Plant::*ProcessEquipment*::Lift

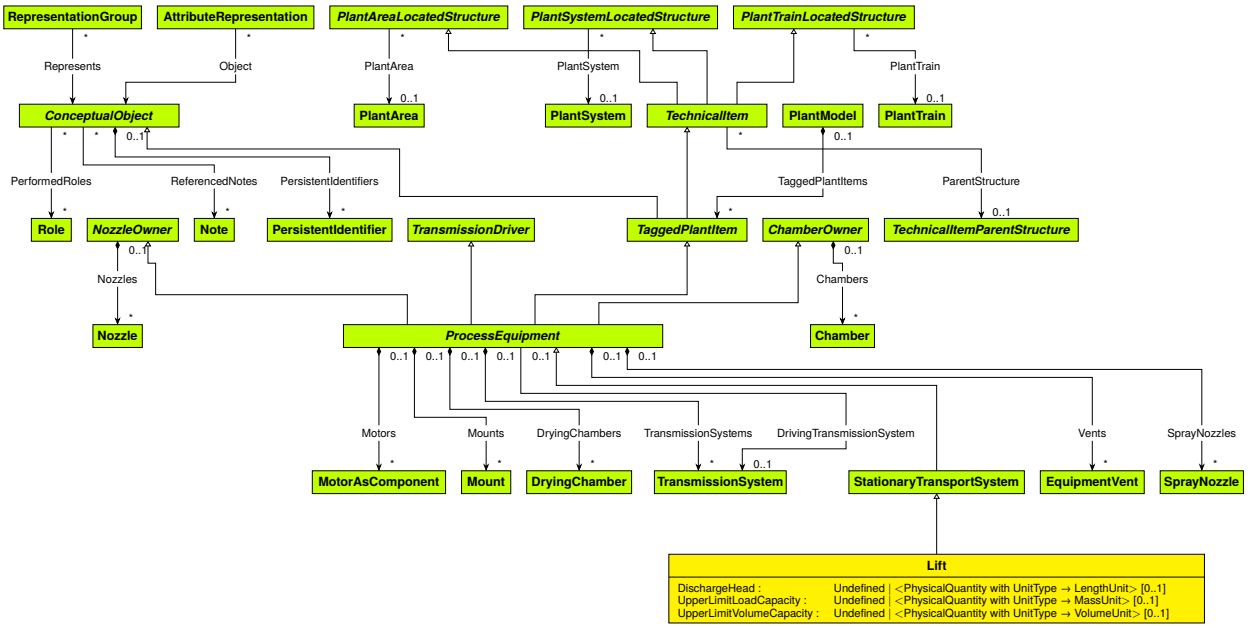
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13601120

LIFT

A *StationaryTransportSystem* for transporting persons or things from one level to another (from http://data.posccaesar.org/rdl/RDS13601120).



Supertypes

- *StationaryTransportSystem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DischargeHead	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
UpperLimitLoadCapacity	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>	no	no
UpperLimitVolumeCapacity	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>	no	no

DischargeHead

Data Property

The length of the *Lift*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DischargeHead

DISCHARGE HEAD

Example

PhysicalQuantity(

Unit = *Metre*,

Value = `2.0`)

UpperLimitLoadCapacity

Data Property

The highest mass to transport for which the *Lift* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitLoadCapacity

UPPER LIMIT LOAD CAPACITY

Example

PhysicalQuantity(

Unit = *Kilogram*,

Value = `900.0`)

UpperLimitVolumeCapacity

Data Property

The highest volume to transport for which the *Lift* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitVolumeCapacity

UPPER LIMIT VOLUME CAPACITY

Example

PhysicalQuantity(

Unit = *MetreCubed*,

Value = `4.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Lift">
  <Data property="DischargeHead">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitLoadCapacity">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
      </Data>
      <Data property="Value">
        <Double>900.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitVolumeCapacity">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeUnit.MetreCubed"/>
      </Data>
      <Data property="Value">
        <Double>4.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

LiquidFilter

Plant::*ProcessEquipment*::LiquidFilter

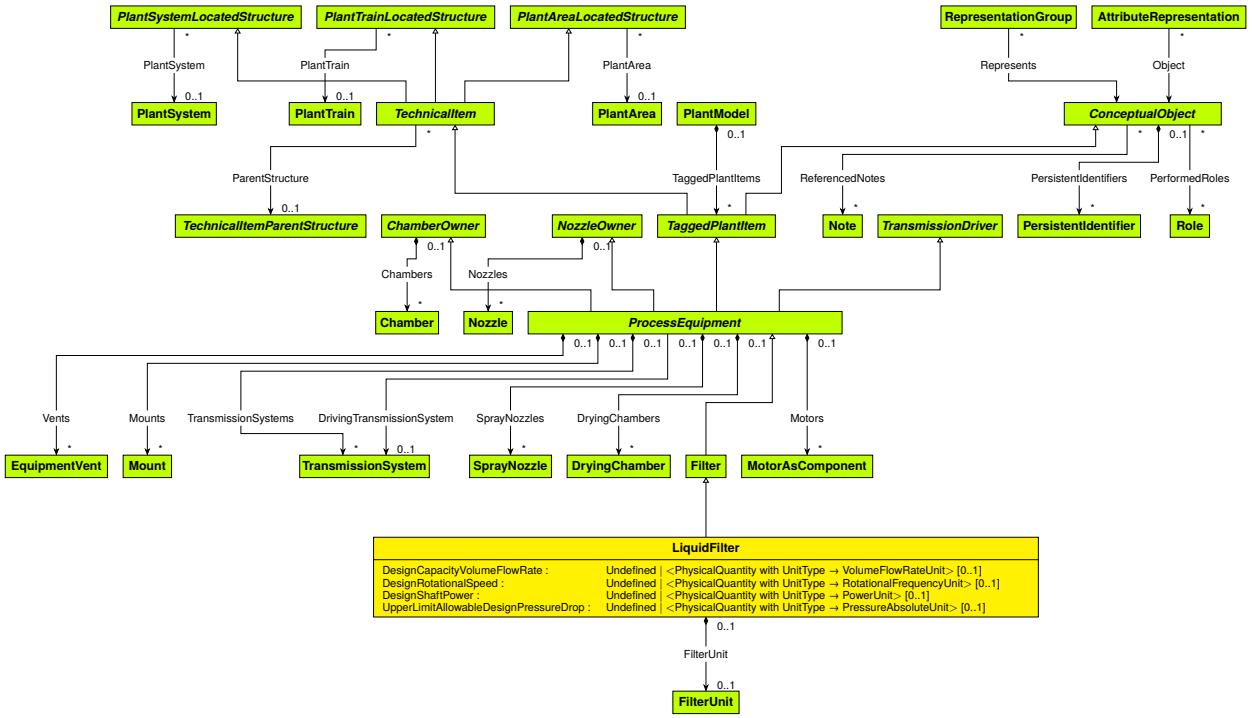
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/LiquidFilter

LIQUID FILTER

A filter that is specifically designed to filter a liquid.



Supertypes

- *Filter*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FilterUnit	0..1	*FilterUnit*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
UpperLimitAllowableDesignPressureDrop	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignCapacityVolumeFlowRate

Data Property

The volume flow rate for which the *LiquidFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityVolumeFlowRate

DESIGN CAPACITY VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *LiquidFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *LiquidFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

FilterUnit

Composition Property

The filter unit of the LiquidFilter.

Type: *FilterUnit*

Multiplicity: 0..1

Ordered: no

UpperLimitAllowableDesignPressureDrop

Data Property

The upper limit for the pressure drop for which the *LiquidFilter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableDesignPressureDrop

UPPER LIMIT ALLOWABLE DESIGN PRESSURE DROP

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `2.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.LiquidFilter">
  <Data property="DesignCapacityVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
```

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```
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitAllowableDesignPressureDrop">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

LoadingUnloadingSystem

Plant::*ProcessEquipment*::LoadingUnloadingSystem

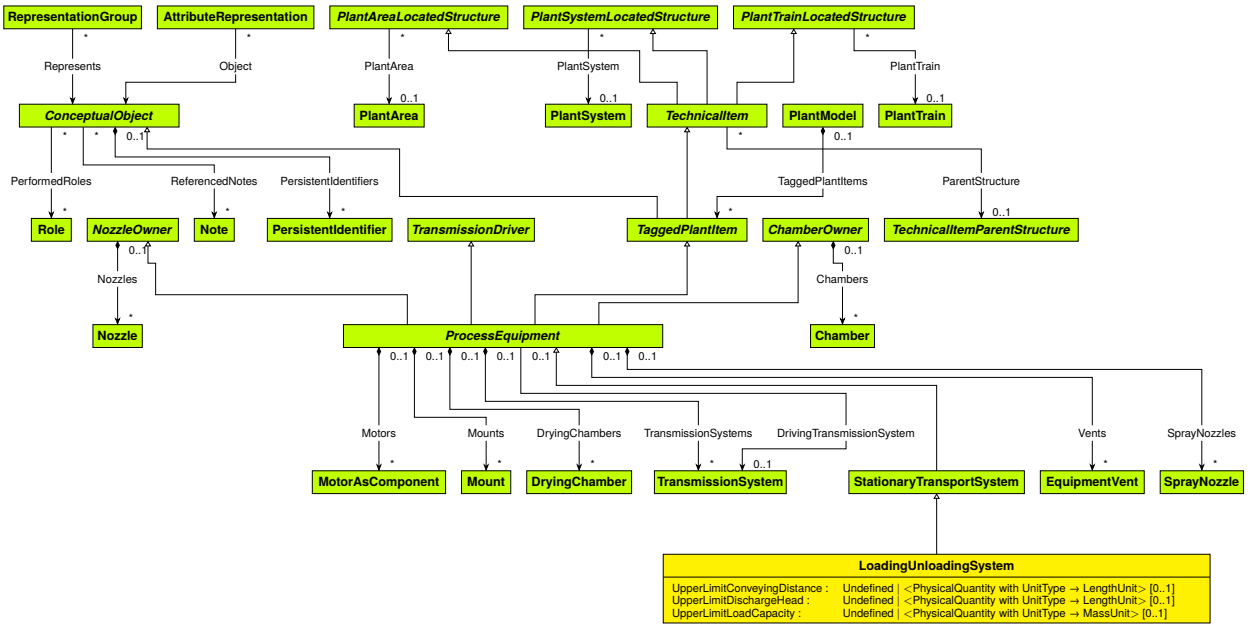
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11525012

LOADING - UNLOADING SYSTEM

A transport system that is intended for loading and/or unloading products into/from vehicles, wagons or vessels (from http://data.posccaesar.org/rdl/RDS11525012).



Supertypes

- *StationaryTransportSystem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
UpperLimitConveyingDistance	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
UpperLimitDischargeHead	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
UpperLimitLoadCapacity	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>	no	no

UpperLimitConveyingDistance

Data Property

The upper limit for the conveying distance of the *LoadingUnloadingSystem*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitConveyingDistance

UPPER LIMIT CONVEYING DISTANCE

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = 37.0)

UpperLimitDischargeHead

Data Property

The upper limit for the discharge head of the *LoadingUnloadingSystem*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDischargeHead

UPPER LIMIT DISCHARGE HEAD

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = 37.0)

UpperLimitLoadCapacity

Data Property

The highest mass to transport for which the *LoadingUnloadingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitLoadCapacity

UPPER LIMIT LOAD CAPACITY

Example

PhysicalQuantity(

Unit = *Kilogram*,

Value = 900.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.LoadingUnloadingSystem">
  <Data property="UpperLimitConveyingDistance">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>37.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDischargeHead">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>37.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitLoadCapacity">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
      </Data>
      <Data property="Value">
        <Double>900.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

MechanicalSeparator

Plant::*ProcessEquipment*::MechanicalSeparator

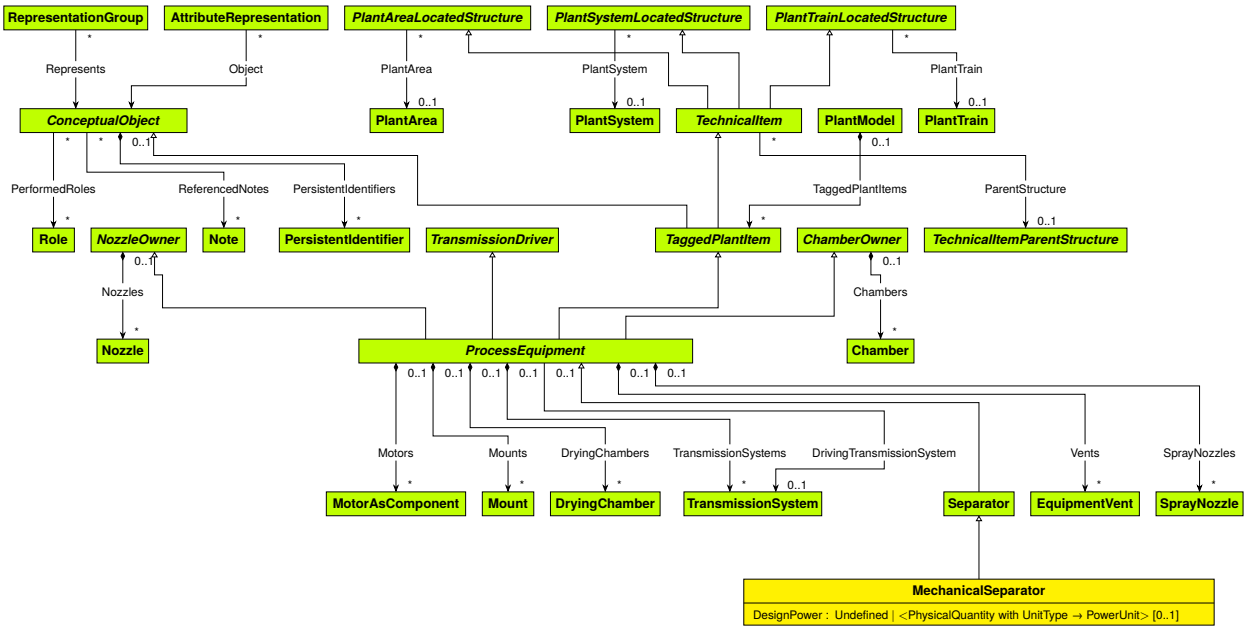
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS279134

MECHANICAL SEPARATOR

A fluid separator in which mechanical separation of fluids take place (from http://data.posccaesar.org/rdl/RDS279134).



Supertypes

- *Separator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *MechanicalSeparator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 500.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.MechanicalSeparator">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Mill

Plant::*ProcessEquipment*::Mill

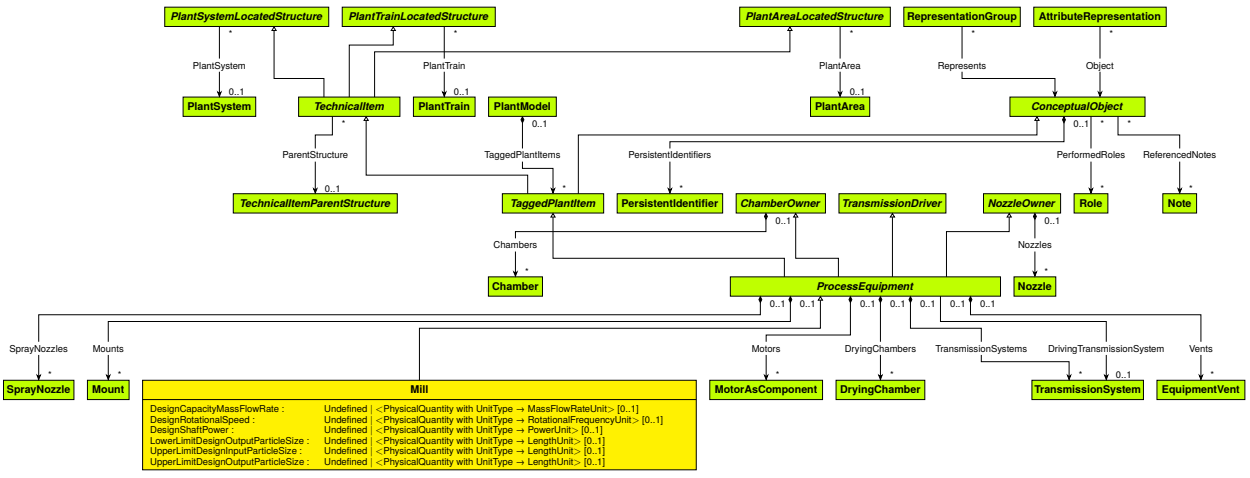
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11589220

MILL

A physical object for grinding or pulverizing materials. Also a machine for shaping metal. In general a machine that manufactures by the continuous repetition of some simple action



Supertypes

- *ProcessEquipment*

Subtypes

- *Crusher*
- *Grinder*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
LowerLimitDesignOutputParticleSize	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
UpperLimitDesignInputParticleSize	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
UpperLimitDesignOutputParticleSize	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

DesignCapacityMassFlowRate

Data Property

The capacity for the mass flow rate for which the *Mill* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityMassFlowRate

DESIGN CAPACITY MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerMinute*,

Value = `40.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *Mill* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *Mill* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

LowerLimitDesignOutputParticleSize

Data Property

The lower limit for the output particle size for which the *Mill* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitDesignOutputParticleSize

LOWER LIMIT DESIGN OUTPUT PARTICLE SIZE

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = `7.0`)

UpperLimitDesignInputParticleSize

Data Property

The upper limit for the input particle size for which the *Mill* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDesignInputParticleSize

UPPER LIMIT DESIGN INPUT PARTICLE SIZE

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = `47.0`)

UpperLimitDesignOutputParticleSize

Data Property

The upper limit for the output particle size for which the *Mill* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDesignOutputParticleSize

UPPER LIMIT DESIGN OUTPUT PARTICLE SIZE

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = `47.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Mill">
  <Data property="DesignCapacityMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerMinute"/
↪>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="LowerLimitDesignOutputParticleSize">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>7.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignInputParticleSize">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>47.0</Double>
      </Data>
```

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```
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignOutputParticleSize">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>47.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Mixer

Plant::*ProcessEquipment*::Mixer

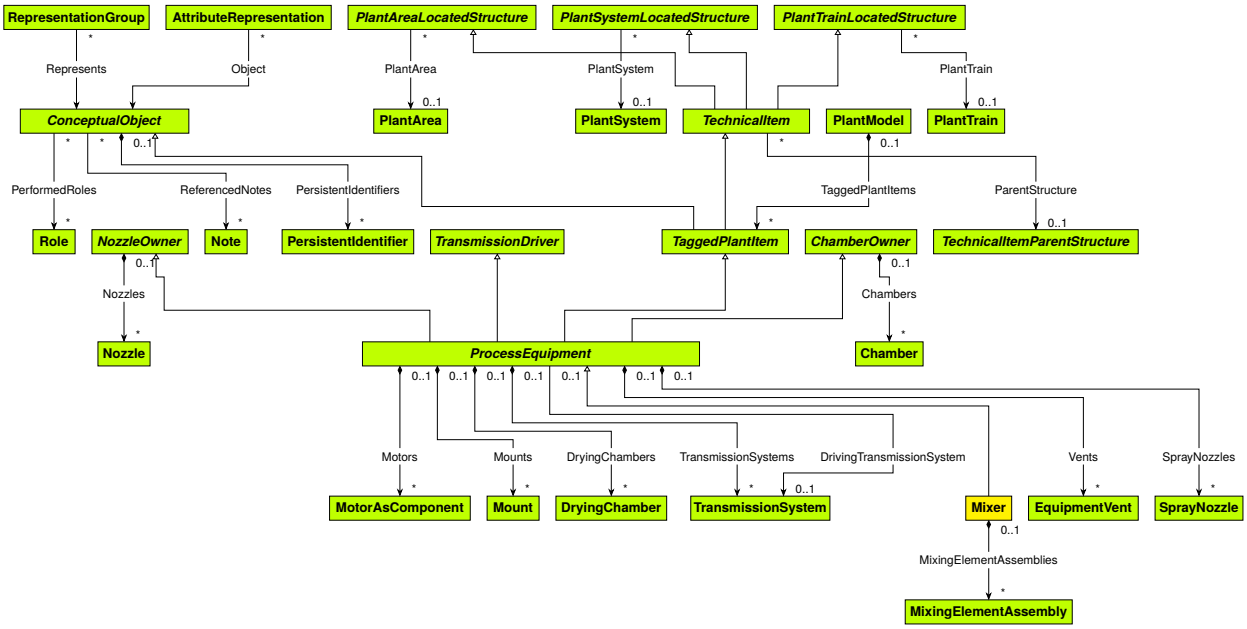
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Mixer

MIXER

An apparatus or machine that has the capability of mixing (from http://data.15926.org/rdl/RDS222370).



Supertypes

- *ProcessEquipment*

Subtypes

- *Kneader*
- *RotaryMixer*
- *StaticMixer*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
MixingElementAssemblies	*	*MixingElementAssembly*	no

MixingElementAssemblies

Composition Property

The mixing element assemblies of the Mixer, if applicable.

Type: *MixingElementAssembly*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Mixer"/>
```

MixingElementAssembly

Plant::*ProcessEquipment*::MixingElementAssembly

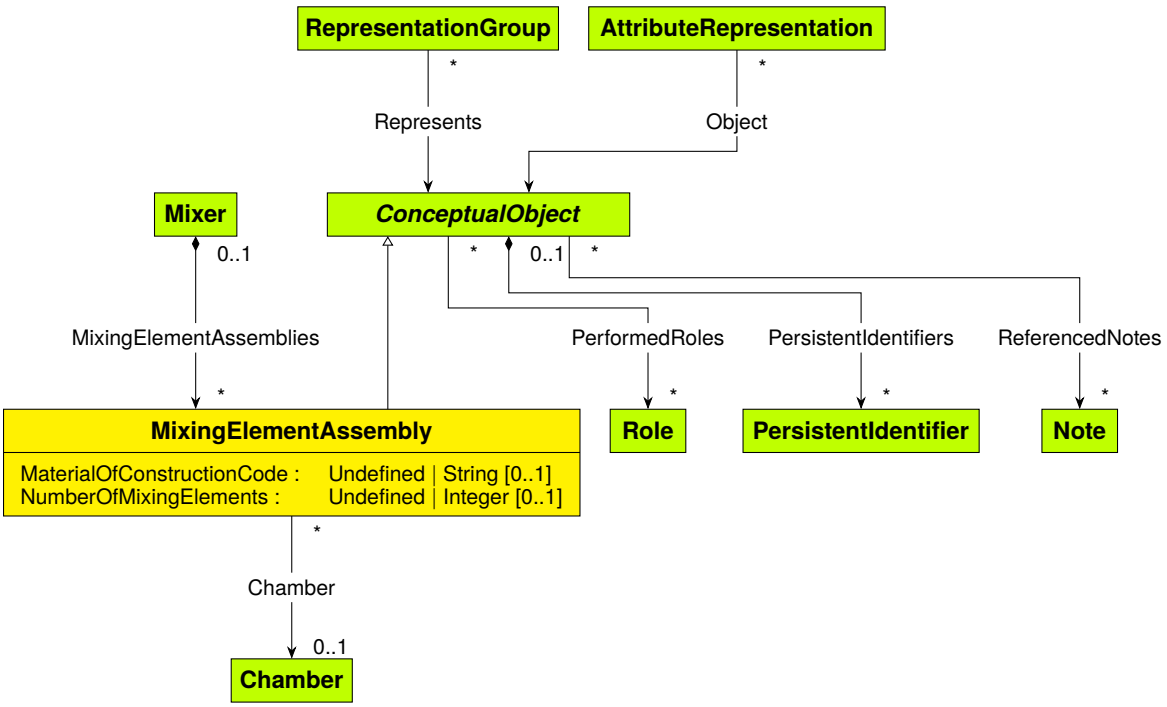
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MixingElementAssembly

MIXING ELEMENT ASSEMBLY

Assembly of mixing elements as part of a mixer.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
NumberOfMixingElements	0..1	*Undefined* | *Integer*	no	no

Chamber

Reference Property

The *Chamber* in which the MixingElementAssembly is located, if applicable. The Chamber must be a component of the same object as the MixingElementAssembly.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *MixingElementAssembly*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

NumberOfMixingElements

Data Property

The number of mixing elements in the *MixingElementAssembly*.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NumberOfMixingElements

NUMBER OF MIXING ELEMENTS

Example

```
5
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.MixingElementAssembly">
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="NumberOfMixingElements">
    <Integer>5</Integer>
  </Data>
</Object>
```

MobileTransportSystem

Plant::*ProcessEquipment*::MobileTransportSystem

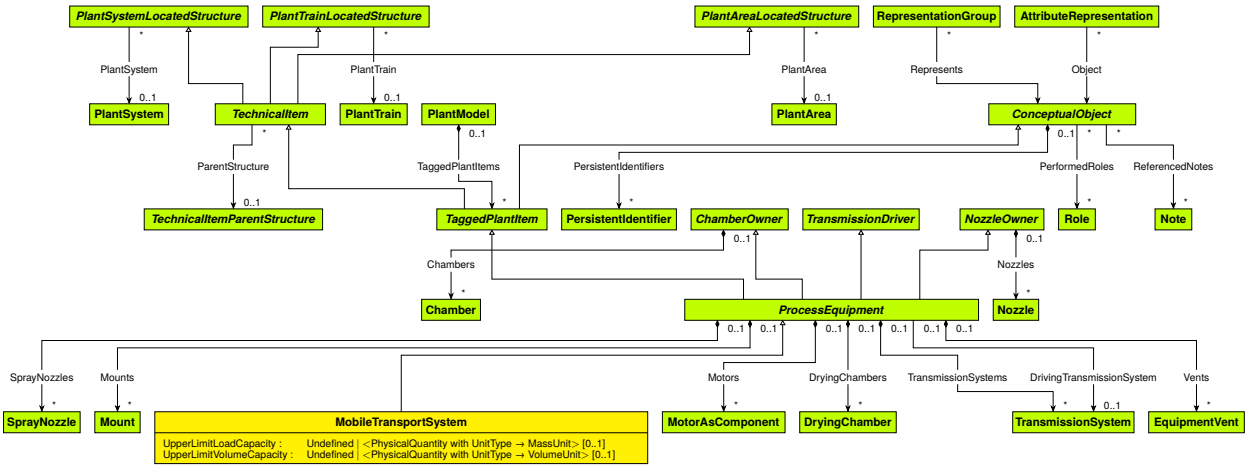
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MobileTransportSystem

MOBILE TRANSPORT SYSTEM

A mobile system that is intended to transport, store or load/unload material.



Supertypes

- *ProcessEquipment*

Subtypes

- *ForkliftTruck*
- *RailWaggon*
- *Ship*
- *TransportableContainer*
- *Truck*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
UpperLimitLoadCapacity	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>	no	no
UpperLimitVolumeCapacity	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>	no	no

UpperLimitLoadCapacity

Data Property

The highest mass to transport for which the *MobileTransportSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitLoadCapacity

UPPER LIMIT LOAD CAPACITY

Example

PhysicalQuantity(

Unit = *Kilogram*,

Value = `900.0`)

UpperLimitVolumeCapacity

Data Property

The highest volume to transport for which the *MobileTransportSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitVolumeCapacity

UPPER LIMIT VOLUME CAPACITY

Example

PhysicalQuantity(

Unit = *MetreCubed*,

Value = `4.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.MobileTransportSystem">
  <Data property="UpperLimitLoadCapacity">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
      </Data>
      <Data property="Value">
        <Double>900.0</Double>
```

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```
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitVolumeCapacity">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeUnit.MetreCubed"/>
      </Data>
      <Data property="Value">
        <Double>4.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Motor

Plant::*ProcessEquipment*::Motor

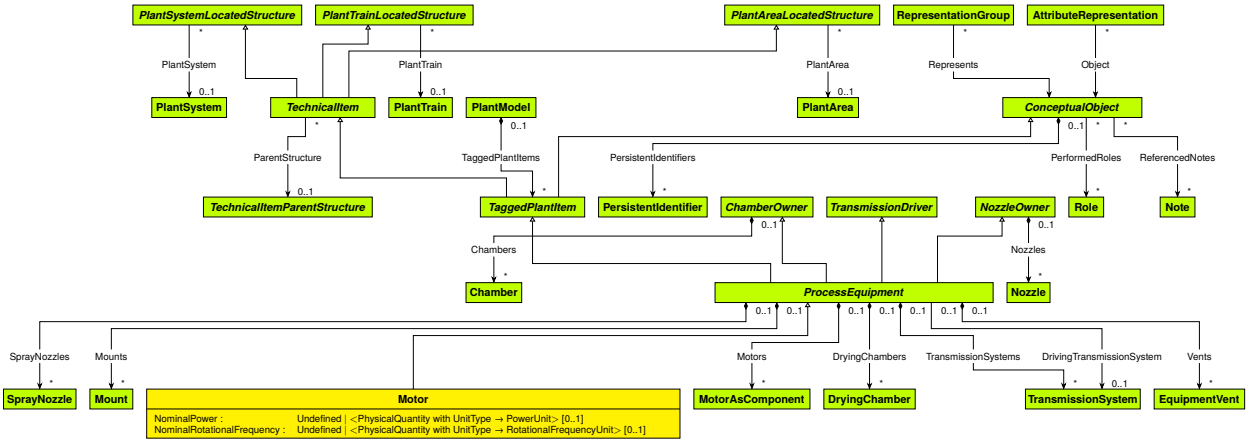
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS7191198

MOTOR

A driver that is powered by electricity or internal combustion (from http://data.15926.org/rdl/RDS7191198).



Supertypes

- *ProcessEquipment*

Subtypes

- *AlternatingCurrentMotor*
- *CombustionEngine*
- *DirectCurrentMotor*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
NominalRotationalFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no

NominalPower

Data Property

The nominal power of the *Motor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalPower

NOMINAL POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

NominalRotationalFrequency

Data Property

The nominal rotational frequency of the *Motor*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalRotationalFrequency

NOMINAL ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = 240.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Motor">
  <Data property="NominalPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="NominalRotationalFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>240.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

MotorAsComponent

Plant::*ProcessEquipment*::MotorAsComponent

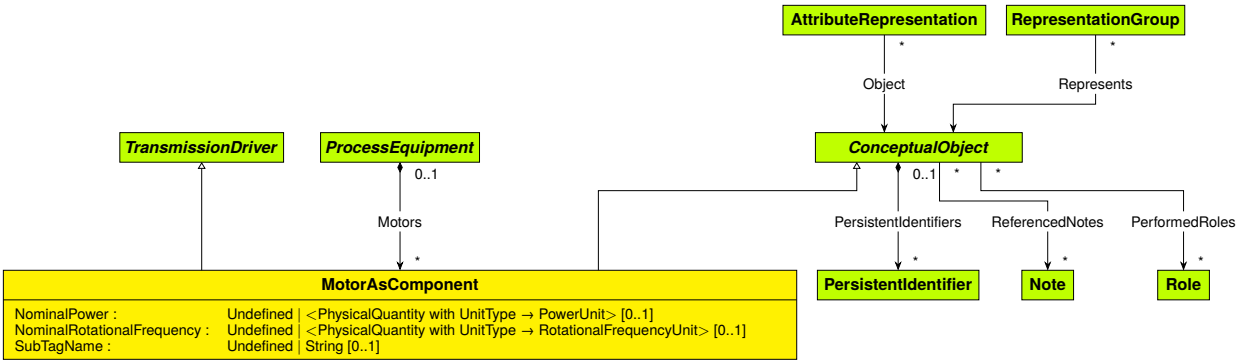
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/MotorAsComponent

MOTOR AS COMPONENT

A driver that is powered by electricity or internal combustion and is used as component of an apparatus or of a machine.



Supertypes

- *ConceptualObject*
- *TransmissionDriver*

Subtypes

- *AlternatingCurrentMotorAsComponent*
- *CombustionEngineAsComponent*
- *DirectCurrentMotorAsComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
NominalRotationalFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

NominalPower

Data Property

The nominal power of the *MotorAsComponent*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalPower

NOMINAL POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

NominalRotationalFrequency

Data Property

The nominal rotational frequency of the *MotorAsComponent*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalRotationalFrequency

NOMINAL ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `240.0`)

SubTagName

Data Property

The sub tag name of the *MotorAsComponent*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

`"ST1"`

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.MotorAsComponent">
  <Data property="NominalPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="NominalRotationalFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>240.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

Mount

Plant::*ProcessEquipment*::Mount

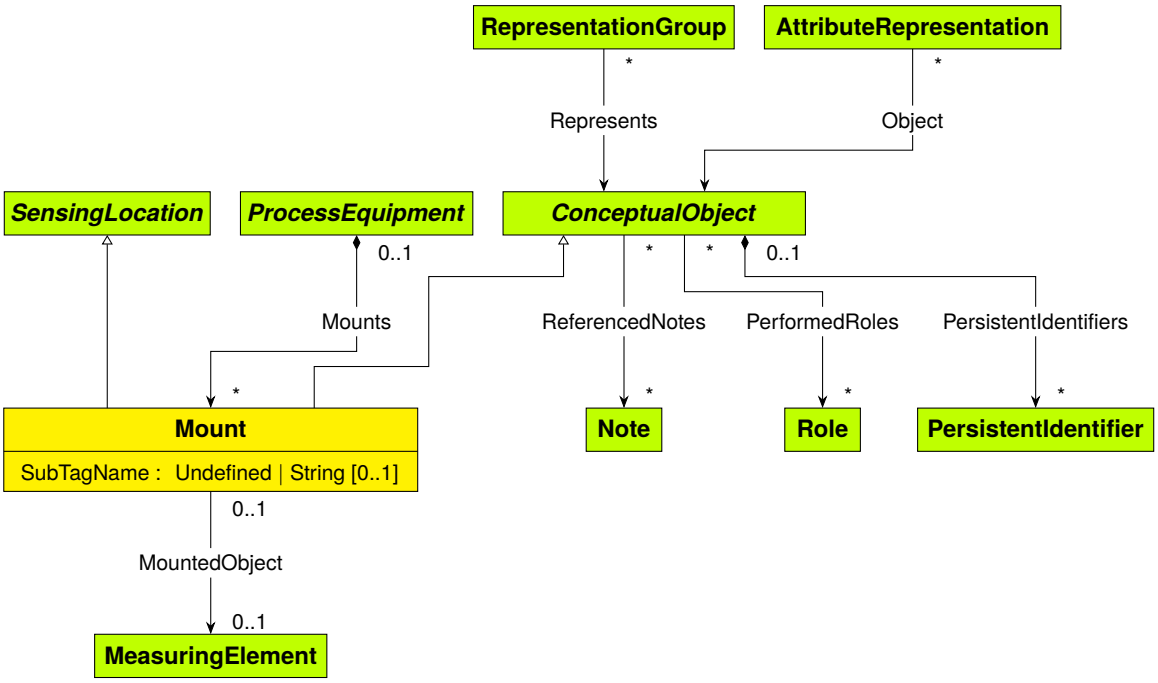
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Mount

MOUNT

An object that is capable of supporting something that is mounted on it.



Supertypes

- *ConceptualObject*
- *SensingLocation*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
MountedObject	0..1	*MeasuringElement*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

A mount is attached to a piece of Plant.ProcessEquipment.Equipment and can explicitly be used as a *SensingLocation*.

MountedObject

Reference Property

The object that is mounted.

Type: *MeasuringElement*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

SubTagName

Data Property

The sub tag name of the *Mount*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

```
"ST1"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Mount">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

Nozzle

Plant::*ProcessEquipment*::Nozzle

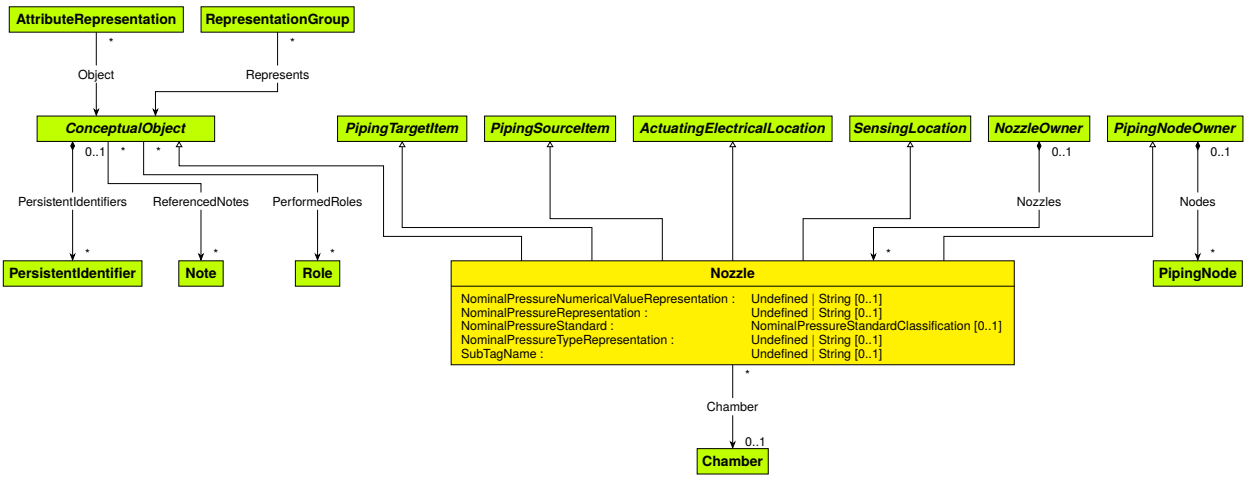
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS415214

NOZZLE

A projecting short piece of pipe that is attached to another (hollow) body.



Supertypes

- *ActuatingElectricalLocation*
- *ConceptualObject*
- *PipingNodeOwner*
- *PipingSourceItem*
- *PipingTargetItem*
- *SensingLocation*

Subtypes

- *AccessNozzle*
- *InstrumentNozzle*
- *ProcessNozzle*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalPressureNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
NominalPressureRepresentation	0..1	*Undefined* | *String*	no	no
NominalPressureStandard	0..1	*NominalPressureStandardClassification*	no	no
NominalPressureTypeRepresentation	0..1	*Undefined* | *String*	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* at which the Nozzle is located, if applicable. The Chamber must be a component of the same object as the Nozzle.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

NominalPressureNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal pressure of the *Nozzle*, without any type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalPressureNumericalValueRepresentationAssignmentClass

NOMINAL PRESSURE NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

"40"

NominalPressureRepresentation

Data Property

A readable representation of the nominal pressure of the *Nozzle*. It normally contains a numerical value and a type or unit of measure.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalPressureRepresentationAssignmentClass

NOMINAL PRESSURE REPRESENTATION ASSIGNMENT CLASS

Example

"PN 40"

NominalPressureStandard

Data Property

The nominal pressure of the *Nozzle*, given as a reference to a nominal pressure standard and value.

Type: *NominalPressureStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalPressureStandardSpecialization

NOMINAL PRESSURE STANDARD SPECIALIZATION

Example

En1333Pn40Artefact

NominalPressureTypeRepresentation

Data Property

A readable representation of the type or unit of measure of the nominal pressure of the *Nozzle*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalPressureTypeRepresentationAssignmentClass

NOMINAL PRESSURE TYPE REPRESENTATION ASSIGNMENT CLASS

Example

"PN"

SubTagName

Data Property

The sub tag name of the *Nozzle*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Nozzle">
  <Data property="NominalPressureNumericalValueRepresentation">
    <String>40</String>
  </Data>
  <Data property="NominalPressureRepresentation">
    <String>PN 40</String>
  </Data>
  <Data property="NominalPressureStandard">
    <DataReference data="Plant/Enumerations.NominalPressureStandardClassification.
↪En1333Pn40Artefact"/>
  </Data>
  <Data property="NominalPressureTypeRepresentation">
    <String>PN</String>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

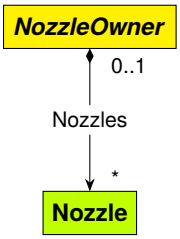
NozzleOwner

Plant::*ProcessEquipment*::NozzleOwner

Overview

Abstract Class

An object that can have nozzles.



Subtypes

- *ProcessEquipment*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Nozzles	*	*Nozzle*	no

Nozzles

Composition Property

The nozzles of the NozzleOwner.

Type: *Nozzle*

Multiplicity: *

Ordered: no

PackagingSystem

Plant::*ProcessEquipment*::PackagingSystem

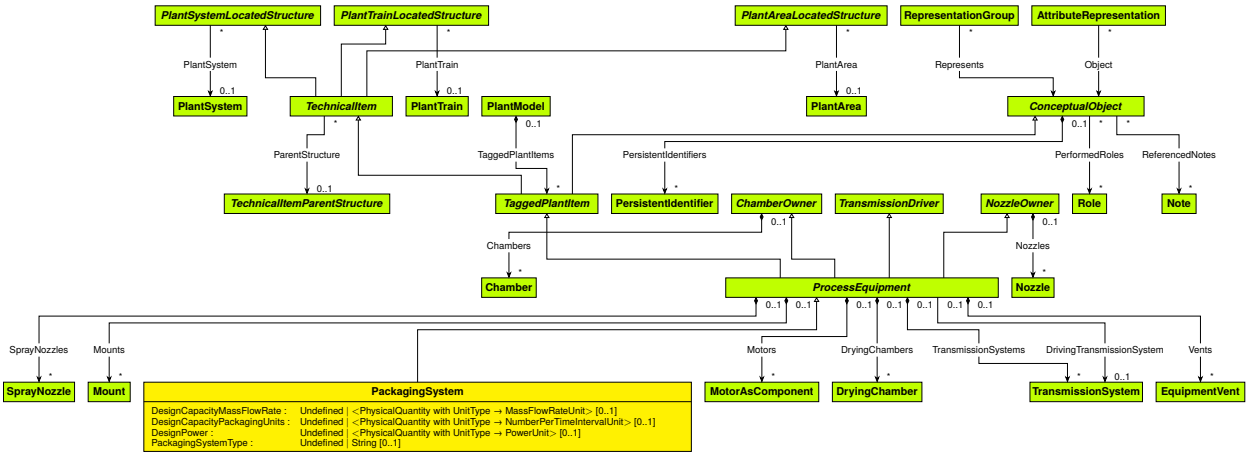
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PackagingSystem

PACKAGING SYSTEM

A system that is intended for the preparation of goods for transport, warehousing, logistics, sale, and end use (from http://data.15926.org/rdl/RDS2228725).



Supertypes

- *ProcessEquipment*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignCapacityMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignCapacityPackagingUnits	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *NumberPerTimeIntervalUnit*>	no	no
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
PackagingSystemType	0..1	*Undefined* | *String*	no	no

DesignCapacityMassFlowRate

Data Property

The capacity for the mass flow rate for which the *PackagingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityMassFlowRate

DESIGN CAPACITY MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerMinute*,

Value = `40.0`)

DesignCapacityPackagingUnits

Data Property

The capacity for the number of packaging units per time for which the *PackagingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *NumberPerTimeIntervalUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignCapacityPackagingUnits

DESIGN CAPACITY PACKAGING UNITS

Example

PhysicalQuantity(

Unit = *ReciprocalSecond*,

Value = `140.0`)

DesignPower

Data Property

The power for which the *PackagingSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

PackagingSystemType

Data Property

The packaging system type of the *PackagingSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PackagingSystemTypeAssignmentClass

PACKAGING SYSTEM TYPE ASSIGNMENT CLASS

Example

```
"Automated Packaging."
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.PackagingSystem">
  <Data property="DesignCapacityMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerMinute"/
↪>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignCapacityPackagingUnits">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.NumberPerTimeIntervalUnit.
↪ReciprocalSecond"/>
      </Data>
      <Data property="Value">
        <Double>140.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
```

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```
  <Data property="PackagingSystemType">
    <String>Automated Packaging.</String>
  </Data>
</Object>
```

PelletizerDisc

Plant::*ProcessEquipment*::PelletizerDisc

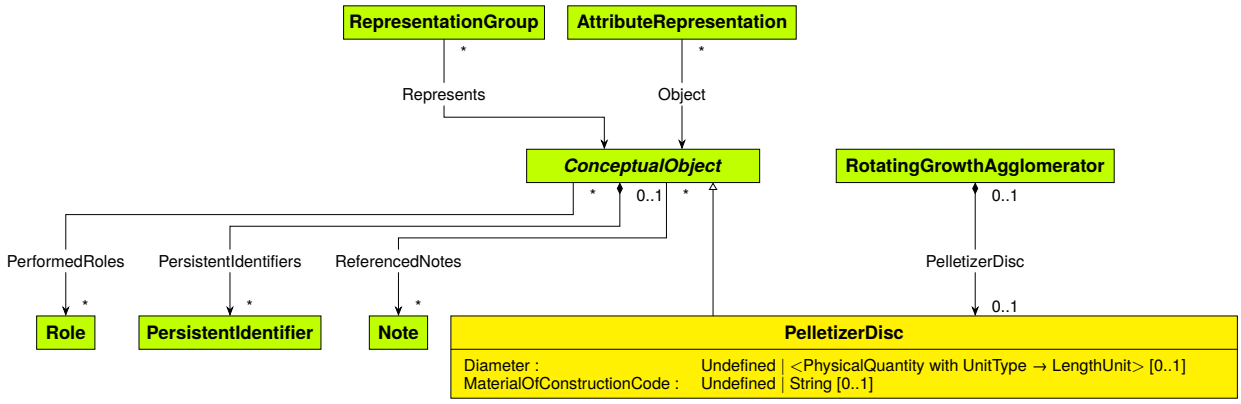
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PelletingDisc

PELLETING DISC

A rotating disc as a component of an *Agglomerator*.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no

Diameter

Data Property

The diameter of the *PelletizerDisc*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *PelletizerDisc*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

`"1.4306"`

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.PelletizerDisc">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
</Object>
```

PlateHeatExchanger

Plant::*ProcessEquipment*::PlateHeatExchanger

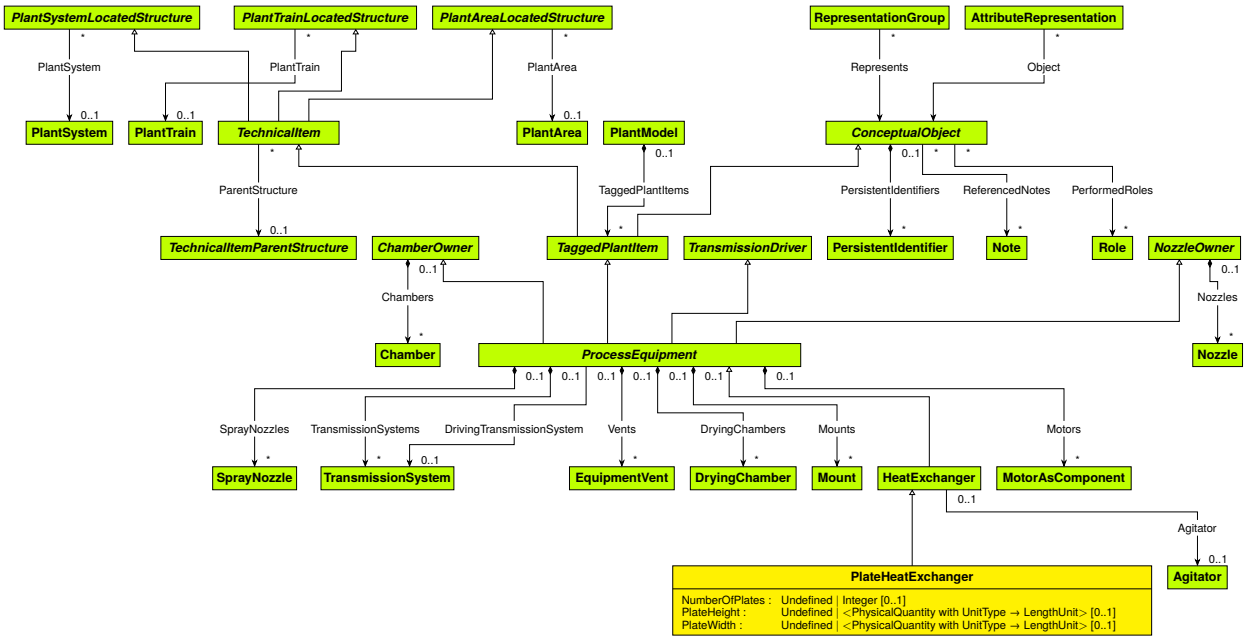
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/PlateHeatExchanger

PLATE HEAT EXCHANGER

A heat exchanger that uses metal plates to transfer heat between two fluids.



Supertypes

- *HeatExchanger*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NumberOfPlates	0..1	*Undefined* | *Integer*	no	no
PlateHeight	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
PlateWidth	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

NumberOfPlates

Data Property

The number of plates in the *PlateHeatExchanger*.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS364229

NUMBER OF PLATES

Example

```
20
```

PlateHeight

Data Property

The height of the plates in the *PlateHeatExchanger*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlateHeight

PLATE HEIGHT

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `850.0`)

PlateWidth

Data Property

The width of the plates in the *PlateHeatExchanger*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/PlateWidth

PLATE WIDTH

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = 1100.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.PlateHeatExchanger">
  <Data property="NumberOfPlates">
    <Integer>20</Integer>
  </Data>
  <Data property="PlateHeight">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>850.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="PlateWidth">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>1100.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

PressureVessel

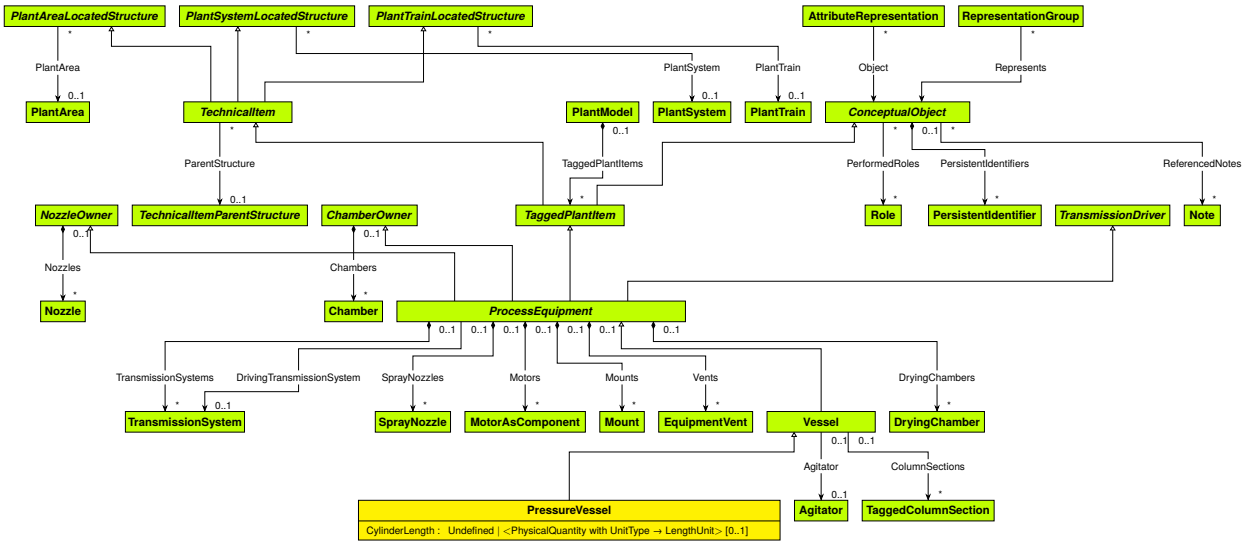
Plant::*ProcessEquipment*::PressureVessel

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS427229

PRESSURE VESSEL



Supertypes

- *Vessel*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
CylinderLength	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

CylinderLength

Data Property

The cylinder length of the *PressureVessel*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CylinderLength

CYLINDER LENGTH

Example

PhysicalQuantity(

Unit = *Metre*,

Value = `2.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.PressureVessel">
  <Data property="CylinderLength">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ProcessColumn

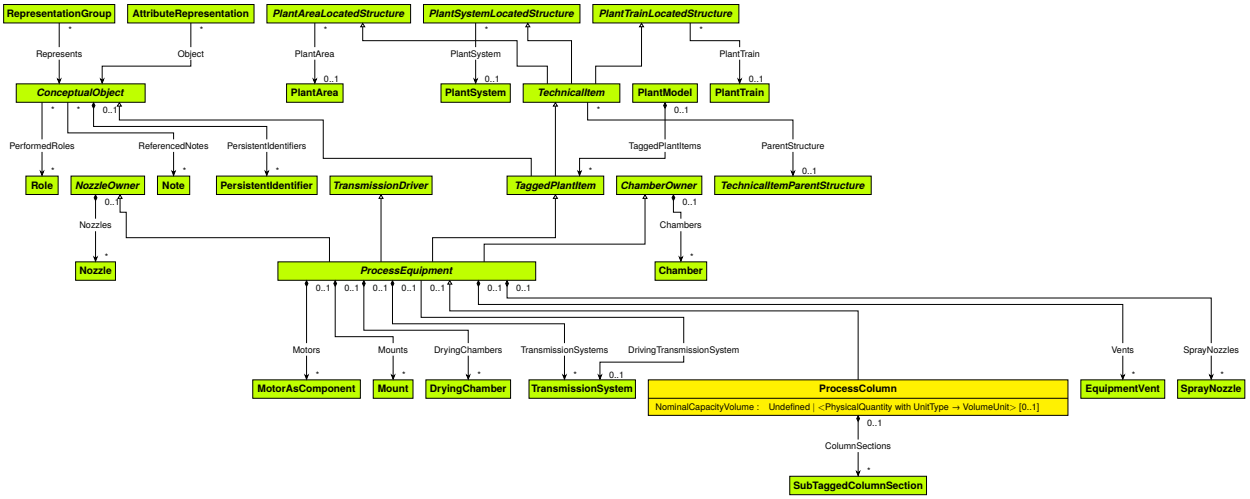
Plant::*ProcessEquipment*::ProcessColumn

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS4316825224

PROCESS COLUMN



Supertypes

- *ProcessEquipment*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ColumnSections	*	*SubTaggedColumnSection*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalCapacityVolume	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>	no	no

ColumnSections

Composition Property

The column sections of the ProcessColumn.

Type: *SubTaggedColumnSection*

Multiplicity: *

Ordered: no

NominalCapacityVolume

Data Property

The nominal volumetric capacity of the *ProcessColumn*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalCapacityVolume

NOMINAL CAPACITY VOLUME

Example

PhysicalQuantity(

Unit = *MetreCubed*,

Value = `7.2`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ProcessColumn">
  <Data property="NominalCapacityVolume">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeUnit.MetreCubed"/>
      </Data>
      <Data property="Value">
        <Double>7.2</Double>
      </Data>
    </AggregatedDataValue>
```

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```
  </Data>
</Object>
```

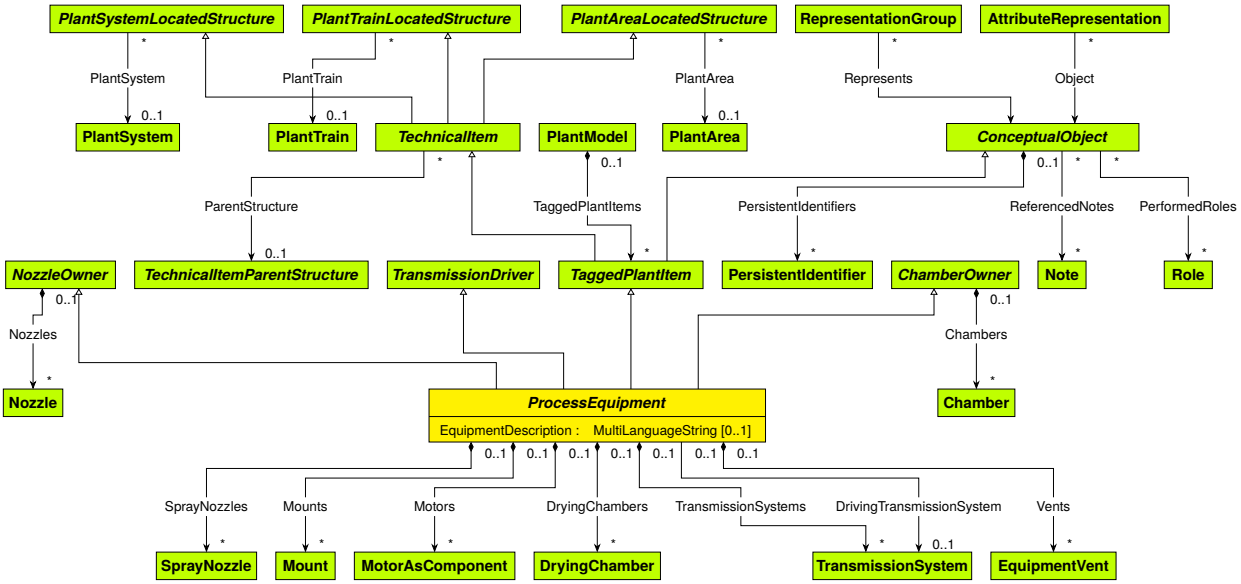
ProcessEquipment

Plant::*ProcessEquipment*::ProcessEquipment

Overview

Abstract Class

An apparatus or machine.



Supertypes

- *ChamberOwner*
- *NozzleOwner*
- *TaggedPlantItem*
- *TransmissionDriver*

Subtypes

- *Agglomerator*
- *Agitator*
- *Blower*
- *Burner*
- *Centrifuge*
- *Compressor*
- *CoolingTower*
- *Dryer*

- *ElectricGenerator*
- *Extruder*
- *Fan*
- *Feeder*
- *Filter*
- *HeatExchanger*
- *Heater*
- *Mill*
- *Mixer*
- *MobileTransportSystem*
- *Motor*
- *PackagingSystem*
- *ProcessColumn*
- *Pump*
- *Separator*
- *Sieve*
- *StationaryTransportSystem*
- *Turbine*
- *Vessel*
- *WasteGasEmitter*
- *Weigher*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
DryingChambers	*	*DryingChamber*	no
Motors	*	*MotorAsComponent*	no
Mounts	*	*Mount*	no
SprayNozzles	*	*SprayNozzle*	no
TransmissionSystems	*	*TransmissionSystem*	no
Vents	*	*EquipmentVent*	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
DrivingTransmissionSystem	0..1	*TransmissionSystem*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
EquipmentDescription	0..1	*MultiLanguageString*	no	no

DrivingTransmissionSystem

Reference Property

The *TransmissionSystem* that drives the ProcessEquipment. If given, it must be among the Plant.ProcessEquipment.Equipment.TransmissionSystems of the same ProcessEquipment.

Type: *TransmissionSystem*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

DryingChambers

Composition Property

The DryingChambers of the ProcessEquipment.

Type: *DryingChamber*

Multiplicity: *

Ordered: no

EquipmentDescription

Data Property

A short description of the *ProcessEquipment* in natural language.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS2181987301

EQUIPMENT DESCRIPTION ASSIGNMENT CLASS

Example

MultiLanguageString(

SingleLanguageStrings = [

SingleLanguageString(

Language = "de",

Value = "Prozessgaskühler"),

SingleLanguageString(
Language = "en",
Value = "process gas cooler")])

Motors

Composition Property

The motors that are components of the ProcessEquipment.

Type: *MotorAsComponent*

Multiplicity: *

Ordered: no

Mounts

Composition Property

The *Mounts* that are attached to the ProcessEquipment.

Type: *Mount*

Multiplicity: *

Ordered: no

SprayNozzles

Composition Property

The SprayNozzles of the ProcessEquipment.

Type: *SprayNozzle*

Multiplicity: *

Ordered: no

TransmissionSystems

Composition Property

The TransmissionSystems that are components of the ProcessEquipment.

Type: *TransmissionSystem*

Multiplicity: *

Ordered: no

Vents

Composition Property

The EquipmentVents that are components of the ProcessEquipment.

Type: *EquipmentVent*

Multiplicity: *

Ordered: no

ProcessNozzle

Plant::*ProcessEquipment*::ProcessNozzle

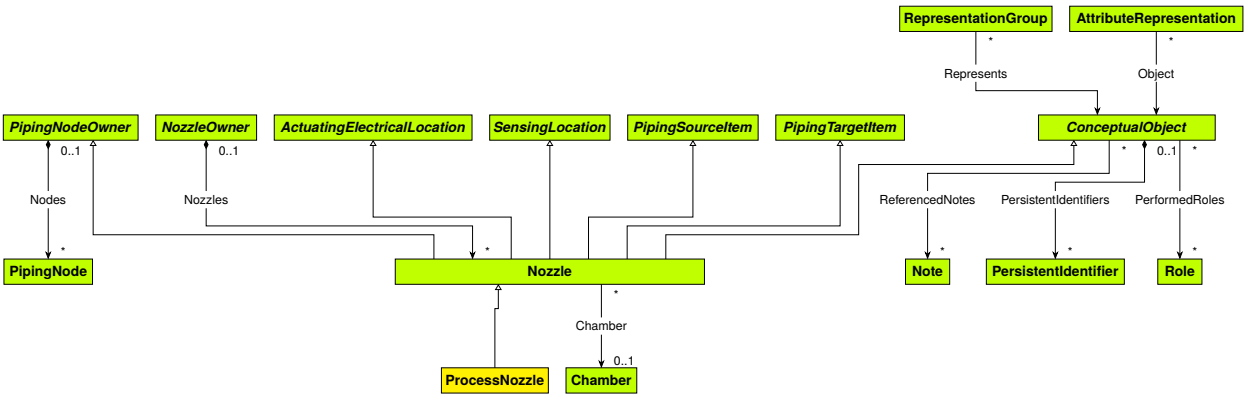
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS4316825252

PROCESS NOZZLE

A *Nozzle* intended to enable transfer of process material (from http://data.posccaesar.org/rdl/RDS4316825252).



Supertypes

- *Nozzle*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ProcessNozzle"/>
```

Pump

Plant::*ProcessEquipment*::Pump

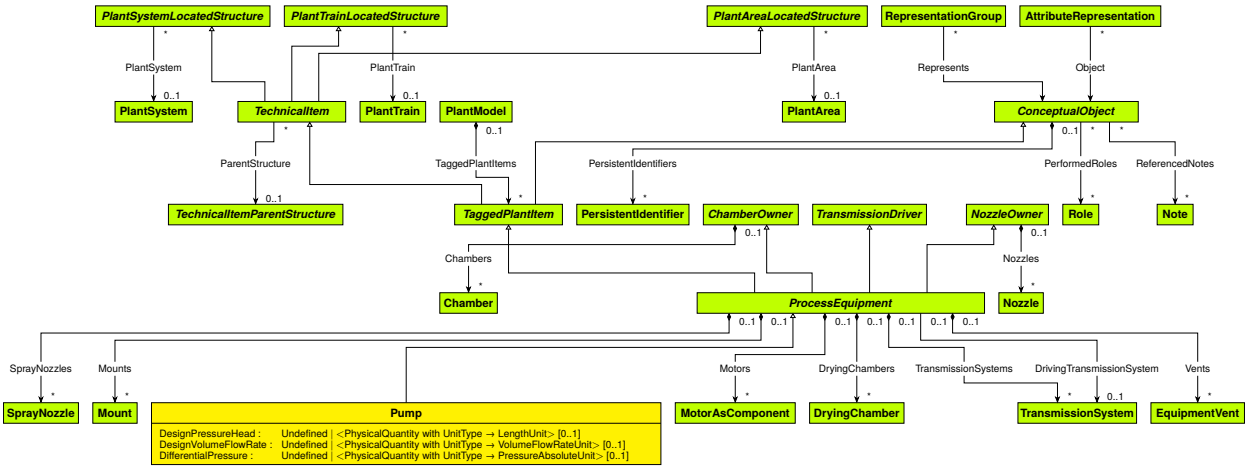
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS327239

PUMP

A machine that is capable of pumping but may require parts and subsystems for that capability.



Supertypes

- *ProcessEquipment*

Subtypes

- *CentrifugalPump*
- *EjectorPump*
- *ReciprocatingPump*
- *RotaryPump*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPressureHead	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
DifferentialPressure	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignPressureHead

Data Property

The pressure head for which the *Pump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPressureHead

DESIGN PRESSURE HEAD

Example

PhysicalQuantity(

Unit = *Metre*,

Value = `40.0`)

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Pump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

DifferentialPressure

Data Property

The differential pressure of the *Pump*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS361574

DIFFERENTIAL PRESSURE

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `4.8`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Pump">
  <Data property="DesignPressureHead">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DifferentialPressure">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>4.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

RadialFan

Plant::*ProcessEquipment*::RadialFan

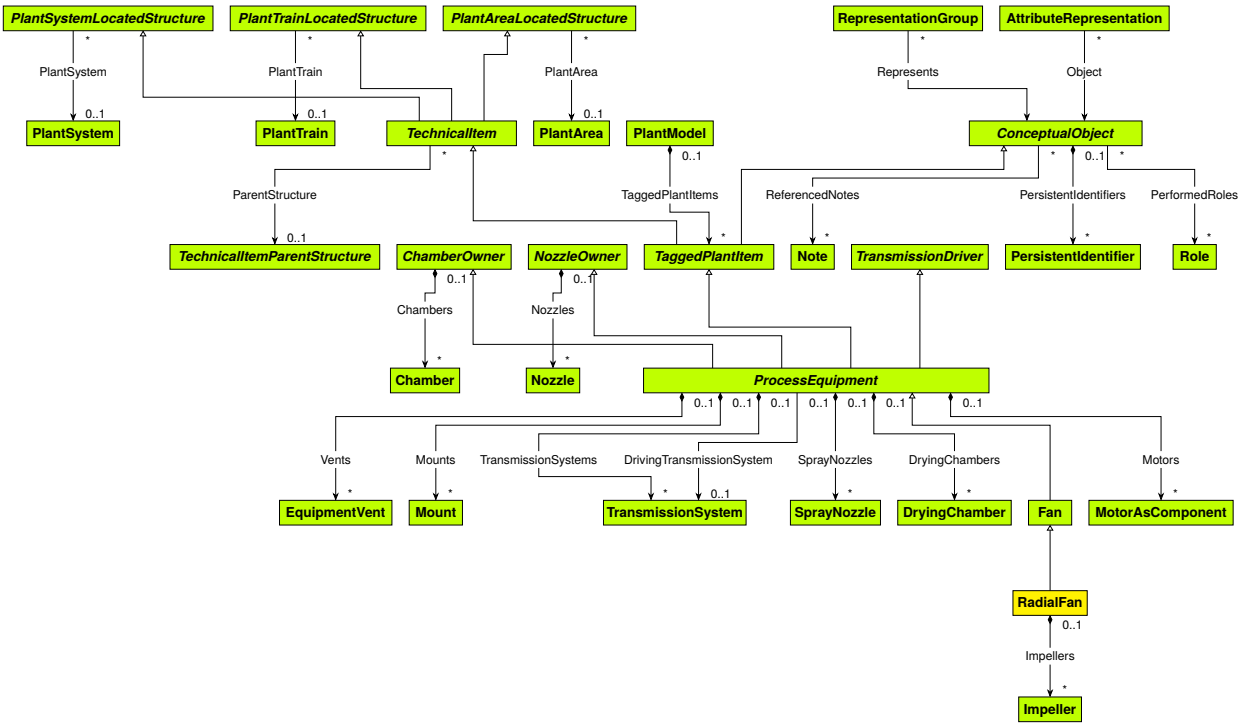
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS414089

RADIAL FAN

A ‘fan’ with axial inlet and radial outlet (from http://data.posccaesar.org/rdl/RDS414089).



Supertypes

- *Fan*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Impellers	*	*Impeller*	no

Impellers

Composition Property

The impellers of the RadialFan.

Type: *Impeller*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RadialFan"/>
```

RailWaggon

Plant::*ProcessEquipment*::RailWaggon

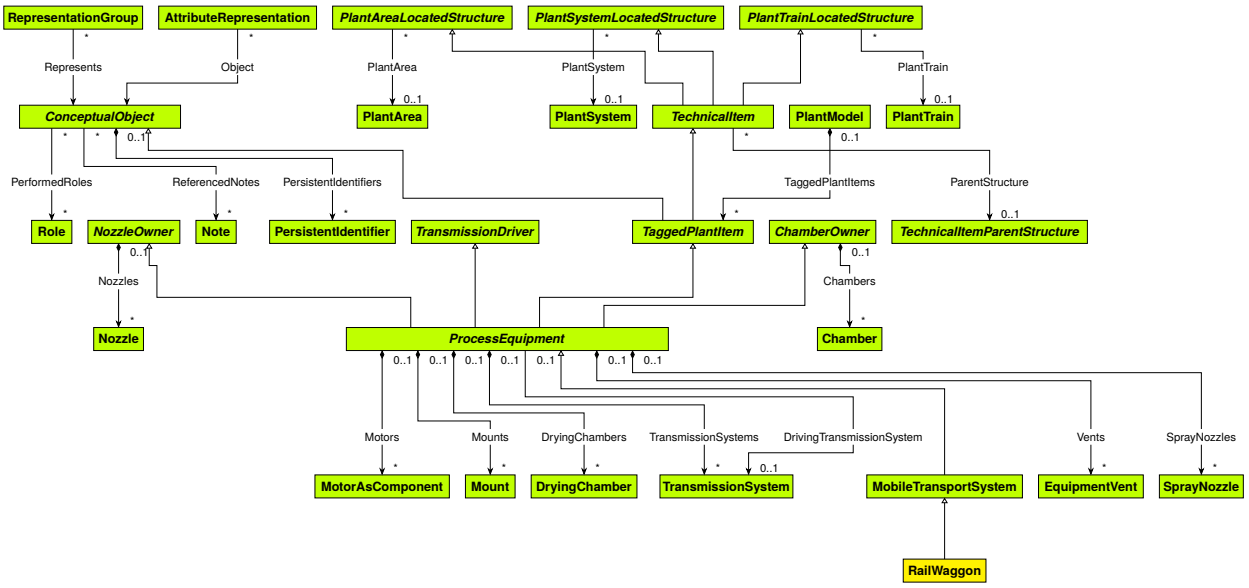
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11524697

RAIL WAGGON

A non self driving vehicle and mobile transport system intended to ride on rails.



Supertypes

- *MobileTransportSystem*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RailWaggon"/>
```

ReciprocatingCompressor

Plant::*ProcessEquipment*::ReciprocatingCompressor

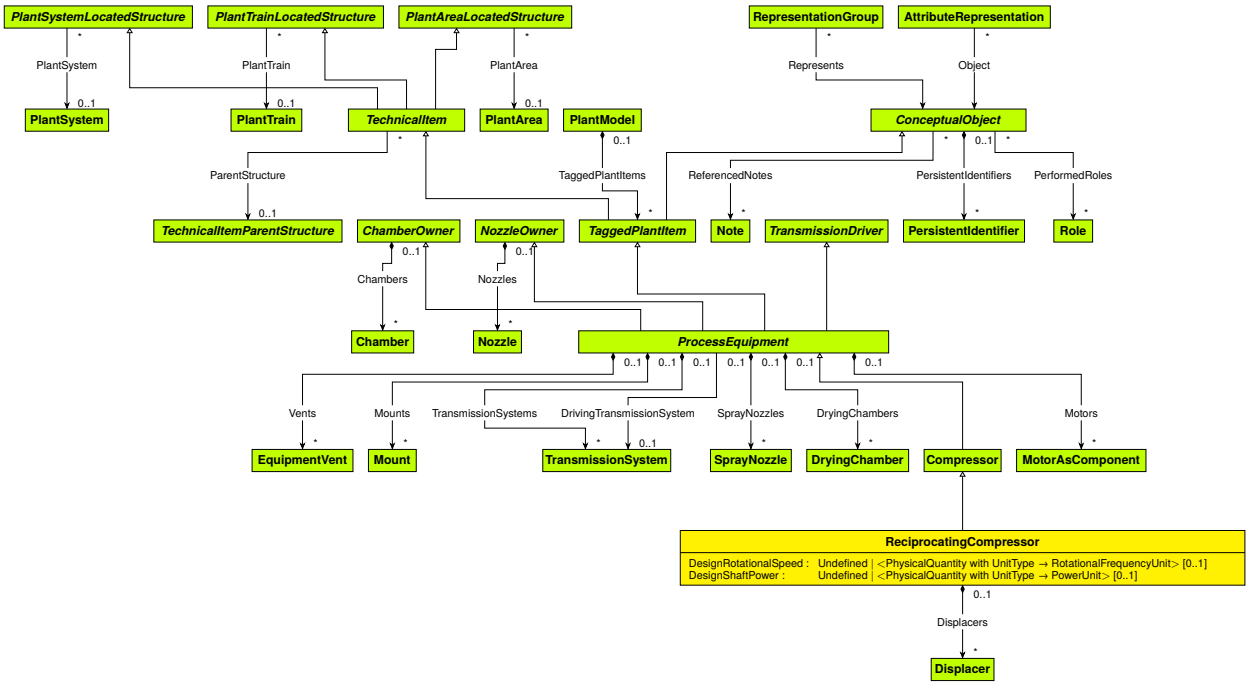
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS417284

RECIPROCATING COMPRESSOR

A positive displacement compressor in which forced reduction of gas volume takes place by the movement of a displacing element in a cylinder or enclosure (from http://data.posccaesar.org/rdl/RDS417284).



Supertypes

- *Compressor*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Displacers	*	*Displacer*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *ReciprocatingCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *ReciprocatingCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Displacers

Composition Property

The displacers of the ReciprocatingCompressor.

Type: *Displacer*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ReciprocatingCompressor">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ReciprocatingExtruder

Plant::*ProcessEquipment*::ReciprocatingExtruder

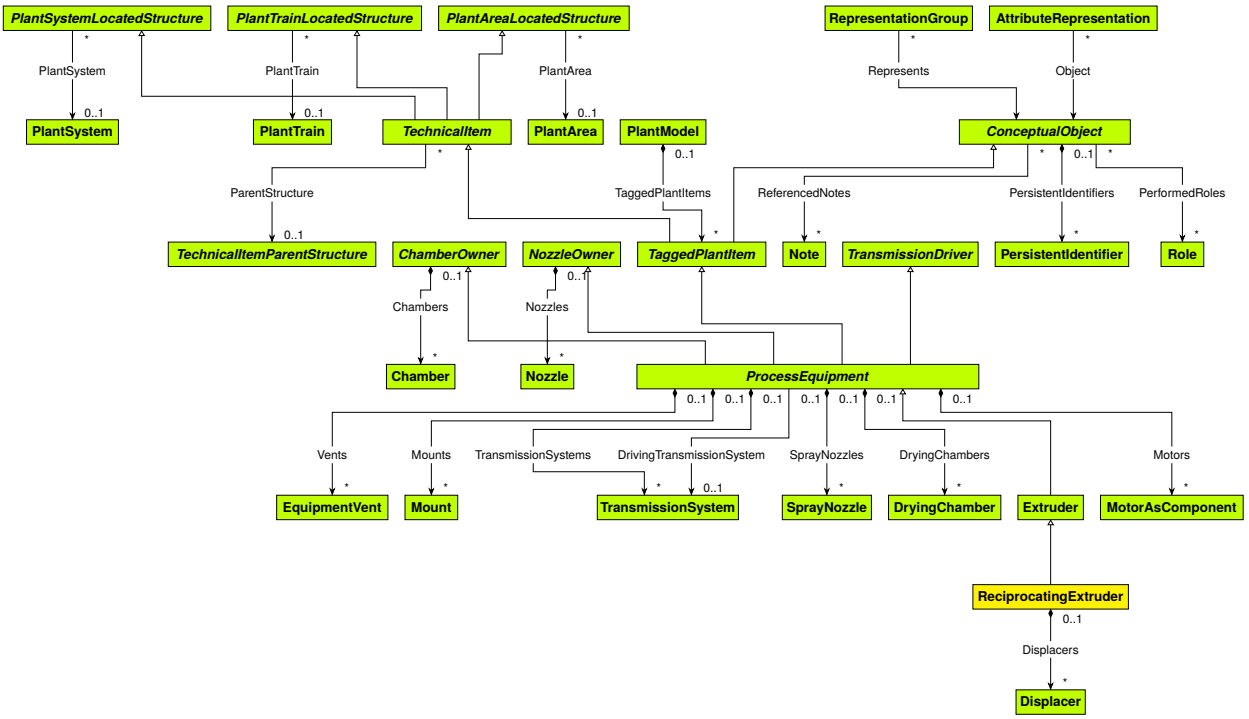
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS412409911

PISTON EXTRUDER

An extruder that uses a piston in a batch process (from http://data.posccaesar.org/rdl/RDS412409911).



Supertypes

- *Extruder*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Displacers	*	*Displacer*	no

Displacers

Composition Property

The displacers of the ReciprocatingExtruder.

Type: *Displacer*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ReciprocatingExtruder"/>
```

ReciprocatingPressureAgglomerator

Plant::*ProcessEquipment*::ReciprocatingPressureAgglomerator

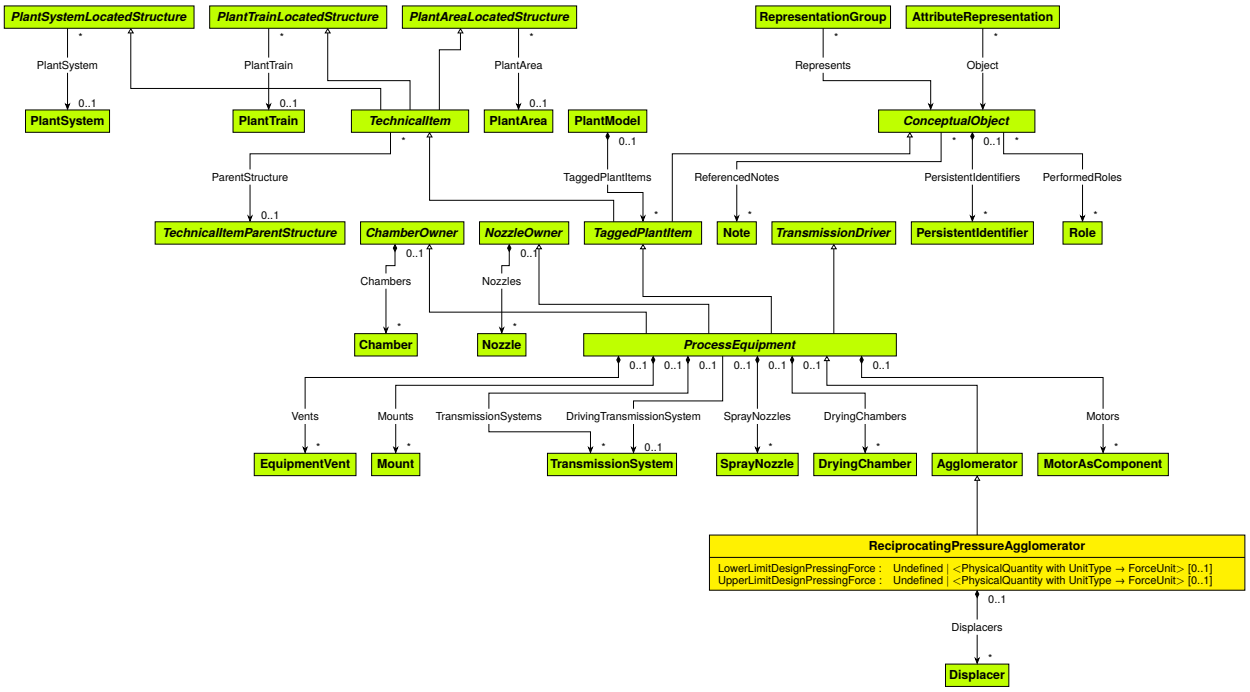
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ReciprocatingPressureAgglomerator

RECIPROCATING PRESSURE AGGLOMERATOR

An *Agglomerator* which uses pistons to produce pressure and to form material (from http://data.15926.org/rdl/RDS2228720).



Supertypes

- *Agglomerator*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Displacers	*	*Displacer*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
LowerLimitDesignPressingForce	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>	no	no
UpperLimitDesignPressingForce	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>	no	no

Displacers

Composition Property

The displacers of the ReciprocatingPressureAgglomerator.

Type: *Displacer*

Multiplicity: *

Ordered: no

LowerLimitDesignPressingForce

Data Property

The lower limit for the pressing force for which the *ReciprocatingPressureAgglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitDesignPressingForce

LOWER LIMIT DESIGN PRESSING FORCE

Example

PhysicalQuantity(

Unit = *Newton*,

Value = `20.0`)

UpperLimitDesignPressingForce

Data Property

The upper limit for the pressing force for which the *ReciprocatingPressureAgglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDesignPressingForce

UPPER LIMIT DESIGN PRESSING FORCE

Example

PhysicalQuantity(

Unit = *Newton*,

Value = `70.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ReciprocatingPressureAgglomerator">
  <Data property="LowerLimitDesignPressingForce">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ForceUnit.Newton"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignPressingForce">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ForceUnit.Newton"/>
      </Data>
      <Data property="Value">
        <Double>70.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ReciprocatingPump

Plant::*ProcessEquipment*::ReciprocatingPump

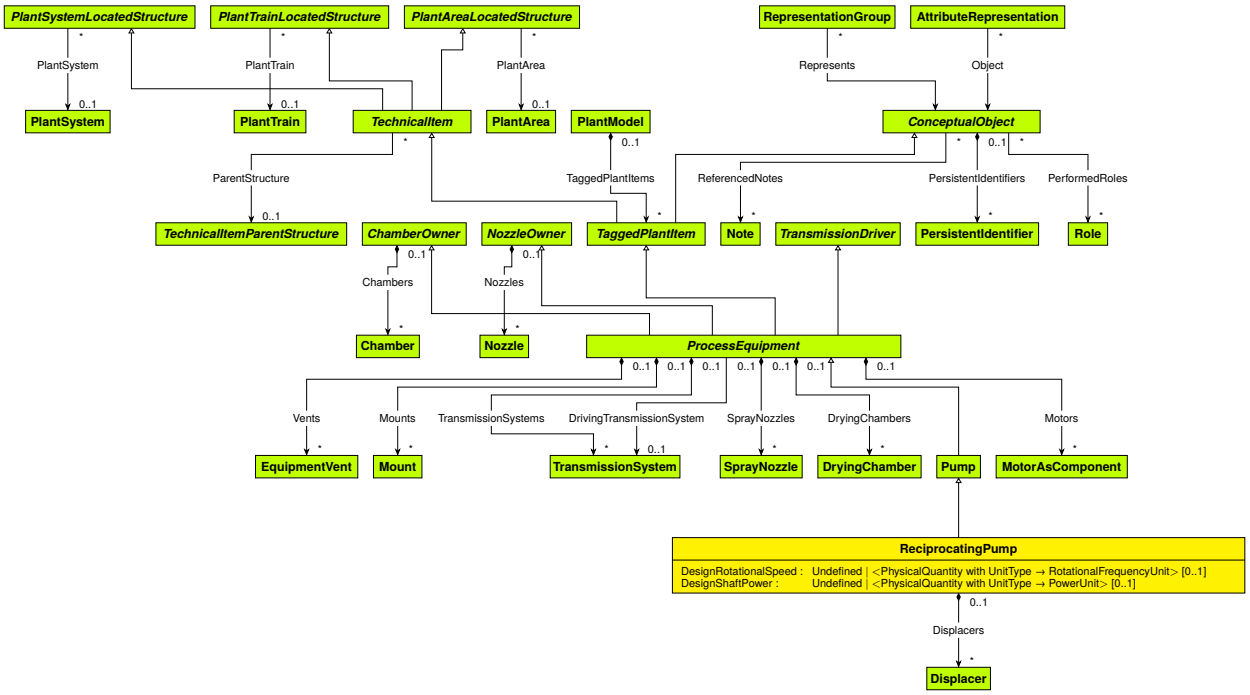
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416969

RECIPROCATING PUMP

a positive displacement pump which contains a displacing element intended to be moved in a reciprocating movement to exert pressure on a fluid, typically moving within a cylindrical space (from http://data.posccaesar.org/rdl/RDS416969).



Supertypes

- *Pump*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Displacers	*	*Displacer*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *ReciprocatingPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *ReciprocatingPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

Displacers

Composition Property

The displacers of the ReciprocatingPump.

Type: *Displacer*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ReciprocatingPump">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

RevolvingSieve

Plant::*ProcessEquipment*::RevolvingSieve

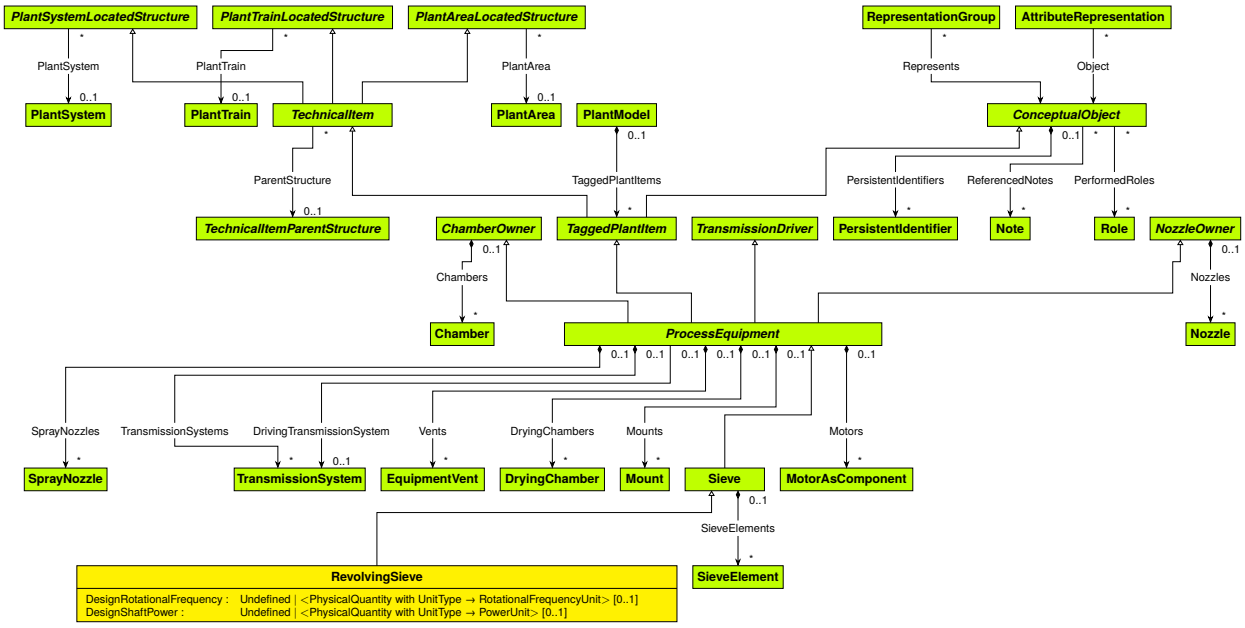
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/RevolvingSieve

REVOLVING SIEVE

A revolving sieve that intends to sift out finer from coarser parts.



Supertypes

- *Sieve*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalFrequency

Data Property

The rotational frequency for which the *RevolvingSieve* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalFrequency

DESIGN ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *RevolvingSieve* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RevolvingSieve">
  <Data property="DesignRotationalFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

RotaryCompressor

Plant::*ProcessEquipment*::RotaryCompressor

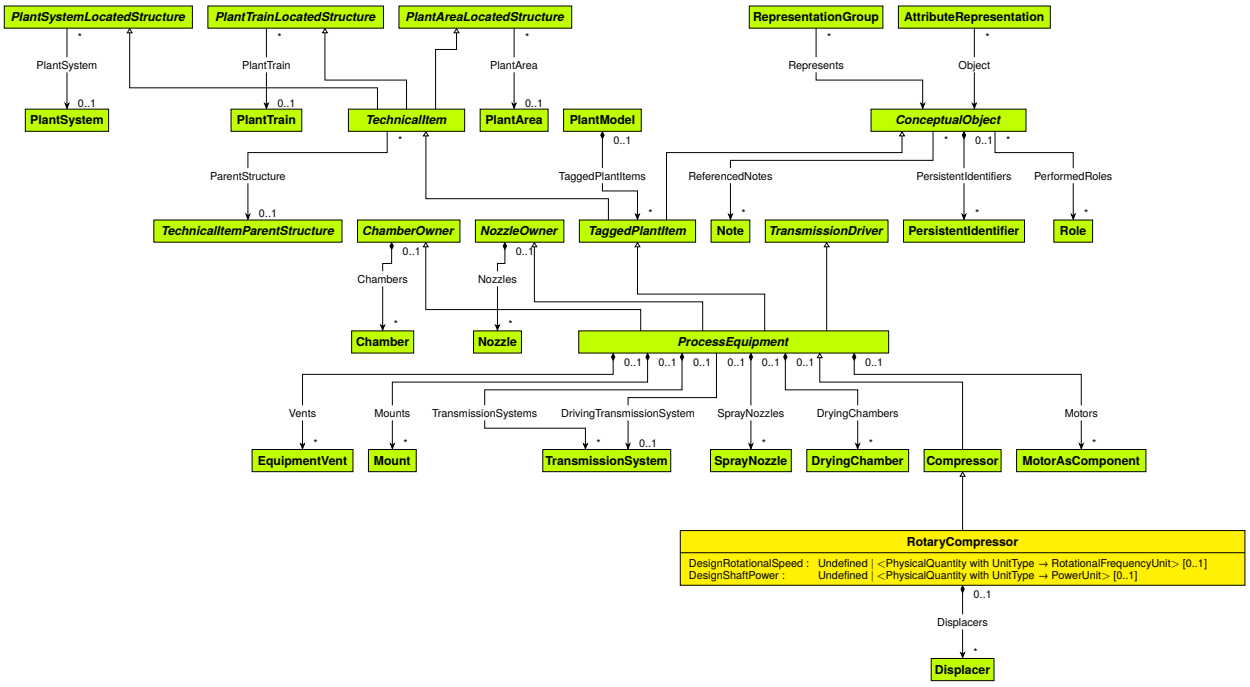
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS435374

ROTARY COMPRESSOR

A positive displacement compressor in which compression displacement is effected by the positive action of rotating elements (from http://data.posccaesar.org/rdl/RDS435374).



Supertypes

- *Compressor*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Displacers	*	*Displacer*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *RotaryCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *RotaryCompressor* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

Displacers

Composition Property

The displacers of the RotaryCompressor.

Type: *Displacer*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RotaryCompressor">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

RotaryMixer

Plant::*ProcessEquipment*::RotaryMixer

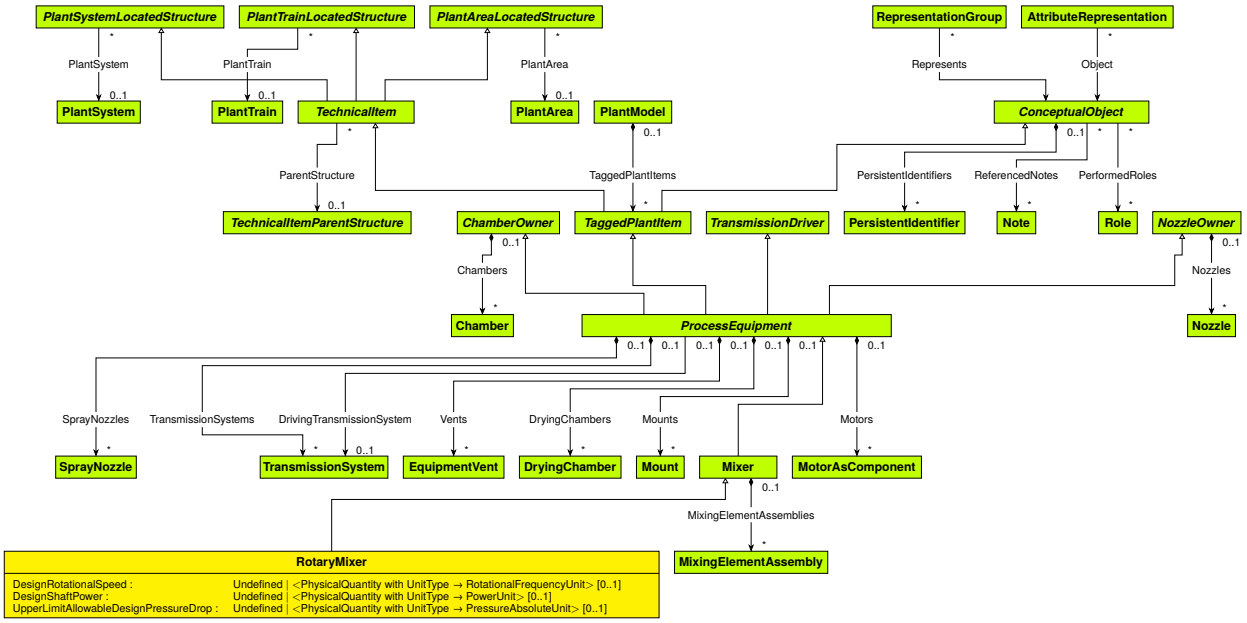
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/RotaryMixer

ROTARY MIXER

A *Mixer* machine that mixes by means of rotating components.



Supertypes

- *Mixer*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
UpperLimitAllowableDesignPressureDrop	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *RotaryMixer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *RotaryMixer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

UpperLimitAllowableDesignPressureDrop

Data Property

The upper limit for the pressure drop for which the *RotaryMixer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableDesignPressureDrop

UPPER LIMIT ALLOWABLE DESIGN PRESSURE DROP

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `2.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RotaryMixer">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitAllowableDesignPressureDrop">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

RotaryPump

Plant::*ProcessEquipment*::RotaryPump

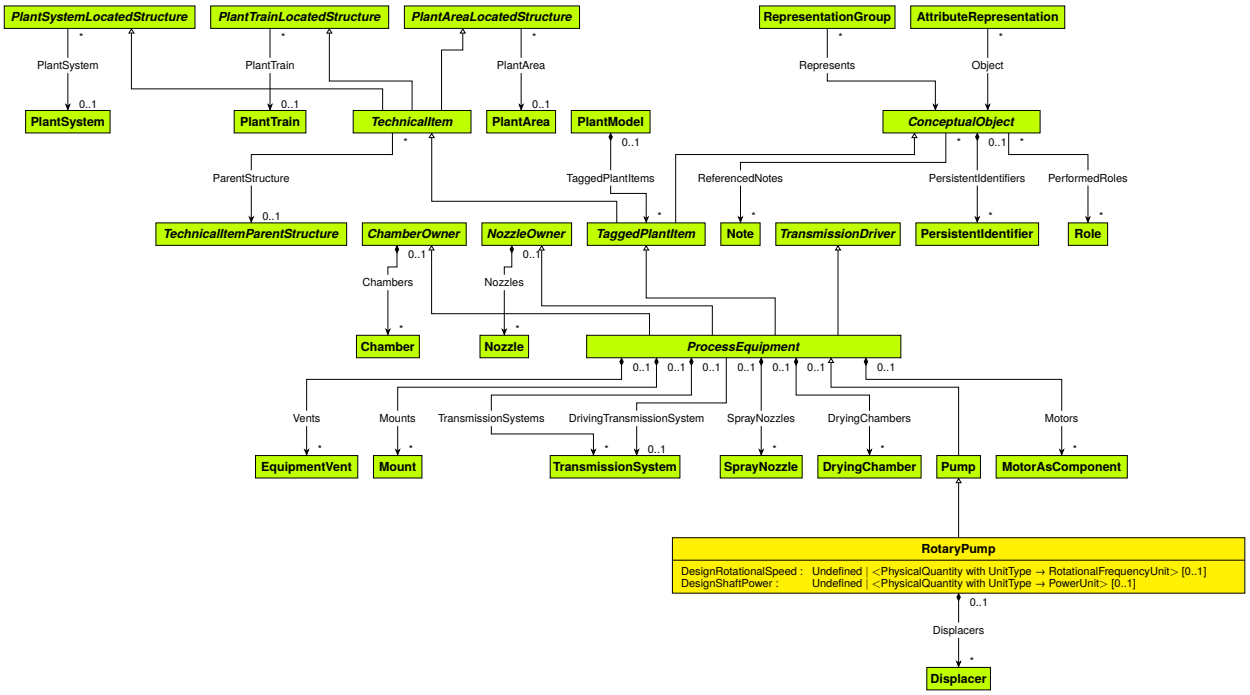
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS420749

ROTARY PUMP

A positive displacement pump that consists of a chamber containing gears, cams, screws, vanes, plungers or similar elements actuated by relative rotation of the drive shaft or casing and which has no separate inlet and outlet valves (from http://data.posccaesar.org/rdl/RDS420749).



Supertypes

- *Pump*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Displacers	*	*Displacer*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignRotationalSpeed

Data Property

The rotational speed for which the *RotaryPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *RotaryPump* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Displacers

Composition Property

The displacers of the RotaryPump.

Type: *Displacer*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RotaryPump">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
```

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```
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

RotatingExtruder

Plant::*ProcessEquipment*::RotatingExtruder

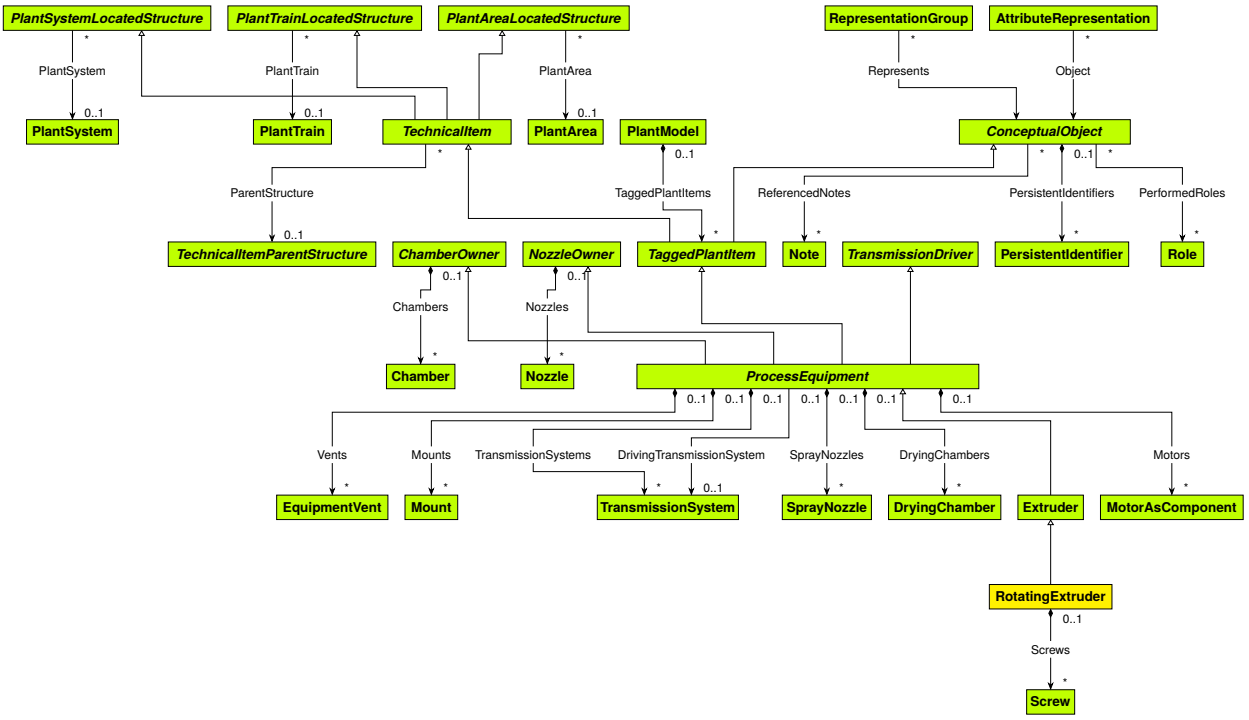
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS394045941

AUGER EXTRUDER

An extruder that operates in a continuous process. Typically using a screw to build up pressure in the melt. It can incorporate a mixing stage with a forming stage (from http://data.posccaesar.org/rdl/RDS394045941).



Supertypes

- *Extruder*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Screws	*	*Screw*	no

Screws

Composition Property

The screws of the RotatingExtruder.

Type: *Screw*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RotatingExtruder"/>
```

RotatingGrowthAgglomerator

Plant::*ProcessEquipment*::RotatingGrowthAgglomerator

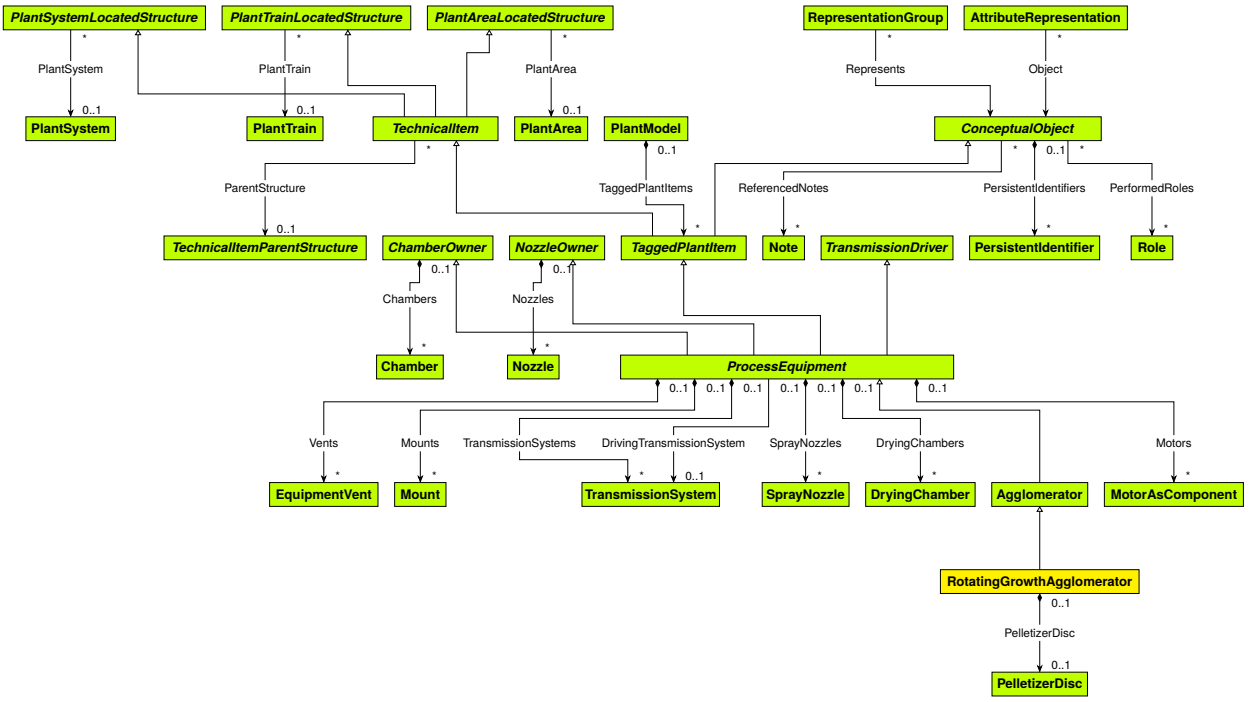
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/RotatingGrowthAgglomerator

ROTATING GROWTH AGGLOMERATOR

An *Agglomerator* which uses a pelletizer disc to produce pellets.



Supertypes

- *Agglomerator*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
PelletizerDisc	0..1	*PelletizerDisc*	no

PelletizerDisc

Composition Property

The pelletizing disc of the RotatingGrowthAgglomerator.

Type: *PelletizerDisc*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RotatingGrowthAgglomerator"/>
```

RotatingPressureAgglomerator

Plant::*ProcessEquipment*::RotatingPressureAgglomerator

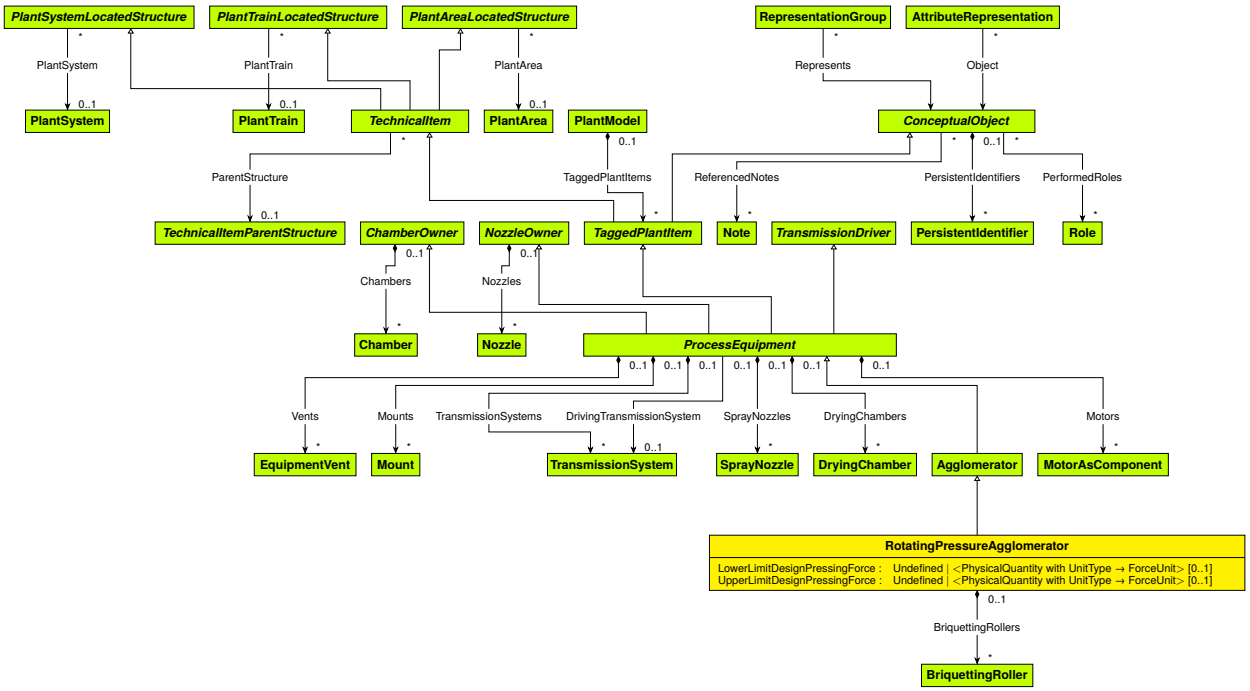
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/RotatingPressureAgglomerator

ROTATING PRESSURE AGGLOMERATOR

An *Agglomerator* which uses briquetting rollers to produce pressure and to form material.



Supertypes

- *Agglomerator*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
BriquettingRollers	*	*BriquettingRoller*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
LowerLimitDesignPressingForce	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>	no	no
UpperLimitDesignPressingForce	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>	no	no

BriquettingRollers

Composition Property

The briquetting rollers of the RotatingPressureAgglomerator.

Type: *BriquettingRoller*

Multiplicity: *

Ordered: no

LowerLimitDesignPressingForce

Data Property

The lower limit for the pressing force for which the *RotatingPressureAgglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/LowerLimitDesignPressingForce

LOWER LIMIT DESIGN PRESSING FORCE

Example

PhysicalQuantity(

Unit = *Newton*,

Value = `20.0`)

UpperLimitDesignPressingForce

Data Property

The upper limit for the pressing force for which the *RotatingPressureAgglomerator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitDesignPressingForce

UPPER LIMIT DESIGN PRESSING FORCE

Example

PhysicalQuantity(

Unit = *Newton*,

Value = 70.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.RotatingPressureAgglomerator">
  <Data property="LowerLimitDesignPressingForce">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ForceUnit.Newton"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitDesignPressingForce">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.ForceUnit.Newton"/>
      </Data>
      <Data property="Value">
        <Double>70.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Screw

Plant::*ProcessEquipment*::Screw

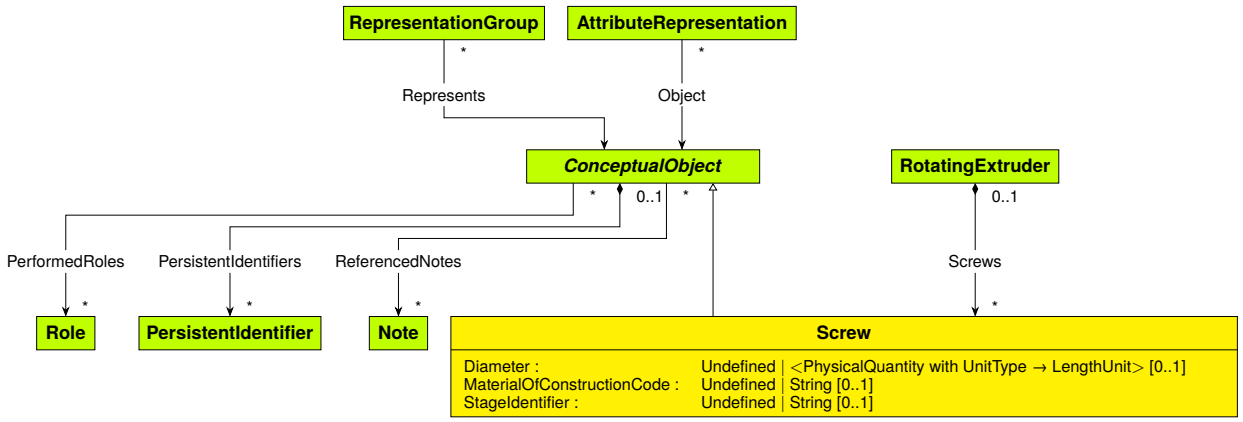
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS7219994

SCREW

A shaft with a helical shaped shaft design (from http://data.posccaesar.org/rdl/RDS7219994).



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no

Diameter

Data Property

The diameter of the *Screw*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *Screw*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

StageIdentifier

Data Property

The stage identifier of the *Screw*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

```
"s1"
```

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Screw">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
```

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```
  <Data property="StageIdentifier">
    <String>s1</String>
  </Data>
</Object>
```

ScrubbingSeparator

Plant::*ProcessEquipment*::ScrubbingSeparator

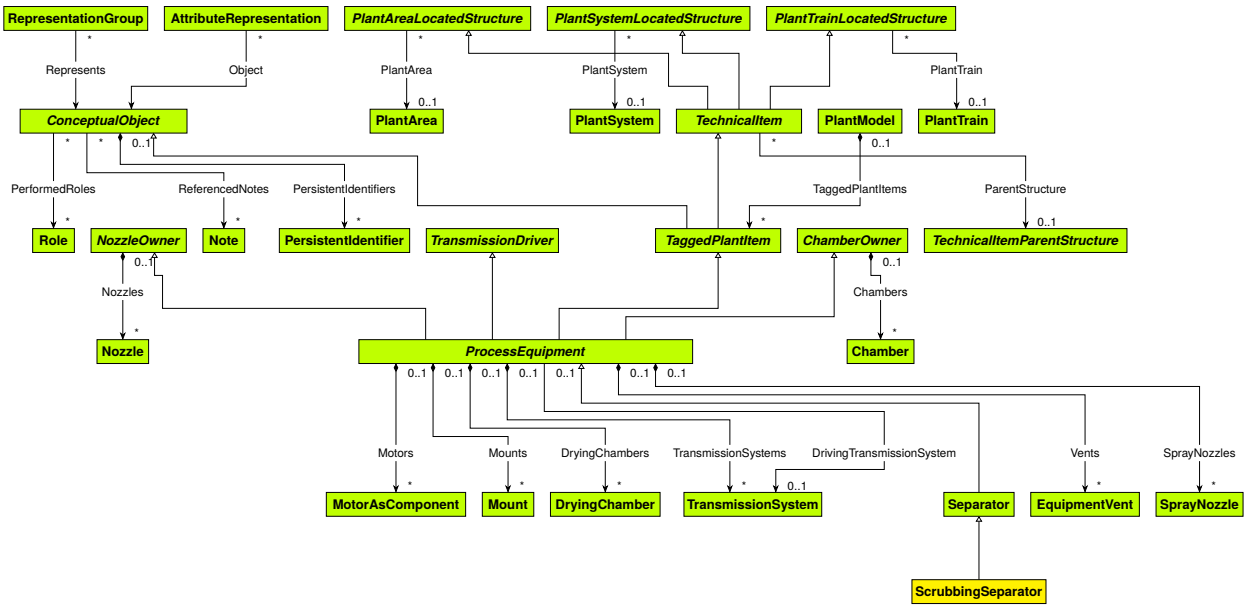
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ScrubbingSeparator

SCRUBBING SEPARATOR

A separator that is intended to clean gas by washing the gas flow with water or with another liquid entering at the top of the vessel.



Supertypes

- *Separator*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ScrubbingSeparator"/>
```

SedimentalCentrifuge

Plant::*ProcessEquipment*::SedimentalCentrifuge

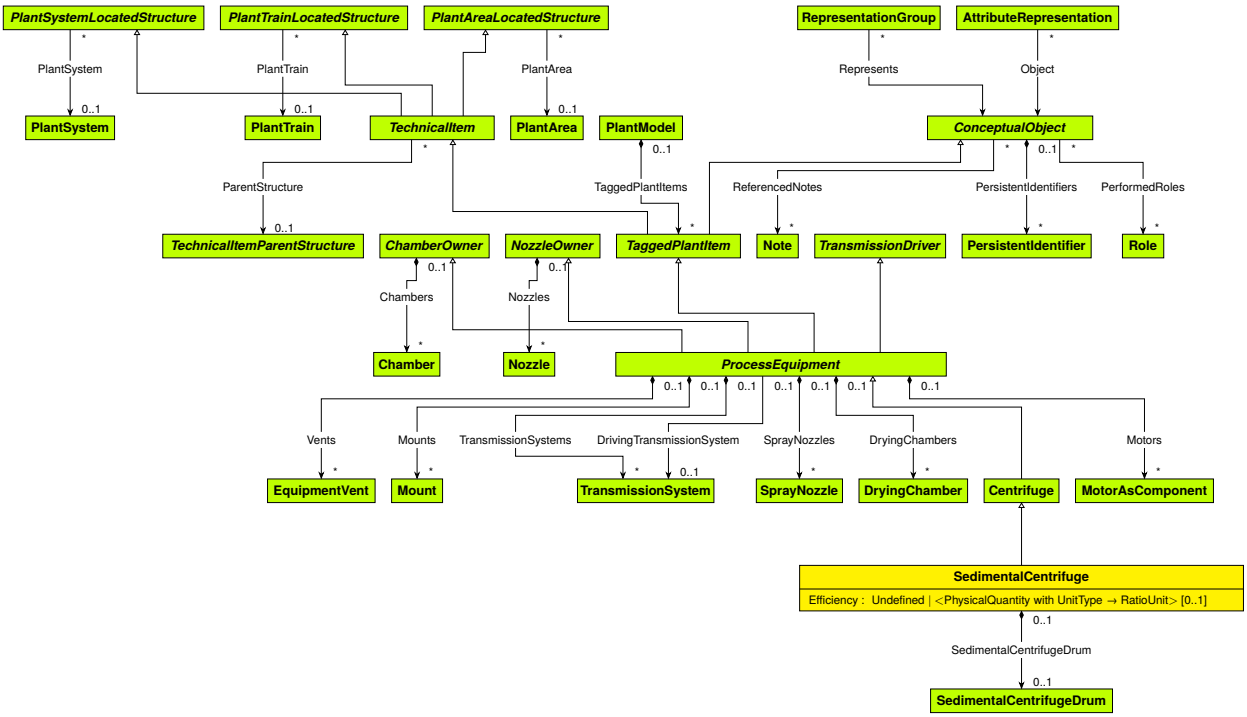
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SedimentalCentrifuge

SEDIMENTAL CENTRIFUGE

A centrifuge that is intended to separate solids from liquids by a centrifugal process based on different densities.



Supertypes

- *Centrifuge*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
SedimentalCentrifugeDrum	0..1	*SedimentalCentrifugeDrum*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Efficiency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no

Efficiency

Data Property

The efficiency of the *SedimentalCentrifuge*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS362654

EFFICIENCY

Example

PhysicalQuantity(

Unit = *Percent*,

Value = 90.0)

SedimentalCentrifugeDrum

Composition Property

The sedimental centrifuge drum of the SedimentalCentrifuge.

Type: *SedimentalCentrifugeDrum*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SedimentalCentrifuge">
  <Data property="Efficiency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>90.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

SedimentalCentrifugeDrum

Plant::*ProcessEquipment*::SedimentalCentrifugeDrum

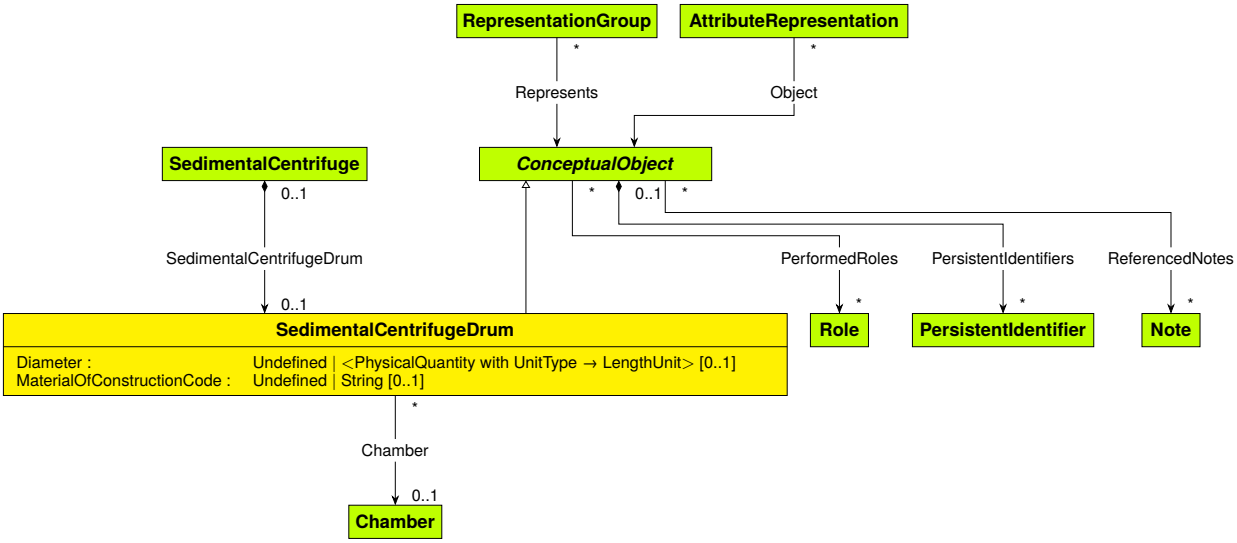
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SedimentalCentrifugeDrum

SEDIMENTAL CENTRIFUGE DRUM

A SedimentalCentrifugeDrum is a drum and a component of a *SedimentalCentrifuge*.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the SedimentalCentrifugeDrum is located, if applicable. The Chamber must be a component of the same object as the SedimentalCentrifugeDrum.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Diameter

Data Property

The diameter of the *SedimentalCentrifugeDrum*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS350954

DIAMETER

Example

PhysicalQuantity(

Unit = *Centimetre*,

Value = `20.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *SedimentalCentrifugeDrum*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

"1.4306"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SedimentalCentrifugeDrum">
  <Data property="Diameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
      </Data>
      <Data property="Value">
        <Double>20.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
</Object>
```

Separator

Plant::*ProcessEquipment*::Separator

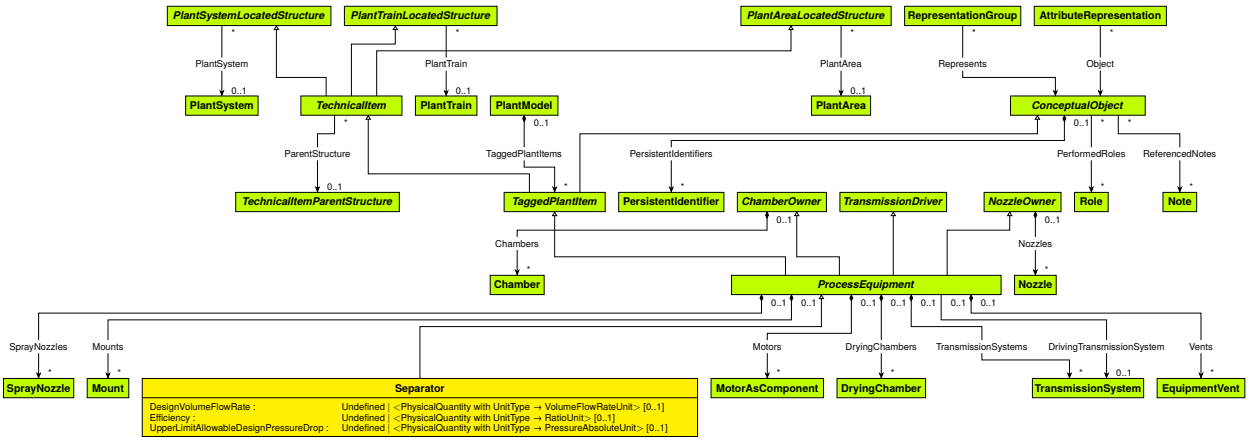
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS2194378711

SEPARATOR

A ‘device’ intended to separate different types of substances



Supertypes

- *ProcessEquipment*

Subtypes

- *ElectricalSeparator*
- *GravitationalSeparator*
- *MechanicalSeparator*
- *ScrubbingSeparator*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
Efficiency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no
UpperLimitAllowableDesignPressureDrop	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *Separator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

Efficiency

Data Property

The efficiency of the *Separator*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS362654

EFFICIENCY

Example

PhysicalQuantity(

Unit = *Percent*,

Value = `90.0`)

UpperLimitAllowableDesignPressureDrop

Data Property

The upper limit for the pressure drop for which the *Separator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableDesignPressureDrop

UPPER LIMIT ALLOWABLE DESIGN PRESSURE DROP

Example

PhysicalQuantity(

Unit = *Bar*,

Value = `2.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Separator">
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="Efficiency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
```

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```
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>90.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="UpperLimitAllowableDesignPressureDrop">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Ship

Plant::*ProcessEquipment*::Ship

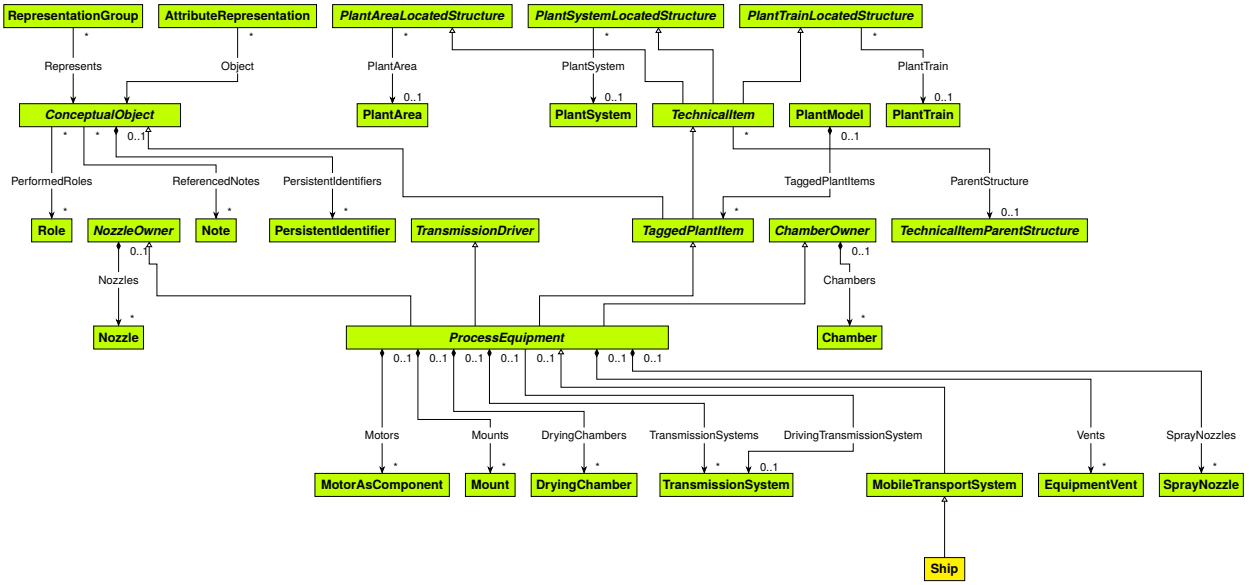
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11523932

SHIP

A watercraft and *MobileTransportSystem* that is a sea-going vessel of considerable size.



Supertypes

- *MobileTransportSystem*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Ship"/>
```

Sieve

Plant::*ProcessEquipment*::Sieve

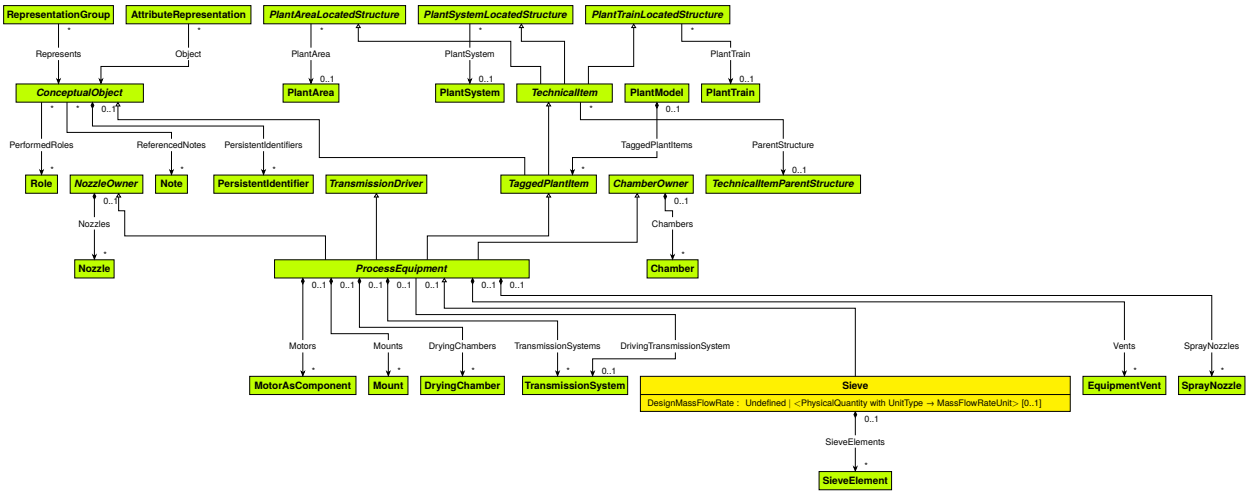
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Sieve

SIEVE

A device that removes particles from a fluid when the fluid passes through or separates particles or molecules according to their size.



Supertypes

- *ProcessEquipment*

Subtypes

- *RevolvingSieve*
- *StationarySieve*
- *VibratingSieve*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
SieveElements	*	*SieveElement*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no

DesignMassFlowRate

Data Property

The mass flow rate for which the *Sieve* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

SieveElements

Composition Property

The sieve elements of the Sieve.

Type: *SieveElement*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Sieve">
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
```

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```
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

SieveElement

Plant::*ProcessEquipment*::SieveElement

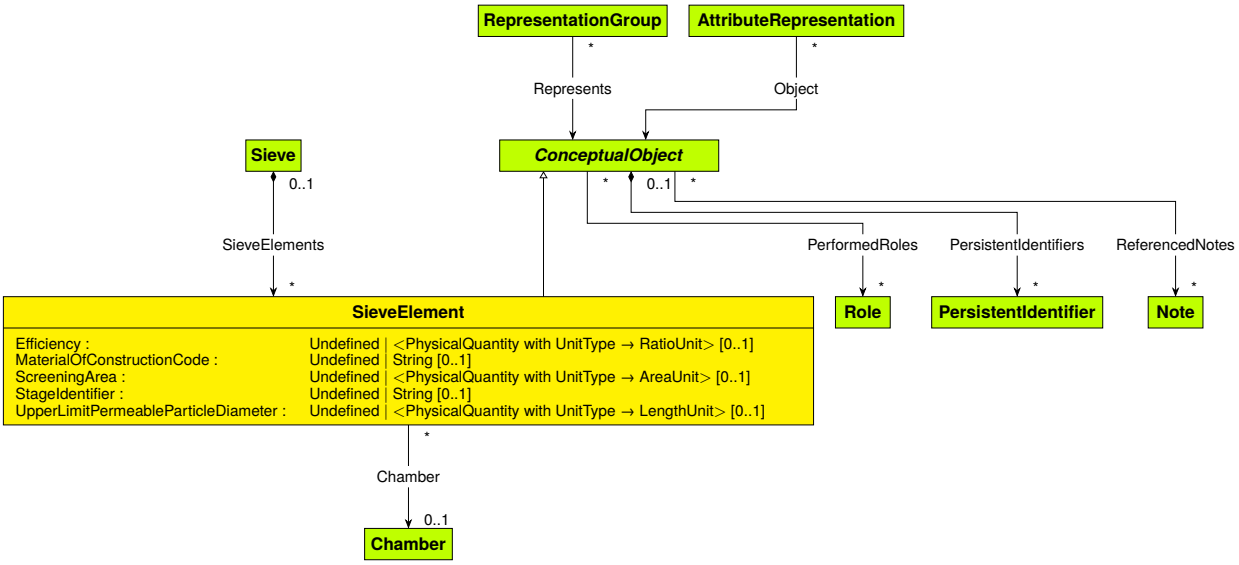
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SieveElement

SIEVE ELEMENT

A screening unit that is a component of a sieve.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Efficiency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>	no	no
MaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
ScreeningArea	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>	no	no
StageIdentifier	0..1	*Undefined* | *String*	no	no
UpperLimitPermeableParticle-Diameter	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

Chamber

Reference Property

The *Chamber* in which the SieveElement is located, if applicable. The Chamber must be a component of the same object as the SieveElement.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Efficiency

Data Property

The efficiency of the *SieveElement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS362654

EFFICIENCY

Example

PhysicalQuantity(

Unit = *Percent*,

Value = `90.0`)

MaterialOfConstructionCode

Data Property

A code that gives the material of construction of the *SieveElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS1460719741

MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

ScreeningArea

Data Property

The filter area of the *SieveElement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/ScreeningArea

SCREENING AREA

Example

PhysicalQuantity(

Unit = *MetreSquared*,

Value = 6.0)

StageIdentifier

Data Property

The stage identifier of the *SieveElement*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/StageIdentifierAssignmentClass

STAGE IDENTIFIER ASSIGNMENT CLASS

Example

"s1"

UpperLimitPermeableParticleDiameter

Data Property

The maximum of the particle size passing through the *SieveElement*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitPermeableParticleDiameter

UPPER LIMIT PERMEABLE PARTICLE DIAMETER

Example

PhysicalQuantity(

Unit = *Micrometre*,

Value = 400.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SieveElement">
  <Data property="Efficiency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
      </Data>
      <Data property="Value">
        <Double>90.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="MaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="ScreeningArea">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.AreaUnit.MetreSquared"/>
      </Data>
      <Data property="Value">
        <Double>6.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="StageIdentifier">
    <String>s1</String>
```

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```
  </Data>
  <Data property="UpperLimitPermeableParticleDiameter">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Micrometre"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Silo

Plant::*ProcessEquipment*::Silo

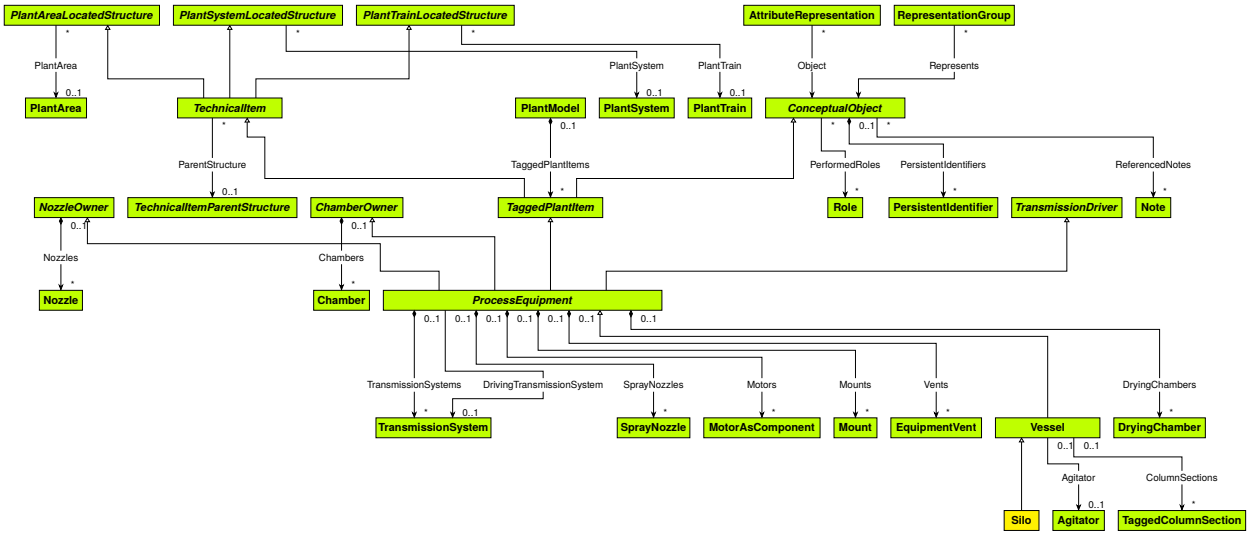
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1022399

SILO

A *Vessel* with a conical shape that is intended to store solids in bulk (from http://data.15926.org/rdl/RDS1022399).



Supertypes

- *Vessel*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Silo"/>
```

SpiralHeatExchanger

Plant::*ProcessEquipment*::SpiralHeatExchanger

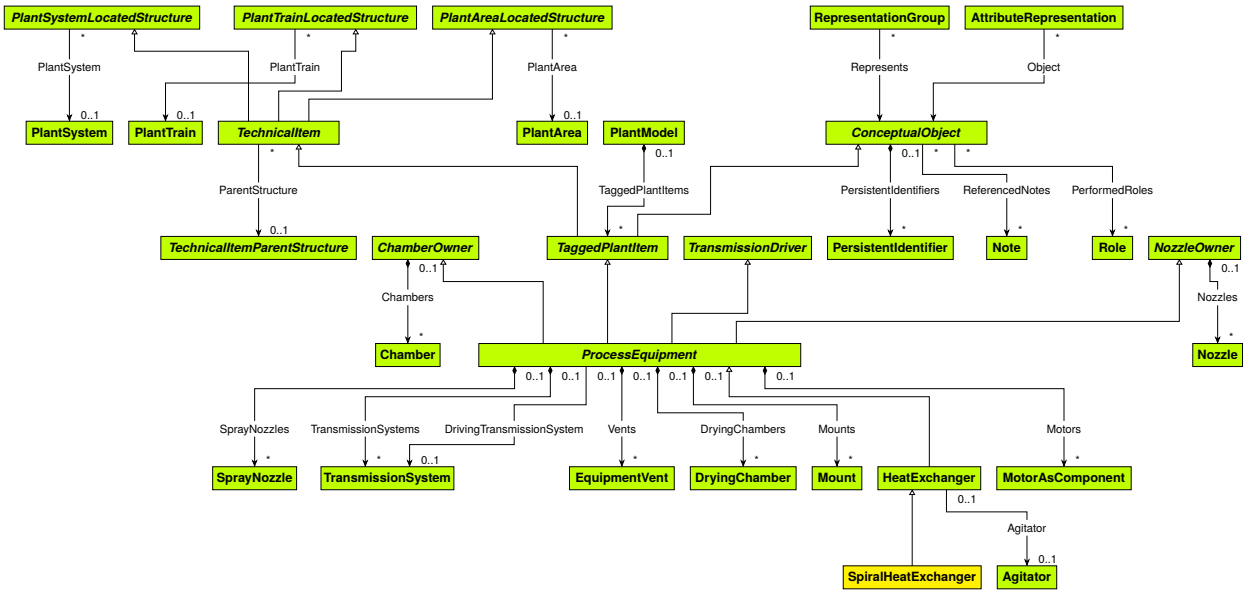
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SpiralHeatExchanger

SPIRAL HEAT EXCHANGER

A *HeatExchanger* in which a pair of plates is formed into a spiral.



Supertypes

- *HeatExchanger*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SpiralHeatExchanger"/>
```

SprayCooler

Plant::*ProcessEquipment*::SprayCooler

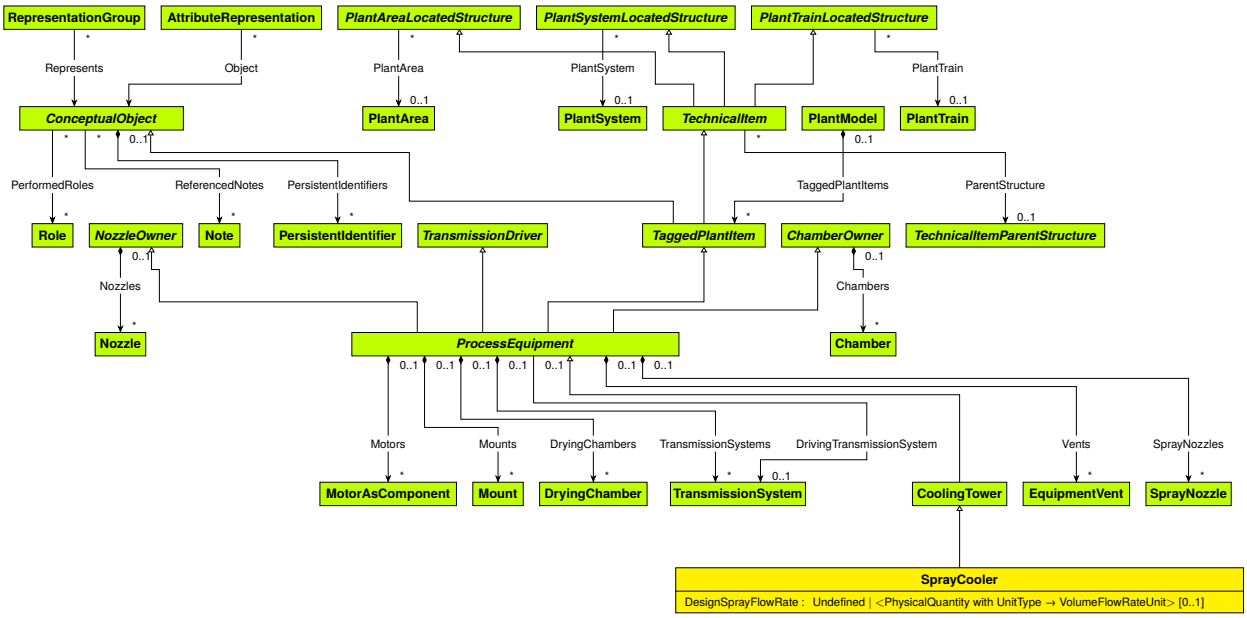
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/SprayCooler

SPRAY COOLER

A *CoolingTower* that is based on spraying a coolant on a heated surface to be cooled.



Supertypes

- *CoolingTower*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignSprayFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignSprayFlowRate

Data Property

The spray volume flow rate for the motive fluid for which the *SprayCooler* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignSprayFlowRate

DESIGN SPRAY FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = 40.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SprayCooler">
  <Data property="DesignSprayFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

SprayNozzle

Plant::*ProcessEquipment*::SprayNozzle

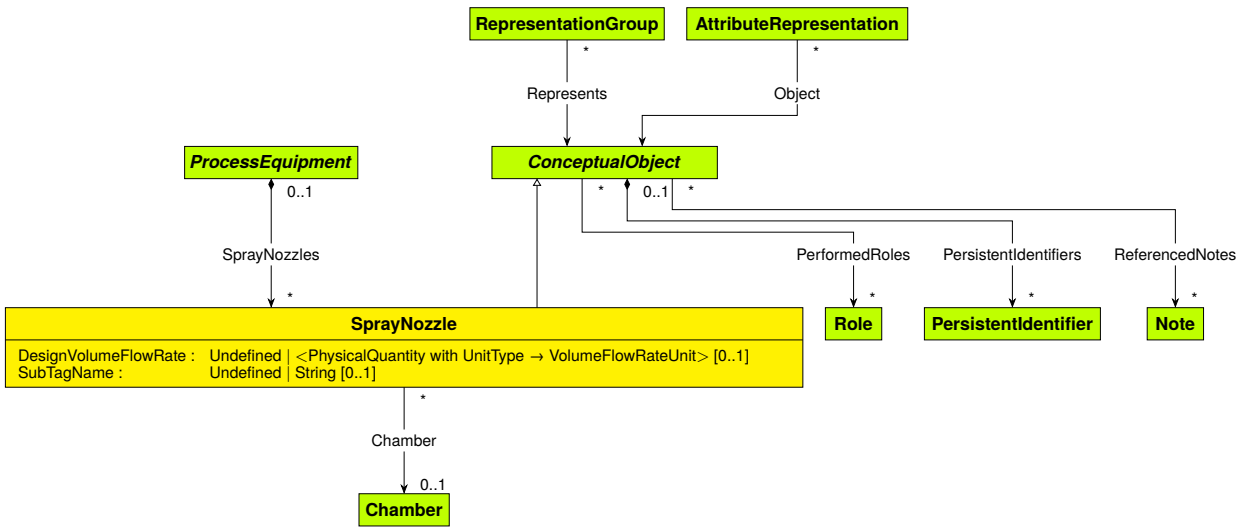
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS5855670

SPRAY NOZZLE

A nozzle where liquid is introduced under pressure



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no
SubTagName	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the SprayNozzle is located, if applicable. The Chamber must be a component of the same object as the SprayNozzle.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *SprayNozzle* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = 420.0)

SubTagName

Data Property

The sub tag name of the *SprayNozzle*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SprayNozzle">
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

StaticMixer

Plant::*ProcessEquipment*::StaticMixer

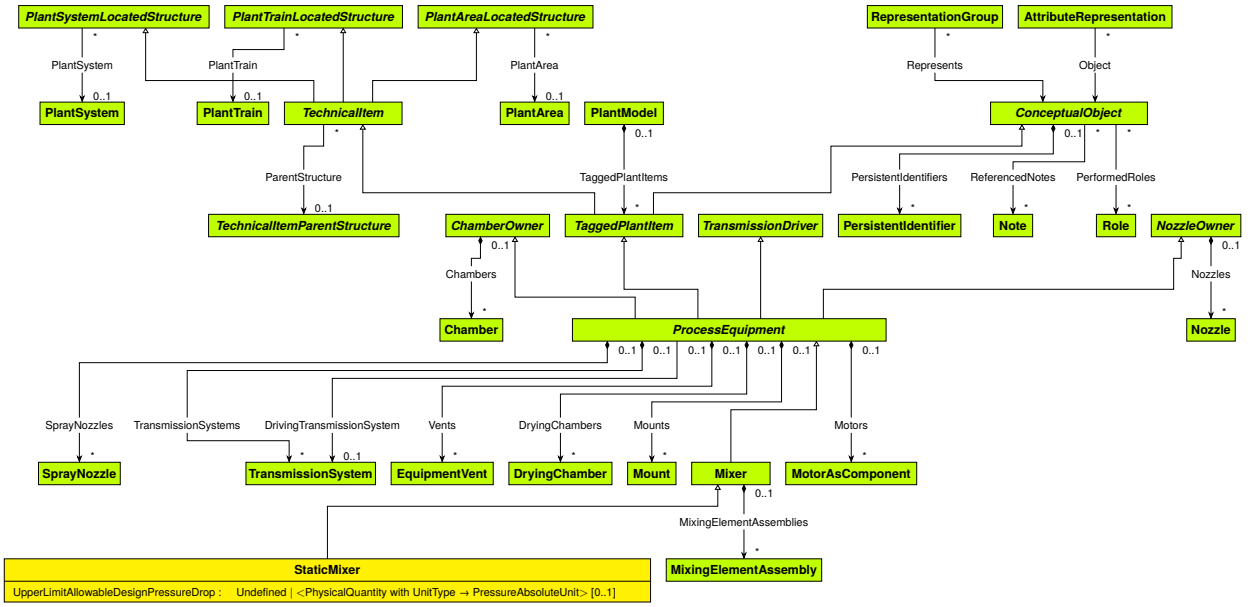
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS1016684

STATIC MIXER

A physical object that is intended to mix fluid by means of diverging the flow with static obstacles or by increasing locally the velocity.



Supertypes

- *Mixer*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
UpperLimitAllowableDesignPressureDrop	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>	no	no

UpperLimitAllowableDesignPressureDrop

Data Property

The upper limit for the pressure drop for which the *StaticMixer* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/UpperLimitAllowableDesignPressureDrop

UPPER LIMIT ALLOWABLE DESIGN PRESSURE DROP

Example

PhysicalQuantity(

Unit = *Bar*,

Value = 2.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.StaticMixer">
  <Data property="UpperLimitAllowableDesignPressureDrop">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

StationarySieve

Plant::*ProcessEquipment*::StationarySieve

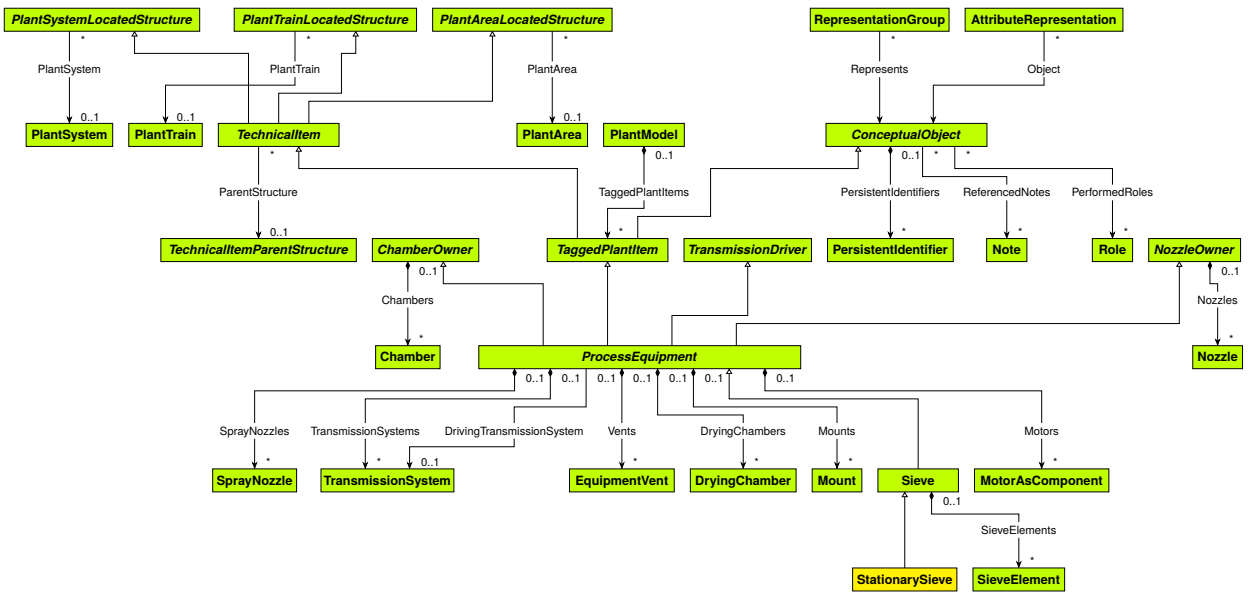
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/StationaryScreen

STATIONARY SCREEN

A *Sieve* consisting of rakes or sieves, that, during operation, remains in a fixed position (from http://data.15926.org/rdl/RDS2226669).



Supertypes

- *Sieve*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.StationarySieve"/>
```

StationaryTransportSystem

Plant::*ProcessEquipment*::StationaryTransportSystem

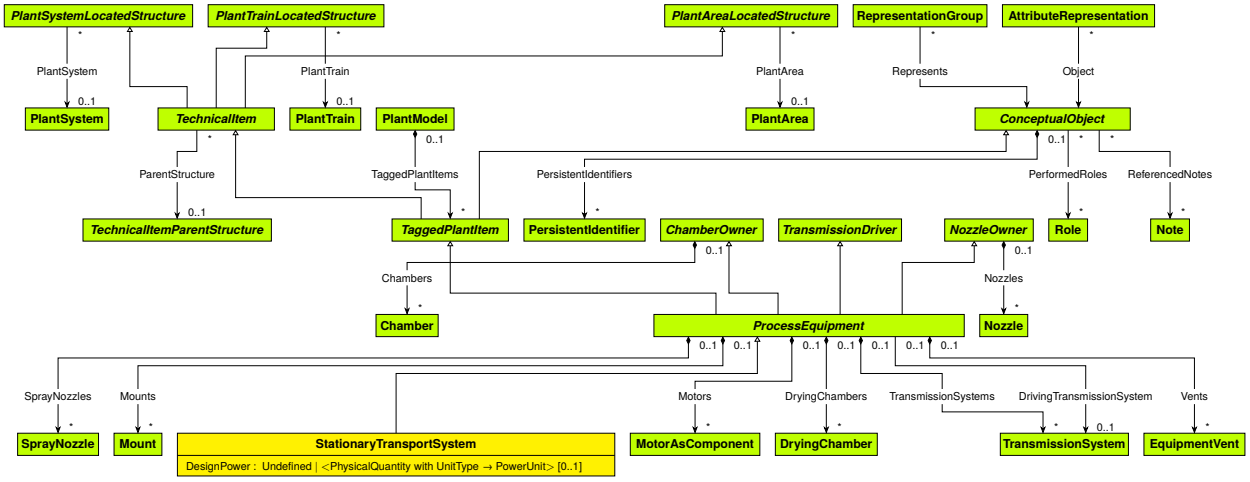
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/StationaryTransportSystem

STATIONARY TRANSPORT SYSTEM

A transport system that is intended to transport, store or load/unload material and that, as a whole, remains in one place.



Supertypes

- *ProcessEquipment*

Subtypes

- *Conveyor*
- *Lift*
- *LoadingUnloadingSystem*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *StationaryTransportSystem* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 500.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.StationaryTransportSystem">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

SteamGenerator

Plant::*ProcessEquipment*::SteamGenerator

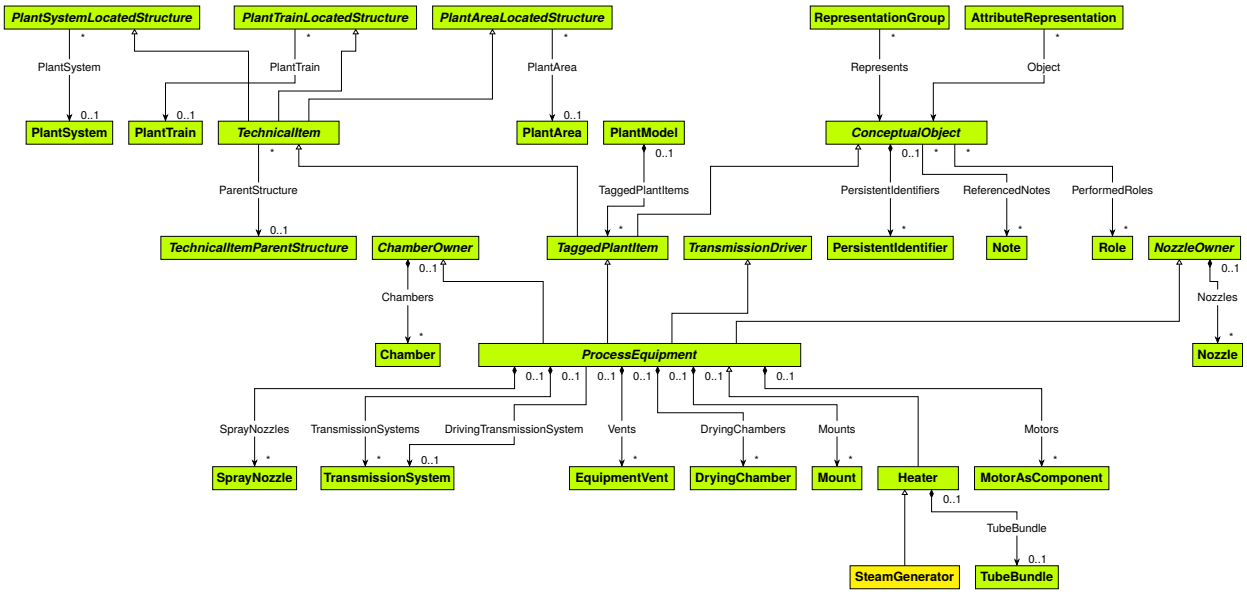
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13306207

STEAM GENERATOR

A boiler that is intended to generate steam (from http://data.posccaesar.org/rdl/RDS13306207).



Supertypes

- *Heater*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SteamGenerator"/>
```

SteamTurbine

Plant::*ProcessEquipment*::SteamTurbine

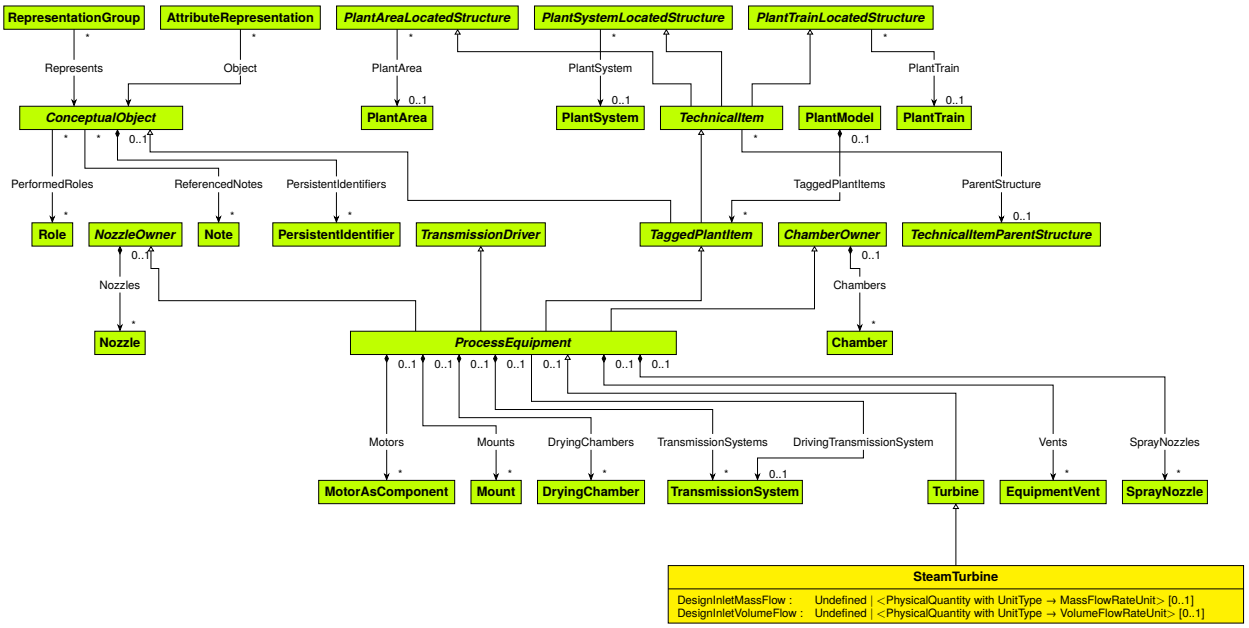
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS416744

STEAM TURBINE

A turbine that is a heat engine in which energy of steam is transformed into kinetic energy by means of expansion through nozzles and the kinetic energy of the resulting jet is in turn converted into force doing work on rings of blading mounted on a rotating shaft (from http://data.posccaesar.org/rdl/RDS416744).



Supertypes

- *Turbine*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignInletMassFlow	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignInletVolumeFlow	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignInletMassFlow

Data Property

The inlet mass flow for which the *SteamTurbine* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignInletMassFlow

DESIGN INLET MASS FLOW

Example

PhysicalQuantity(

Unit = *KilogramPerHour*,

Value = 800.0)

DesignInletVolumeFlow

Data Property

The inlet volume flow for which the *SteamTurbine* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignInletVolumeFlow

DESIGN INLET VOLUME FLOW

Example

PhysicalQuantity(

Unit = *LitrePerSecond*,

Value = 2.8)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SteamTurbine">
  <Data property="DesignInletMassFlow">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour"/>
      </Data>
      <Data property="Value">
        <Double>800.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignInletVolumeFlow">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.LitrePerSecond"/>
      </Data>
      <Data property="Value">
        <Double>2.8</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

SubTaggedColumnSection

Plant::*ProcessEquipment*::SubTaggedColumnSection

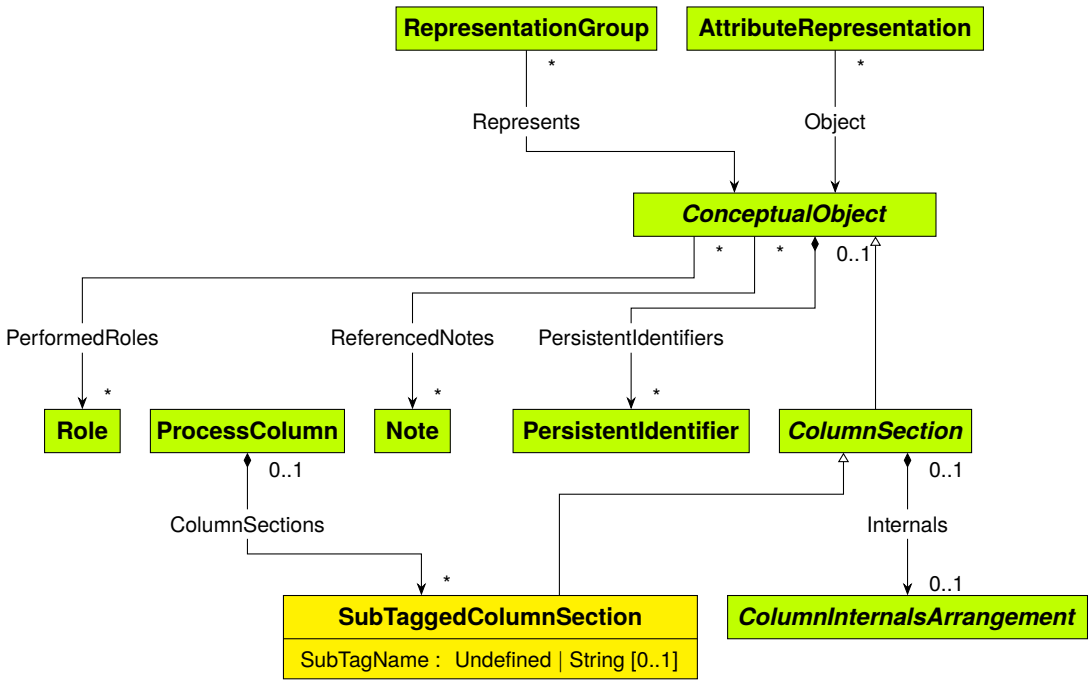
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ColumnSection

COLUMN SECTION

A sub tagged column section.



Supertypes

- *ColumnSection*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

SubTagName

Data Property

The sub tag name of the *SubTaggedColumnSection*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.SubTaggedColumnSection">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

TaggedColumnSection

Plant::*ProcessEquipment*::TaggedColumnSection

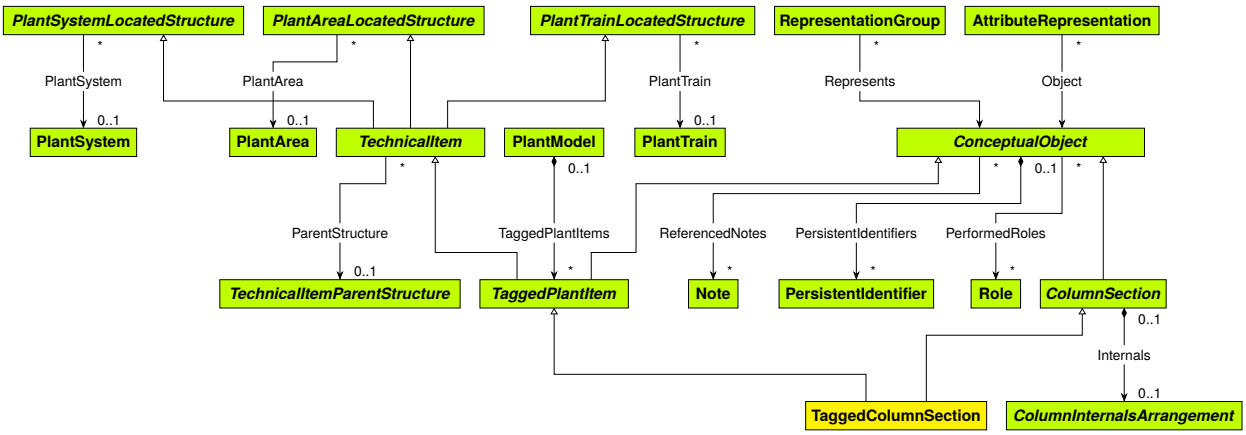
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ColumnSection

COLUMN SECTION

A fully tagged column section.



Supertypes

- *ColumnSection*
- *TaggedPlantItem*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.TaggedColumnSection"/>
```

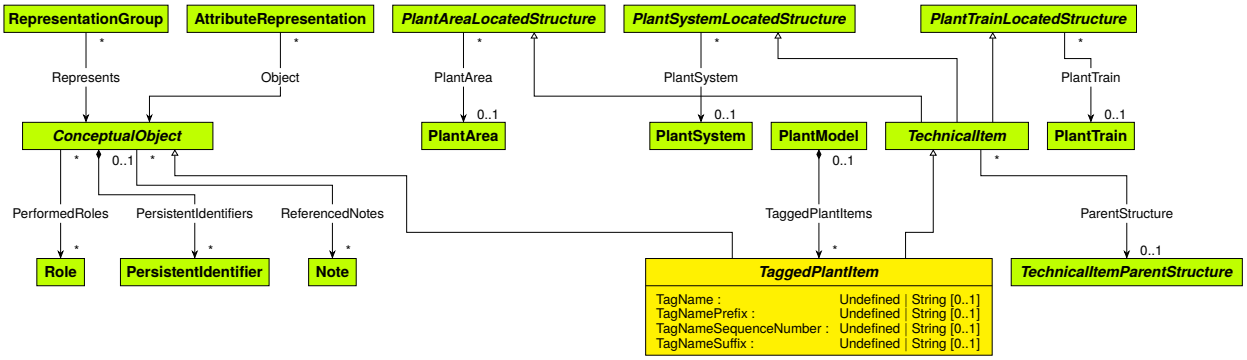
TaggedPlantItem

Plant::*ProcessEquipment*::TaggedPlantItem

Overview

Abstract Class

A fully tagged item in a plant.



Supertypes

- *ConceptualObject*
- *TechnicalItem*

Subtypes

- *ProcessEquipment*
- *TaggedColumnSection*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
TagName	0..1	*Undefined* | *String*	no	no
TagNamePrefix	0..1	*Undefined* | *String*	no	no
TagNameSequenceNumber	0..1	*Undefined* | *String*	no	no
TagNameSuffix	0..1	*Undefined* | *String*	no	no

TagName

Data Property

The tag number of the *TaggedPlantItem*. See also *TagNamePrefix*, *TagNameSequenceNumber*, and *TagNameSuffix*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TagNameAssignmentClass

TAG NAME ASSIGNMENT CLASS

Example

```
"P4714-A"
```

TagNamePrefix

Data Property

The prefix part of the tag number of the *TaggedPlantItem*. For example, the prefix of the tag number "P4714-A" is "P". The prefix often indicates the type of the equipment item, e.g., "P" can indicate a pump. See also *TagName*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TagNamePrefixAssignmentClass

TAG NAME PREFIX ASSIGNMENT CLASS

Example

```
"P"
```

TagNameSequenceNumber

Data Property

The sequence number part of the tag number of the *TaggedPlantItem*. For example, the sequence number of the tag number "P4714-A" is "4714".

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TagNameSequenceNumberAssignmentClass

TAG NAME SEQUENCE NUMBER ASSIGNMENT CLASS

Example

```
"4714"
```

TagNameSuffix

Data Property

The suffix part of the tag number of an *TaggedPlantItem* item. For example, the suffix of the tag number “P4714-A” is “A”.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TagNameSuffixAssignmentClass

TAG NAME SUFFIX ASSIGNMENT CLASS

Example

```
"A"
```

Tank

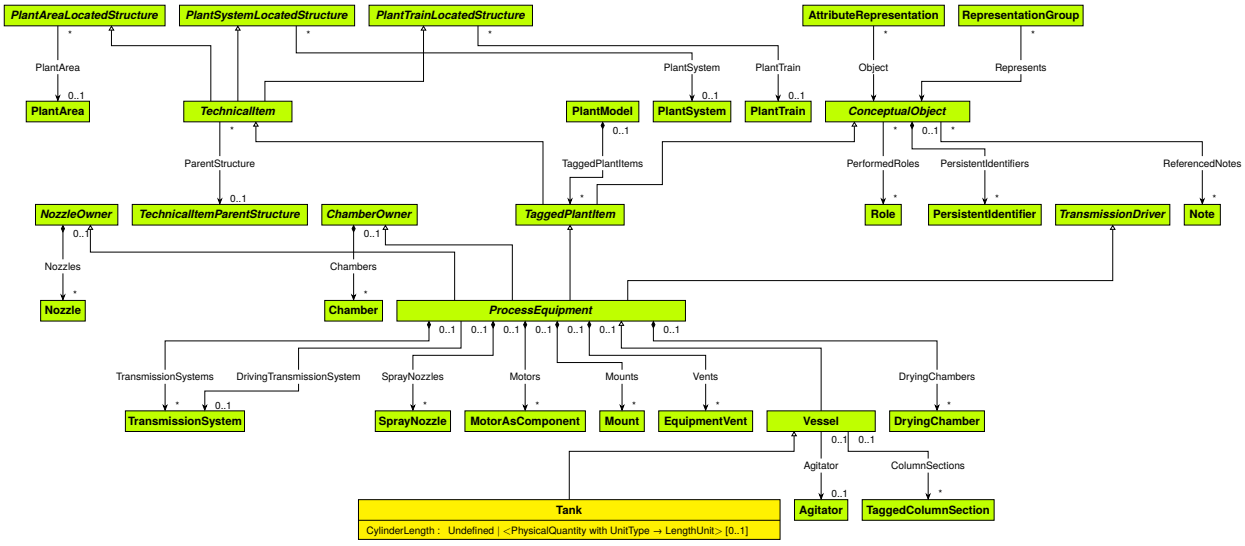
Plant::*ProcessEquipment*::Tank

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS445139

TANK



Supertypes

- *Vessel*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
CylinderLength	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no

CylinderLength

Data Property

The cylinder length of the *Tank*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/CylinderLength

CYLINDER LENGTH

Example

PhysicalQuantity(

Unit = *Metre*,

Value = 2.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Tank">
  <Data property="CylinderLength">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
      </Data>
      <Data property="Value">
        <Double>2.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

ThinFilmEvaporator

Plant::*ProcessEquipment*::ThinFilmEvaporator

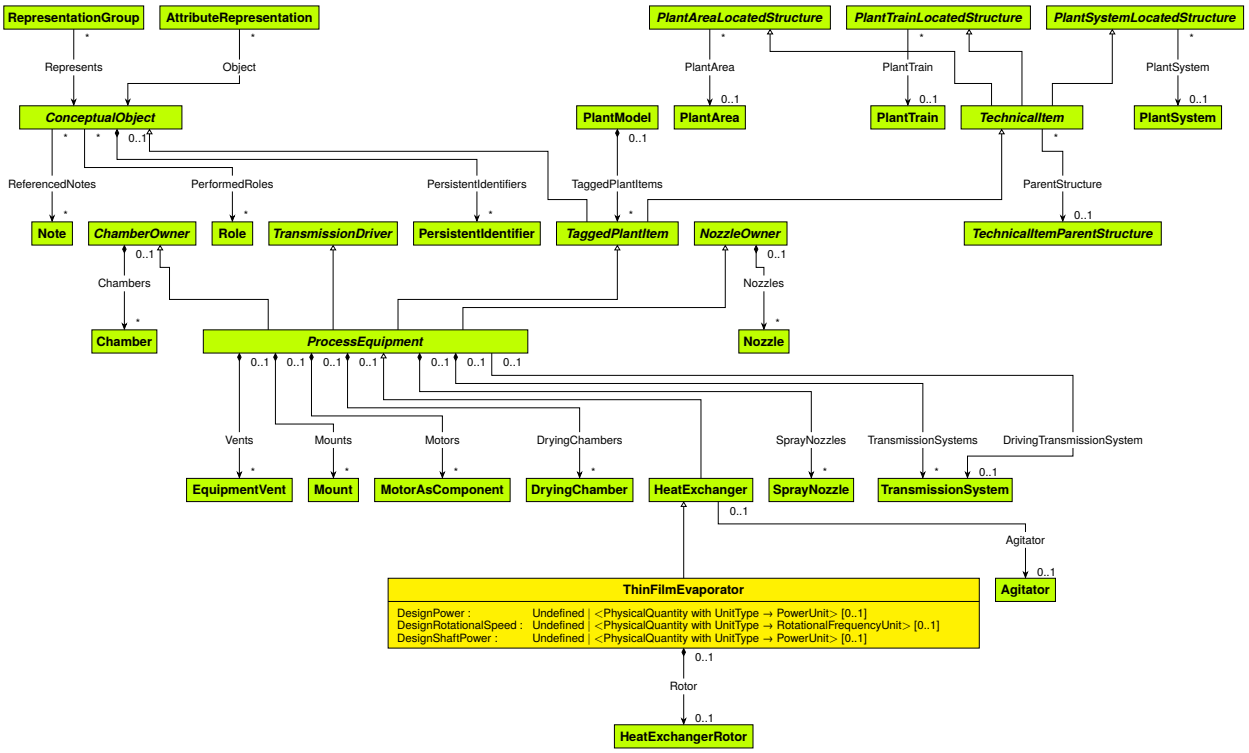
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/ThinFilmEvaporator

THIN FILM EVAPORATOR

A *HeatExchanger* and evaporator for the purification of temperature-sensitive products by evaporation, where a thin film of the liquid product on the inner side of a vertical evaporation pipe is generated by a rotating wiper system.



Supertypes

- *HeatExchanger*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Rotor	0..1	*HeatExchangerRotor*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *ThinFilmEvaporator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

DesignRotationalSpeed

Data Property

The rotational speed for which the *ThinFilmEvaporator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

DesignShaftPower

Data Property

The shaft power for which the *ThinFilmEvaporator* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `400.0`)

Rotor

Composition Property

The rotor of the ThinFilmEvaporator.

Type: *HeatExchangerRotor*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.ThinFilmEvaporator">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
```

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```
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

TransmissionDriver

Plant::*ProcessEquipment*::TransmissionDriver

Overview

Abstract Class

A Driver applied to drive *TransmissionSystems*.

TransmissionDriver

Subtypes

- *MotorAsComponent*
- *ProcessEquipment*
- *TransmissionSystem*

TransmissionSystem

Plant::*ProcessEquipment*::TransmissionSystem

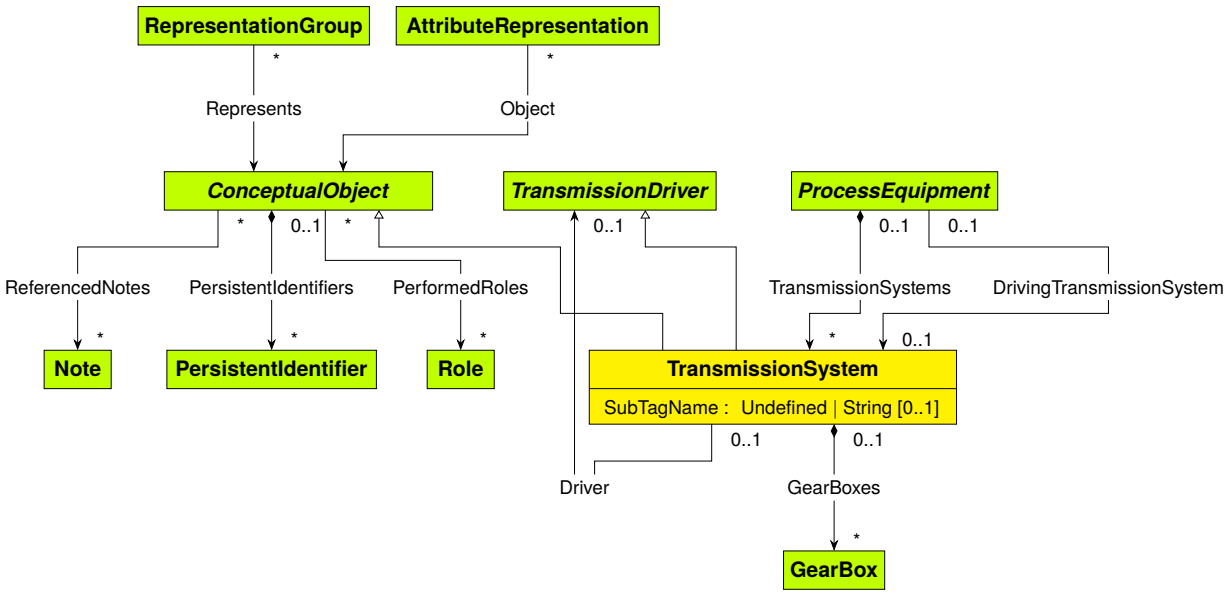
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13105034

TRANSMISSION SYSTEM

A rotating equipment system that can transmit mechanical power from its *Driver* to driven Plant.ProcessEquipment.Equipment by means of an assembly of transmission components and auxiliaries.



Supertypes

- *ConceptualObject*
- *TransmissionDriver*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
GearBoxes	*	*GearBox*	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Driver	0..1	*TransmissionDriver*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SubTagName	0..1	*Undefined* | *String*	no	no

Driver

Reference Property

The *TransmissionDriver* that drives the TransmissionSystem.

Type: *TransmissionDriver*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

GearBoxes

Composition Property

The gear boxes that are components of the TransmissionSystem.

Type: *GearBox*

Multiplicity: *

Ordered: no

SubTagName

Data Property

The sub tag name of the *TransmissionSystem*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/SubTagNameAssignmentClass

SUB TAG NAME ASSIGNMENT CLASS

Example

"ST1"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.TransmissionSystem">
  <Data property="SubTagName">
    <String>ST1</String>
  </Data>
</Object>
```

TransportableContainer

Plant::*ProcessEquipment*::TransportableContainer

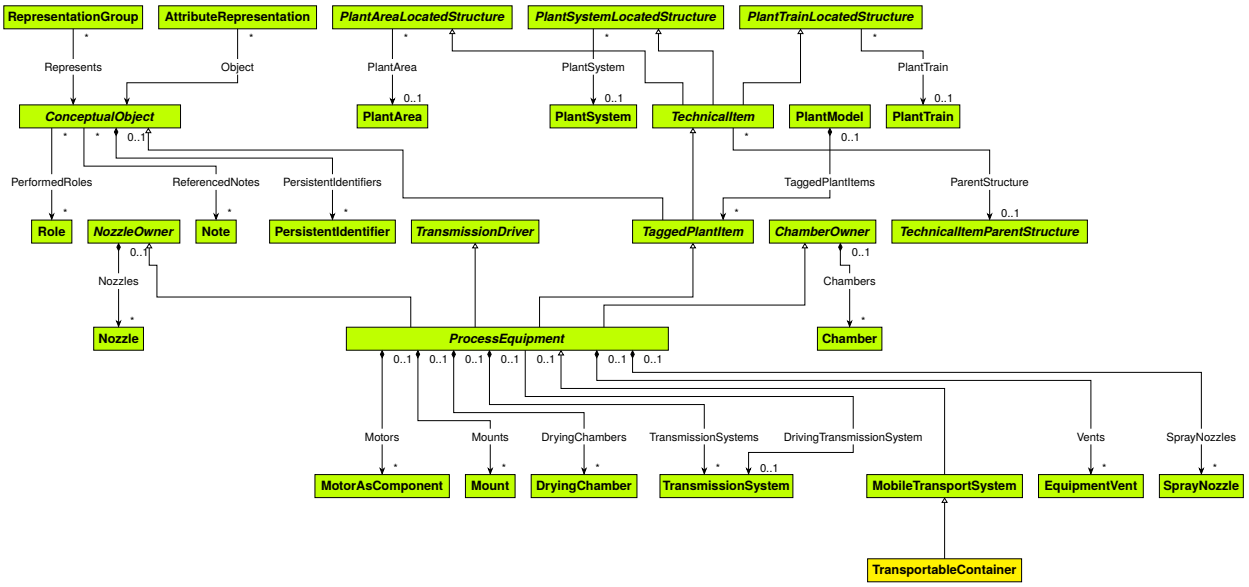
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS22164402859

TRANSPORTABLE CONTAINER

A 'container' that is a transportable, with strength suitable to withstand shipment, storage, and handling (from http://data.posccaesar.org/rdl/RDS22164402859).



Supertypes

- *MobileTransportSystem*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.TransportableContainer"/>
```

Truck

Plant::*ProcessEquipment*::Truck

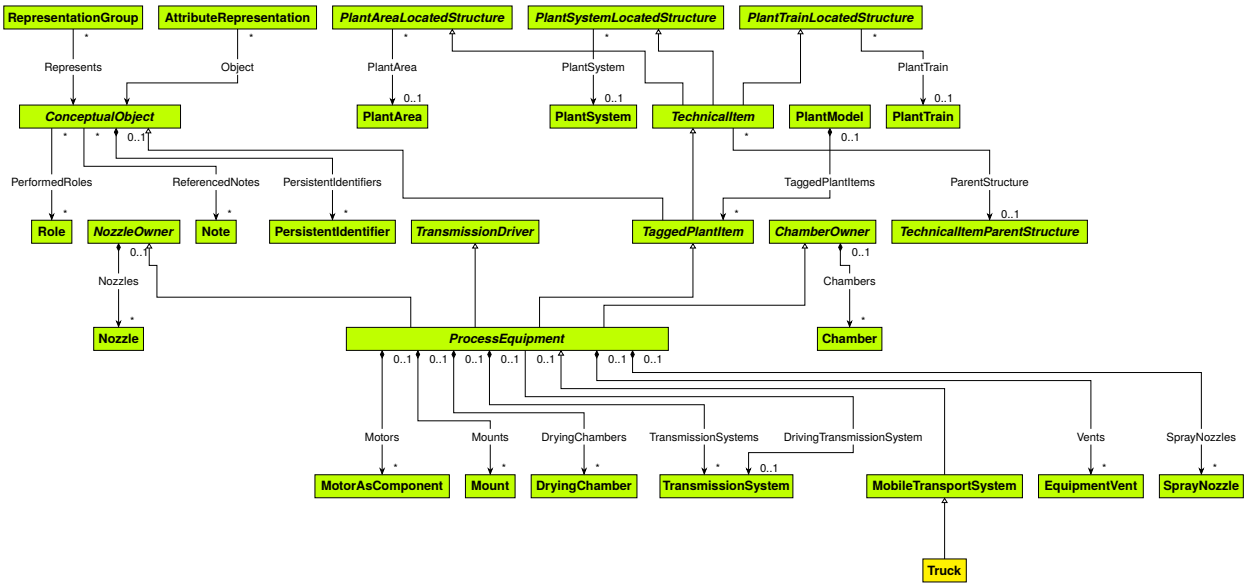
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS11524112

TRUCK

An automotive vehicle that is long, low and open intended for carrying goods by road (from http://data.posccaesar.org/rdl/RDS11524112).



Supertypes

- *MobileTransportSystem*

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Truck"/>
```

TubeBundle

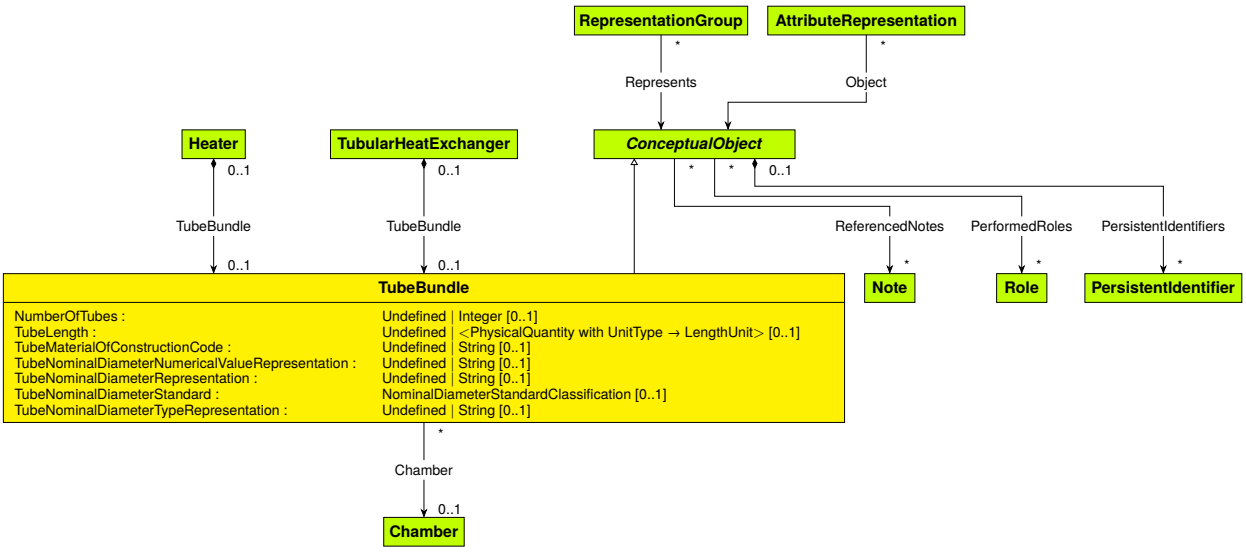
Plant::*ProcessEquipment*::TubeBundle

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS415259

TUBE BUNDLE



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Chamber	0..1	*Chamber*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NumberOfTubes	0..1	*Undefined* | *Integer*	no	no
TubeLength	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>	no	no
TubeMaterialOfConstructionCode	0..1	*Undefined* | *String*	no	no
TubeNominalDiameterNumericalValueRepresentation	0..1	*Undefined* | *String*	no	no
TubeNominalDiameterRepresentation	0..1	*Undefined* | *String*	no	no
TubeNominalDiameterStandard	0..1	*NominalDiameterStandardClassification*	no	no
TubeNominalDiameterTypeRepresentation	0..1	*Undefined* | *String*	no	no

Chamber

Reference Property

The *Chamber* in which the TubeBundle is located, if applicable. The Chamber must be a component of the same object as the TubeBundle.

Type: *Chamber*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

NumberOfTubes

Data Property

The number of tubes of the *TubeBundle*.

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS363959

NUMBER OF TUBES

Example

```
36
```

TubeLength

Data Property

The length of the tubes of the *TubeBundle*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS363869

TUBE LENGTH

Example

PhysicalQuantity(

Unit = *Millimetre*,

Value = `2200.0`)

TubeMaterialOfConstructionCode

Data Property

A code that gives the material of construction of the tubes of the *TubeBundle*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TubeMaterialOfConstructionCodeAssignmentClass

TUBE MATERIAL OF CONSTRUCTION CODE ASSIGNMENT CLASS

Example

```
"1.4306"
```

TubeNominalDiameterNumericalValueRepresentation

Data Property

A readable representation of the numerical value of the nominal diameter of the tubes.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TubeNominalDiameterNumericalValueRepresentationAssignmentClass

TUBE NOMINAL DIAMETER NUMERICAL VALUE REPRESENTATION ASSIGNMENT CLASS

Example

```
"25"
```

TubeNominalDiameterRepresentation

Data Property

A readable representation of the nominal diameter of the tubes.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TubeNominalDiameterRepresentationAssignmentClass

TUBE NOMINAL DIAMETER REPRESENTATION ASSIGNMENT CLASS

Example

```
"DN 25"
```

TubeNominalDiameterStandard

Data Property

The nominal diameter of the tubes, given as a reference to a nominal diameter standard and value.

Type: *NominalDiameterStandardClassification*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TubeNominalDiameterStandardSpecialization

TUBE NOMINAL DIAMETER STANDARD SPECIALIZATION

Example

Din2448ObjectDn25

TubeNominalDiameterTypeRepresentation

Data Property

A readable representation of the type of the nominal diameter of the tubes.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TubeNominalDiameterTypeRepresentationAssignmentClass

TUBE NOMINAL DIAMETER TYPE REPRESENTATION ASSIGNMENT CLASS

Example

"DN"

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.TubeBundle">
  <Data property="NumberOfTubes">
    <Integer>36</Integer>
  </Data>
  <Data property="TubeLength">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.LengthUnit.Millimetre"/>
      </Data>
      <Data property="Value">
        <Double>2200.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
```

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```
  <Data property="TubeMaterialOfConstructionCode">
    <String>1.4306</String>
  </Data>
  <Data property="TubeNominalDiameterNumericalValueRepresentation">
    <String>25</String>
  </Data>
  <Data property="TubeNominalDiameterRepresentation">
    <String>DN 25</String>
  </Data>
  <Data property="TubeNominalDiameterStandard">
    <DataReference data="Plant/Enumerations.NominalDiameterStandardClassification.
↪Din2448ObjectDn25"/>
  </Data>
  <Data property="TubeNominalDiameterTypeRepresentation">
    <String>DN</String>
  </Data>
</Object>
```

TubularHeatExchanger

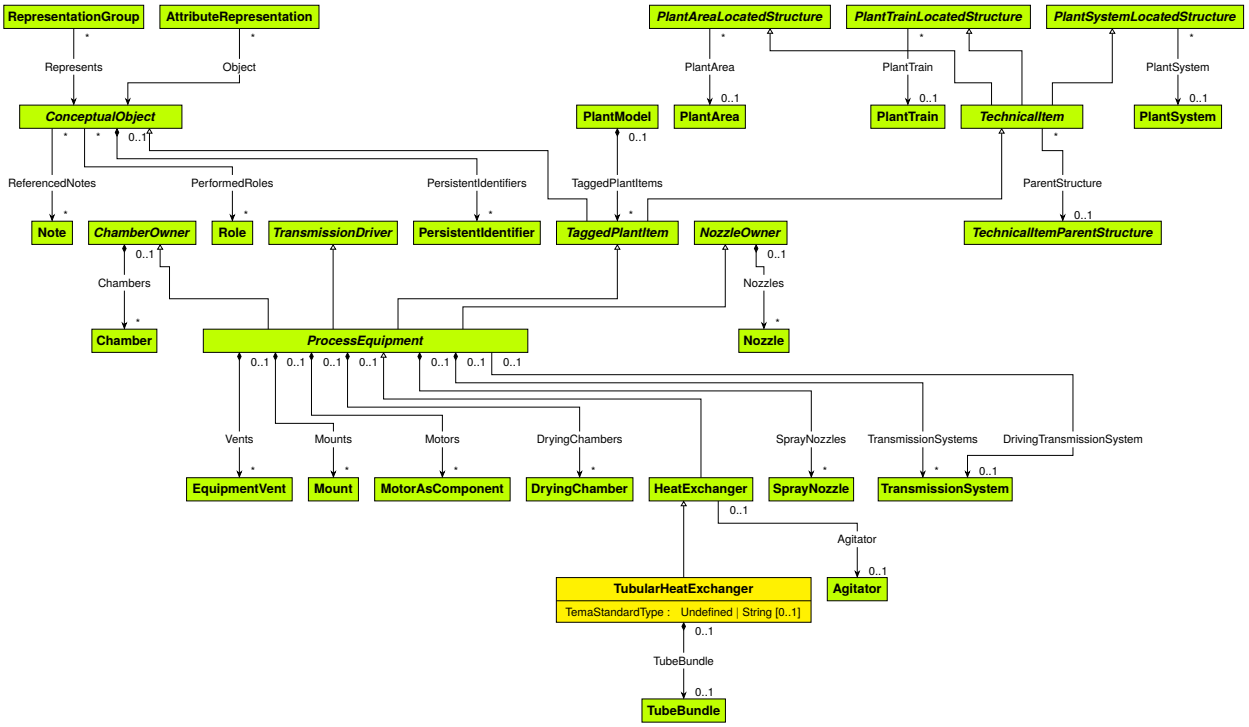
Plant::*ProcessEquipment*::TubularHeatExchanger

Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS13971182

TUBULAR HEAT EXCHANGER



Supertypes

- *HeatExchanger*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
TubeBundle	0..1	*TubeBundle*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
TemaStandardType	0..1	*Undefined* | *String*	no	no

TemaStandardType

Data Property

The type of the *TubularHeatExchanger* according to the Tubular Exchanger Manufacturers Association, Inc. (TEMA, url{http://www.tema.org}). This is a three-letter code.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/TemaStandardTypeAssignmentClass

TEMA STANDARD TYPE ASSIGNMENT CLASS

Example

```
"AEL"
```

TubeBundle

Composition Property

The tube bundle of the TubularHeatExchanger.

Type: *TubeBundle*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.TubularHeatExchanger">
  <Data property="TemaStandardType">
    <String>AEL</String>
  </Data>
</Object>
```

Turbine

Plant::*ProcessEquipment*::Turbine

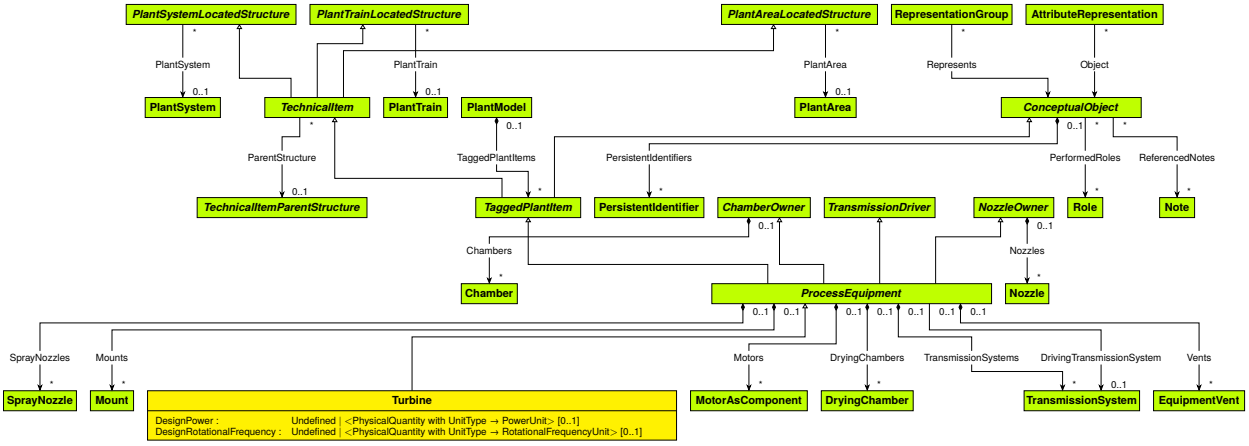
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS313289

TURBINE

An object that is a rotary mechanical device that extracts energy from a fluid flow and converts it into useful work (from http://data.15926.org/rdl/RDS313289).



Supertypes

- *ProcessEquipment*

Subtypes

- *GasTurbine*
- *SteamTurbine*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignRotationalFrequency	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no

DesignPower

Data Property

The power for which the *Turbine* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

DesignRotationalFrequency

Data Property

The rotational frequency for which the *Turbine* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalFrequency

DESIGN ROTATIONAL FREQUENCY

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = `180.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Turbine">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignRotationalFrequency">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

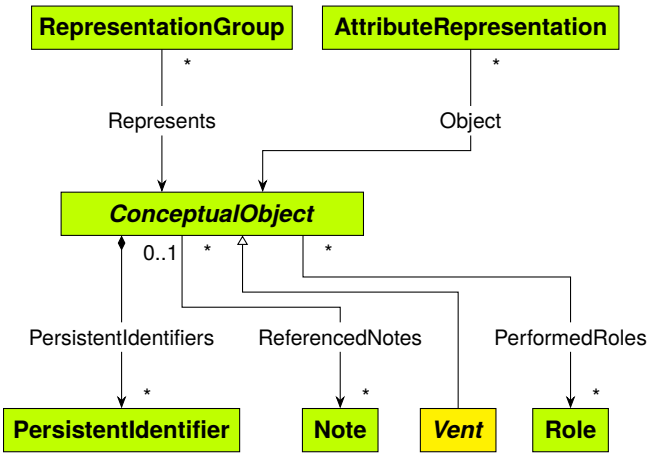
Vent

Plant::*ProcessEquipment*::Vent

Overview

Abstract Class

An object that has the capability of venting by being or having an opening that allows air, smoke, or gas to enter or leave a closed space to relief pressure and prevent vacuum.



Supertypes

- *ConceptualObject*

Subtypes

- *EquipmentVent*
- *VentLine*

Vessel

Plant::*ProcessEquipment*::Vessel

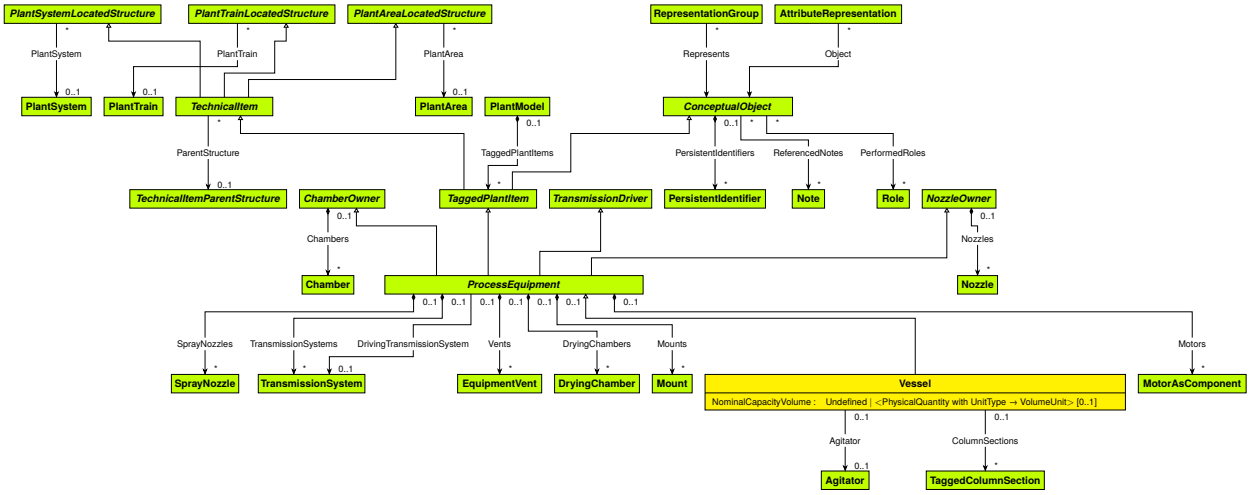
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS414674

VESSEL

A container intended for storage and/or processing of fluids or solids.



Supertypes

- *ProcessEquipment*

Subtypes

- *PressureVessel*
- *Silo*
- *Tank*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Agitator	0..1	*Agitator*	no	no	0..1
ColumnSections	*	*TaggedColumnSection*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
NominalCapacityVolume	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>	no	no

Agitator

Reference Property

The *Agitator* of the Vessel, if applicable.

Type: *Agitator*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

ColumnSections

Reference Property

The column sections of the Vessel, if applicable.

Type: *TaggedColumnSection*

Multiplicity: *

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

NominalCapacityVolume

Data Property

The nominal volumetric capacity of the *Vessel*.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/NominalCapacityVolume

NOMINAL CAPACITY VOLUME

Example

PhysicalQuantity(

Unit = *MetreCubed*,

Value = 7.2)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Vessel">
  <Data property="NominalCapacityVolume">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeUnit.MetreCubed"/>
      </Data>
      <Data property="Value">
        <Double>7.2</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

VibratingSieve

Plant::*ProcessEquipment*::VibratingSieve

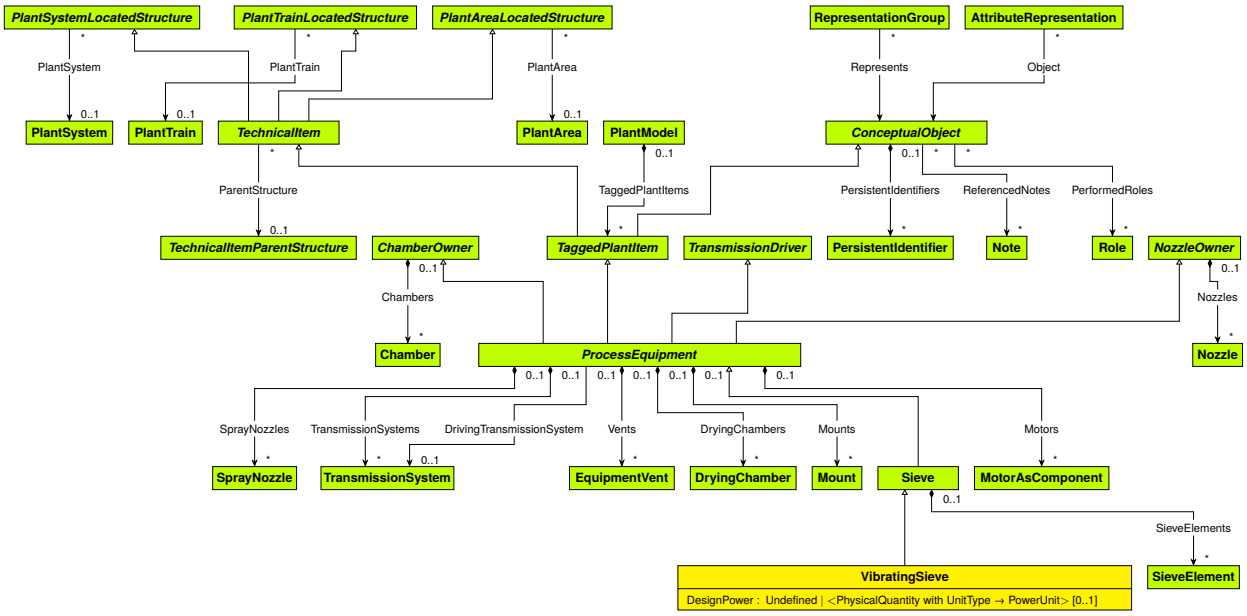
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/VibratingScreen

VIBRATING SCREEN

A *Sieve* where the product to be sieved is transported over the mesh by vibration of the latter (from http://data.15926.org/rdl/RDS2226670).



Supertypes

- *Sieve*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignPower

Data Property

The power for which the *VibratingSieve* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 500.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.VibratingSieve">
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

WasteGasEmitter

Plant::*ProcessEquipment*::WasteGasEmitter

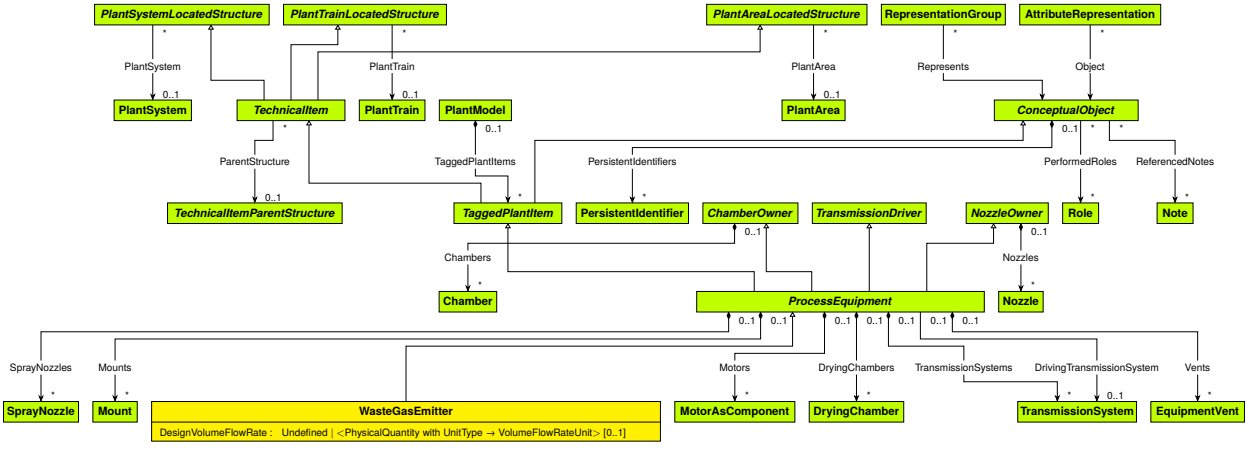
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/WasteGasEmitter

WASTE GAS EMITTER

A physical object that is intended to release/emit waste gas from the process.



Supertypes

- *ProcessEquipment*

Subtypes

- *Chimney*
- *Flare*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignVolumeFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

DesignVolumeFlowRate

Data Property

The volume flow rate for which the *WasteGasEmitter* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286227

DESIGN VOLUME FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = `420.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.WasteGasEmitter">
  <Data property="DesignVolumeFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>420.0</Double>
      </Data>
```

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```
    </AggregatedDataValue>
  </Data>
</Object>
```

Weigher

Plant::*ProcessEquipment*::Weigher

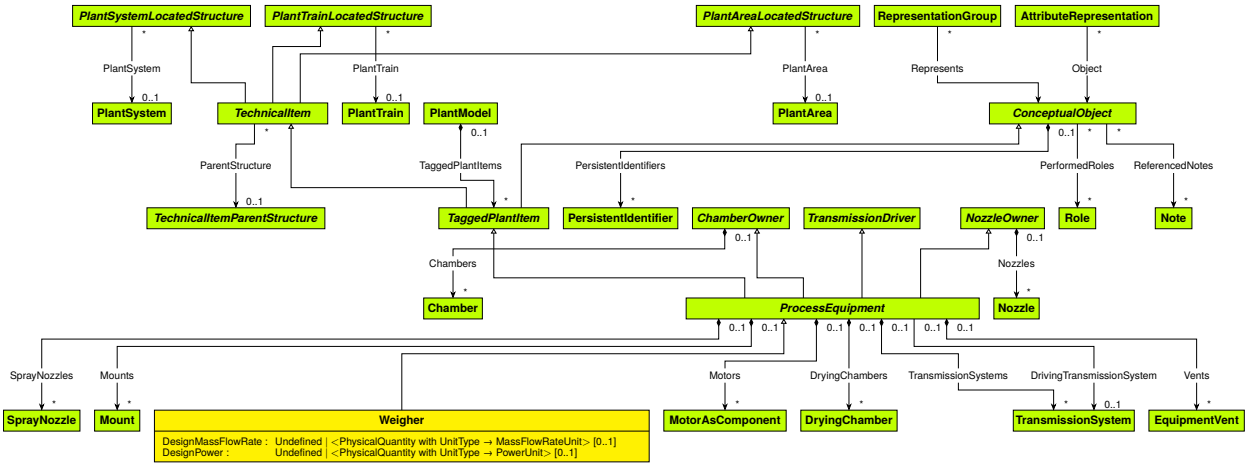
Overview

Concrete Class

RDL: http://sandbox.dexpi.org/rdl/Weigher

WEIGHER

A functional object that is capable of weighing.



Supertypes

- *ProcessEquipment*

Subtypes

- *BatchWeigher*
- *ContinuousWeigher*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignMassFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>	no	no
DesignPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no

DesignMassFlowRate

Data Property

The mass flow rate for which the *Weigher* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://data.posccaesar.org/rdl/RDS14286182

DESIGN MASS FLOW RATE

Example

PhysicalQuantity(

Unit = *KilogramPerSecond*,

Value = `420.0`)

DesignPower

Data Property

The power for which the *Weigher* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignPower

DESIGN POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = `500.0`)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.Weigher">
  <Data property="DesignMassFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerSecond"/
↪>
      </Data>
      <Data property="Value">
```

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```
        <Double>420.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>500.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

WetCoolingTower

Plant::*ProcessEquipment*::WetCoolingTower

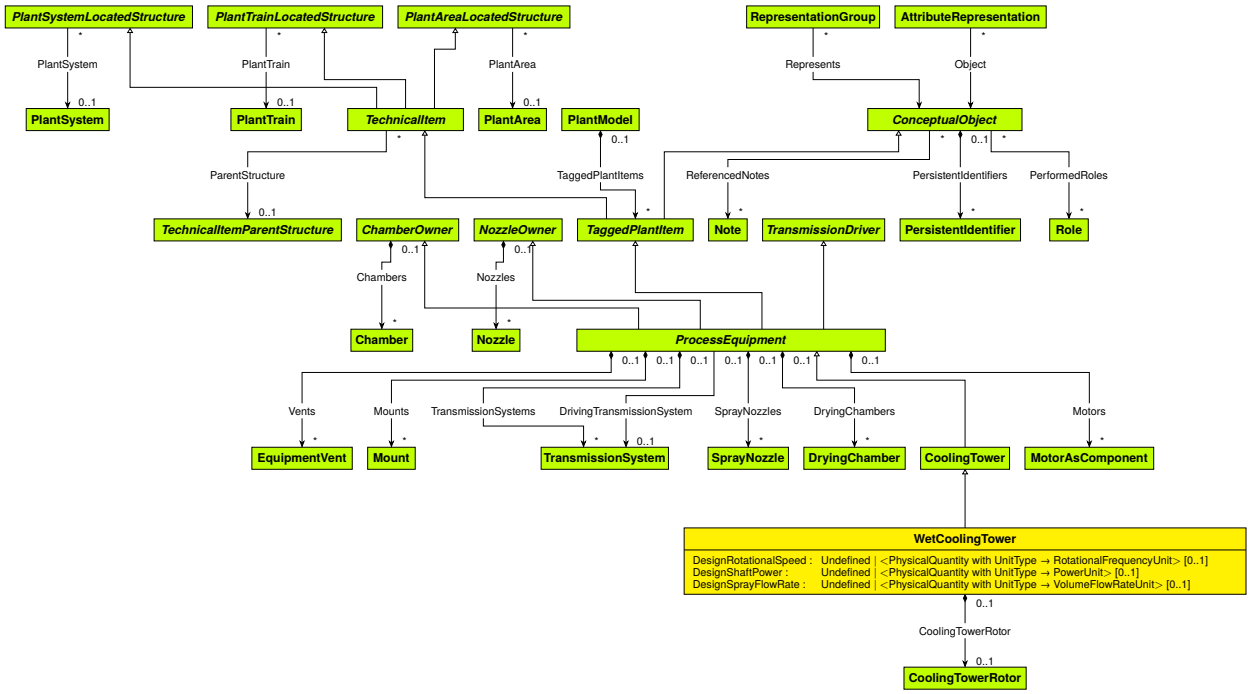
Overview

Concrete Class

RDL: http://data.posccaesar.org/rdl/RDS14071846

WET COOLING TOWER

A *CoolingTower* that derives its primary cooling effect from the evaporation that takes place when air and water are brought into direct contact.



Supertypes

- *CoolingTower*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
CoolingTowerRotor	0..1	*CoolingTowerRotor*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
DesignRotationalSpeed	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>	no	no
DesignShaftPower	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>	no	no
DesignSprayFlowRate	0..1	*Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>	no	no

CoolingTowerRotor

Composition Property

The cooling tower rotor of the WetCoolingTower.

Type: *CoolingTowerRotor*

Multiplicity: 0..1

Ordered: no

DesignRotationalSpeed

Data Property

The rotational speed for which the *WetCoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignRotationalSpeed

DESIGN ROTATIONAL SPEED

Example

PhysicalQuantity(

Unit = *ReciprocalMinute*,

Value = 180.0)

DesignShaftPower

Data Property

The shaft power for which the *WetCoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignShaftPower

DESIGN SHAFT POWER

Example

PhysicalQuantity(

Unit = *Kilowatt*,

Value = 400.0)

DesignSprayFlowRate

Data Property

The spray volume flow rate for the motive fluid for which the *WetCoolingTower* is designed.

Type: *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>

Multiplicity: 0..1

Ordered: no

Unique: no

RDL: http://sandbox.dexpi.org/rdl/DesignSprayFlowRate

DESIGN SPRAY FLOW RATE

Example

PhysicalQuantity(

Unit = *MetreCubedPerHour*,

Value = 40.0)

Example in DEXPI XML

```
<Object type="Plant/ProcessEquipment.WetCoolingTower">
  <Data property="DesignRotationalSpeed">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
```

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```
      </Data>
      <Data property="Value">
        <Double>180.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignShaftPower">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
      </Data>
      <Data property="Value">
        <Double>400.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
  <Data property="DesignSprayFlowRate">
    <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
      <Data property="Unit">
        <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.MetreCubedPerHour
↪"/>
      </Data>
      <Data property="Value">
        <Double>40.0</Double>
      </Data>
    </AggregatedDataValue>
  </Data>
</Object>
```

Plant::ProcessEquipment

Overview

Package

Members

Classes

Name	Type
AccessNozzle	Concrete Class
Agglomerator	Concrete Class
Agitator	Concrete Class
AgitatorRotor	Concrete Class
AirCoolingSystem	Concrete Class
AirEjector	Concrete Class
AlternatingCurrentGenerator	Concrete Class
AlternatingCurrentMotor	Concrete Class
AlternatingCurrentMotorAsComponent	Concrete Class
AxialBlower	Concrete Class
AxialCompressor	Concrete Class
AxialFan	Concrete Class

continues on next page

Table 9 – continued from previous page

Name	Type
BatchWeigher	Concrete Class
Blower	Concrete Class
Boiler	Concrete Class
BriquettingRoller	Concrete Class
Burner	Concrete Class
CentrifugalBlower	Concrete Class
CentrifugalCompressor	Concrete Class
CentrifugalPump	Concrete Class
Centrifuge	Concrete Class
Chamber	Concrete Class
ChamberOwner	Abstract Class
Chimney	Concrete Class
ColumnInternalsArrangement	Abstract Class
ColumnPackingsArrangement	Concrete Class
ColumnSection	Abstract Class
ColumnTraysArrangement	Concrete Class
CombustionEngine	Concrete Class
CombustionEngineAsComponent	Concrete Class
Compressor	Concrete Class
ContinuousWeigher	Concrete Class
ConvectionDryer	Concrete Class
Conveyor	Concrete Class
CoolingTower	Concrete Class
CoolingTowerRotor	Concrete Class
Crusher	Concrete Class
CrusherElement	Concrete Class
DirectCurrentGenerator	Concrete Class
DirectCurrentMotor	Concrete Class
DirectCurrentMotorAsComponent	Concrete Class
Displacer	Concrete Class
DryCoolingTower	Concrete Class
Dryer	Concrete Class
DryingChamber	Concrete Class
EjectorPump	Concrete Class
ElectricGenerator	Concrete Class
ElectricHeater	Concrete Class
ElectricalSeparator	Concrete Class
EquipmentVent	Concrete Class
Extruder	Concrete Class
Fan	Concrete Class
Feeder	Concrete Class
Filter	Concrete Class
FilterUnit	Concrete Class
FilteringCentrifuge	Concrete Class
FilteringCentrifugeDrum	Concrete Class
Flare	Concrete Class
ForkliftTruck	Concrete Class
Furnace	Concrete Class
GasFilter	Concrete Class
GasTurbine	Concrete Class

continues on next page

Table 9 – continued from previous page

Name	Type
GearBox	Concrete Class
GravitationalSeparator	Concrete Class
Grinder	Concrete Class
GrindingElement	Concrete Class
HeatExchanger	Concrete Class
HeatExchangerRotor	Concrete Class
HeatedSurfaceDryer	Concrete Class
Heater	Concrete Class
Impeller	Concrete Class
InstrumentNozzle	Concrete Class
Kneader	Concrete Class
Lift	Concrete Class
LiquidFilter	Concrete Class
LoadingUnloadingSystem	Concrete Class
MechanicalSeparator	Concrete Class
Mill	Concrete Class
Mixer	Concrete Class
MixingElementAssembly	Concrete Class
MobileTransportSystem	Concrete Class
Motor	Concrete Class
MotorAsComponent	Concrete Class
Mount	Concrete Class
Nozzle	Concrete Class
NozzleOwner	Abstract Class
PackagingSystem	Concrete Class
PelletizerDisc	Concrete Class
PlateHeatExchanger	Concrete Class
PressureVessel	Concrete Class
ProcessColumn	Concrete Class
ProcessEquipment	Abstract Class
ProcessNozzle	Concrete Class
Pump	Concrete Class
RadialFan	Concrete Class
RailWaggon	Concrete Class
ReciprocatingCompressor	Concrete Class
ReciprocatingExtruder	Concrete Class
ReciprocatingPressureAgglomerator	Concrete Class
ReciprocatingPump	Concrete Class
RevolvingSieve	Concrete Class
RotaryCompressor	Concrete Class
RotaryMixer	Concrete Class
RotaryPump	Concrete Class
RotatingExtruder	Concrete Class
RotatingGrowthAgglomerator	Concrete Class
RotatingPressureAgglomerator	Concrete Class
Screw	Concrete Class
ScrubbingSeparator	Concrete Class
SedimentalCentrifuge	Concrete Class
SedimentalCentrifugeDrum	Concrete Class
Separator	Concrete Class

continues on next page

Table 9 – continued from previous page

Name	Type
Ship	Concrete Class
Sieve	Concrete Class
SieveElement	Concrete Class
Silo	Concrete Class
SpiralHeatExchanger	Concrete Class
SprayCooler	Concrete Class
SprayNozzle	Concrete Class
StaticMixer	Concrete Class
StationarySieve	Concrete Class
StationaryTransportSystem	Concrete Class
SteamGenerator	Concrete Class
SteamTurbine	Concrete Class
SubTaggedColumnSection	Concrete Class
TaggedColumnSection	Concrete Class
TaggedPlantItem	Abstract Class
Tank	Concrete Class
ThinFilmEvaporator	Concrete Class
TransmissionDriver	Abstract Class
TransmissionSystem	Concrete Class
TransportableContainer	Concrete Class
Truck	Concrete Class
TubeBundle	Concrete Class
TubularHeatExchanger	Concrete Class
Turbine	Concrete Class
Vent	Abstract Class
Vessel	Concrete Class
VibratingSieve	Concrete Class
WasteGasEmitter	Concrete Class
Weigher	Concrete Class
WetCoolingTower	Concrete Class

Plant

3.2.8 Overview

Model

URI: https://data.dexpi.org/models/2.0.1/Plant.xml

Plant.xml

Types for the representation of engineering information and associated graphical representations.

3.2.9 Members

Packages

Name
Diagram
Enumerations
Instrumentation
Piping
PlantStructure
ProcessEquipment

Classes

Name	Type
PlantModel	Concrete Class

3.3 Process

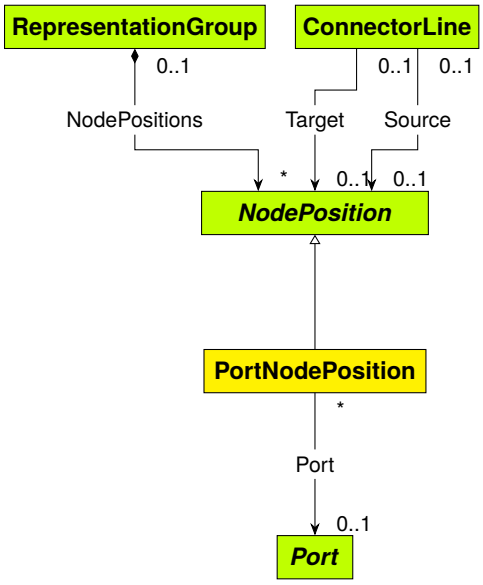
3.3.1 Diagram

PortNodePosition

Process::*Diagram*::PortNodePosition

Overview

Concrete Class



Supertypes

- *NodePosition*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Port	0..1	*Port*	no	no	*

Port

Reference Property

Type: *Port*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Process/Diagram.PortNodePosition"/>
```

Process::Diagram

Overview

Package

Members

Classes

Name	Type
PortNodePosition	Concrete Class

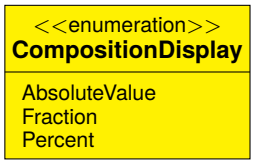
3.3.2 Enumerations

CompositionDisplay

Process::*Enumerations*::CompositionDisplay

Overview

Enumeration



Members

Literals

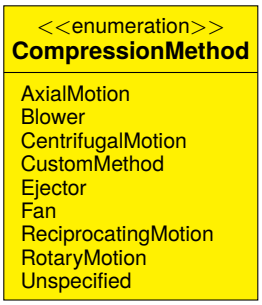
Name
AbsoluteValue
Fraction
Percent

CompressionMethod

Process::*Enumerations*::CompressionMethod

Overview

Enumeration



Members

Literals

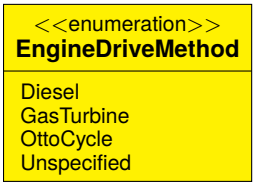
Name
AxialMotion
Blower
CentrifugalMotion
CustomMethod
Ejector
Fan
ReciprocatingMotion
RotaryMotion
Unspecified

EngineDriveMethod

Process::*Enumerations*::EngineDriveMethod

Overview

Enumeration



Members

Literals

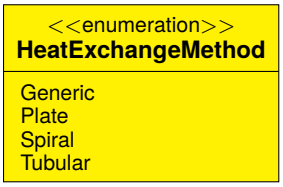
Name
Diesel
GasTurbine
OttoCycle
Unspecified

HeatExchangeMethod

Process::*Enumerations*::HeatExchangeMethod

Overview

Enumeration



Members

Literals

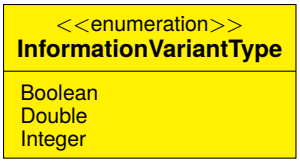
Name
Generic
Plate
Spiral
Tubular

InformationVariantType

Process::*Enumerations*::InformationVariantType

Overview

Enumeration



Members

Literals

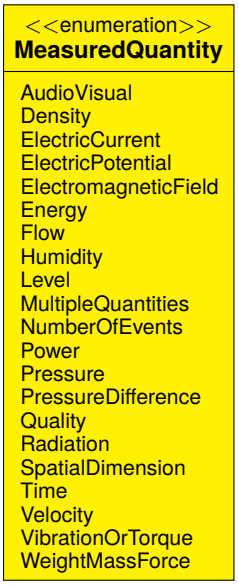
Name
Boolean
Double
Integer

MeasuredQuantity

Process::*Enumerations*::MeasuredQuantity

Overview

Enumeration



Members

Literals

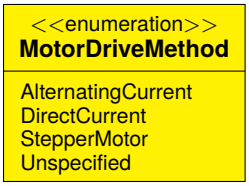
Name
AudioVisual
Density
ElectricCurrent
ElectricPotential
ElectromagneticField
Energy
Flow
Humidity
Level
MultipleQuantities
NumberOfEvents
Power
Pressure
PressureDifference
Quality
Radiation
SpatialDimension
Time
Velocity
VibrationOrTorque
WeightMassForce

MotorDriveMethod

Process::*Enumerations*::MotorDriveMethod

Overview

Enumeration



Members

Literals

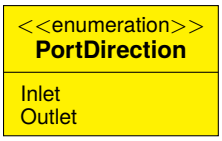
Name
AlternatingCurrent
DirectCurrent
StepperMotor
Unspecified

PortDirection

Process::*Enumerations*::PortDirection

Overview

Enumeration



Members

Literals

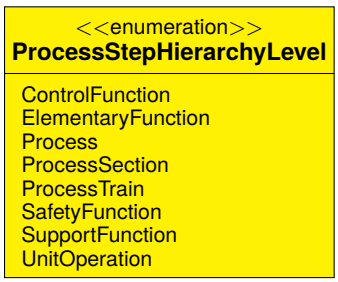
Name
Inlet
Outlet

ProcessStepHierarchyLevel

Process::*Enumerations*::ProcessStepHierarchyLevel

Overview

Enumeration



Members

Literals

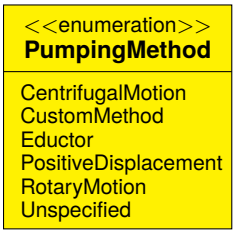
Name
ControlFunction
ElementaryFunction
Process
ProcessSection
ProcessTrain
SafetyFunction
SupportFunction
UnitOperation

PumpingMethod

Process::*Enumerations*::PumpingMethod

Overview

Enumeration



Members

Literals

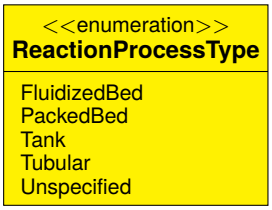
Name
CentrifugalMotion
CustomMethod
Eductor
PositiveDisplacement
RotaryMotion
Unspecified

ReactionProcessType

Process::*Enumerations*::ReactionProcessType

Overview

Enumeration



Members

Literals

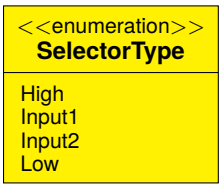
Name
FluidizedBed
PackedBed
Tank
Tubular
Unspecified

SelectorType

Process::*Enumerations*::SelectorType

Overview

Enumeration



Members

Literals

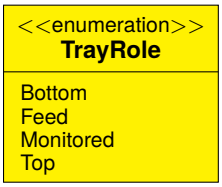
Name
High
Input1
Input2
Low

TrayRole

Process::*Enumerations*::TrayRole

Overview

Enumeration



Members

Literals

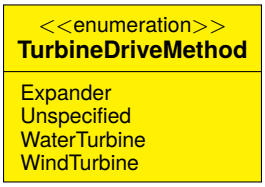
Name
Bottom
Feed
Monitored
Top

TurbineDriveMethod

Process::*Enumerations*::TurbineDriveMethod

Overview

Enumeration



Members

Literals

Name
Expander
Unspecified
WaterTurbine
WindTurbine

Process::Enumerations

Overview

Package

The Enumerations package contains enumerations for various aspects of process information.

Members

Data Types

Name	Type
CompositionDisplay	Enumeration
CompressionMethod	Enumeration
EngineDriveMethod	Enumeration
HeatExchangeMethod	Enumeration
InformationVariantType	Enumeration
MeasuredQuantity	Enumeration
MotorDriveMethod	Enumeration
PortDirection	Enumeration
ProcessStepHierarchyLevel	Enumeration
PumpingMethod	Enumeration
ReactionProcessType	Enumeration
SelectorType	Enumeration
TrayRole	Enumeration
TurbineDriveMethod	Enumeration

3.3.3 Process

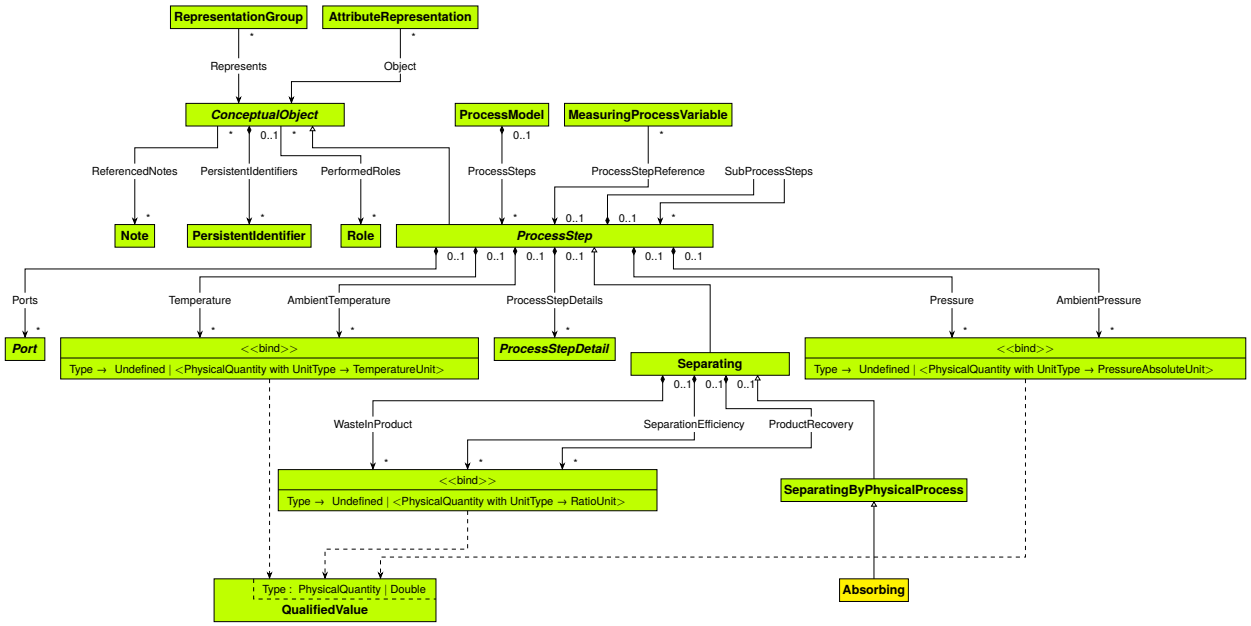
Absorbing

Process::*Process*::Absorbing

Overview

Concrete Class

A subtype of *SeparatingByPhysicalProcess* where separation is based on mass transfer of material from a gas to a liquid. This type is also used to represent desorbing, where the mass transfer is from the liquid to the gas.



Supertypes

- *SeparatingByPhysicalProcess*

Example in DEXPI XML

```
<Object type="Process/Process.Absorbing"/>
```

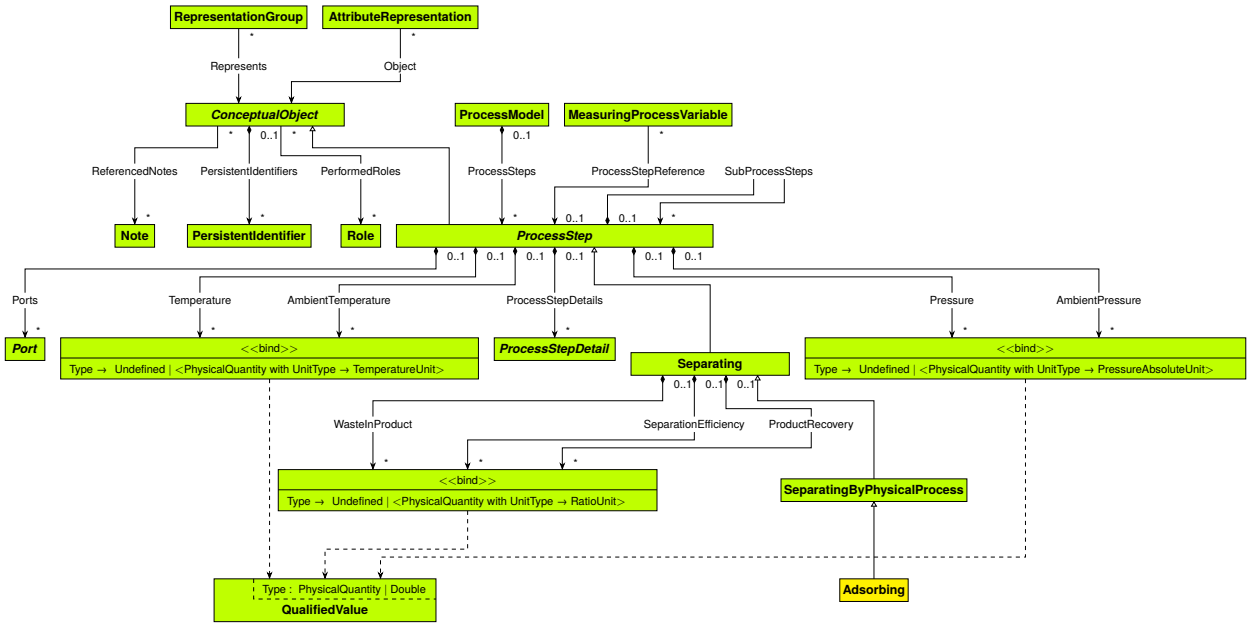
Adsorbing

Process::*Process*::Adsorbing

Overview

Concrete Class

A subtype of *SeparatingByPhysicalProcess* where separation is based on mass transfer of material from a fluid to the surface of a solid. This type is also used to represent the reverse process, where the mass transfer is from the surface to the fluid.



Supertypes

- *SeparatingByPhysicalProcess*

Example in DEXPI XML

```
<Object type="Process/Process.Adsorbing"/>
```

Agglomerating

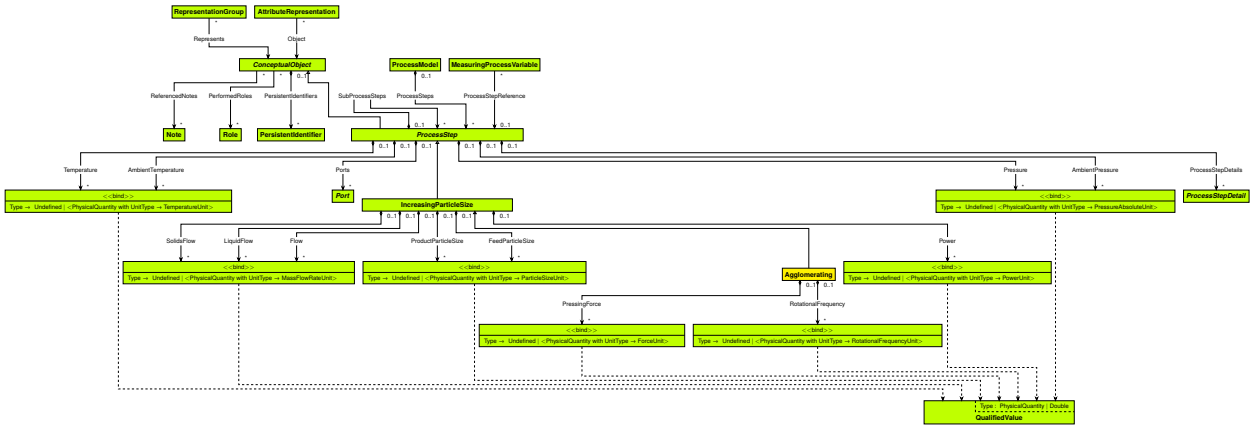
Process::*Process*::Agglomerating

Overview

Concrete Class

A solids-processing process for *IncreasingParticleSize* in which particles bind together and coalesce into larger particles, held together by relatively weak forces.

See also *Flocculating* and *Pelletizing*. Note that Pelletizing is a subtype of *FormingSolidMaterial*.



Supertypes

- *IncreasingParticleSize*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
PressingForce	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>>	no
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no

PressingForce

Composition Property

The pressing force required in the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ForceUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Newton*,

Value = `10000.0`))

]

RotationalFrequency

Composition Property

The rotational frequency of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 120.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Agglomerating">
  <Components property="PressingForce">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ForceUnit.Newton"/>
          </Data>
          <Data property="Value">
            <Double>10000.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

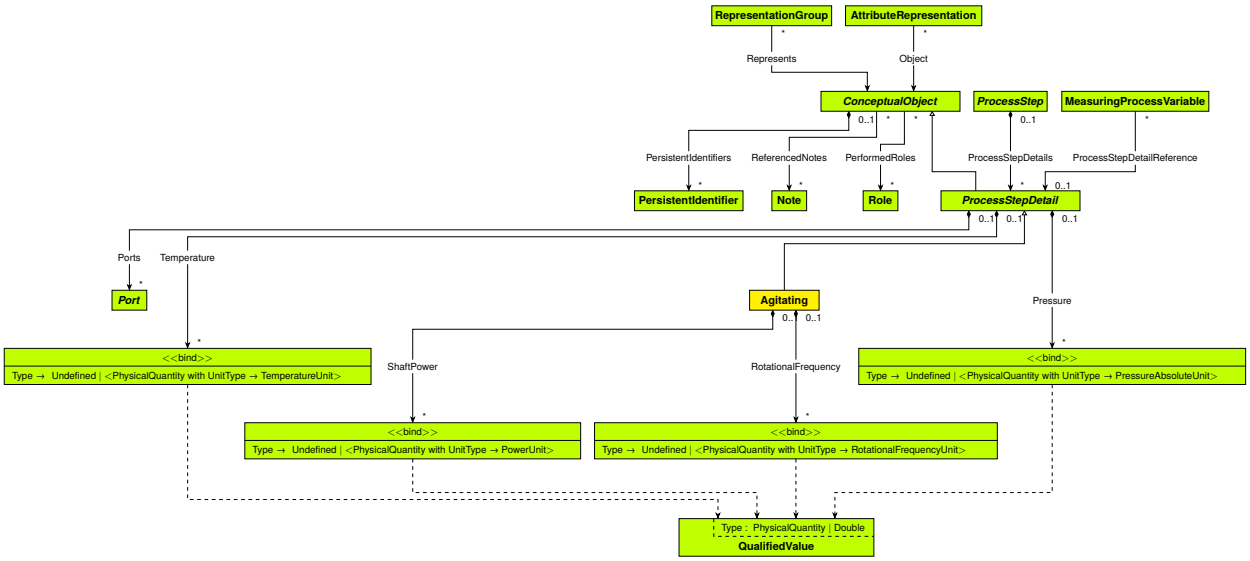
Agitating

Process::*Process*::Agitating

Overview

Concrete Class

This *ProcessStepDetail* provides shear forces to liquids in another process, with the purpose of mixing, increasing heat transfer rates or increasing mass transfer rates.



Supertypes

- *ProcessStepDetail*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no
ShaftPower	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

RotationalFrequency

Composition Property

The rotational frequency of the *Agitating*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = `120.0`))

]

ShaftPower

Composition Property

The shaft power demand of the *Agitating*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 80.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Agitating">
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ShaftPower">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
        </AggregatedDataValue>
```

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```
      </Data>
    </Object>
  </Components>
</Object>
```

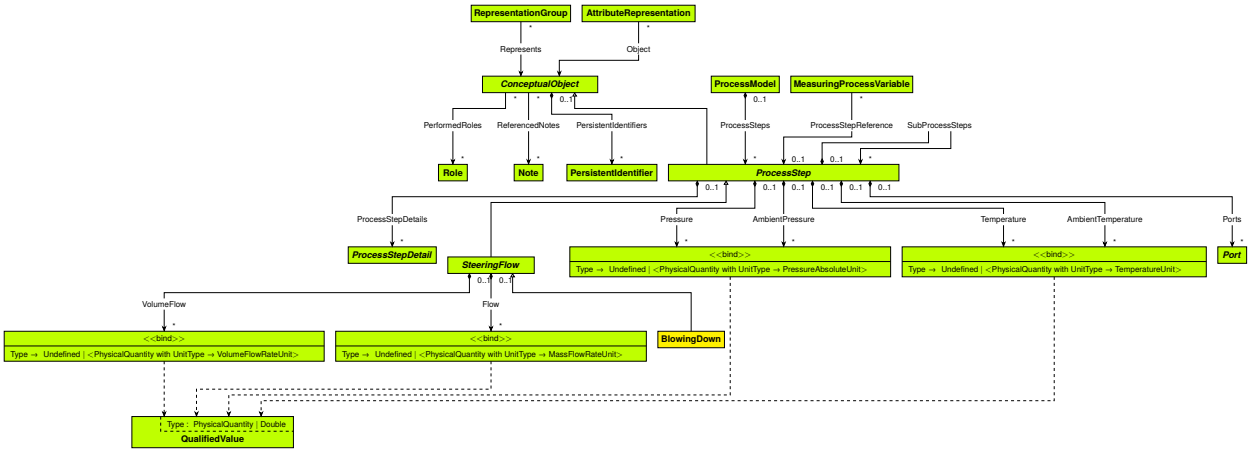
BlowingDown

Process::*Process*::BlowingDown

Overview

Concrete Class

This *SteeringFlow* process is used to depressurise or blow down a process, removing the contents of a process rapidly and safely to prevent unsafe conditions or shut down the process. This process is usually realized as a set of blow-down or depressurisation valves.



Supertypes

- *SteeringFlow*

Example in DEXPI XML

```
<Object type="Process/Process.BlowingDown"/>
```

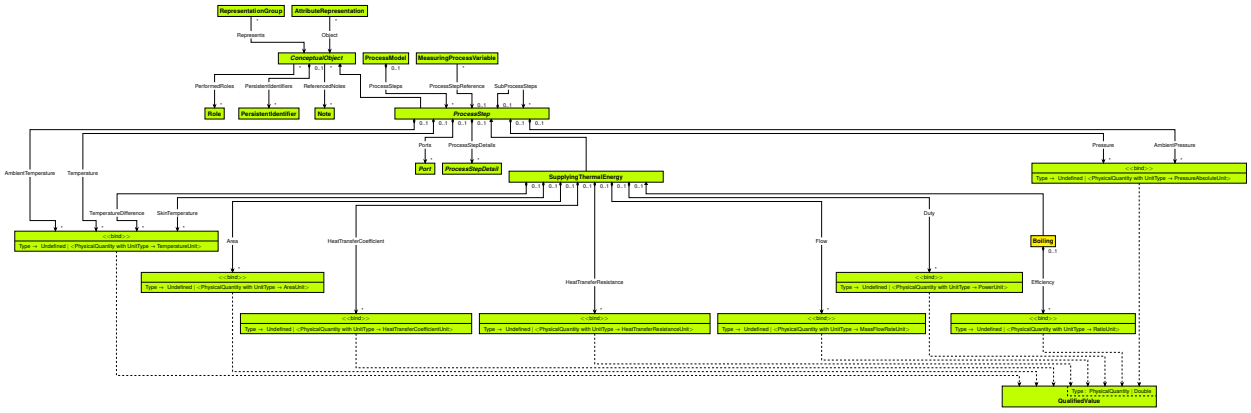
Boiling

Process::*Process*::Boiling

Overview

Concrete Class

This *SupplyingThermalEnergy* process vaporises a fluid. This process can be realized as a boiler, heat exchanger or fired heater. The process can also be used to represent the re-boiling subprocess in a distillation process.



Supertypes

- *SupplyingThermalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Efficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no

Efficiency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = 78.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Boiling">
  <Components property="Efficiency">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>78.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

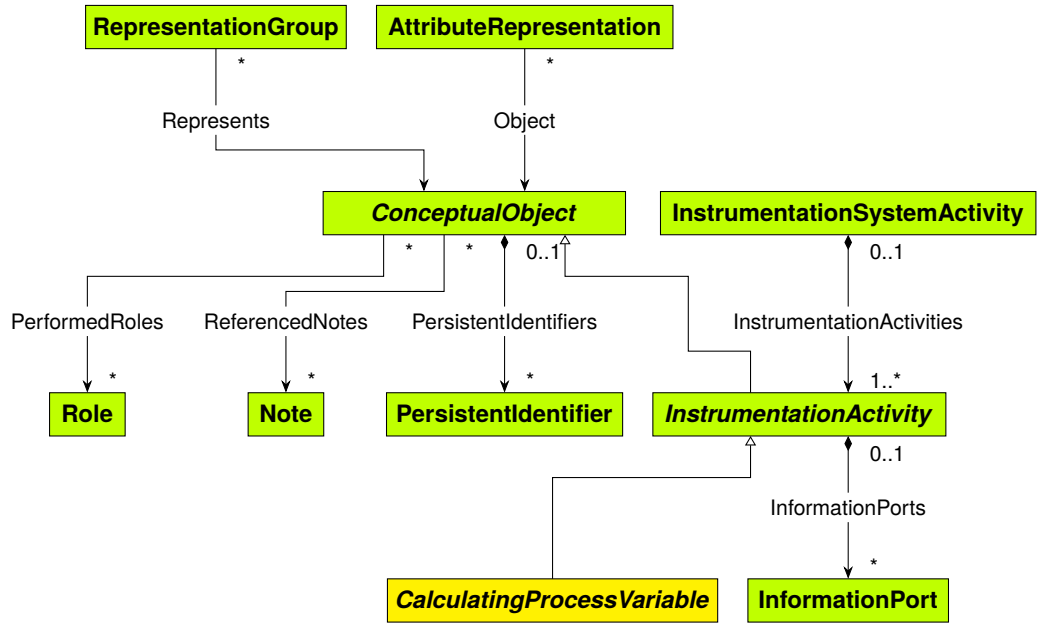
CalculatingProcessVariable

Process::*Process*::CalculatingProcessVariable

Overview

Abstract Class

This *InstrumentationActivity* calculates an output that is some mathematical function of the inputs. This is a parent type for specialized calculations with specific purposes.



Supertypes

- *InstrumentationActivity*

Subtypes

- *CalculatingRatio*
- *CalculatingSplitRange*
- *SelectingProcessVariable*
- *TransformingProcessVariable*

CalculatingRatio

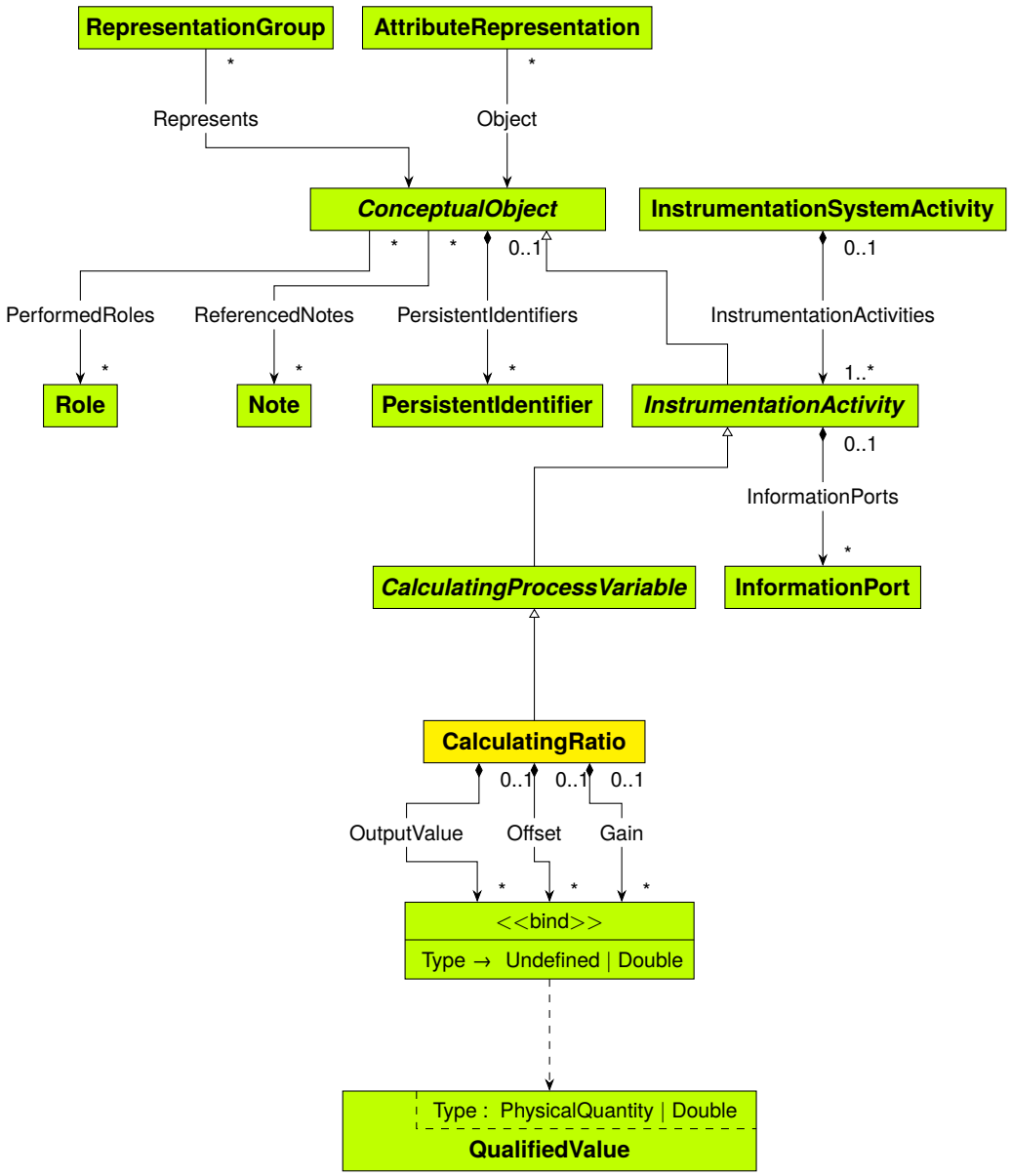
Process::*Process*::CalculatingRatio

Overview

Concrete Class

This *CalculatingProcessVariable* process calculates an output signal that is the ratio of the two input signals. It can be used to specify and design ratio control functions.

If the two input signals are Dividend and Divisor, then OutputValue = Gain * Dividend/Divisor + Offset .



Supertypes

- *CalculatingProcessVariable*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Gain	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
Offset	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
OutputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no

Gain

Composition Property

Multiplier in the ratio calculation.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = 2.5)

]

Offset

Composition Property

Offset added to the ratio calculation.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = 3.0)

]

OutputValue

Composition Property

The calculated ratio.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = 4.3)

]

Example in DEXPI XML

```
<Object type="Process/Process.CalculatingRatio">
  <Components property="Gain">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <Double>2.5</Double>
      </Data>
    </Object>
  </Components>
  <Components property="Offset">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <Double>3.0</Double>
      </Data>
    </Object>
  </Components>
  <Components property="OutputValue">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <Double>4.3</Double>
      </Data>
    </Object>
  </Components>
</Object>
```

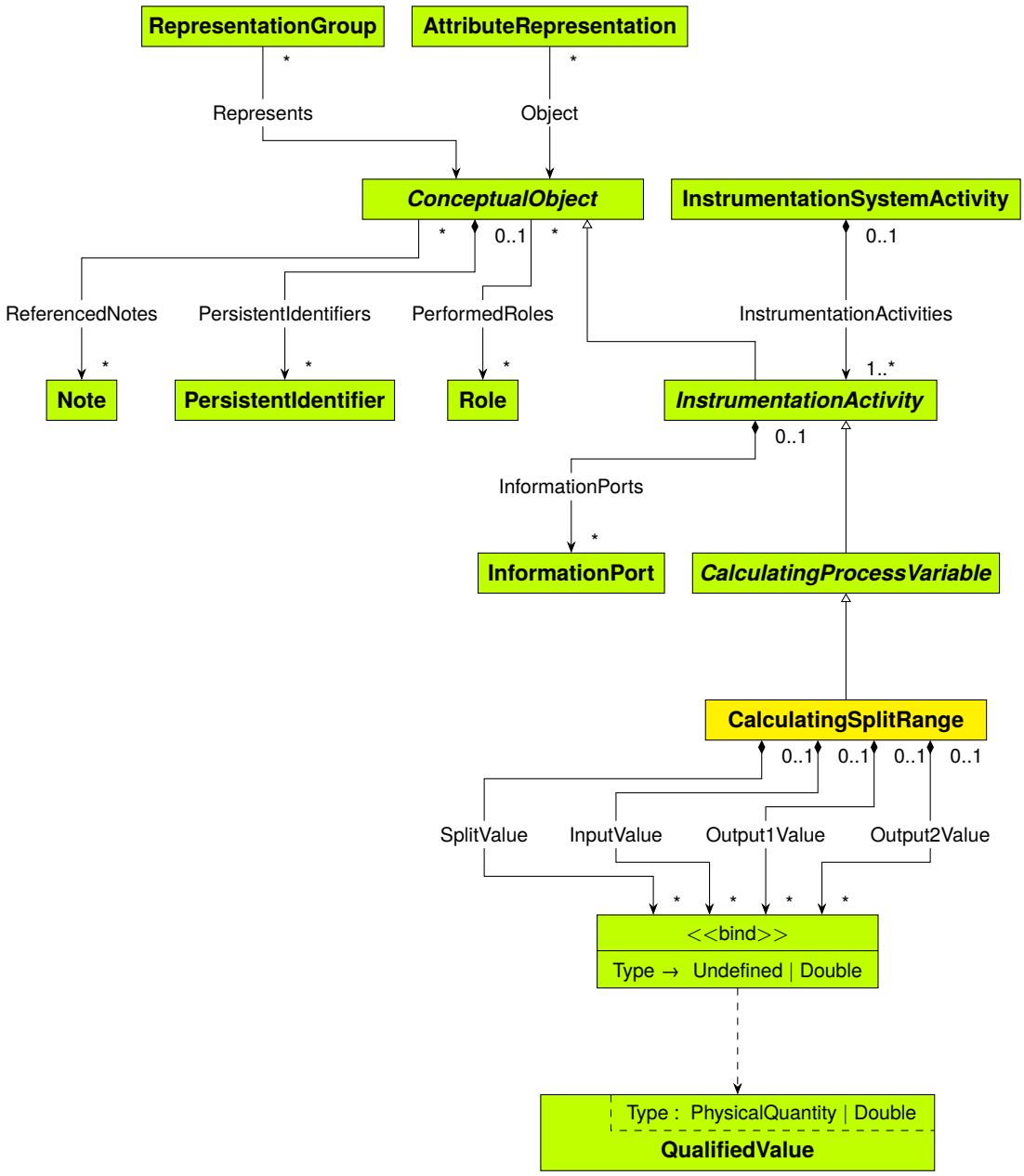
CalculatingSplitRange

Process::*Process*::CalculatingSplitRange

Overview

Concrete Class

This *CalculatingProcessVariable* process calculates two output signals so that a single input signal can be used to manipulate two control elements using a split range. It can be used to specify and design split range control functions.



Supertypes

- *CalculatingProcessVariable*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
Output1Value	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
Output2Value	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
SplitValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no

InputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Output1Value

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Output2Value

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

SplitValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.CalculatingSplitRange"/>
```

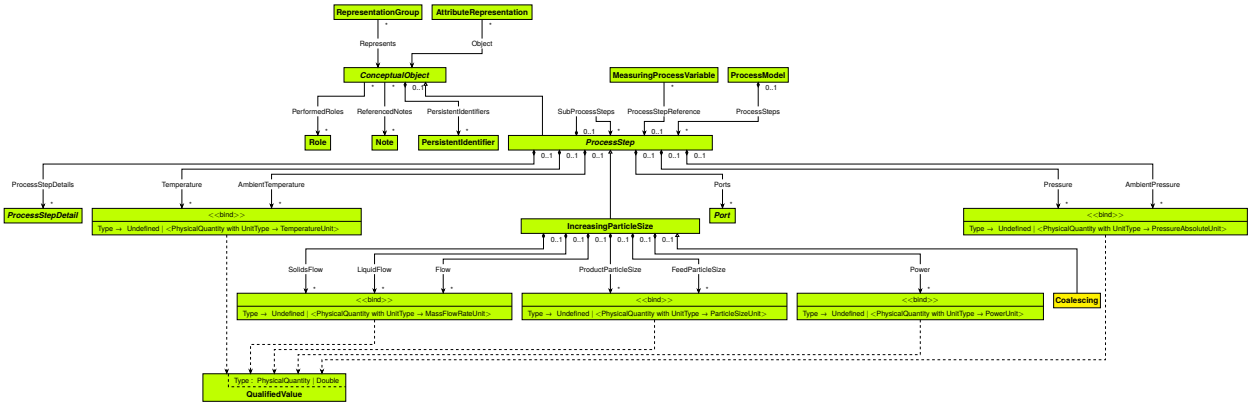
Coalescing

Process::*Process*::Coalescing

Overview

Concrete Class

This is an *IncreasingParticleSize* process in which small droplets of a liquid phase are made to coalesce into larger droplets, which can then be separated from the mixture.



Supertypes

- *IncreasingParticleSize*

Example in DEXPI XML

```
<Object type="Process/Process.Coalescing"/>
```

Composition

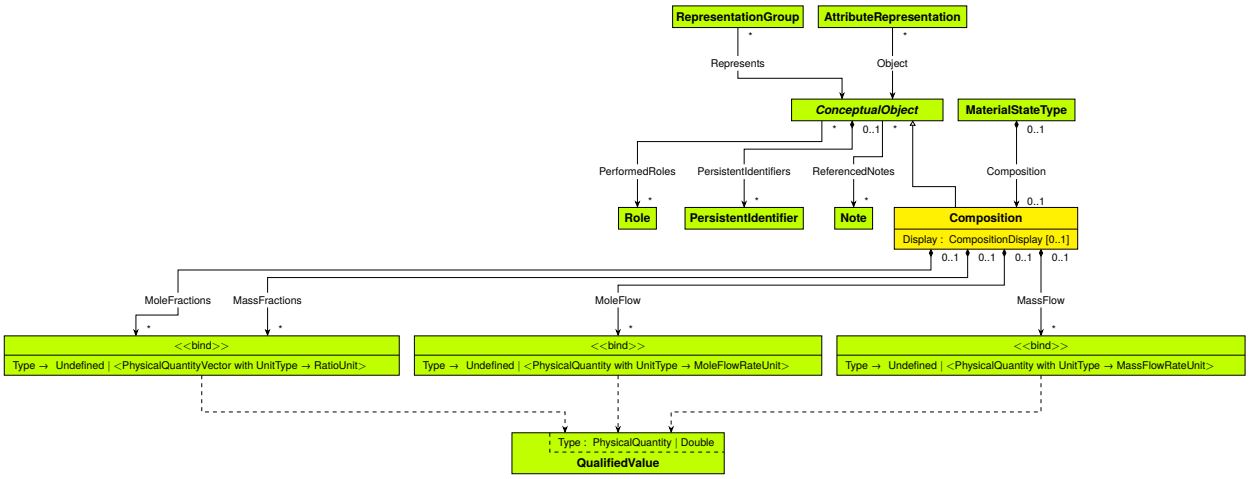
Process::*Process*::Composition

Overview

Concrete Class

This data item is an array of numbers that describe the chemical composition of a material. The order of items in the array is determined by the list of chemical components (*ListOfMaterialComponents*) in the corresponding *MaterialTemplate* object (see *MaterialTemplate.ListOfComponents*).

Note: ISO 15926 uses the concept of CONCENTRATION and does not model the concept of material composition as an attribute.



Supertypes

- *ConceptualObject*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
MassFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
MassFractions	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantityVector* with *UnitType* → *RatioUnit*>>	no
MoleFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MoleFlowRateUnit*>>	no
MoleFractions	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantityVector* with *UnitType* → *RatioUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Display	0..1	*CompositionDisplay*	no	no

Display

Data Property

The display form for the composition: Fraction, Percent, or AbsoluteValue (mass or molar flow).

Type: *CompositionDisplay*

Multiplicity: 0..1

Ordered: no

Unique: no

MassFlow

Composition Property

Vector of mass flow rates for each component.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `270.0`))

]

MassFractions

Composition Property

Vector of mass fraction values for each component.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantityVector* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = `mimi [19.0, 81.0]`))

]

MoleFlow

Composition Property

Vector of mole flow rates for each component.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MoleFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilomolePerSecond*,

Value = 8.5))

]

MoleFractions

Composition Property

Vector of mole fraction values for each component.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantityVector* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantityVector*(

Unit = *Percent*,

Values = [

17.0,

83.0]))

]

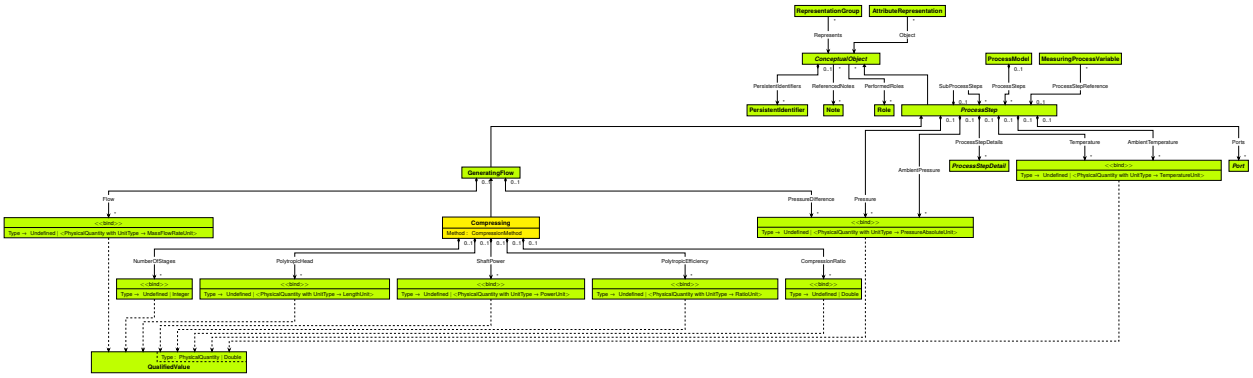
Compressing

Process::*Process*::Compressing

Overview

Concrete Class

This *GeneratingFlow* process represents compression of gases to increase pressure and generate a flow of gas. The physical principle used to compress the gas can be specified by selecting a value from the CompressionMethod enumeration.



Supertypes

- *GeneratingFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
CompressionRatio	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
NumberOfStages	*	<*QualifiedValue* with *Type* → *Undefined* | *Integer*>	no
PolytropicEfficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
PolytropicHead	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
ShaftPower	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	1	*CompressionMethod*	no	no

CompressionRatio

Composition Property

Ratio between outlet and inlet absolute pressure.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Method

Data Property

Compression method.

Type: *CompressionMethod*

Multiplicity: 1

Ordered: no

Unique: no

NumberOfStages

Composition Property

Number of compressor stages of the *Compressing*.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Integer*>

Multiplicity: *

Ordered: no

PolytropicEfficiency

Composition Property

The polytropic efficiency of the *Compressing*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = 82.0))

]

PolytropicHead

Composition Property

The polytropic head generated by the *Compressing*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Metre*,

Value = 1800.0))

]

ShaftPower

Composition Property

The mechanical power consumption of the *Compressing*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 80.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Compressing">
  <Components property="PolytropicEfficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>82.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PolytropicHead">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
```

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```
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
          </Data>
          <Data property="Value">
            <Double>1800.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ShaftPower">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

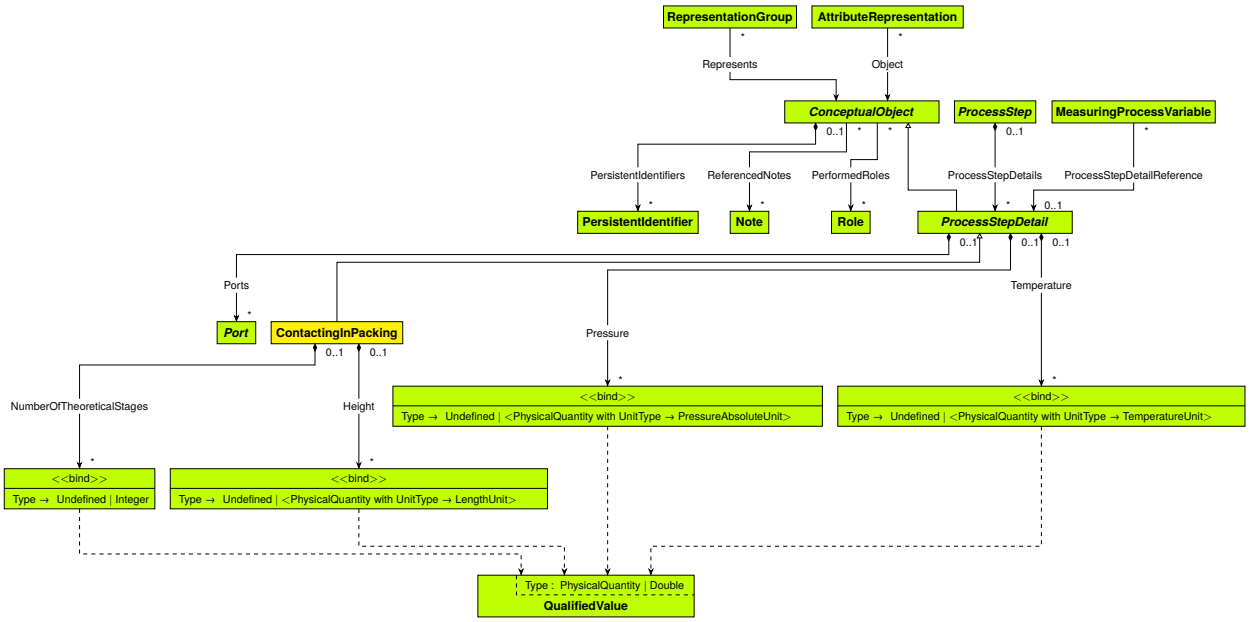
ContactingInPacking

Process::*Process*::ContactingInPacking

Overview

Concrete Class

This *ProcessStepDetail* is used to represent a process carried out in a packed bed. Its role is to represent packing shown in process flow diagrams and to support the functional breakdown of complex processing systems. See also *ContactingOnTray*.



Supertypes

- *ProcessStepDetail*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Height	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
NumberOfTheoreticalStages	*	<*QualifiedValue* with *Type* → *Undefined* | *Integer*>	no

Height

Composition Property

The height of the packing.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 12.4))

]

NumberOfTheoreticalStages

Composition Property

The number of theoretical stages realised in the packing.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Integer*>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.ContactingInPacking">
  <Components property="Height">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>12.4</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

ContactingOnTray

Process::*Process*::ContactingOnTray

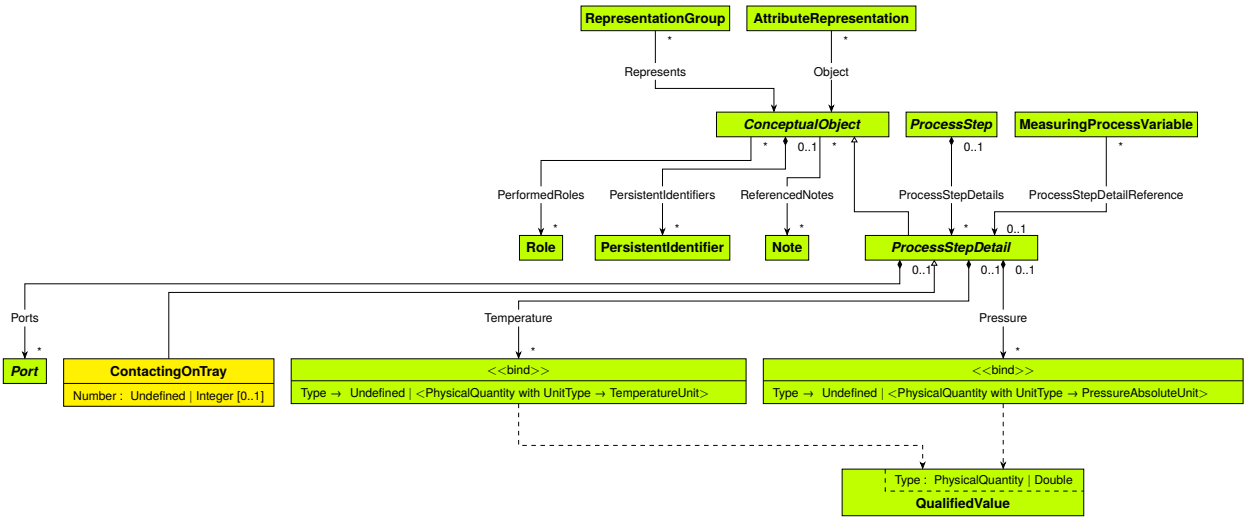
Overview

Concrete Class

This *ProcessStepDetail* is used to represent a process carried out in an assembly of trays. Its role is to represent trays shown in process flow diagrams and to support the functional breakdown of complex processing systems. See also *ContactingInPacking*.

Roles referenced via *PerformedRoles* should have one of the following *Names*:

- Bottom
- Feed
- Monitored
- Top



Supertypes

- *ProcessStepDetail*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Number	0..1	*Undefined* | *Integer*	no	no

Number

Data Property

Type: *Undefined* | *Integer*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.ContactingOnTray"/>
```

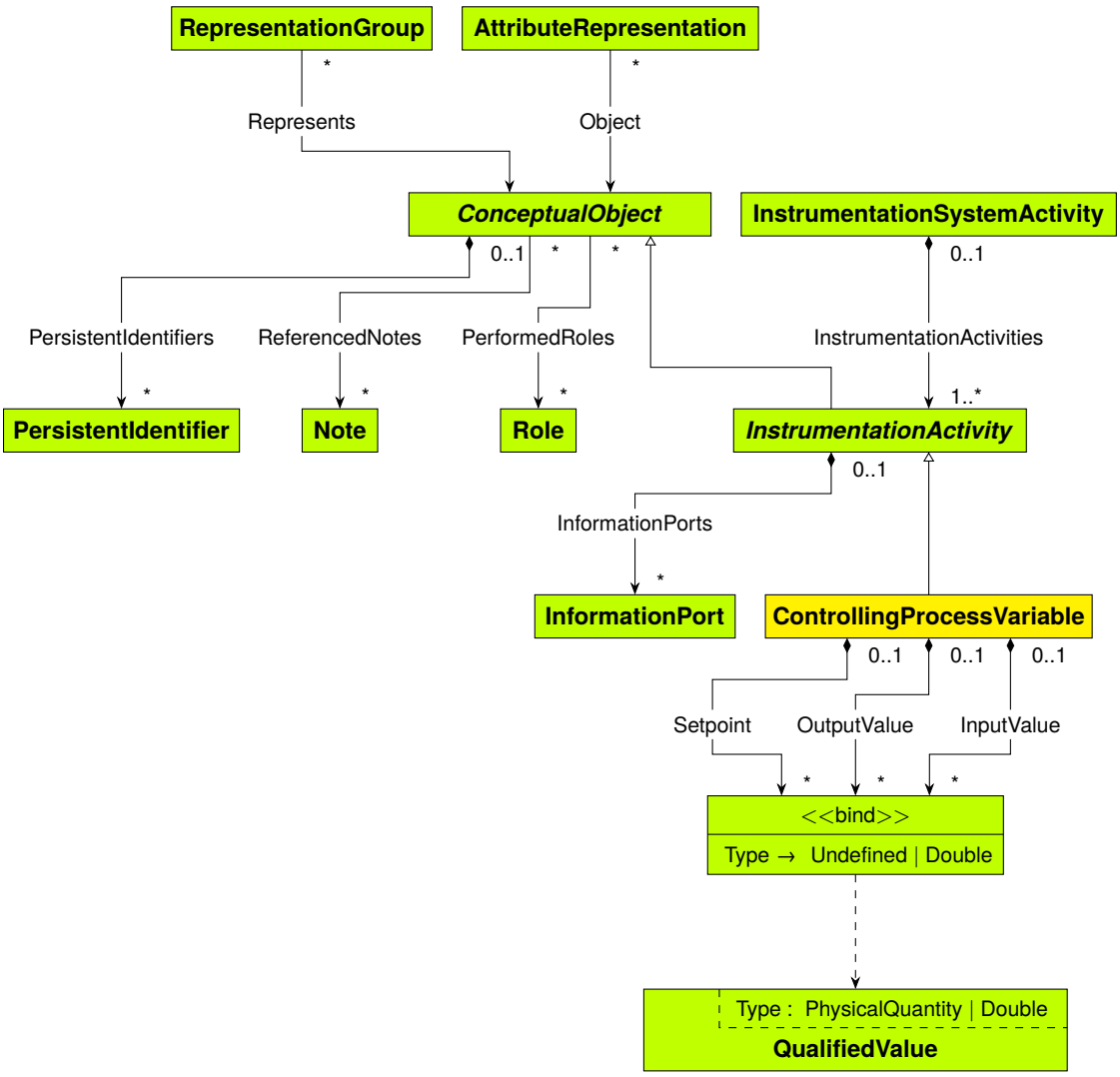
ControllingProcessVariable

Process::*Process*::ControllingProcessVariable

Overview

Concrete Class

This *InstrumentationActivity* represents a process control activity. A block of this type calculates the value of a manipulated variable so that a measured variable is held at a specified set point. The set point can be supplied as an external *InformationFlow*.



Supertypes

- *InstrumentationActivity*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
OutputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
Setpoint	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no

InputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

OutputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Setpoint

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.ControllingProcessVariable"/>
```

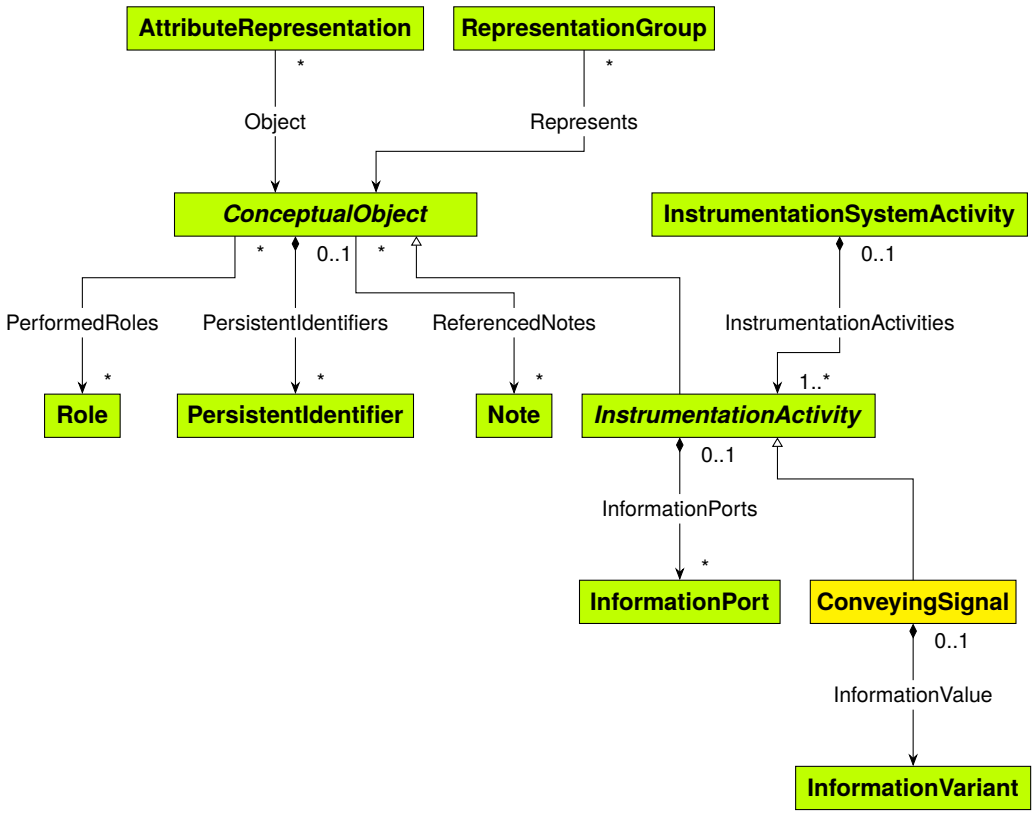
ConveyingSignal

Process::*Process*::ConveyingSignal

Overview

Concrete Class

This process transmits a signal between two processes. In practices, this process is only used if there will be a need to invest in specialized equipment and facilities, or if the properties of the signal are different at the input and output of the process. Most signal connections are represented by *InformationFlow* objects between *InformationPort* instances.



Supertypes

- *InstrumentationActivity*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InformationValue	1	*InformationVariant*	no

InformationValue

Composition Property

Type: *InformationVariant*

Multiplicity: 1

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.ConveyingSignal"/>
```

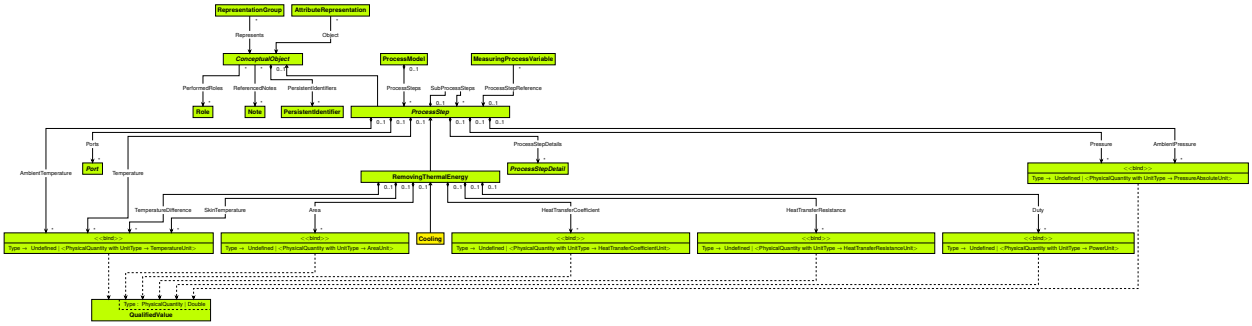
Cooling

Process::*Process*::Cooling

Overview

Concrete Class

This *RemovingThermalEnergy* process has the purpose of reducing the enthalpy content of a material through heat exchange with the environment or a cooling medium. See also *ExchangingThermalEnergy*, which can be used to model the same process in cases where the cooling medium system is defined.



Supertypes

- *RemovingThermalEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.Cooling"/>
```

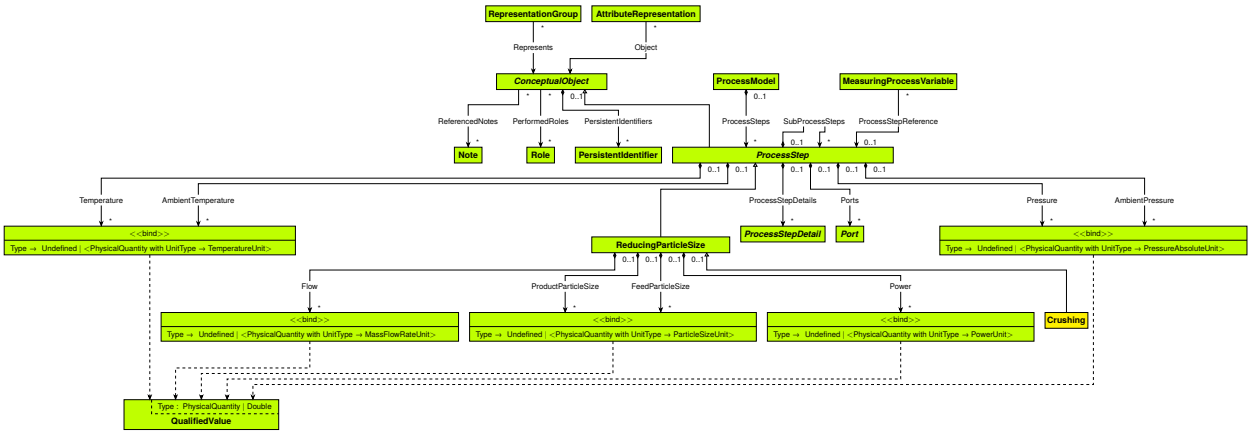
Crushing

Process::*Process*::Crushing

Overview

Concrete Class

This *ReducingParticleSize* process takes solid material and breaks it into smaller pieces by an externally applied mechanical force. See also *Grinding* and *Milling*.



Supertypes

- *ReducingParticleSize*

Example in DEXPI XML

```
<Object type="Process/Process.Crushing"/>
```

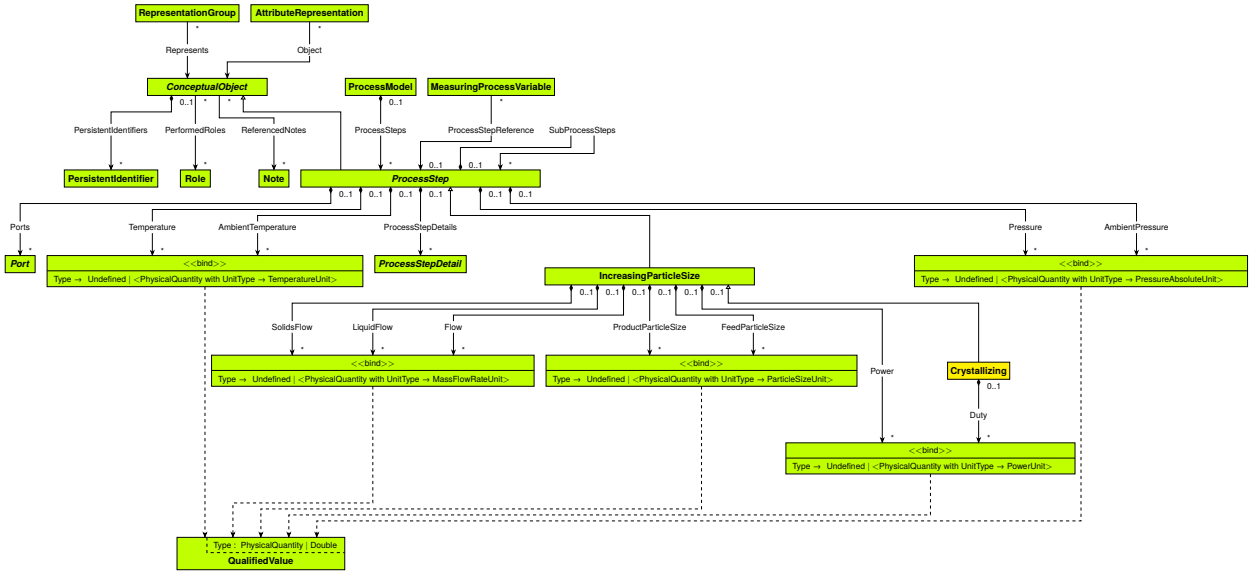
Crystallizing

Process::*Process*::Crystallizing

Overview

Concrete Class

This *IncreasingParticleSize* process is based on the formation of crystals from a feed fluid. This then allows the separation of the resulting solids from the liquid.



Supertypes

- *IncreasingParticleSize*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 4.6))

]

Example in DEXPI XML

```
<Object type="Process/Process.Crystallizing">
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>4.6</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

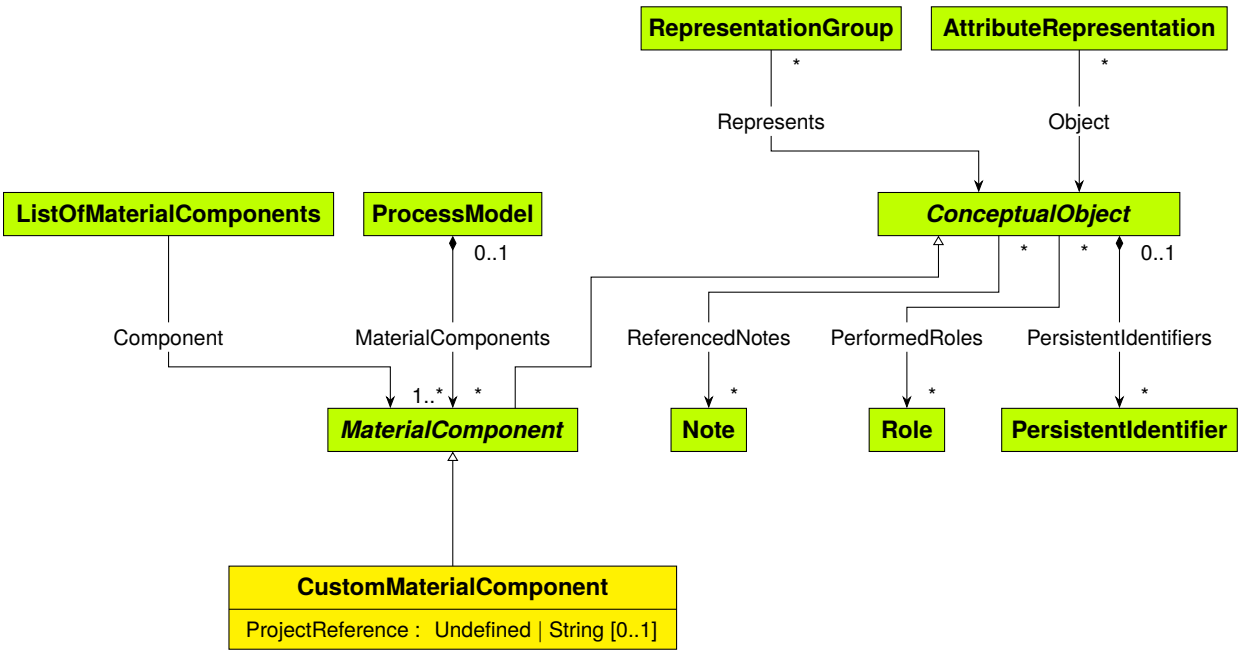
CustomMaterialComponent

Process::*Process*::CustomMaterialComponent

Overview

Concrete Class

A CustomMaterialComponent defines a custom chemical compound used to specify the chemical composition of a material. These compounds are usually pseudocomponents that are used to simulate the thermodynamic properties of complex mixtures of organic compounds with high molecular weight.



Supertypes

- *MaterialComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ProjectReference	0..1	*Undefined* | *String*	no	no

ProjectReference

Data Property

Reference to project identifier or documentation.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.CustomMaterialComponent"/>
```

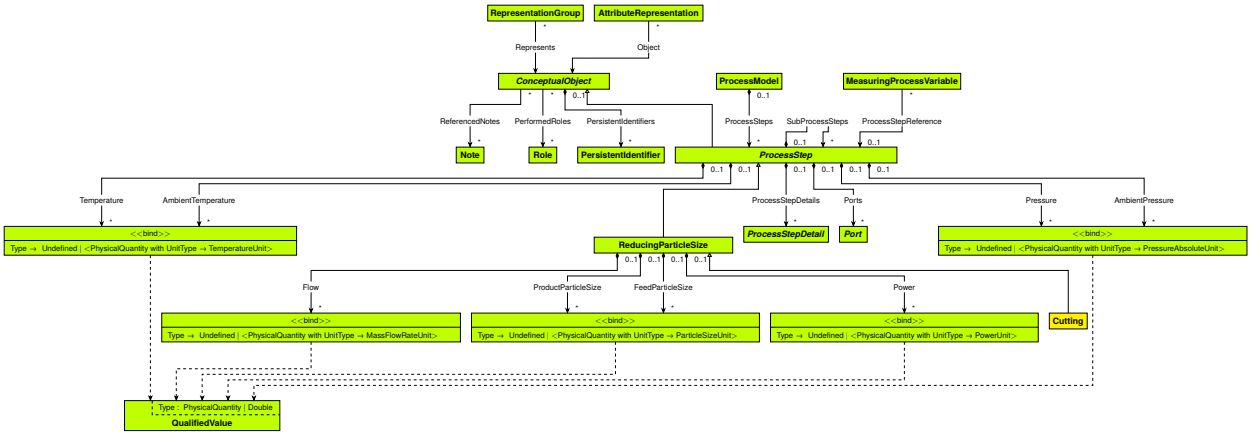
Cutting

Process::*Process*::Cutting

Overview

Concrete Class

This *ReducingParticleSize* process separates solid material into smaller parts using an edged implement or knife.



Supertypes

- *ReducingParticleSize*

Example in DEXPI XML

```
<Object type="Process/Process.Cutting"/>
```

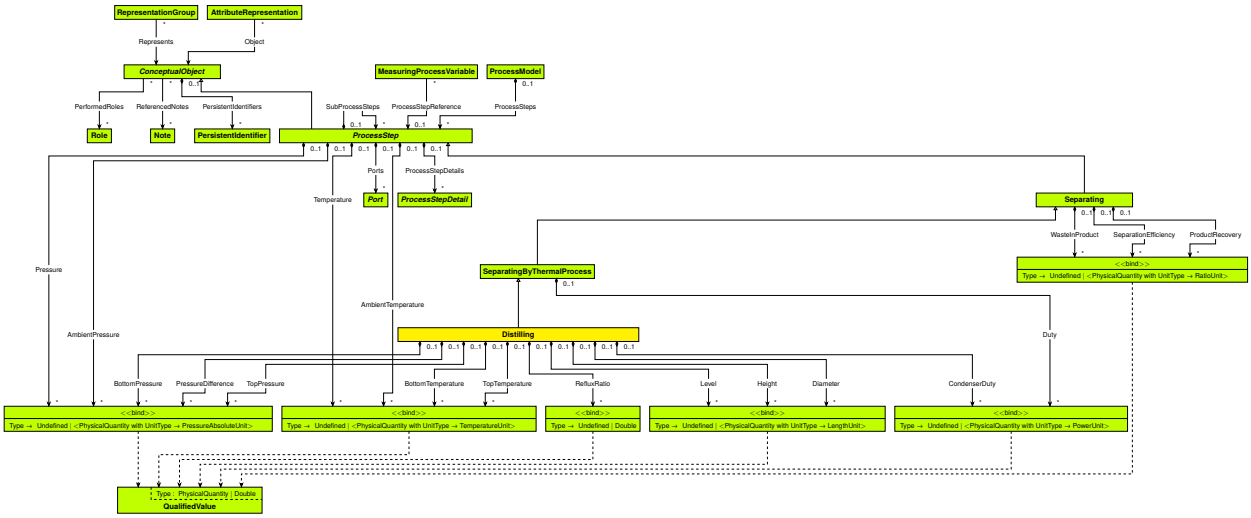
Distilling

Process::*Process*::Distilling

Overview

Concrete Class

This *SeparatingByThermalProcess* process uses boiling, condensing and countercurrent contacting of liquid and vapour to separate chemical components with a difference in relative volatility.



Supertypes

- *SeparatingByThermalProcess*

Subtypes

- *StabilizingDistilling*
- *StrippingDistilling*
- *VacuumDistilling*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
BottomPressure	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
BottomTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no
CondenserDuty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Diameter	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
Height	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
Level	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
RefluxRatio	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
TopPressure	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
TopTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

BottomPressure

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = `2.2`))

]

BottomTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = `98.0`))

]

CondenserDuty

Composition Property

Duty of the condenser.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 72.9))

]

Diameter

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 42.0))

]

Height

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 90.0))

]

Level

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Centimetre,
            Value = 8.2))
]
```

PressureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Bar,
            Value = 0.9))
]
```

RefluxRatio

Composition Property

Reflux ratio.

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = 0.24)

]

TopPressure

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 1.3))

]

TopTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = 71.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Distilling">
  <Components property="BottomPressure">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>2.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="BottomTemperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>98.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="CondenserDuty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>72.9</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Diameter">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>42.0</Double>
          </Data>
```

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```
      </AggregatedDataValue>
    </Data>
  </Object>
</Components>
<Components property="Height">
  <Object type="Core/QualifiedValue">
    <Data property="Value">
      <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
        <Data property="Unit">
          <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
        </Data>
        <Data property="Value">
          <Double>90.0</Double>
        </Data>
      </AggregatedDataValue>
    </Data>
  </Object>
</Components>
<Components property="Level">
  <Object type="Core/QualifiedValue">
    <Data property="Value">
      <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
        <Data property="Unit">
          <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
        </Data>
        <Data property="Value">
          <Double>8.2</Double>
        </Data>
      </AggregatedDataValue>
    </Data>
  </Object>
</Components>
<Components property="PressureDifference">
  <Object type="Core/QualifiedValue">
    <Data property="Value">
      <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
        <Data property="Unit">
          <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
        </Data>
        <Data property="Value">
          <Double>0.9</Double>
        </Data>
      </AggregatedDataValue>
    </Data>
  </Object>
</Components>
<Components property="RefluxRatio">
  <Object type="Core/QualifiedValue">
    <Data property="Value">
      <Double>0.24</Double>
    </Data>
  </Object>
```

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```
  </Components>
  <Components property="TopPressure">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>1.3</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="TopTemperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>71.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

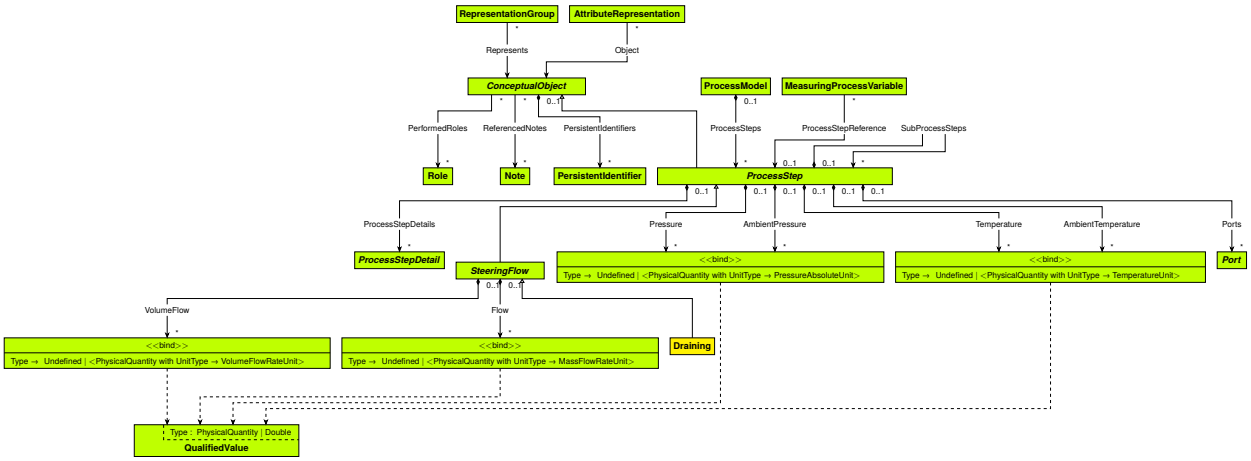
Draining

Process::*Process*::Draining

Overview

Concrete Class

This supporting *SteeringFlow* process is used to manage leakages and handle the emptying of a plant for maintenance.



Supertypes

- *SteeringFlow*

Example in DEXPI XML

```
<Object type="Process/Process.Draining"/>
```

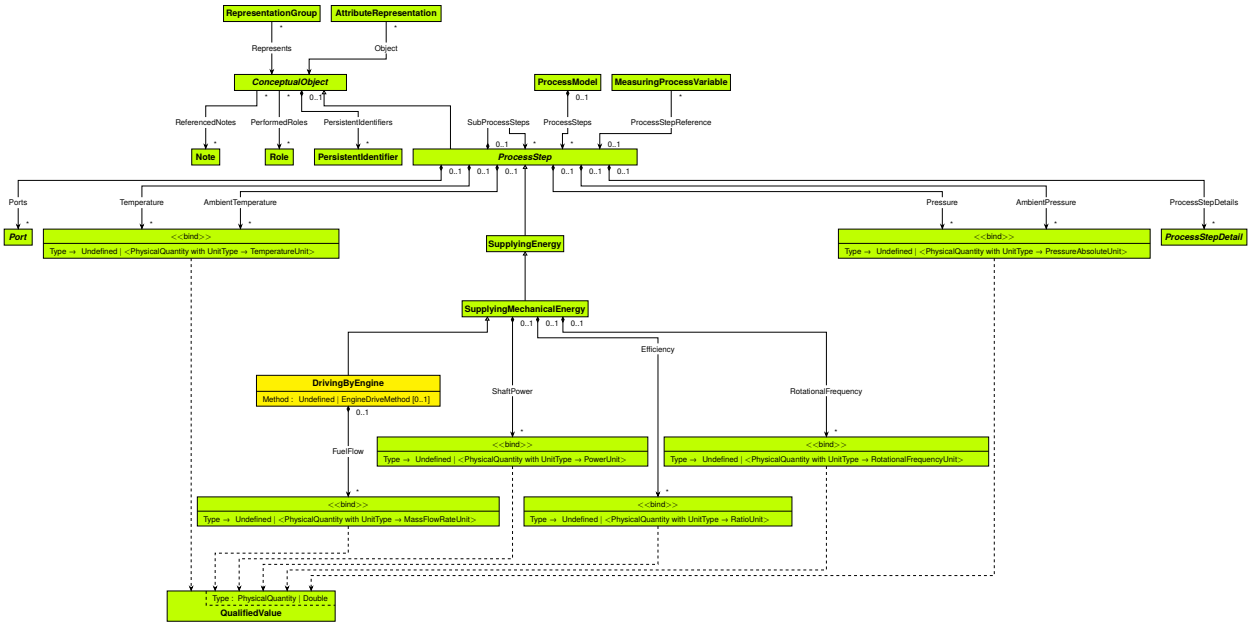
DrivingByEngine

Process::*Process*::DrivingByEngine

Overview

Concrete Class

This *SupplyingMechanicalEnergy* process uses an internal combustion engine as its source of energy.



Supertypes

- *SupplyingMechanicalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FuelFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	0..1	*Undefined* | *EngineDriveMethod*	no	no

FuelFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = KilogramPerHour,
            Value = 18.5))
]
```

Method

Data Property

Type: *Undefined* | *EngineDriveMethod*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.DrivingByEngine">
  <Components property="FuelFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>18.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

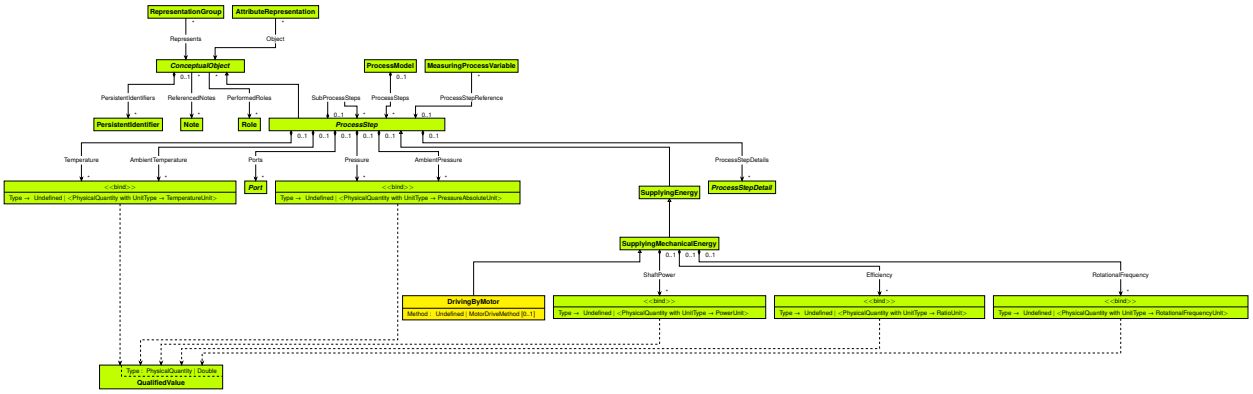
DrivingByMotor

Process::*Process*::DrivingByMotor

Overview

Concrete Class

This *SupplyingMechanicalEnergy* process uses an electric motor as its source of energy.



Supertypes

- *SupplyingMechanicalEnergy*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	0..1	*Undefined* | *MotorDriveMethod*	no	no

Method

Data Property

Type: *Undefined* | *MotorDriveMethod*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.DrivingByMotor"/>
```

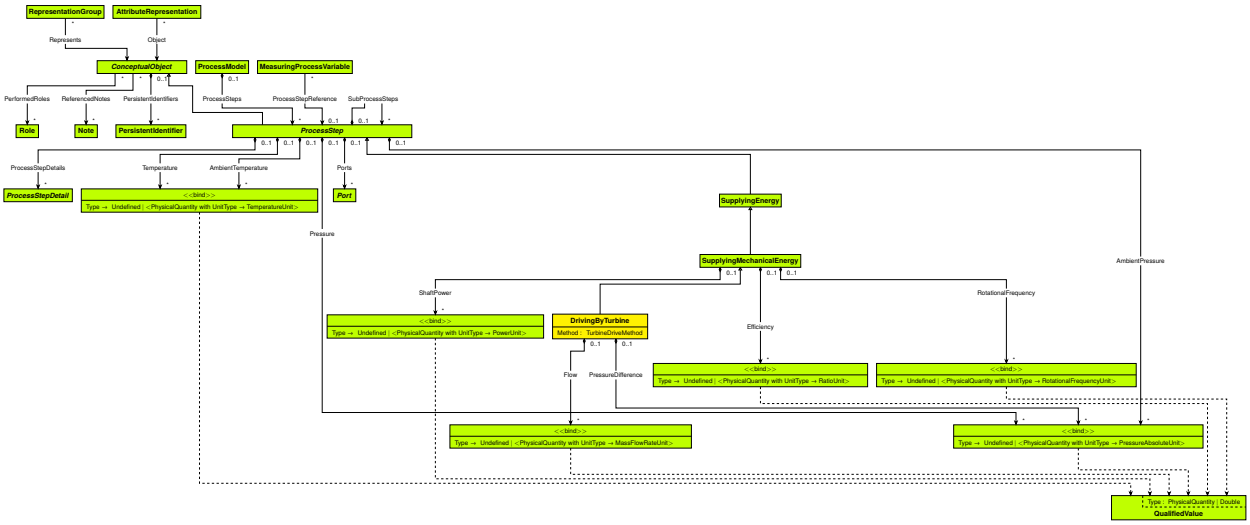
DrivingByTurbine

Process::*Process*::DrivingByTurbine

Overview

Concrete Class

This *SupplyingMechanicalEnergy* process uses an turbine as its source of energy.



Supertypes

- *SupplyingMechanicalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	1	*TurbineDriveMethod*	no	no

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `102.0`))

]

Method

Data Property

Type: *TurbineDriveMethod*

Multiplicity: 1

Ordered: no

Unique: no

PressureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 3.7))

]

Example in DEXPI XML

```
<Object type="Process/Process.DrivingByTurbine">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>102.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>3.7</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

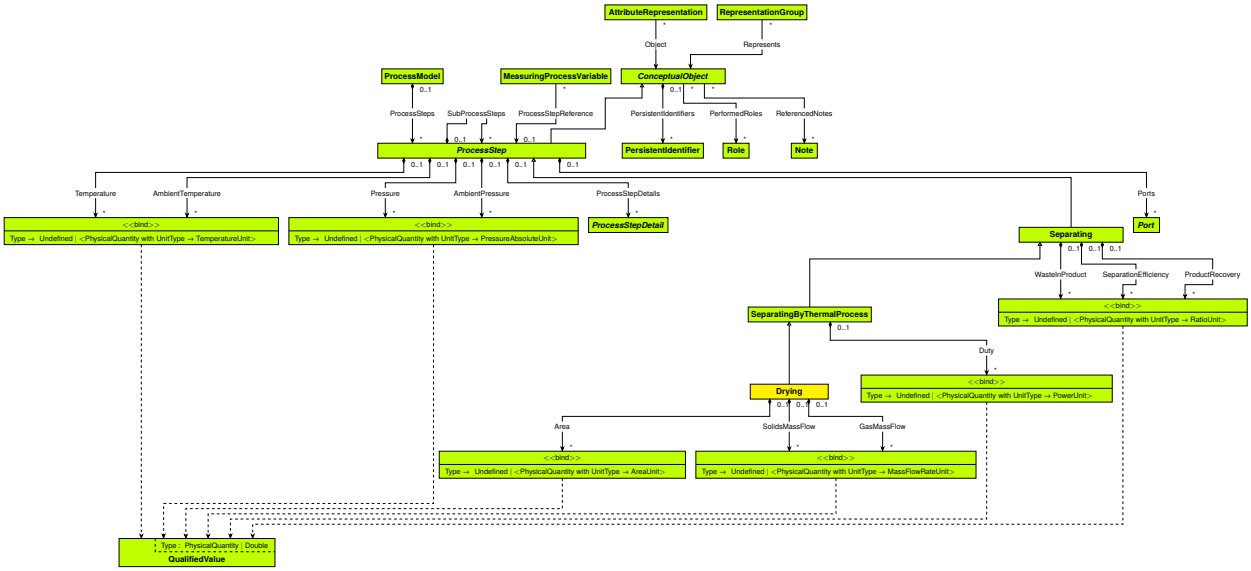
Drying

Process::*Process*::Drying

Overview

Concrete Class

This *SeparatingByThermalProcess* process removes moisture or liquids from a solid material, producing a solid product with a lower content of the liquid components.



Supertypes

- *SeparatingByThermalProcess*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Area	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>	no
GasMassFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
SolidsMassFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Area

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreSquared*,

Value = `3420.0`))

]

GasMassFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `25.8`))

]

SolidsMassFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `11.0`))

]

Example in DEXPI XML

```
<Object type="Process/Process.Drying">
  <Components property="Area">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.AreaUnit.CentimetreSquared"/>
          </Data>
          <Data property="Value">
            <Double>3420.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="GasMassFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>25.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SolidsMassFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>11.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

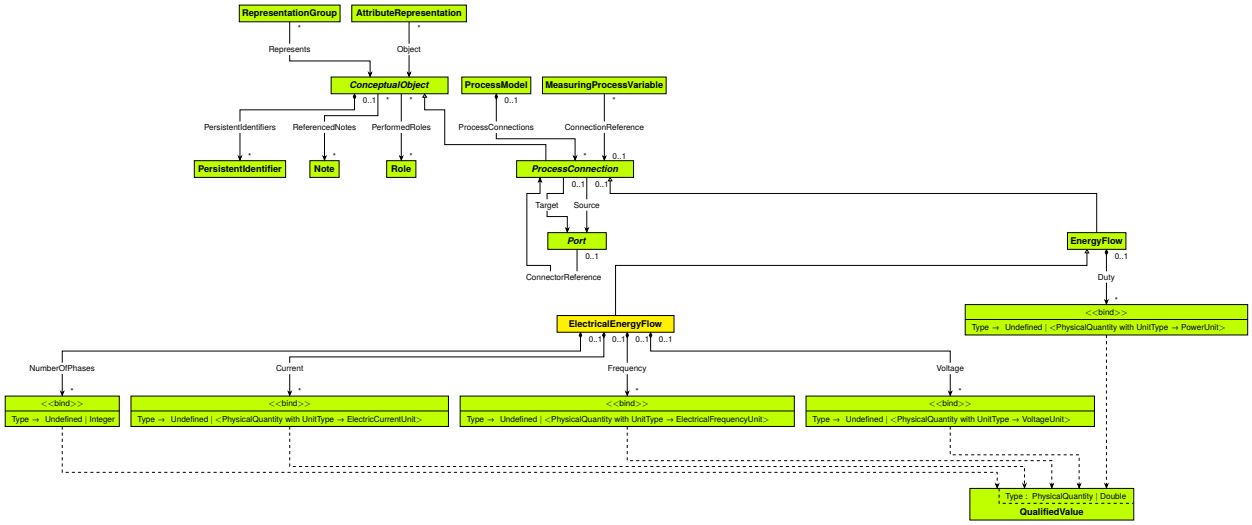
ElectricalEnergyFlow

Process::*Process*::ElectricalEnergyFlow

Overview

Concrete Class

A *ProcessConnection* that defines the flow of energy between two instances of *ElectricalEnergyPort*. This is used to model flows of electricity into out of the port. The form of electrical energy is defined by the properties of the object.



Supertypes

- *EnergyFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Current	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>	no
Frequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>>	no
NumberOfPhases	*	<*QualifiedValue* with *Type* → *Undefined* | *Integer*>	no
Voltage	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>	no

Current

Composition Property

Current.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Ampere*,

Value = `16.0`))

]

Frequency

Composition Property

Frequency of transmission (zero for DC).

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>>

Multiplicity: *

Ordered: no

NumberOfPhases

Composition Property

Number of phases (zero for DC).

Type: <*QualifiedValue* with *Type* → *Undefined* | *Integer*>

Multiplicity: *

Ordered: no

Voltage

Composition Property

Voltage.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Volt*,

Value = `230.0`))

]

Example in DEXPI XML

```
<Object type="Process/Process.ElectricalEnergyFlow">
  <Components property="Current">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ElectricCurrentUnit.Ampere"/>
          </Data>
          <Data property="Value">
            <Double>16.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Voltage">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
          </Data>
          <Data property="Value">
            <Double>230.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

ElectricalEnergyPort

Process::*Process*::ElectricalEnergyPort

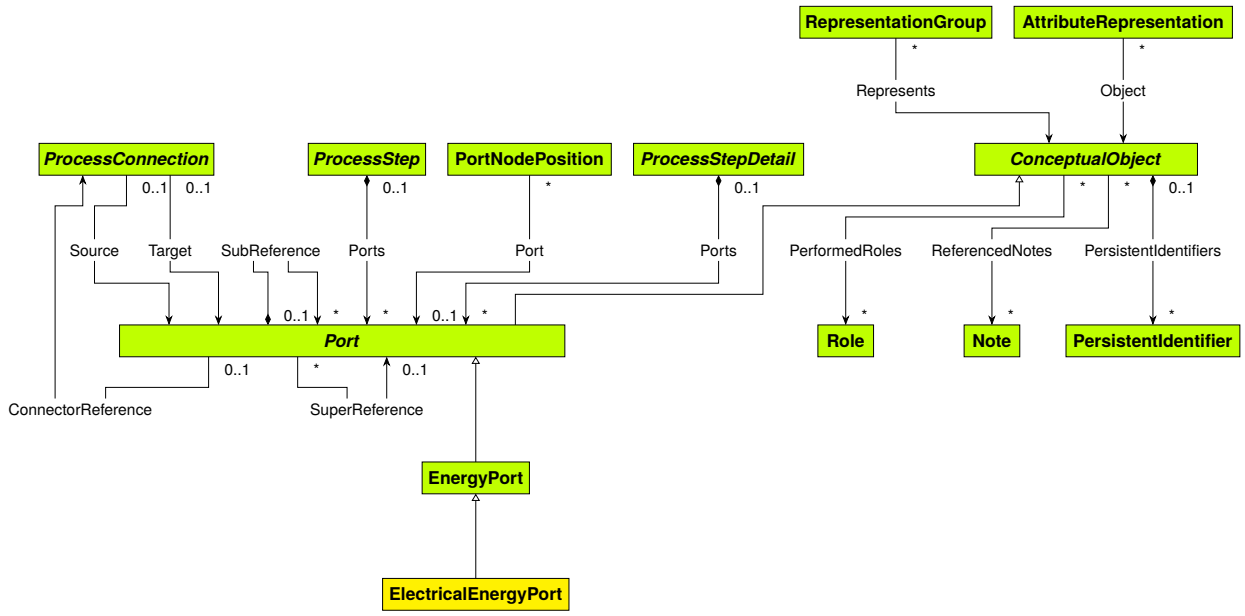
Overview

Concrete Class

An *EnergyPort* that models the exchange of electrical energy between *ProcessStep* objects. The form of electrical energy exchanged is defined by the values of the properties of the *ElectricalEnergyFlow* into or out of the port.

Roles referenced via *PerformedRoles* should have one of the following *Names*:

- Instrumentation
- Power
- Utility



Supertypes

- *EnergyPort*

Example in DEXPI XML

```
<Object type="Process/Process.ElectricalEnergyPort"/>
```

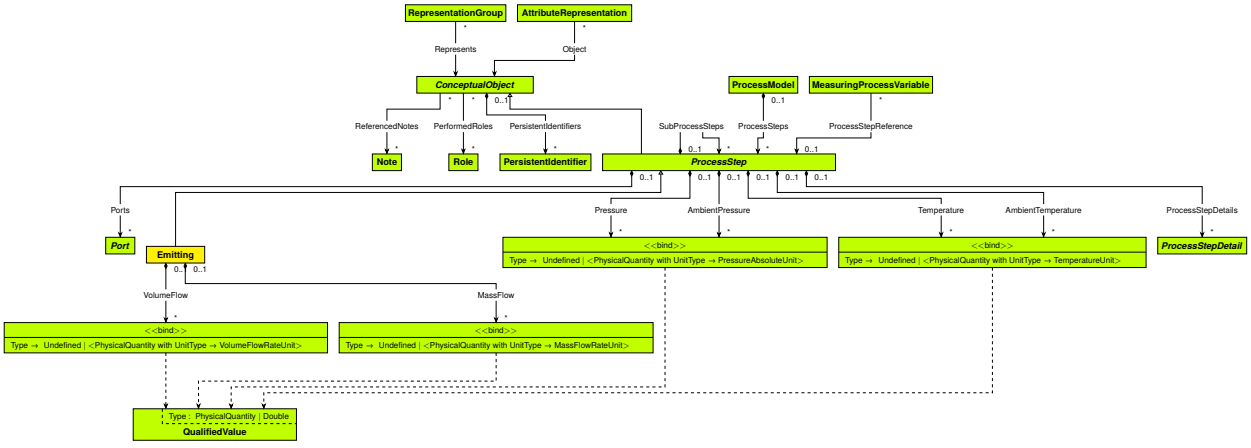
Emitting

Process::*Process*::Emitting

Overview

Concrete Class

This type represents the destination for a flow out of a process that can be regarded as an emission to the environment. It can be used instead of a *Sink*. It is provided as a convenience for calculating emissions and sustainability calculations.



Supertypes

- *ProcessStep*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
MassFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
VolumeFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>	no

MassFlow

Composition Property

Mass flow rate.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 7.4))

]

VolumeFlow

Composition Property

Volume flow rate.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *LitrePerSecond*,

Value = 0.9))

]

Example in DEXPI XML

```
<Object type="Process/Process.Emitting">
  <Components property="MassFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>7.4</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="VolumeFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.
↪LitrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>0.9</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

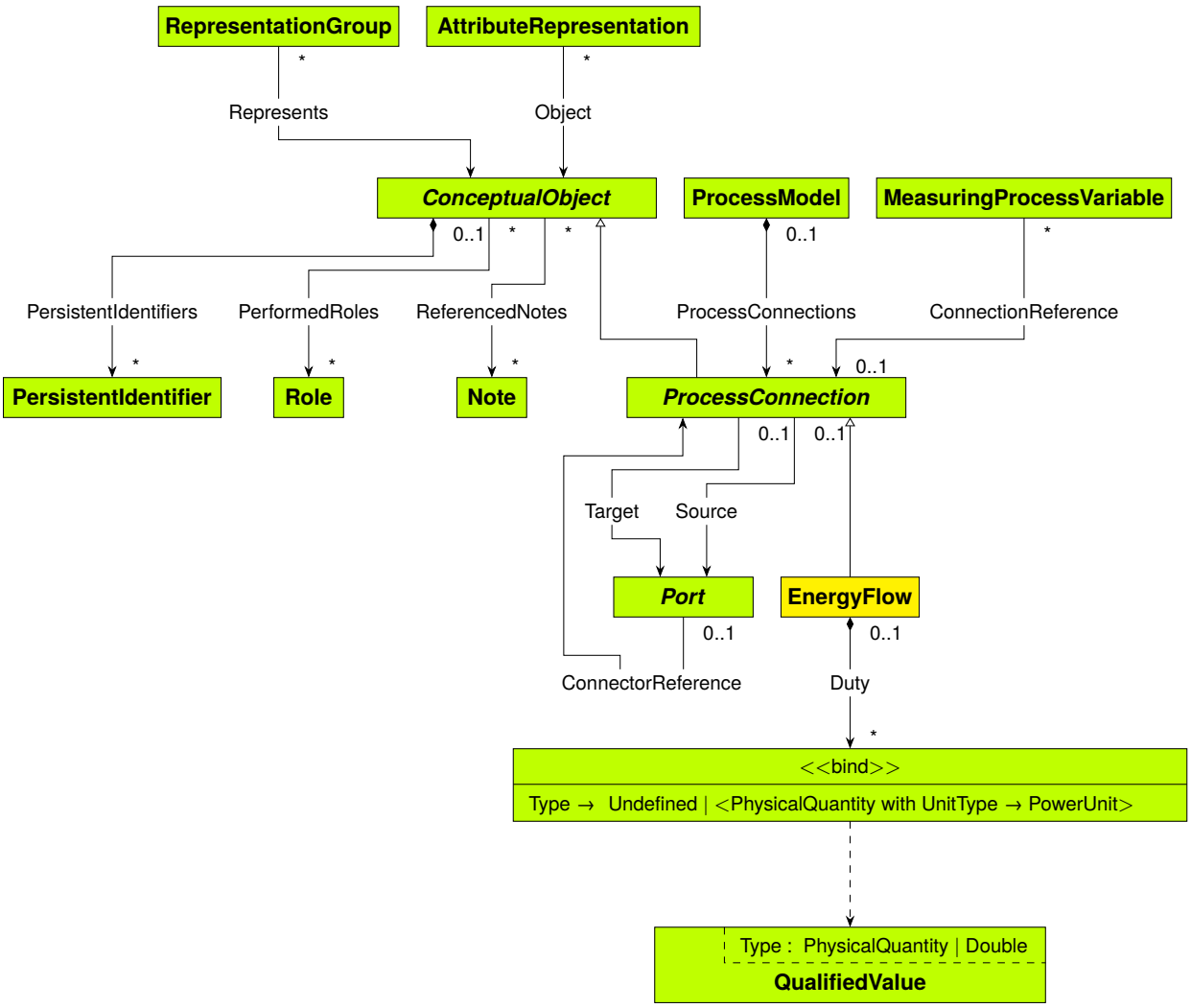
EnergyFlow

Process::*Process*::EnergyFlow

Overview

Concrete Class

A *ProcessConnection* that defines the flow of energy between two instances of *EnergyPort*. This is used to model flows of energy where the form of energy is unspecified. This type usually abstract and child types of this type are used to model energy flows with a specified form of energy.



Supertypes

- *ProcessConnection*

Subtypes

- *ElectricalEnergyFlow*
- *MechanicalEnergyFlow*
- *ThermalEnergyFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

Duty

Composition Property

Rate of energy flow for this connection.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 200.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.EnergyFlow">
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>200.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

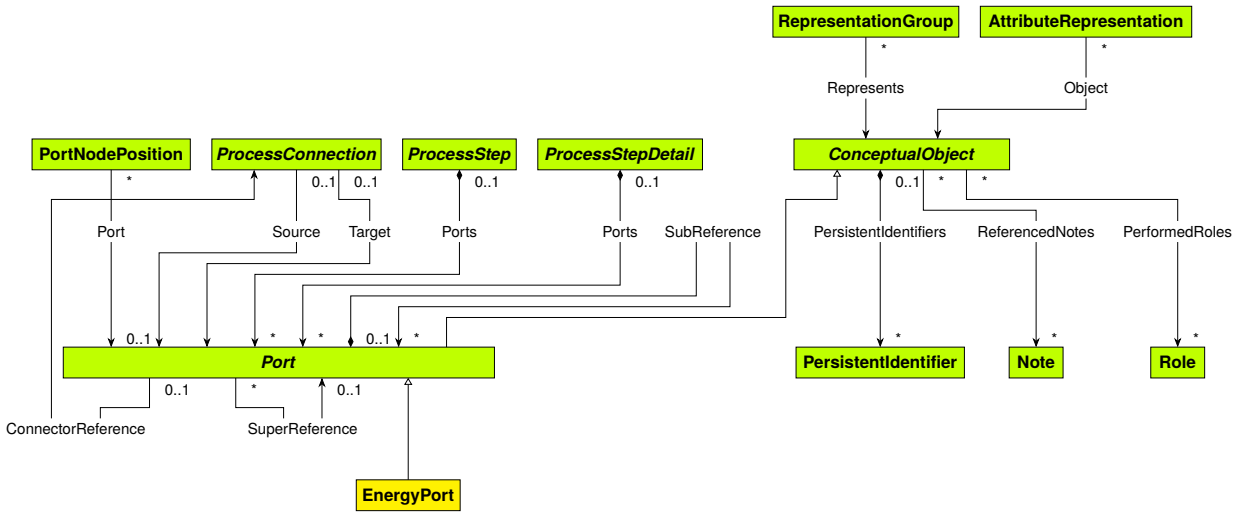
EnergyPort

Process::*Process*::EnergyPort

Overview

Concrete Class

A *Port* that models the transfer of energy, of whatever form, into our out of a *ProcessStep* object. This type is parent to specific port types that specify the form of energy exchanged. This type can be used to represent energy requirements where the type of energy is unspecified. In practice, this type is abstract, and the child types are used in modelling.



Supertypes

- *Port*

Subtypes

- *ElectricalEnergyPort*
- *MechanicalEnergyPort*
- *ThermalEnergyPort*

Example in DEXPI XML

```
<Object type="Process/Process.EnergyPort"/>
```

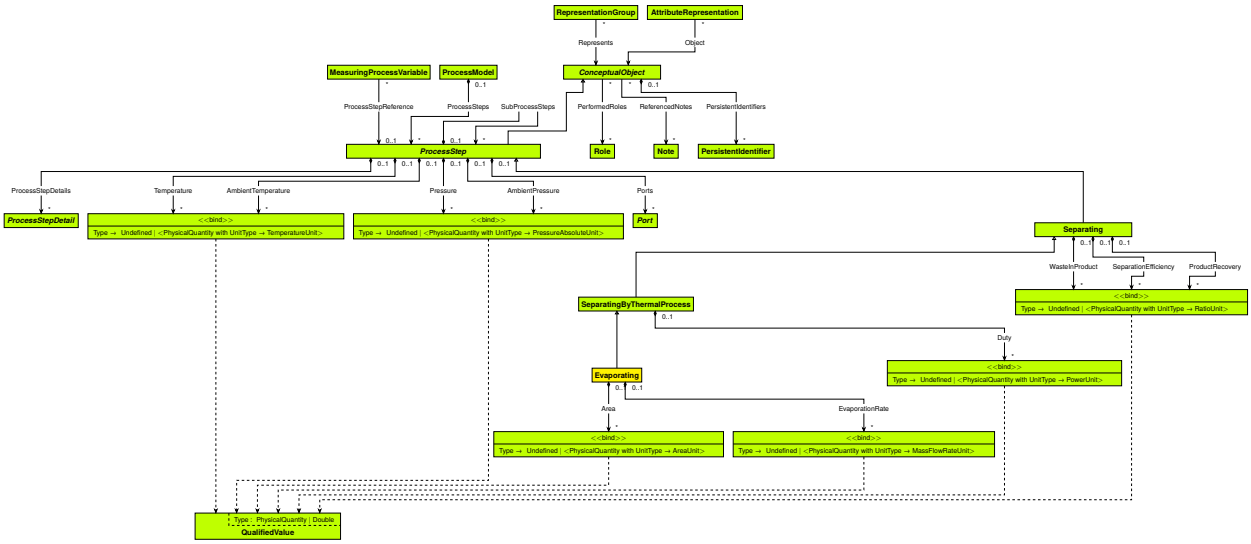
Evaporating

Process::*Process*::Evaporating

Overview

Concrete Class

This *SeparatingByThermalProcess* process applies thermal energy to drive off moisture or other volatile liquid as gas. This results in a vapour product and a more concentrated liquid or solid product.



Supertypes

- *SeparatingByThermalProcess*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Area	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>	no
EvaporationRate	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Area

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreSquared*,

Value = `1200.0`))

]

EvaporationRate

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 11.2))

]

Example in DEXPI XML

```
<Object type="Process/Process.Evaporating">
  <Components property="Area">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.AreaUnit.CentimetreSquared"/>
          </Data>
          <Data property="Value">
            <Double>1200.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="EvaporationRate">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>11.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

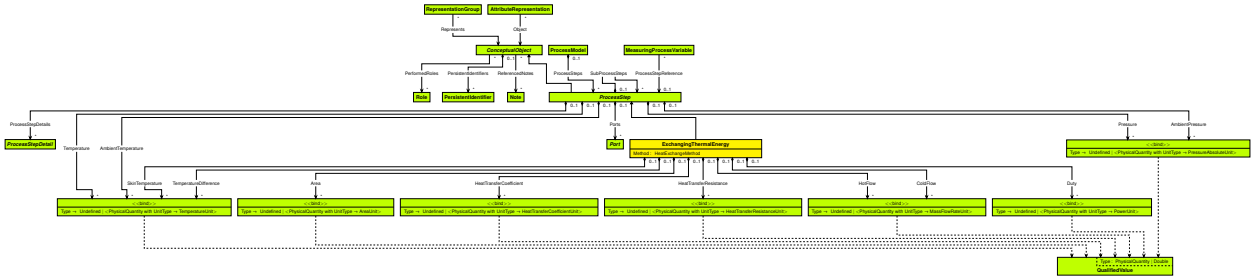
ExchangingThermalEnergy

Process::*Process*::ExchangingThermalEnergy

Overview

Concrete Class

This process transfers thermal energy between two or more streams of material. This process is realized by a heat exchanger.



Supertypes

- *ProcessStep*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Area	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>	no
ColdFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
HeatTransferCoefficient	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>>	no
HeatTransferResistance	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferResistanceUnit*>>	no
HotFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
SkinTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no
TemperatureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	1	*HeatExchangeMethod*	no	no

Area

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreSquared*,

Value = `14000.0`))

]

ColdFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `17.2`))

]

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 80.0))

]

HeatTransferCoefficient

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilowattPerMetreSquaredKelvin*,

Value = 18.0))

]

HeatTransferResistance

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferResistanceUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetreSquaredKelvinPerWatt*,

Value = 5.6e-05))

]

HotFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 22.0))

]

Method

Data Property

Type: *HeatExchangeMethod*

Multiplicity: 1

Ordered: no

Unique: no

SkinTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = 293.15))

]

TemperatureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kelvin*,

Value = 42.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.ExchangingThermalEnergy">
  <Components property="Area">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.AreaUnit.CentimetreSquared"/>
          </Data>
          <Data property="Value">
            <Double>14000.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ColdFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>17.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HeatTransferCoefficient">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.HeatTransferCoefficientUnit.
↪KilowattPerMetreSquaredKelvin"/>
          </Data>
          <Data property="Value">
            <Double>18.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HeatTransferResistance">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.HeatTransferResistanceUnit.
↪MetreSquaredKelvinPerWatt"/>
          </Data>
          <Data property="Value">
            <Double>5.6e-05</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HotFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>22.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SkinTemperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
```

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```
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>293.15</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="TemperatureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.Kelvin"/>
          </Data>
          <Data property="Value">
            <Double>42.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

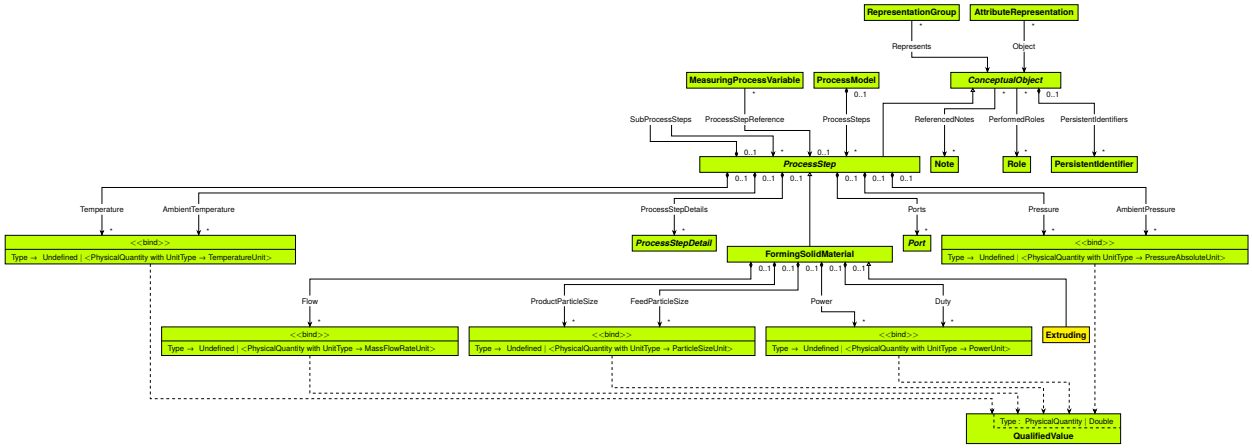
Extruding

Process::*Process*::Extruding

Overview

Concrete Class

This *FormingSolidMaterial* process takes solid material and forms it by forcing it through a specially designed opening, so that the material is given a specific shape.



Supertypes

- *FormingSolidMaterial*

Example in DEXPI XML

```
<Object type="Process/Process.Extruding"/>
```

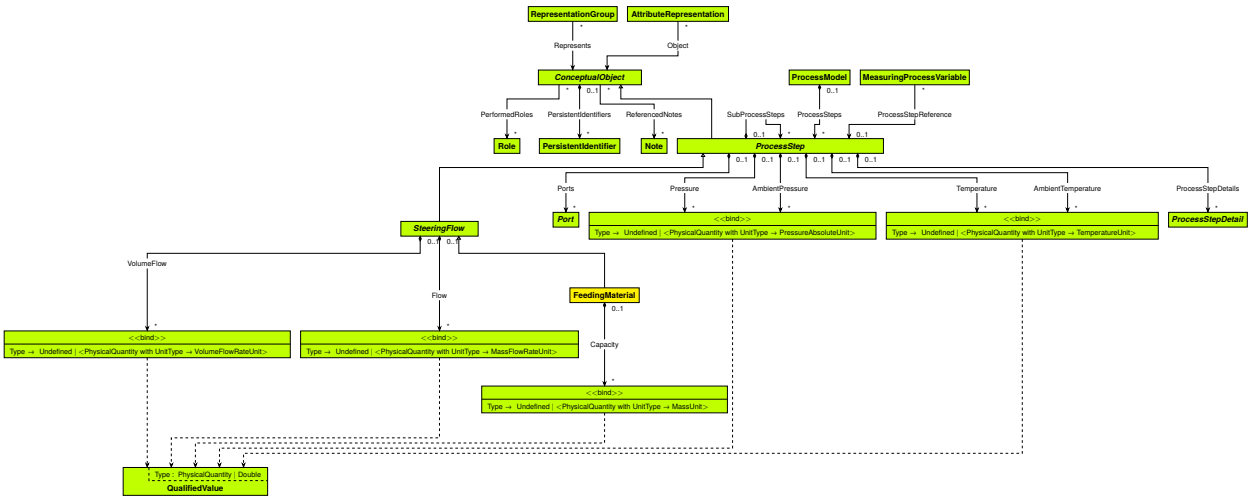
FeedingMaterial

Process::*Process*::FeedingMaterial

Overview

Concrete Class

This *SteeringFlow* process supplies material to a process at a controllable rate. This process can be used to represent solid feeding processes or dosing systems.



Supertypes

- *SteeringFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Capacity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>	no

Capacity

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilogram*,

Value = 24.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.FeedingMaterial">
  <Components property="Capacity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
          </Data>
          <Data property="Value">
            <Double>24.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

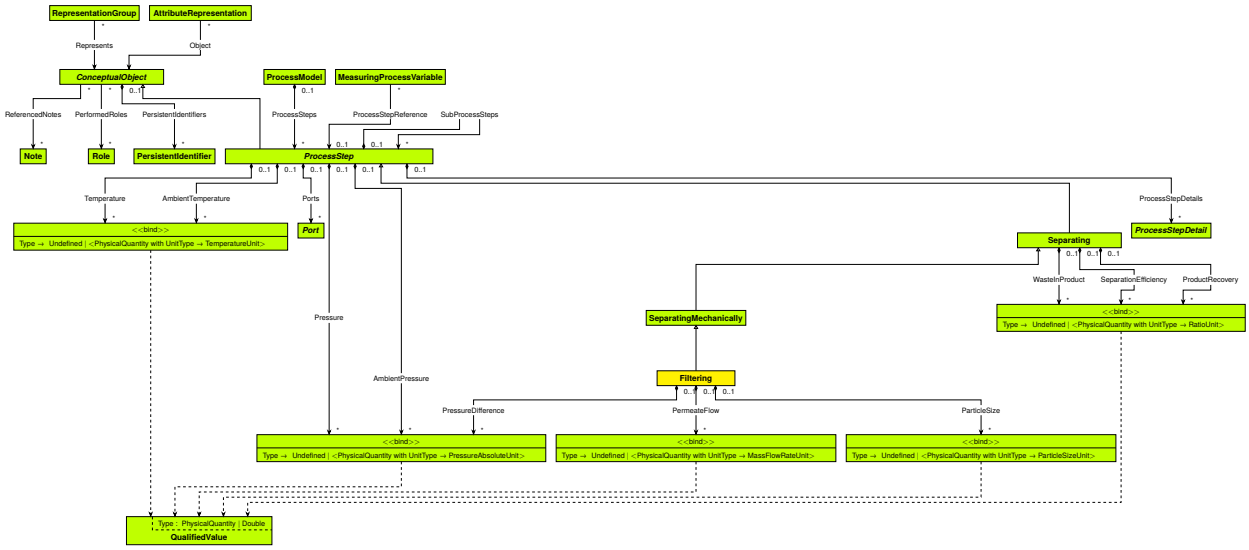
Filtering

Process::*Process*::Filtering

Overview

Concrete Class

This *SeparatingMechanically* process separates solids from fluids by passing the fluid through a porous barrier.



Supertypes

- *SeparatingMechanically*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
PermeateFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

ParticleSize

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = `0.8`))

]

PermeateFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 18.0))

]

PressureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 2.8))

]

Example in DEXPI XML

```
<Object type="Process/Process.Filtering">
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
```

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```
            <Double>0.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PermeateFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>18.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>2.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

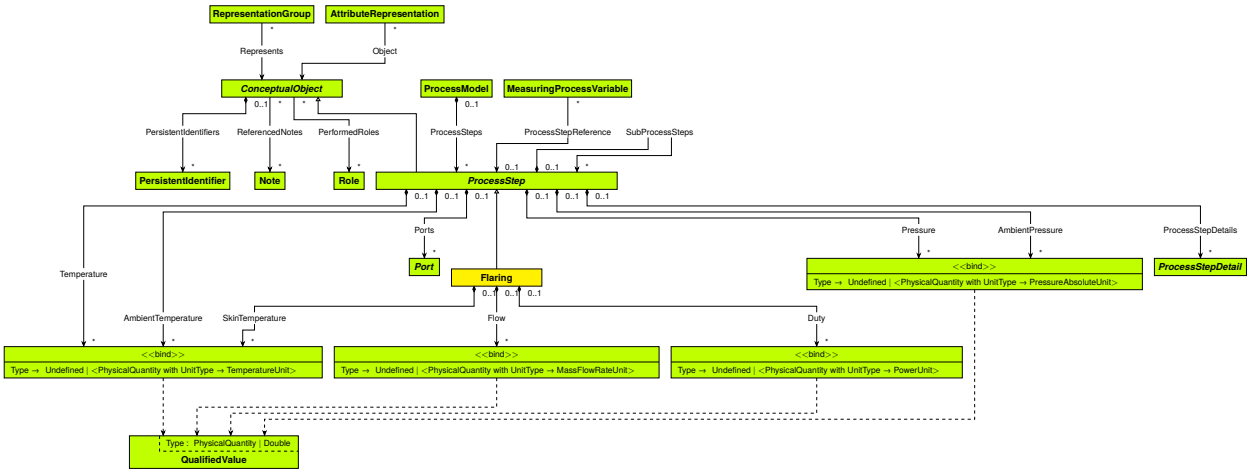
Flaring

Process::*Process*::Flaring

Overview

Concrete Class

This *SupplyingThermalEnergy* process represents the flare system in a process plant.



Supertypes

- *ProcessStep*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
SkinTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Kilowatt,
            Value = 92.0))
]
```

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 83.0))

]

SkinTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = 293.15))

]

Example in DEXPI XML

```
<Object type="Process/Process.Flaring">
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>92.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>83.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SkinTemperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>293.15</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

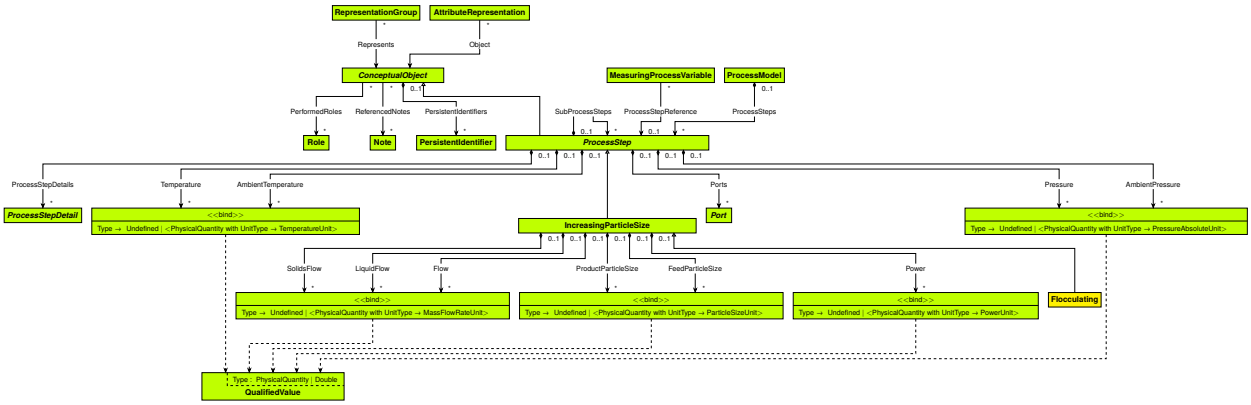
Flocculating

Process::*Process*::Flocculating

Overview

Concrete Class

This *IncreasingParticleSize* process produces larger particles, flocs, through aggregation and coalesence under the influence addition of surfactant chemicals.



Supertypes

- *IncreasingParticleSize*

Example in DEXPI XML

```
<Object type="Process/Process.Flocculating"/>
```

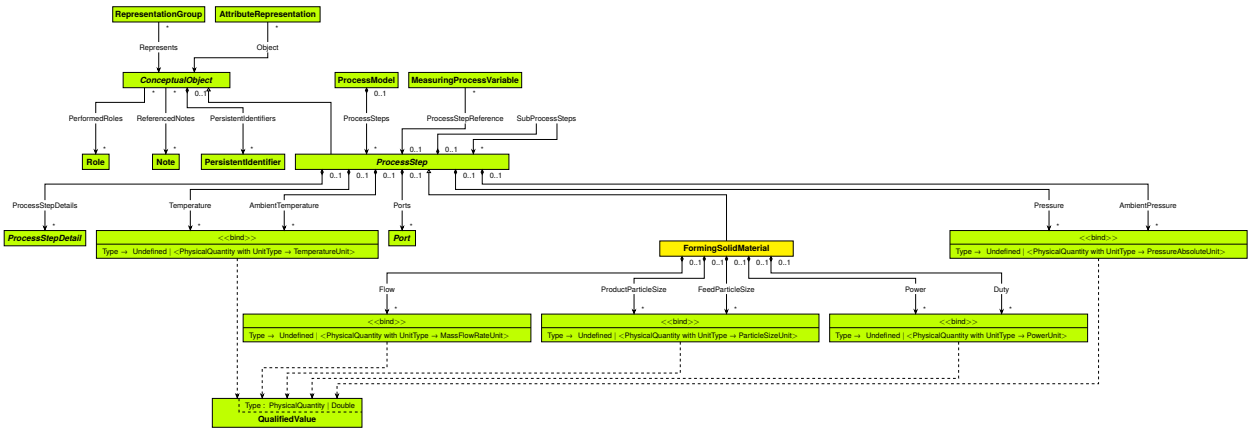
FormingSolidMaterial

Process::*Process*::FormingSolidMaterial

Overview

Concrete Class

This process takes a material containing solids and forms the solid material into particles with specified sizes and shape. It is the parent type for *Pelletizing* and *Extruding*.



Supertypes

- *ProcessStep*

Subtypes

- *Extruding*
- *Pelletizing*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
FeedParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
ProductParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Kilowatt,
            Value = 92.0))
]
```

FeedParticleSize

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = `0.5`))

]

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `76.0`))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `92.0`))

]

ProductParticleSize

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 2.6))

]

Example in DEXPI XML

```
<Object type="Process/Process.FormingSolidMaterial">
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>92.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="FeedParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>0.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>76.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>92.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ProductParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>2.6</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

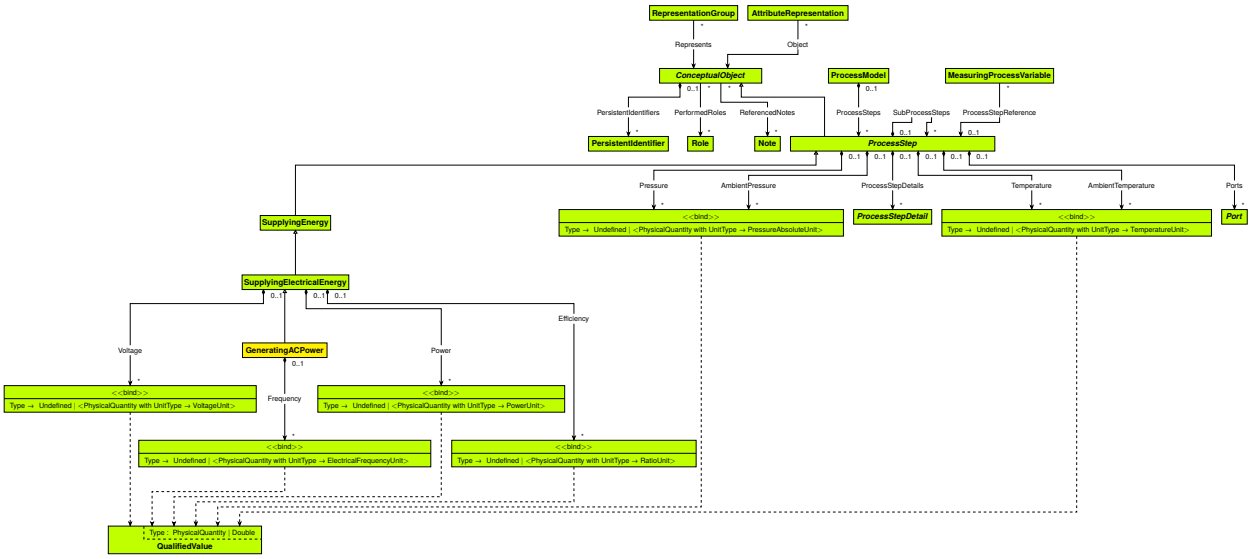
GeneratingACPower

Process::*Process*::GeneratingACPower

Overview

Concrete Class

This *SupplyingElectricalEnergy* process produces alternating current electrical energy from mechanical energy.



Supertypes

- *SupplyingElectricalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Frequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>>	no

Frequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.GeneratingACPower"/>
```

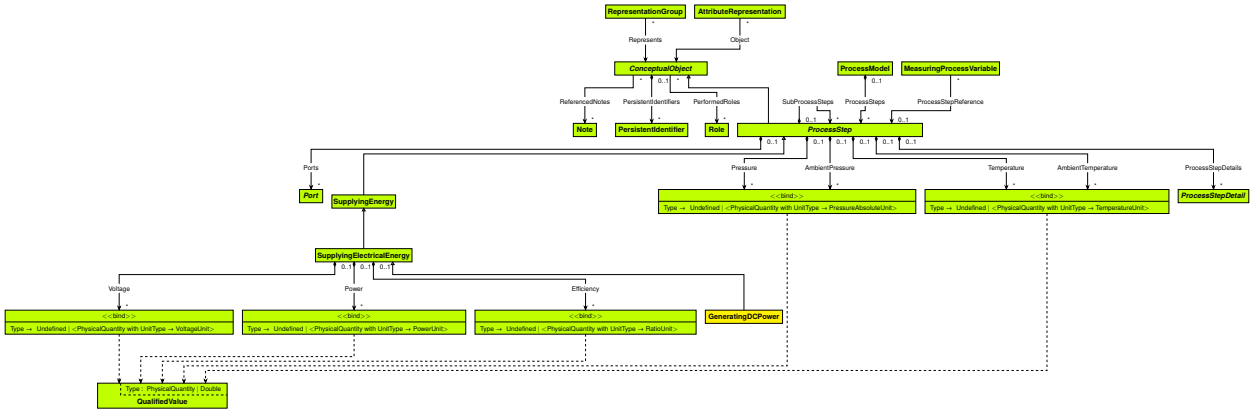
GeneratingDCPower

Process::*Process*::GeneratingDCPower

Overview

Concrete Class

This *SupplyingElectricalEnergy* process produces alternating current electrical energy from mechanical energy.



Supertypes

- *SupplyingElectricalEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.GeneratingDCPower"/>
```

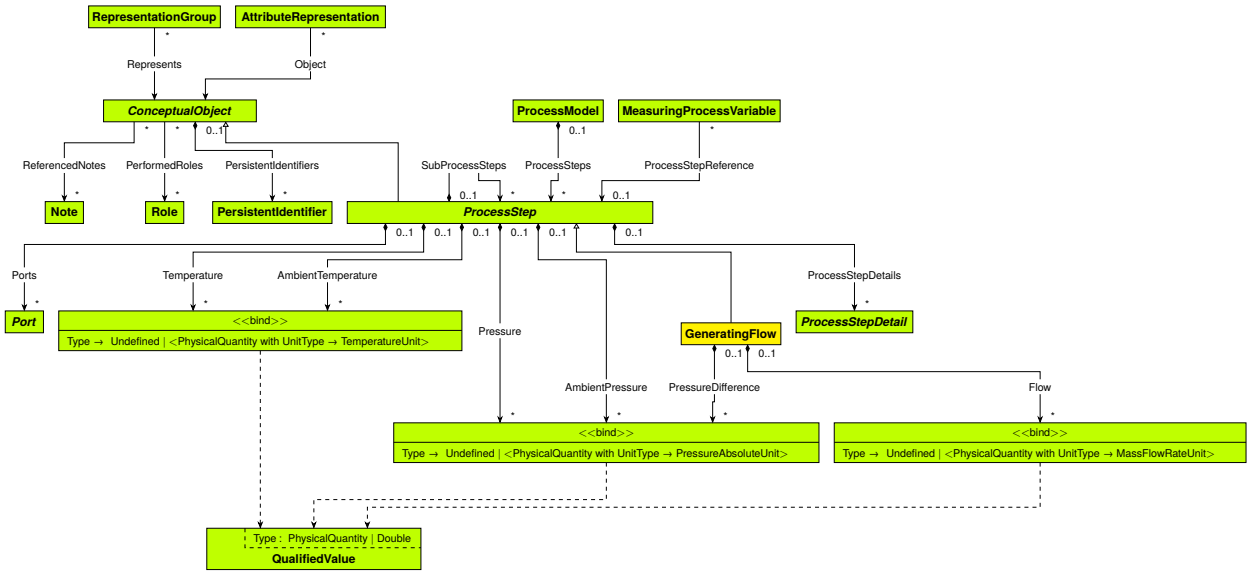
GeneratingFlow

Process::*Process*::GeneratingFlow

Overview

Concrete Class

This is a base type for processes with the purpose of generating flow and/or increasing pressure of a fluid stream. The child types are *Pumping* and *Compressing*.



Supertypes

- *ProcessStep*

Subtypes

- *Compressing*
- *Pumping*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

Flow

Composition Property

The mass flow rate of the *GeneratingFlow*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 92.0))

]

PressureDifference

Composition Property

Pressure difference across process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 2.2))

]

Example in DEXPI XML

```
<Object type="Process/Process.GeneratingFlow">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>92.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>2.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

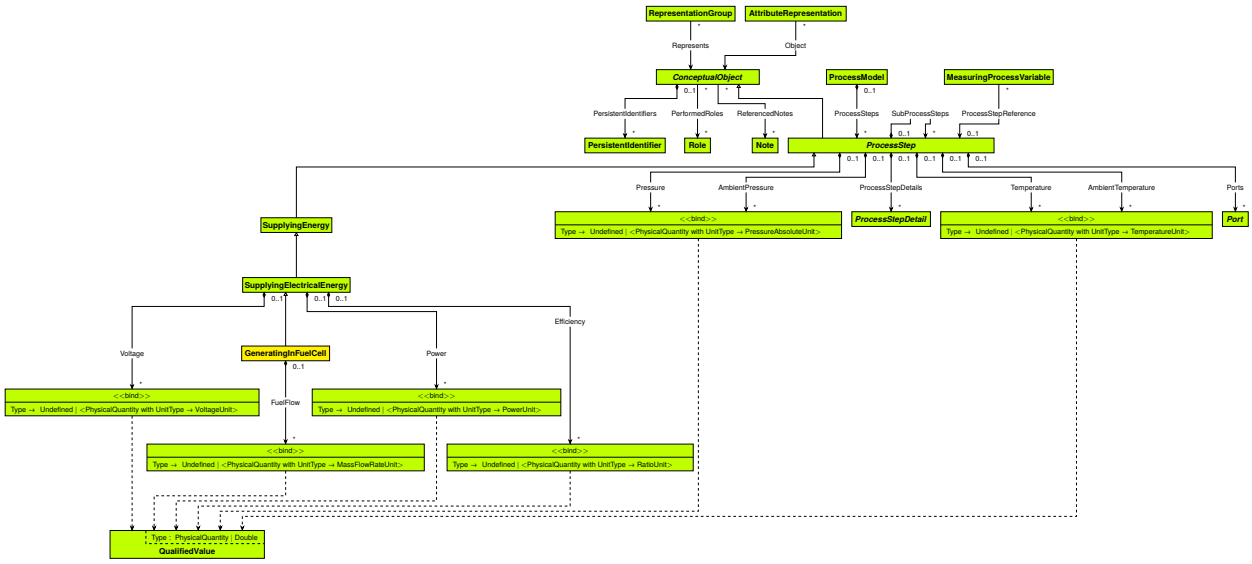
GeneratingInFuelCell

Process::*Process*::GeneratingInFuelCell

Overview

Concrete Class

This process generates electricity using a fuel cell.



Supertypes

- *SupplyingElectricalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FuelFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

FuelFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 12.2))

]

Example in DEXPI XML

```
<Object type="Process/Process.GeneratingInFuelCell">
  <Components property="FuelFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>12.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

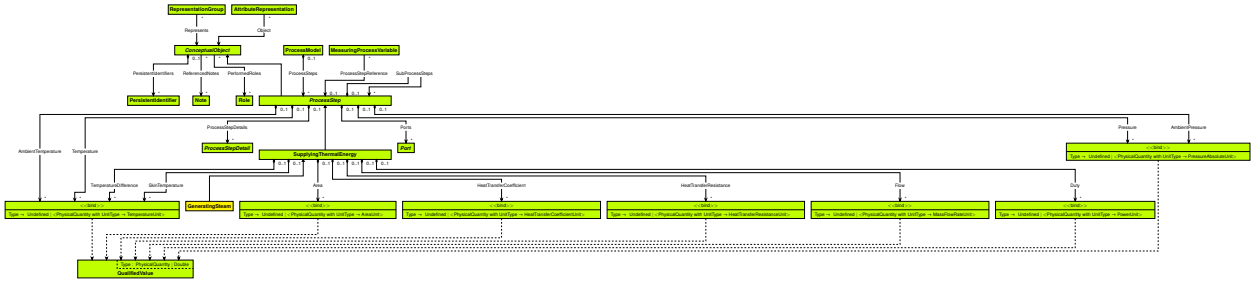
GeneratingSteam

Process::*Process*::GeneratingSteam

Overview

Concrete Class

This process produces steam for use in other processes.



Supertypes

- *SupplyingThermalEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.GeneratingSteam"/>
```

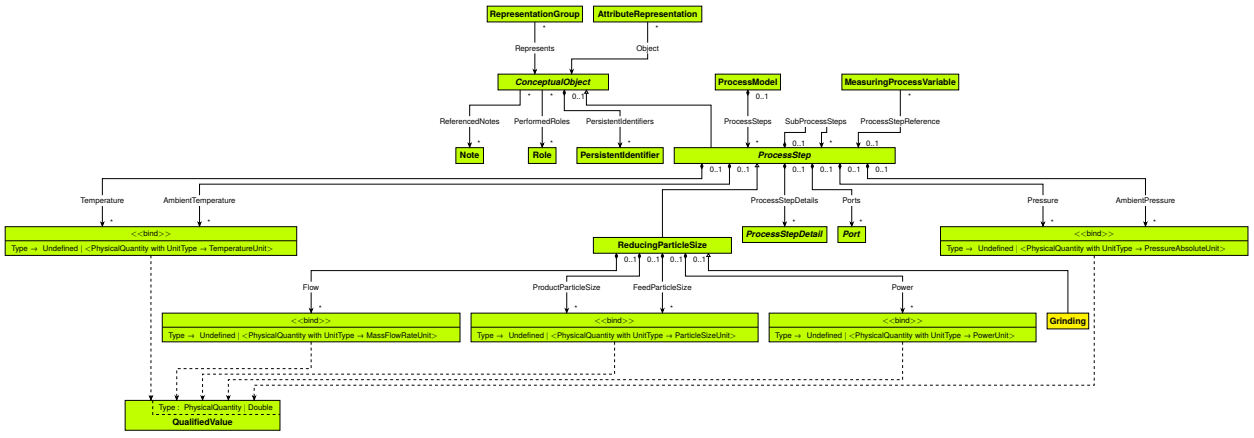
Grinding

Process::*Process*::Grinding

Overview

Concrete Class

This *ReducingParticleSize* process produces fine particles by abrasion of solid material.



Supertypes

- *ReducingParticleSize*

Example in DEXPI XML

```
<Object type="Process/Process.Grinding"/>
```

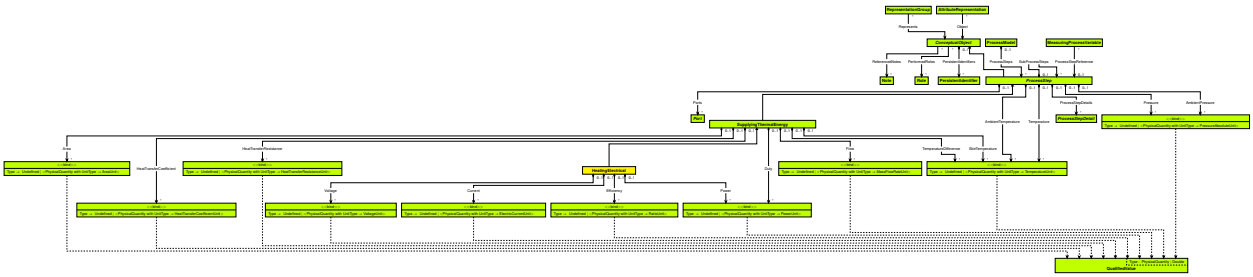
HeatingElectrical

Process::*Process*::HeatingElectrical

Overview

Concrete Class

This *SupplyingThermalEnergy* process increases the enthalpy content of one or more material streams through the application of electrical energy.



Supertypes

- *SupplyingThermalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Current	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>	no
Efficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Voltage	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>	no

Current

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Ampere*,

Value = `800.0`))

]

Efficiency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = `92.0`))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `184.0`))

]

Voltage

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Volt*,

Value = 230.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.HeatingElectrical">
  <Components property="Current">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ElectricCurrentUnit.Ampere"/>
          </Data>
          <Data property="Value">
            <Double>800.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Efficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>92.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>184.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Voltage">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
          </Data>
          <Data property="Value">
            <Double>230.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

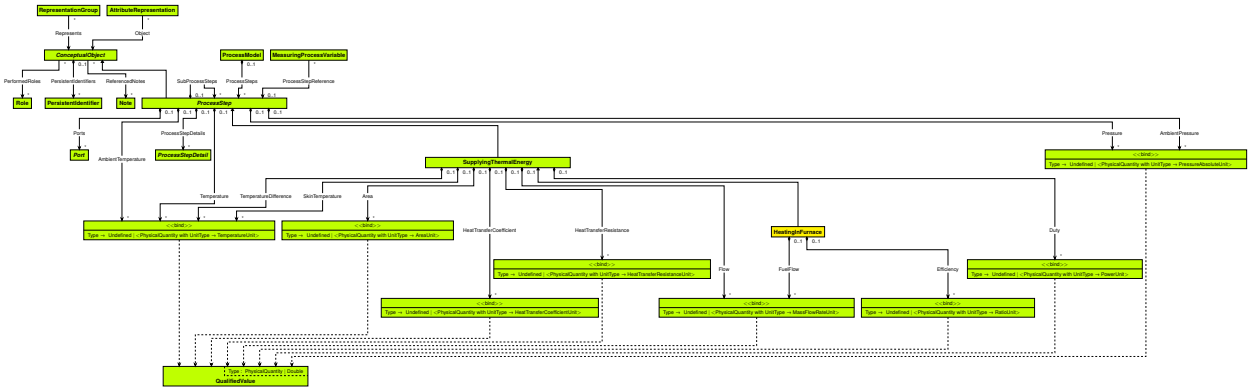
HeatingInFurnace

Process::*Process*::HeatingInFurnace

Overview

Concrete Class

This *SupplyingThermalEnergy* process increases the enthalpy content of one or more material streams by passing them through a fired heater or furnace.



Supertypes

- *SupplyingThermalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Efficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
FuelFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Efficiency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Percent,
            Value = 80.0))
]
```

FuelFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = KilogramPerHour,
            Value = 12.0))
```

]

Example in DEXPI XML

```
<Object type="Process/Process.HeatingInFurnace">
  <Components property="Efficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="FuelFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>12.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

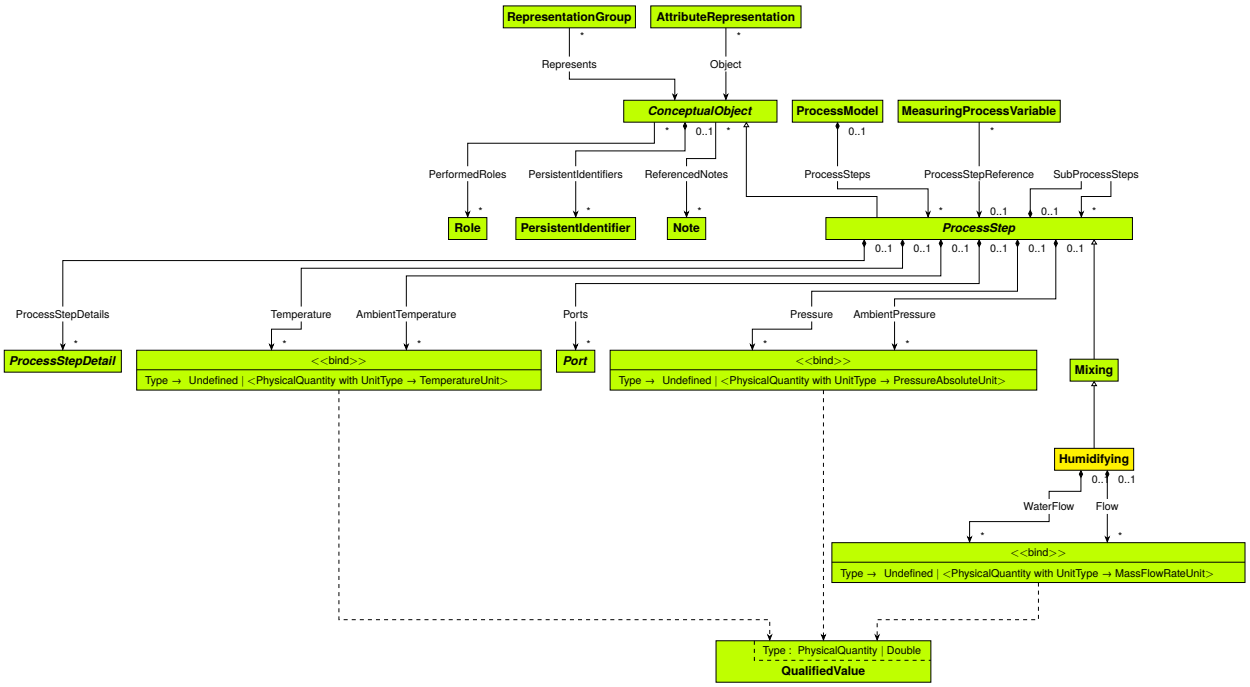
Humidifying

Process::*Process*::Humidifying

Overview

Concrete Class

This *Mixing* process increases the water or liquid content of a material stream by mixing a feed with the water or liquid.



Supertypes

- *Mixing*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
WaterFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 45.0))

]

WaterFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 8.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Humidifying">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>45.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="WaterFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>8.0</Double>
```

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```
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

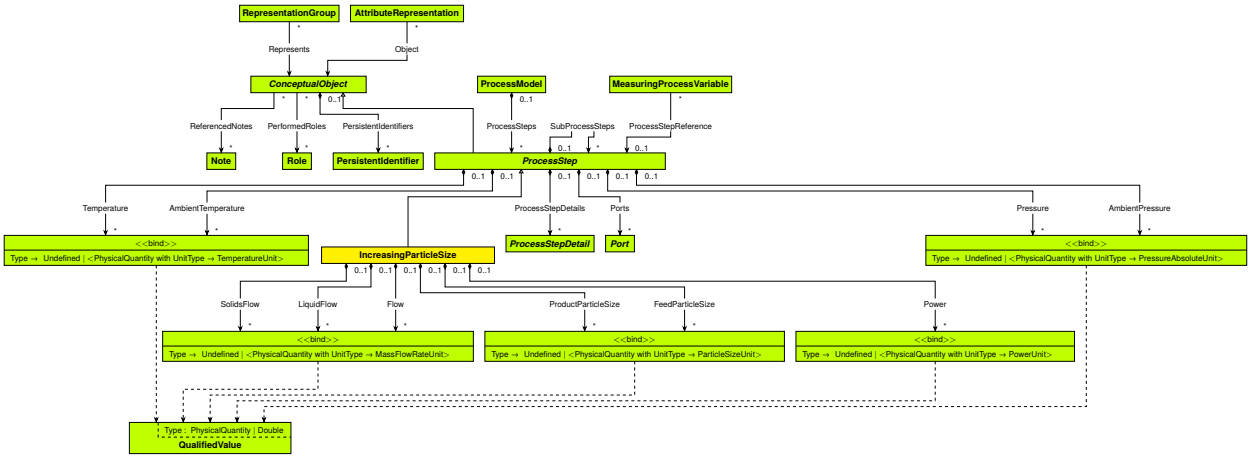
IncreasingParticleSize

Process::*Process*::IncreasingParticleSize

Overview

Concrete Class

This process takes a material containing solids and performs an operation so that the solids have a larger particle size.



Supertypes

- *ProcessStep*

Subtypes

- *Agglomerating*
- *Coalescing*
- *Crystallizing*
- *Flocculating*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FeedParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
LiquidFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
ProductParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
SolidsFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

FeedParticleSize

Composition Property

Characteristic particle size for the feed.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = `0.2`))

]

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 82.0))

]

LiquidFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 34.0))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 820.0))

]

ProductParticleSize

Composition Property

Characteristic particle size for the product.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 8.0))

]

SolidsFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 48.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.IncreasingParticleSize">
  <Components property="FeedParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>0.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>82.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="LiquidFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>34.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>820.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ProductParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>8.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SolidsFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>48.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

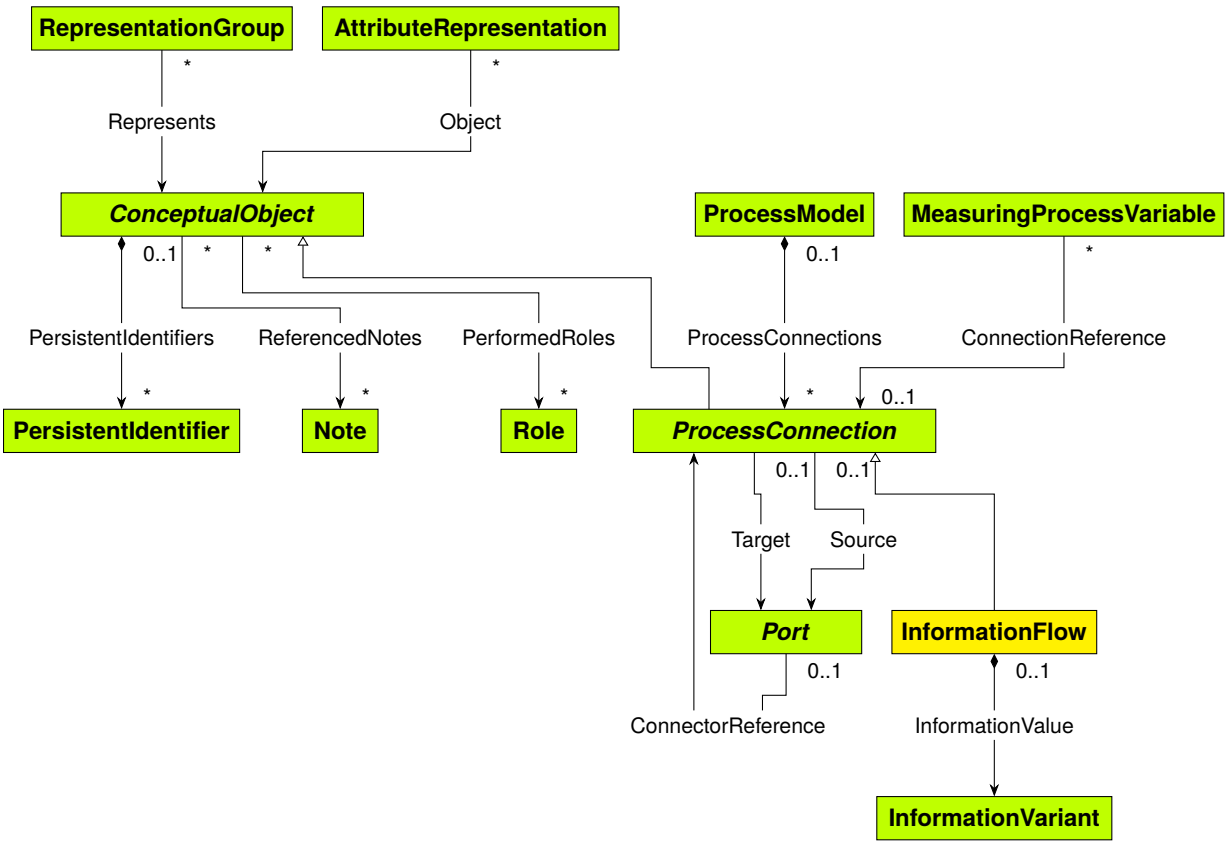
InformationFlow

Process::*Process*::InformationFlow

Overview

Concrete Class

A *ProcessConnection* that defines the flow of information between two instances of *InformationPort*. This is used to model signals and other information flows into out of the port.



Supertypes

- *ProcessConnection*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InformationValue	1	*InformationVariant*	no

InformationValue

Composition Property

Type: *InformationVariant*

Multiplicity: 1

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.InformationFlow"/>
```

InformationPort

Process::*Process*::InformationPort

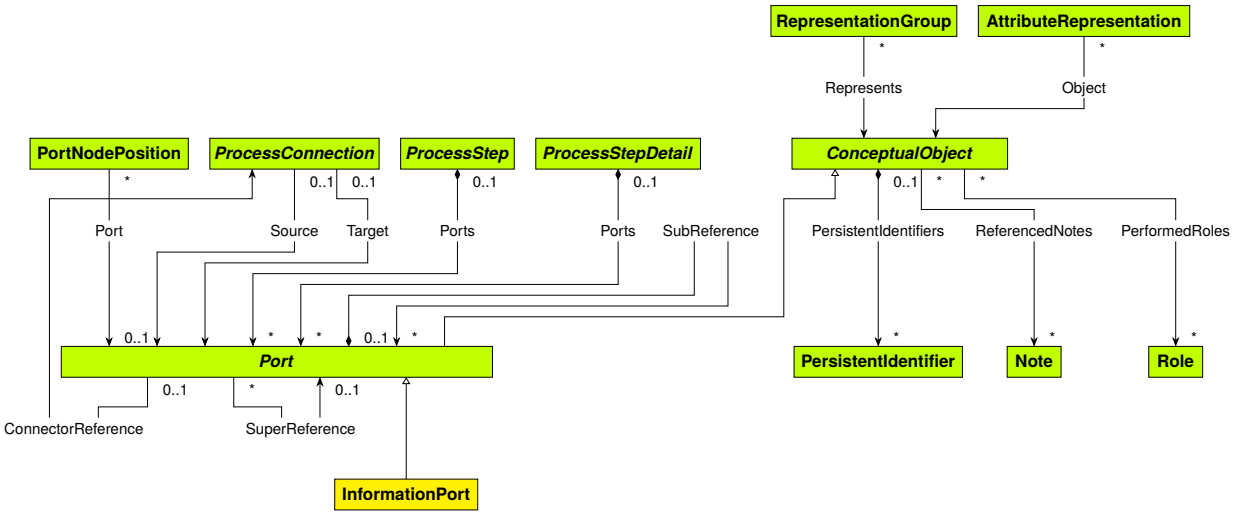
Overview

Concrete Class

A *Port* that models the transfer of information, of whatever form, into or out of a *ProcessStep* object. This type is used to represent control signals.

Roles referenced via *PerformedRoles* should have one of the following *Names*:

- Feedback
- Input
- Output
- Override
- Setpoint



Supertypes

- *Port*

Example in DEXPI XML

```
<Object type="Process/Process.InformationPort"/>
```

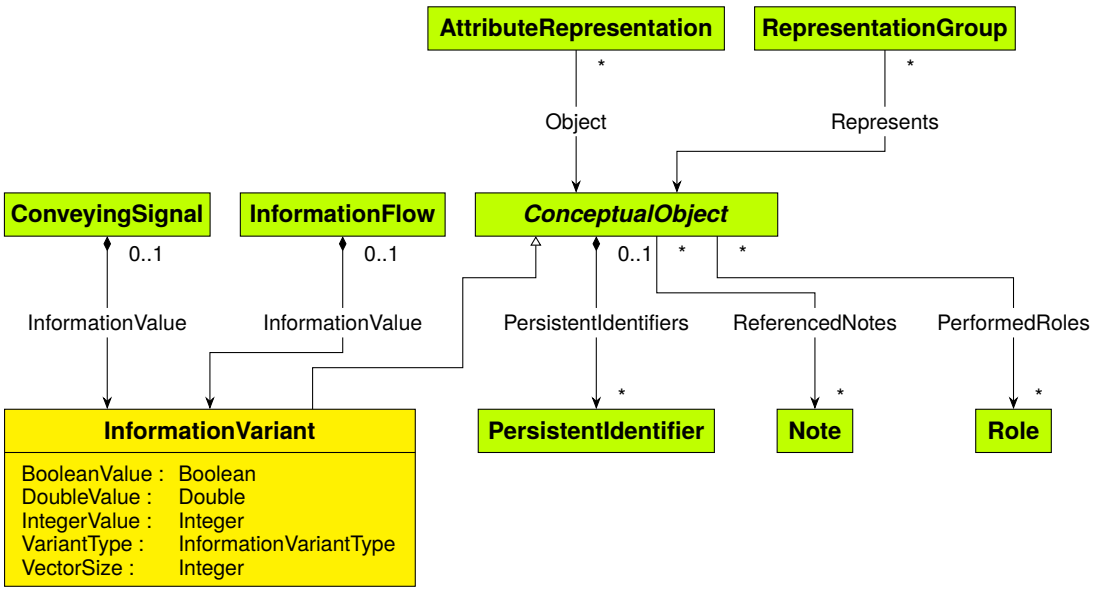
InformationVariant

Process::*Process*::InformationVariant

Overview

Concrete Class

This data structure is embedded in the *InformationFlow* object and can be configured to represent scalars and arrays of boolean, integer and real variables.



Supertypes

- *ConceptualObject*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
BooleanValue	1	*Boolean*	no	no
DoubleValue	1	*Double*	no	no
IntegerValue	1	*Integer*	no	no
VariantType	1	*InformationVariantType*	no	no
VectorSize	1	*Integer*	no	no

BooleanValue

Data Property

Type: *Boolean*

Multiplicity: 1

Ordered: no

Unique: no

DoubleValue

Data Property

Type: *Double*

Multiplicity: 1

Ordered: no

Unique: no

IntegerValue

Data Property

Type: *Integer*

Multiplicity: 1

Ordered: no

Unique: no

VariantType

Data Property

Type: *InformationVariantType*

Multiplicity: 1

Ordered: no

Unique: no

VectorSize

Data Property

Type: *Integer*

Multiplicity: 1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.InformationVariant"/>
```

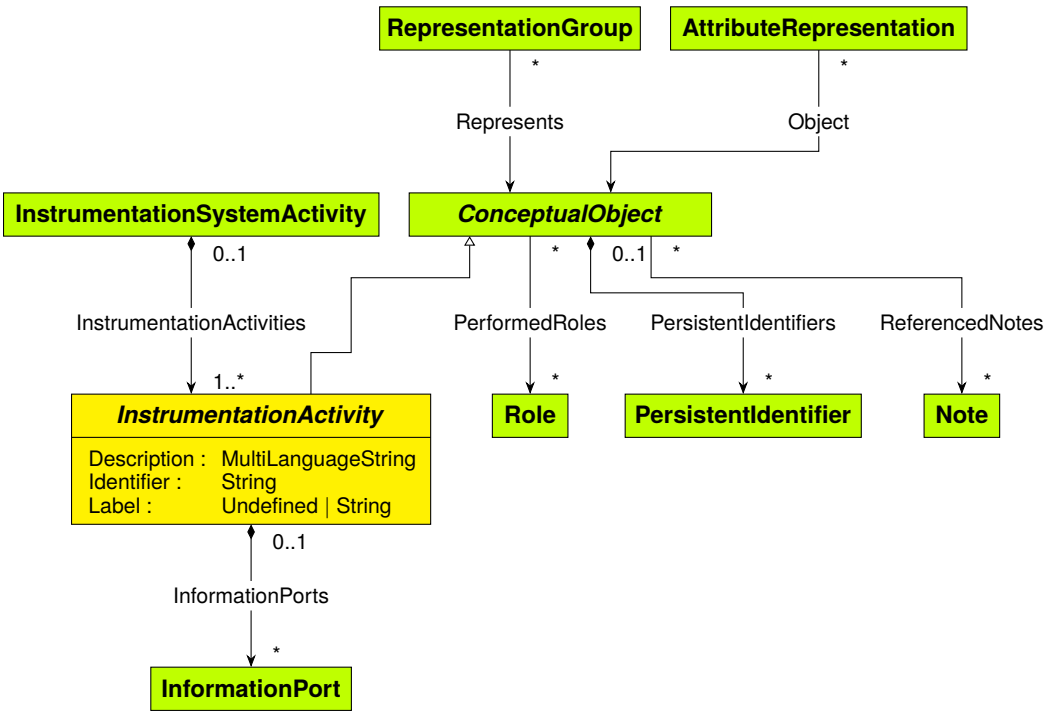
InstrumentationActivity

Process::*Process*::InstrumentationActivity

Overview

Abstract Class

This is the base type for control and instrumentation functions that are specified as part of the process design.



Supertypes

- *ConceptualObject*

Subtypes

- *CalculatingProcessVariable*
- *ControllingProcessVariable*
- *ConveyingSignal*
- *MeasuringProcessVariable*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InformationPorts	*	*InformationPort*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
Label	1	*Undefined* | *String*	no	no

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

InformationPorts

Composition Property

Type: *InformationPort*

Multiplicity: *

Ordered: no

Label

Data Property

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

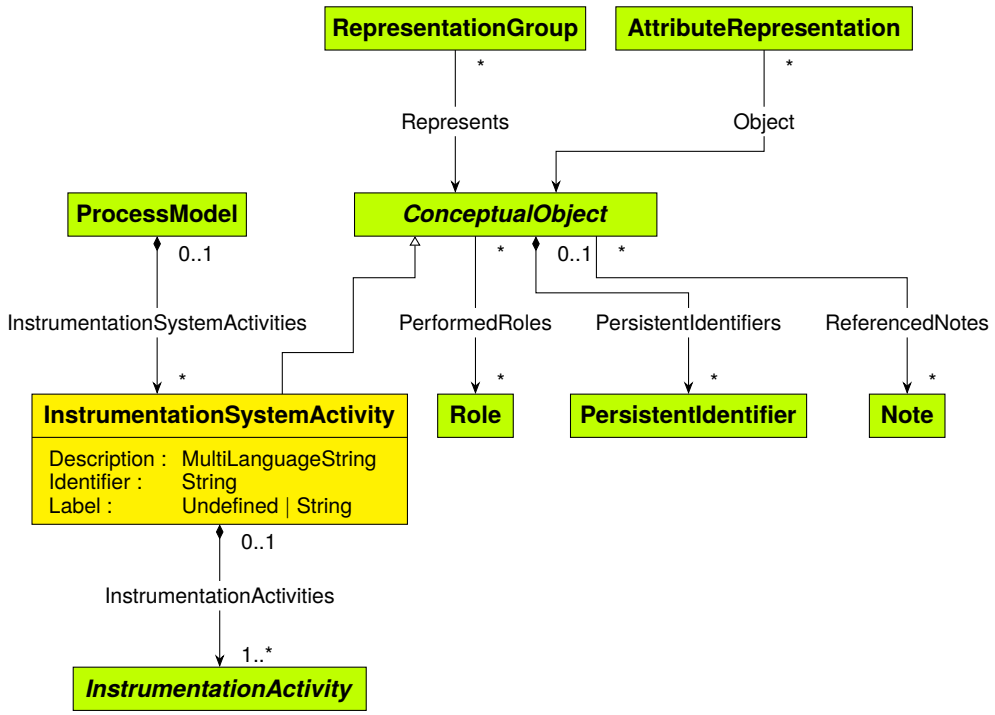
InstrumentationSystemActivity

Process::*Process*::InstrumentationSystemActivity

Overview

Concrete Class

An *InstrumentationSystemActivity* is a collection of related *InstrumentationActivity* instances that together perform a specified function. Thus a *MeasuringProcessVariable* and a *ControllingProcessVariable* activity can be grouped into a single *InstrumentationSystemActivity* that represents the control loop.



Supertypes

- *ConceptualObject*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InstrumentationActivities	1..*	*InstrumentationActivity*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
Label	1	*Undefined* | *String*	no	no

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

InstrumentationActivities

Composition Property

Type: *InstrumentationActivity*

Multiplicity: 1..*

Ordered: no

Label

Data Property

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.InstrumentationSystemActivity"/>
```

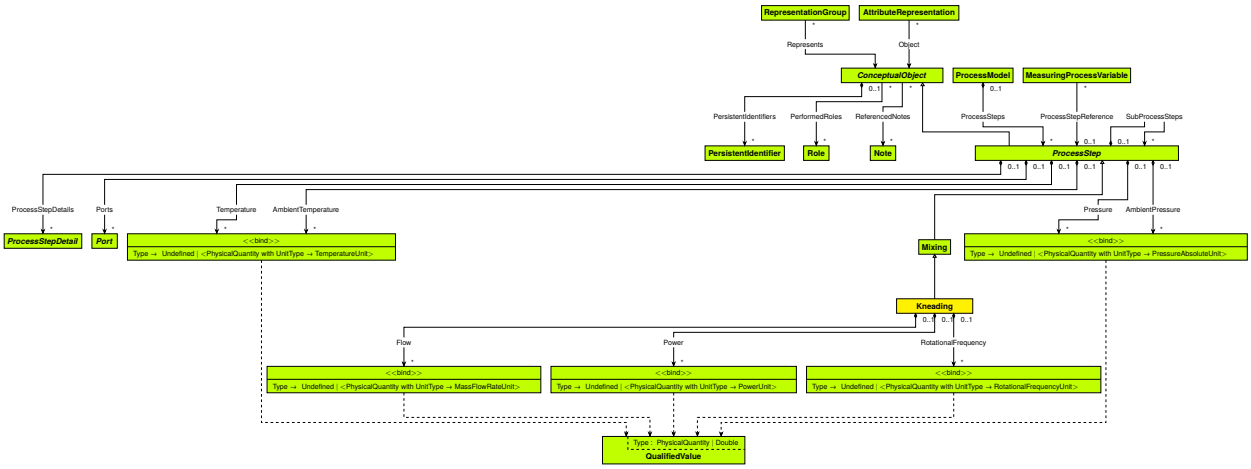
Kneading

Process::*Process*::Kneading

Overview

Concrete Class

This *Mixing* process produces a solid material as a uniform mass by mechanically folding, pressing and stretching of the material.



Supertypes

- *Mixing*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `120.0`))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 920.0))

]

RotationalFrequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 150.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Kneading">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
```

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```
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>920.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>150.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

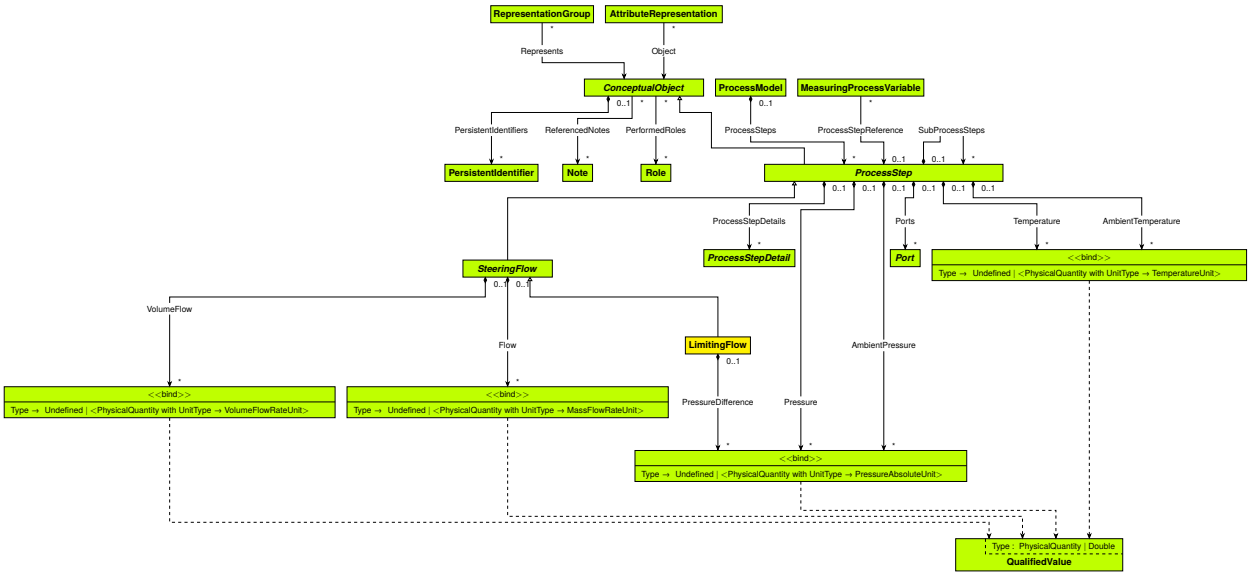
LimitingFlow

Process::*Process*::LimitingFlow

Overview

Concrete Class

This *SteeringFlow* process is used to ensure that the flow of material remains below a specified value. This process is usually realized using a flow orifice.



Supertypes

- *SteeringFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

PressureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 1.9))

]

Example in DEXPI XML

```
<Object type="Process/Process.LimitingFlow">
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>1.9</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

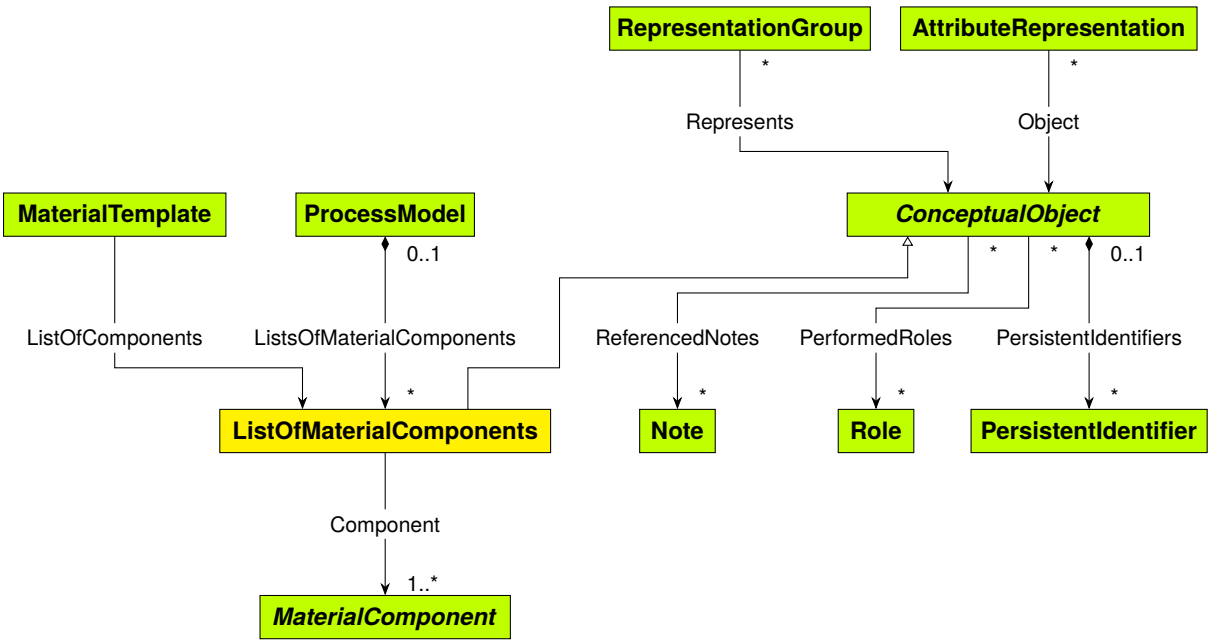
ListOfMaterialComponents

Process::*Process*::ListOfMaterialComponents

Overview

Concrete Class

This is an ordered list of *PureMaterialComponent* and *CustomMaterialComponent* objects. This is used in the *MaterialTemplate* to determine the structure of composition vectors in the *Stream* and *MaterialStateType* objects.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Component	1..*	*MaterialComponent*	no	no	1

Component

Reference Property

Type: *MaterialComponent*

Multiplicity: 1..*

Ordered: no

Unique: no

Opposite Multiplicity: 1

Example in DEXPI XML

```
<Object type="Process/Process.ListOfMaterialComponents"/>
```

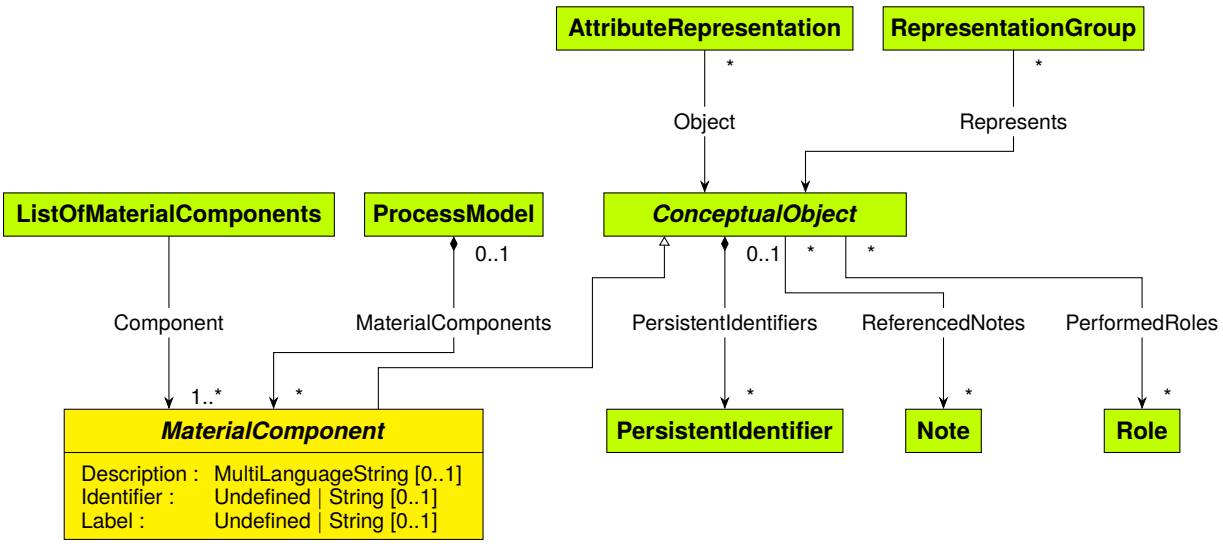
MaterialComponent

Process::*Process*::MaterialComponent

Overview

Abstract Class

This is the base type to chemical components in the model. It is parent class for *PureMaterialComponent* and *CustomMaterialComponent*.



Supertypes

- *ConceptualObject*

Subtypes

- *CustomMaterialComponent*
- *PureMaterialComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	0..1	*MultiLanguageString*	no	no
Identifier	0..1	*Undefined* | *String*	no	no
Label	0..1	*Undefined* | *String*	no	no

Description

Data Property

Descriptive text for the *MaterialComponent*.

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

Identifier

Data Property

Unique identifier for the *MaterialComponent*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Label

Data Property

Display label for the *MaterialComponent*.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

MaterialPort

Process::*Process*::MaterialPort

Overview

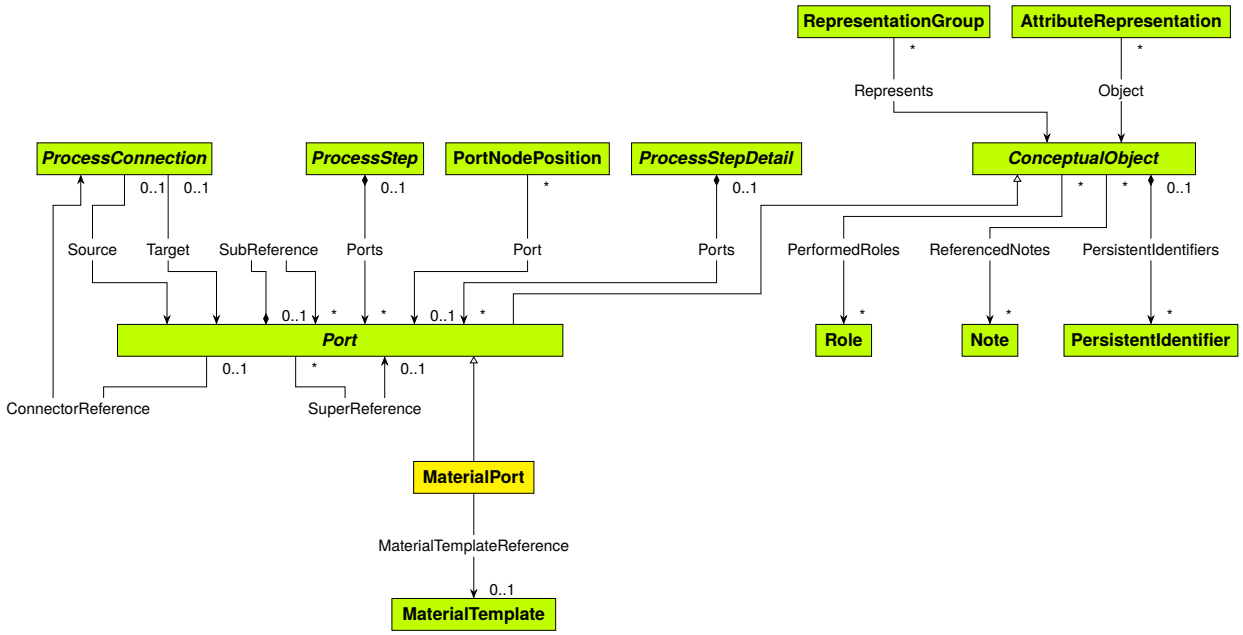
Concrete Class

A *Port* that models the transfer of material, of whatever form, into or out of a *ProcessStep* object. This type is used for flow of material: solids, liquids and gases.

Roles referenced via *PerformedRoles* should have one of the following *Names*:

- Air
- BottomProduct
- ChemicalFeed
- Discharge
- Drain
- Exhaust
- Feed
- Fuel
- HeavyLiquid
- Inlet
- LeanSolvent
- LightLiquid
- Liquid

- LiquidInlet
- LiquidOutlet
- Outlet
- Product
- Reboil
- Reflux
- Relief
- RichSolvent
- Sidedraw
- Suction
- TopProduct
- Vapour
- VapourInlet
- VapourOutlet
- Vent
- Waste



Supertypes

- *Port*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
MaterialTemplateReference	0..1	*MaterialTemplate*	no	no	1

MaterialTemplateReference

Reference Property

Type: *MaterialTemplate*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: 1

Example in DEXPI XML

```
<Object type="Process/Process.MaterialPort"/>
```

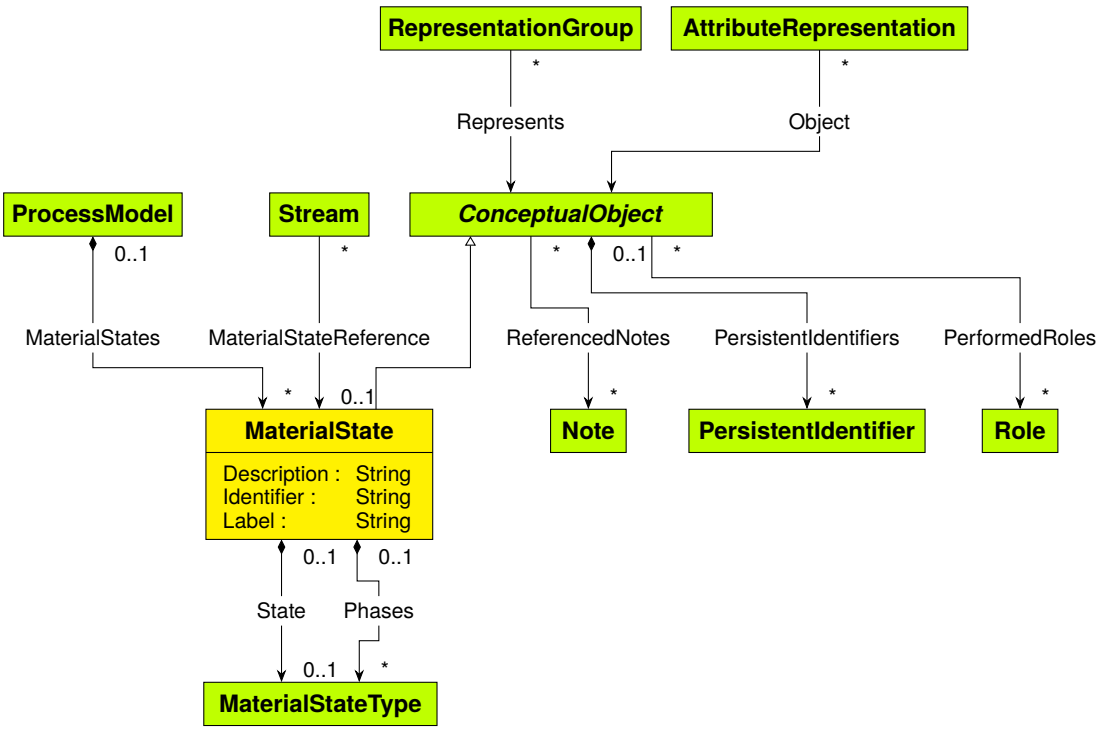
MaterialState

Process::*Process*::MaterialState

Overview

Concrete Class

This data structure contains the properties for a *Stream*. It contains one or more *MaterialState* objects: one for the total properties and then one for each of the phases present.



Supertypes

- *ConceptualObject*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Phases	*	*MaterialStateType*	no
State	0..1	*MaterialStateType*	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	1	*String*	no	no
Identifier	1	*String*	no	no
Label	1	*String*	no	no

Description

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Label

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Phases

Composition Property

Type: *MaterialStateType*

Multiplicity: *

Ordered: no

State

Composition Property

Type: *MaterialStateType*

Multiplicity: 0..1

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.MaterialState"/>
```

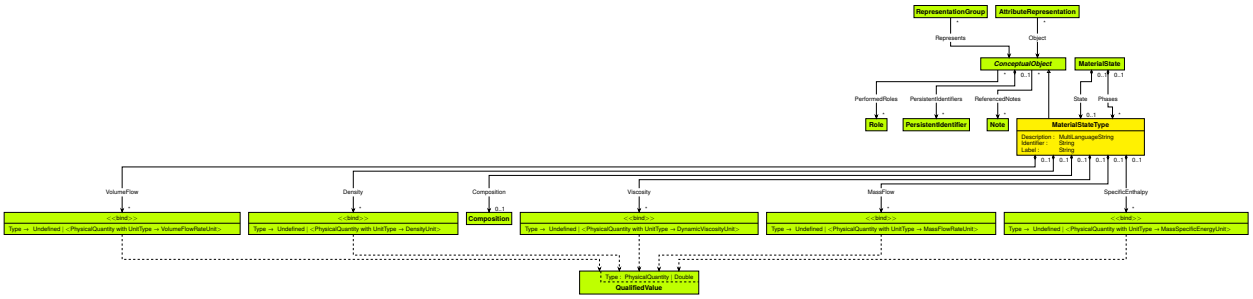
MaterialStateType

Process::*Process*::MaterialStateType

Overview

Concrete Class

This data structure represents the properties of a material or a single material phase. The *MaterialState* data structure for a *Stream* is built up of one or more of these data structures: one for the total properties and then one for each of the phases present.



Supertypes

- *ConceptualObject*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Composition	0..1	*Composition*	no
Density	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *DensityUnit*>>	no
MassFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
SpecificEnthalpy	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassSpecificEnergyUnit*>>	no
Viscosity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *DynamicViscosityUnit*>>	no
VolumeFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
Label	1	*String*	no	no

Composition

Composition Property

The *Composition* of the *MaterialStateType*.

Type: *Composition*

Multiplicity: 0..1

Ordered: no

Density

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *DensityUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerMetreCubed*,

Value = `5400.0`))

]

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Label

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

MassFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 1820.0))

]

SpecificEnthalpy

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassSpecificEnergyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilojoulePerKilogram*,

Value = 419.0))

]

Viscosity

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *DynamicViscosityUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *PascalSecond*,

Value = 0.000281))

]

VolumeFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *LitrePerSecond*,

Value = 2.8))

]

Example in DEXPI XML

```
<Object type="Process/Process.MaterialStateType">
  <Components property="Density">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.DensityUnit.
↪KilogramPerMetreCubed"/>
          </Data>
          <Data property="Value">
            <Double>5400.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="MassFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>1820.0</Double>
```

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```
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SpecificEnthalpy">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassSpecificEnergyUnit.
↪KilojoulePerKilogram"/>
          </Data>
          <Data property="Value">
            <Double>419.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Viscosity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.DynamicViscosityUnit.
↪PascalSecond"/>
          </Data>
          <Data property="Value">
            <Double>0.000281</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="VolumeFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.
↪LitrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>2.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

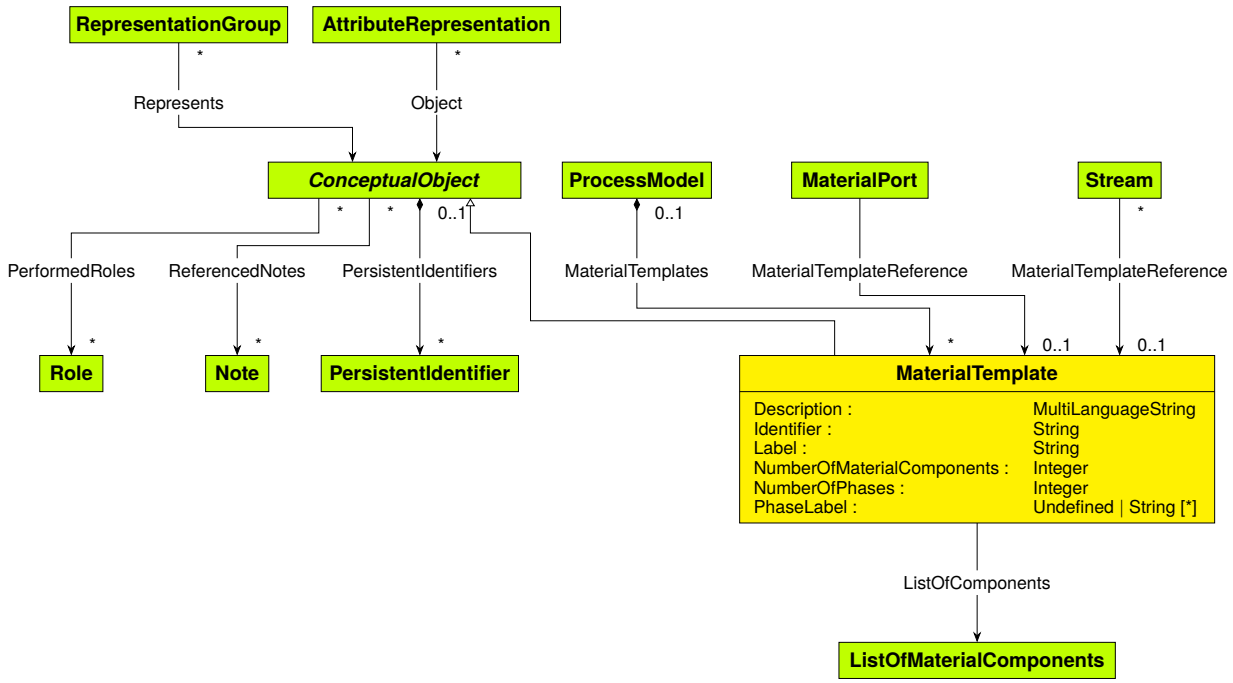
MaterialTemplate

Process::*Process*::MaterialTemplate

Overview

Concrete Class

This data structure defines the structure of *Stream* objects that correspond to a specific type of material. This structure contains information about the thermodynamic model used to represent this type of material. It contains the *ListOfMaterialComponents*: pure and pseudo components used to represent the system. It also determines the legend for a stream table when the model is used to represent a Process Flow Diagram.



Supertypes

- *ConceptualObject*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ListOfComponents	1	*ListOfMaterialComponents*	no	no	1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
Label	1	*String*	no	no
NumberOfMaterialComponents	1	*Integer*	no	no
NumberOfPhases	1	*Integer*	no	no
PhaseLabel	*	*Undefined* | *String*	no	no

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Label

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

ListOfComponents

Reference Property

Type: *ListOfMaterialComponents*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: 1

NumberOfMaterialComponents

Data Property

Type: *Integer*

Multiplicity: 1

Ordered: no

Unique: no

NumberOfPhases

Data Property

Type: *Integer*

Multiplicity: 1

Ordered: no

Unique: no

PhaseLabel

Data Property

Type: *Undefined* | *String*

Multiplicity: *

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.MaterialTemplate"/>
```

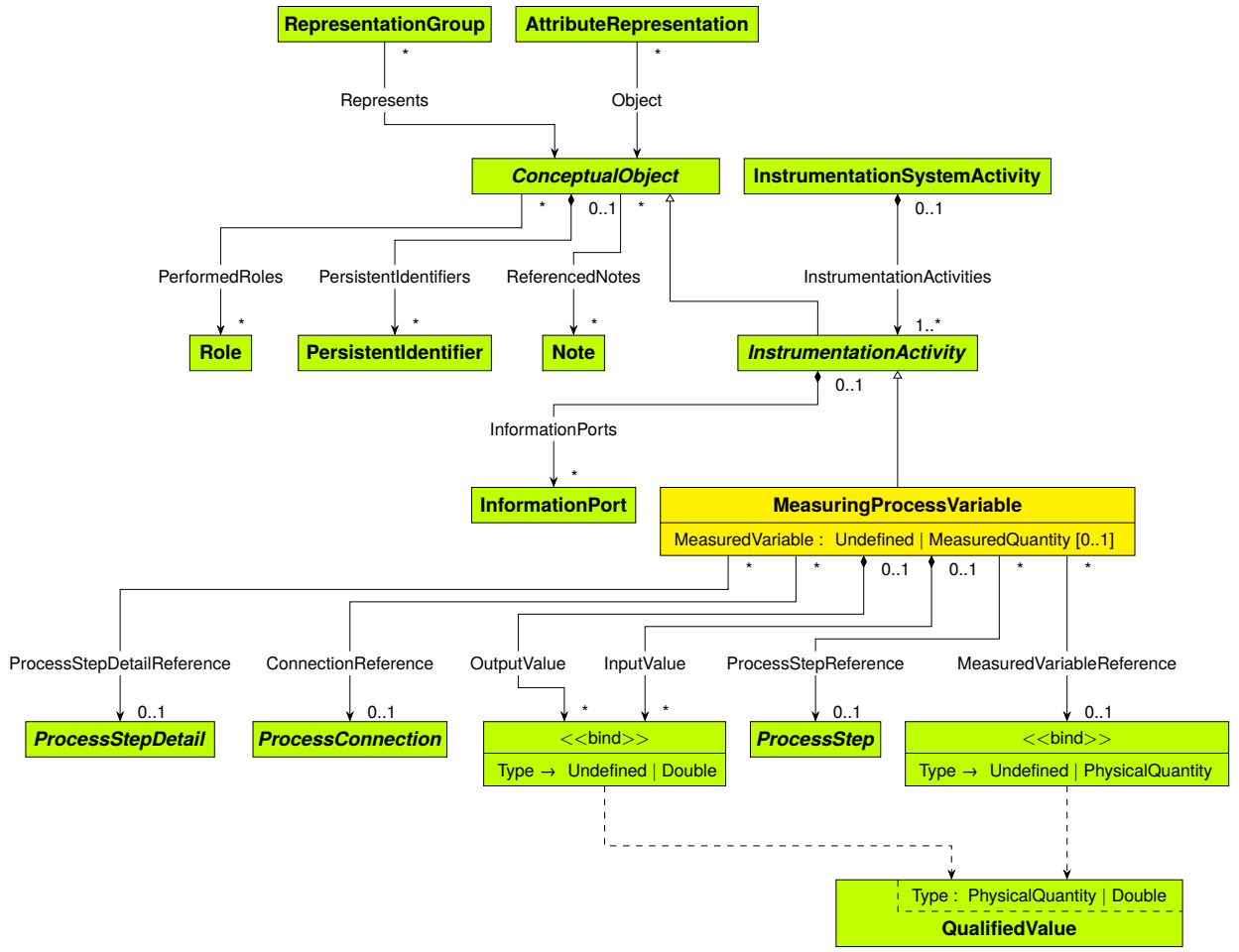
MeasuringProcessVariable

Process::*Process*::MeasuringProcessVariable

Overview

Concrete Class

This *InstrumentationActivity* measures a process variable and supplies its value at an outlet *InformationPort*. The measured variable is identified by reference to a parameter in any process step or port.



Supertypes

- *InstrumentationActivity*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
OutputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ConnectionReference	0..1	*ProcessConnection*	no	no	*
MeasuredVariableReference	0..1	<*QualifiedValue* with *Type* → *Undefined* | *PhysicalQuantity*>	no	no	*
ProcessStepDetailReference	0..1	*ProcessStepDetail*	no	no	*
ProcessStepReference	0..1	*ProcessStep*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
MeasuredVariable	0..1	*Undefined* | *MeasuredQuantity*	no	no

ConnectionReference

Reference Property

Type: *ProcessConnection*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

InputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

MeasuredVariable

Data Property

Type: *Undefined* | *MeasuredQuantity*

Multiplicity: 0..1

Ordered: no

Unique: no

MeasuredVariableReference

Reference Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *PhysicalQuantity*>

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

OutputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

ProcessStepDetailReference

Reference Property

Type: *ProcessStepDetail*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

ProcessStepReference

Reference Property

Type: *ProcessStep*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Example in DEXPI XML

```
<Object type="Process/Process.MeasuringProcessVariable"/>
```

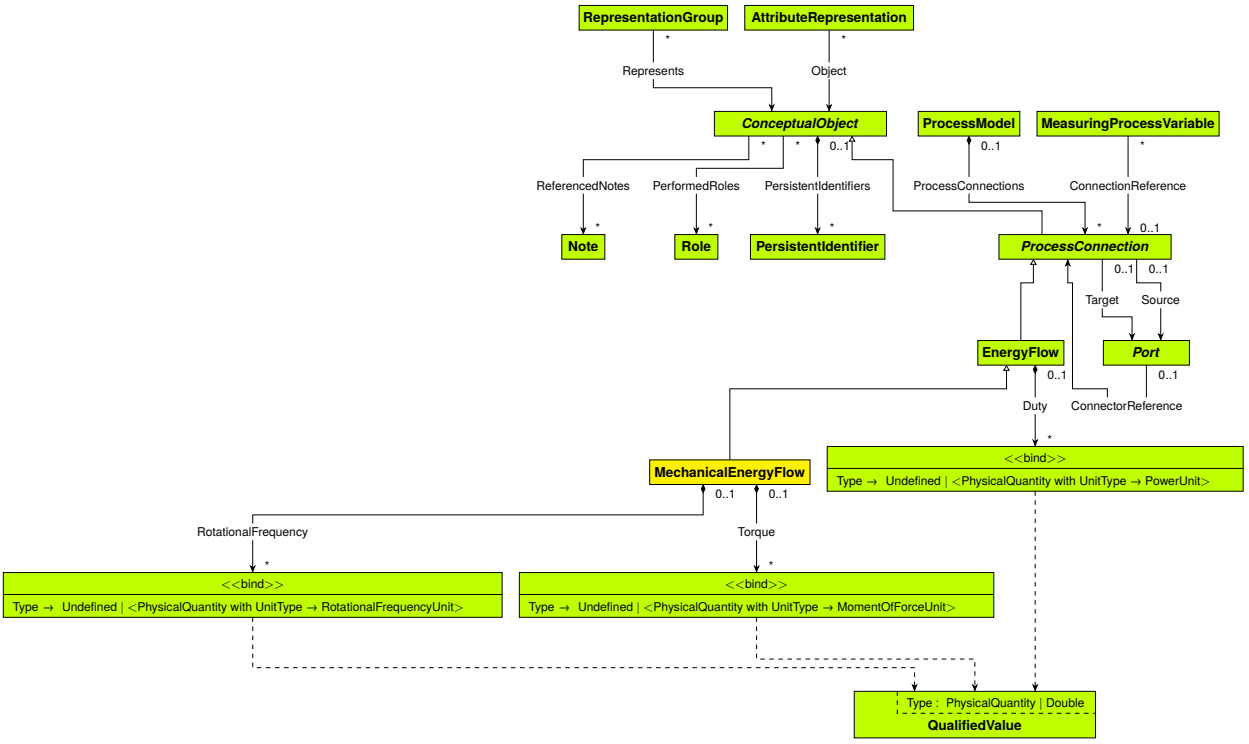
MechanicalEnergyFlow

Process::*Process*::MechanicalEnergyFlow

Overview

Concrete Class

A *ProcessConnection* that defines the flow of mechanical energy two instances of *MechanicalEnergyPort*.



Supertypes

- *EnergyFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no
Torque	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MomentOfForceUnit*>>	no

RotationalFrequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 900.0))

]

Torque

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MomentOfForceUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *NewtonMetre*,

Value = 120.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.MechanicalEnergyFlow">
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>900.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Torque">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
```

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```
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MomentOfForceUnit.NewtonMetre"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

MechanicalEnergyPort

Process::*Process*::MechanicalEnergyPort

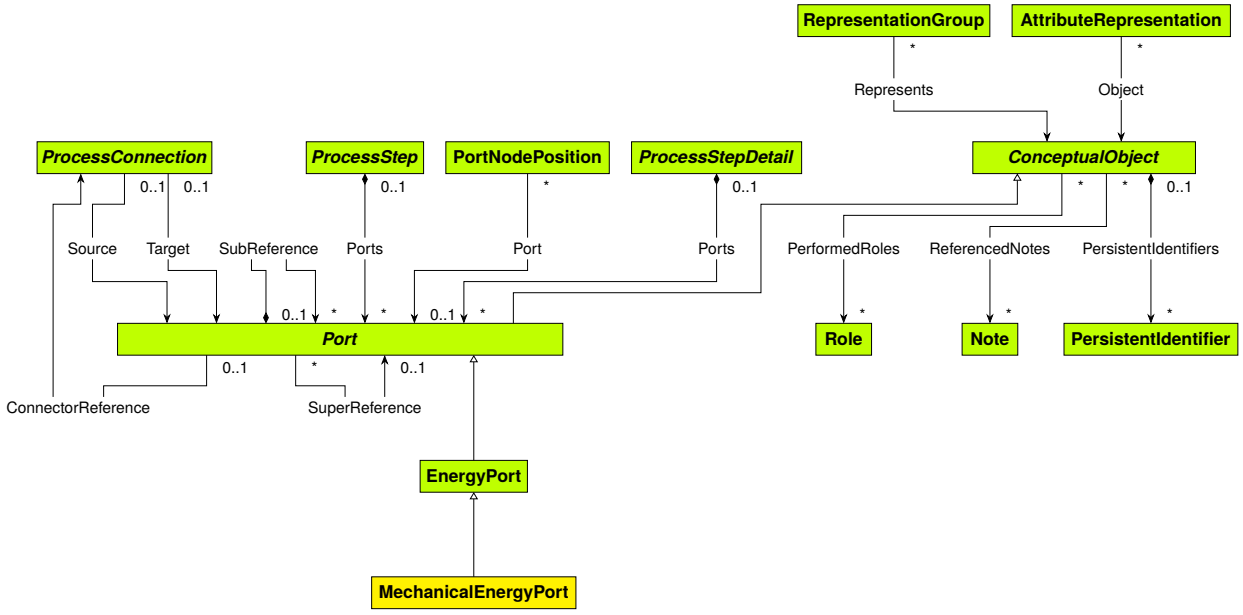
Overview

Concrete Class

A *Port* that models the transfer of mechanical energy into or out of a *ProcessStep* object.

Roles referenced via *PerformedRoles* should have one of the following *Names*:

- Input
- Output



Supertypes

- *EnergyPort*

Example in DEXPI XML

```
<Object type="Process/Process.MechanicalEnergyPort"/>
```

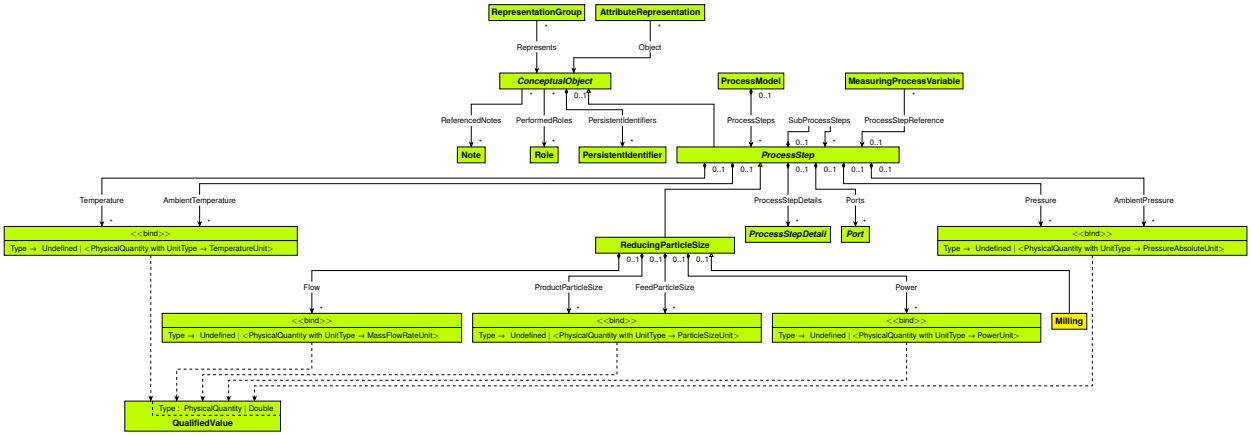
Milling

Process::*Process*::Milling

Overview

Concrete Class

This *ReducingParticleSize* process divides solid material into smaller particles with precise sizes and shapes.



Supertypes

- *ReducingParticleSize*

Example in DEXPI XML

```
<Object type="Process/Process.Milling"/>
```

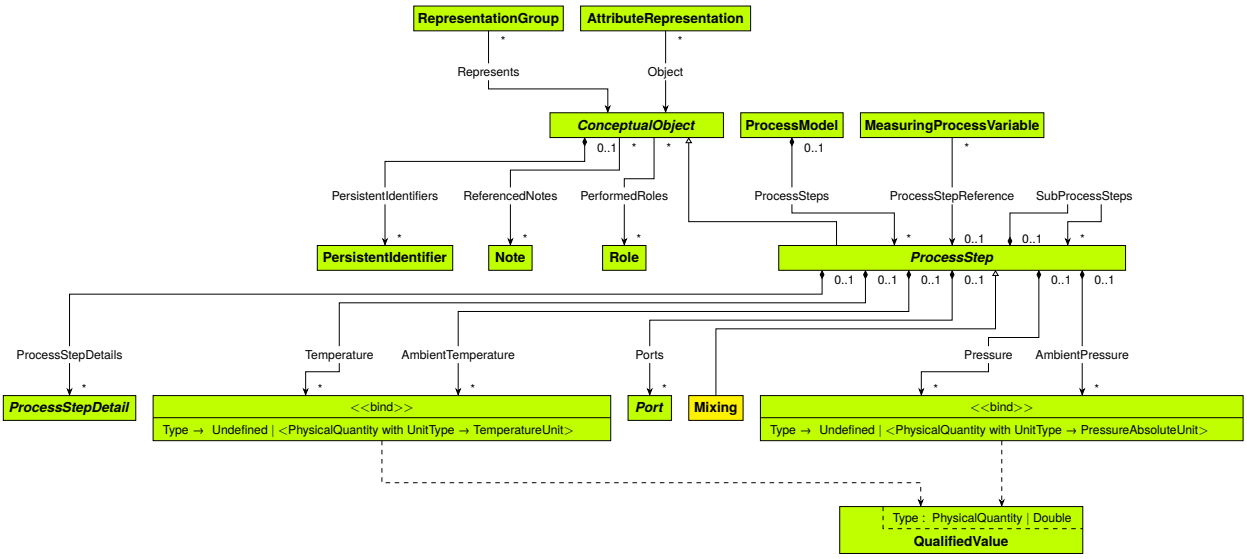
Mixing

Process::*Process*::Mixing

Overview

Concrete Class

This is the base class for processes that combine several flows of material into a single flow.



Supertypes

- *ProcessStep*

Subtypes

- *Humidifying*
- *Kneading*
- *MixingSimple*
- *RotaryMixing*
- *StaticMixing*

Example in DEXPI XML

```
<Object type="Process/Process.Mixing"/>
```

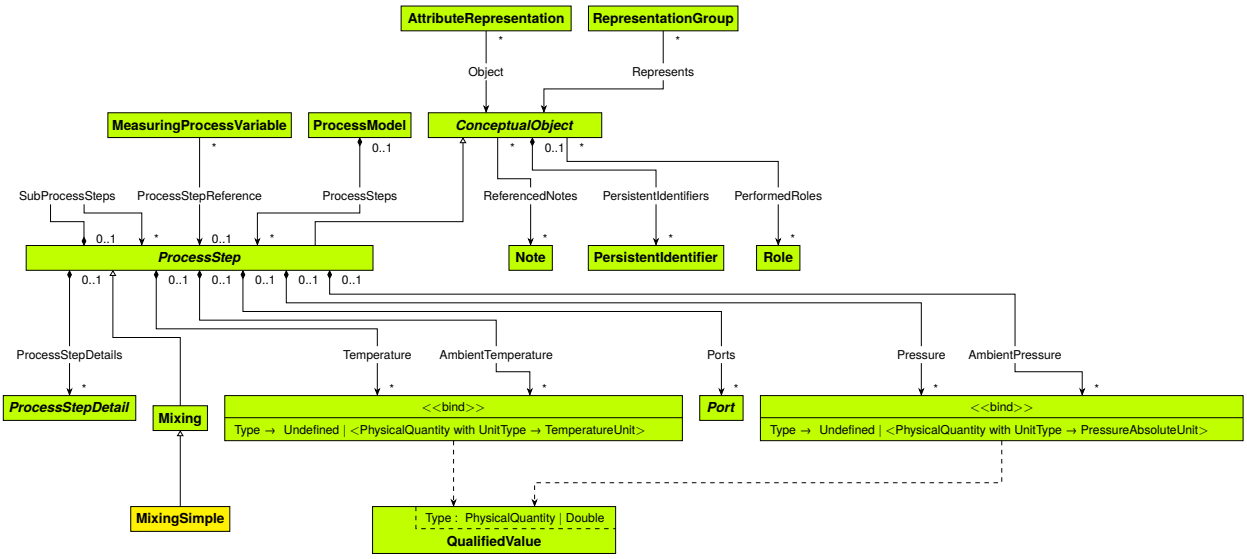
MixingSimple

Process::*Process*::MixingSimple

Overview

Concrete Class

This is a *Mixing* process that simply combines one or more inlet flows into an outlet flow. This process step is used to represent converging branches of flows in a PFD or BFD. It is the counterpart of *Splitting*.



Supertypes

- *Mixing*

Example in DEXPI XML

```
<Object type="Process/Process.MixingSimple"/>
```

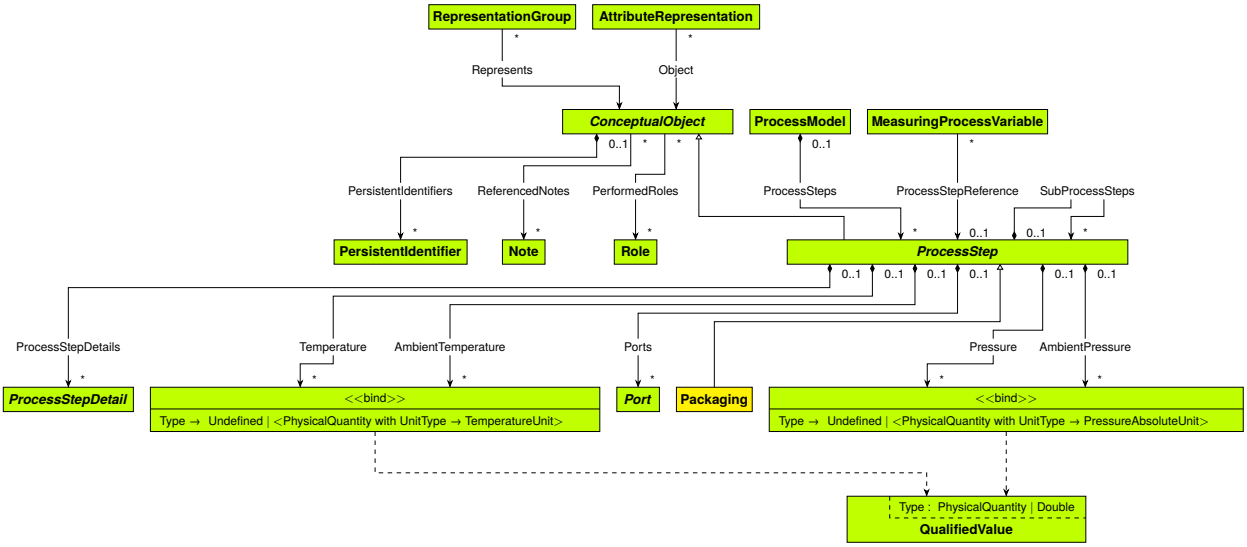
Packaging

Process::*Process*::Packaging

Overview

Concrete Class

This process takes a flow of material and processes it into packages that allow transport and distribution.



Supertypes

- *ProcessStep*

Example in DEXPI XML

```
<Object type="Process/Process.Packaging"/>
```

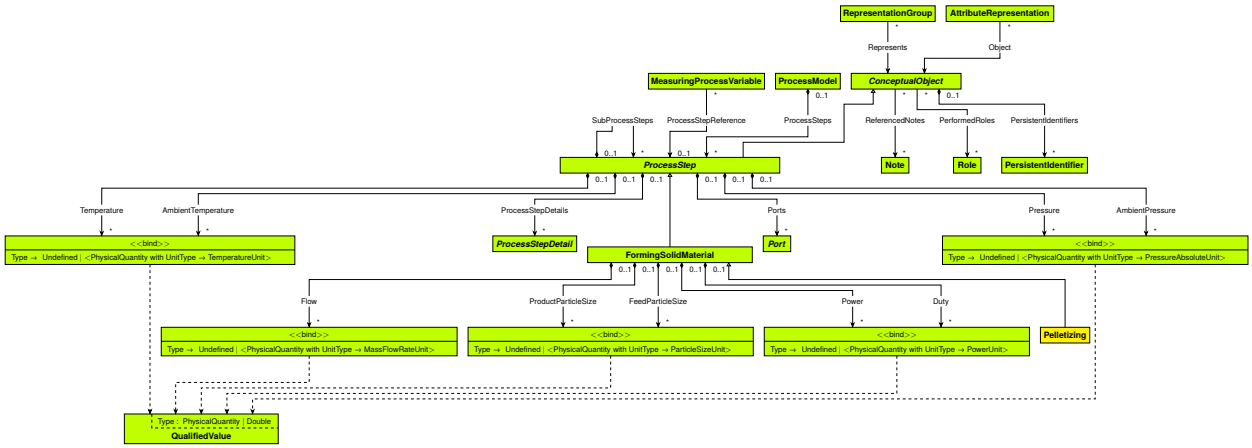
Pelletizing

Process::*Process*::Pelletizing

Overview

Concrete Class

This *FormingSolidMaterial* process takes solid material and forms it into, pellets, small particles of uniform size and shape.



Supertypes

- *FormingSolidMaterial*

Example in DEXPI XML

```
<Object type="Process/Process.Pelletizing"/>
```

Port

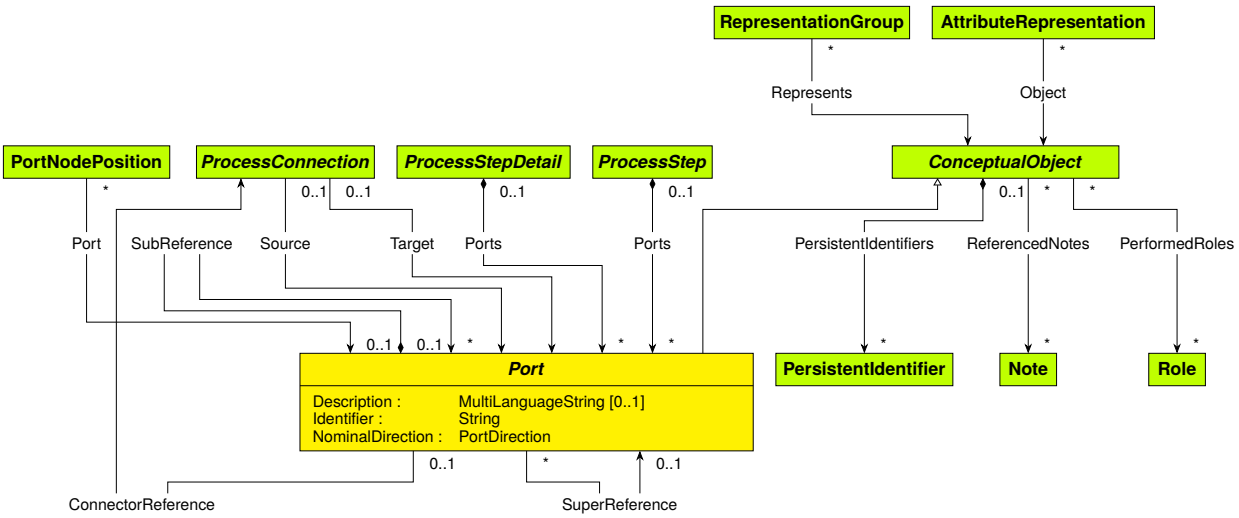
Process::*Process*::Port

Overview

Abstract Class

A port represents a transfer of material, energy or information into or out of a process step. It provides the anchor point for connecting two process steps to each other. The term is derived from SysML and IDEF0 representations of processes.

Note that a port in DEXPI Process is a conceptual object. It represents a contract regarding the material, energy or information coming into or out of a process step.



Supertypes

- *ConceptualObject*

Subtypes

- *EnergyPort*
- *InformationPort*
- *MaterialPort*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
SubReference	*	*Port*	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
ConnectorReference	1	*ProcessConnection*	no	no	0..1
SuperReference	0..1	*Port*	no	no	*

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	0..1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
NominalDirection	1	*PortDirection*	no	no

ConnectorReference

Reference Property

Type: *ProcessConnection*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

NominalDirection

Data Property

Type: *PortDirection*

Multiplicity: 1

Ordered: no

Unique: no

SubReference

Composition Property

Type: *Port*

Multiplicity: *

Ordered: no

SuperReference

Reference Property

Type: *Port*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

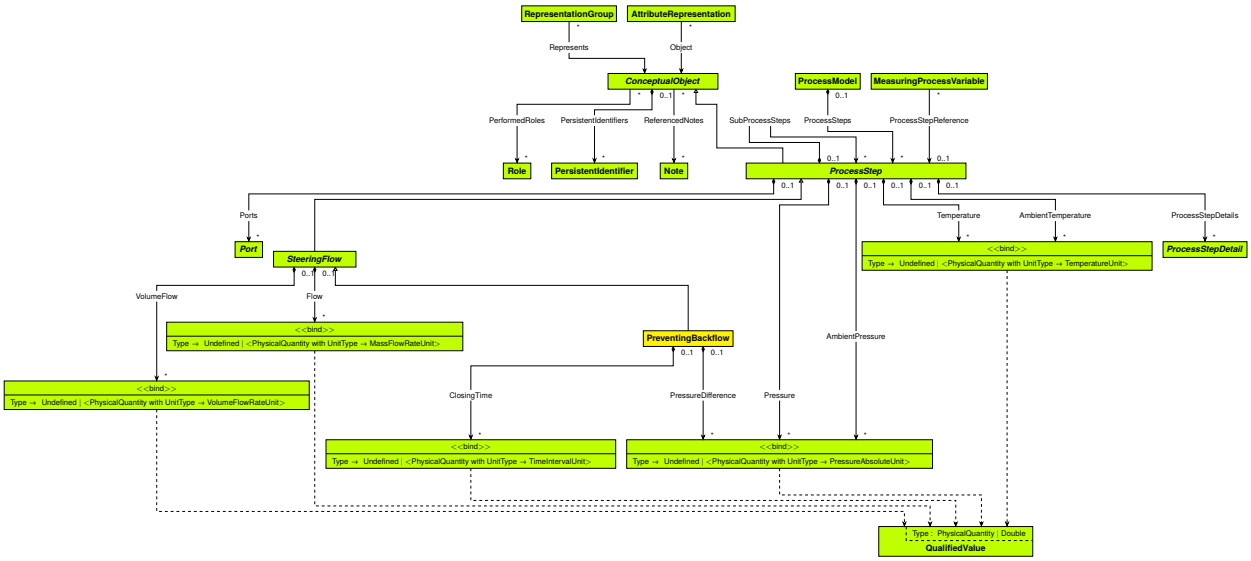
PreventingBackflow

Process::*Process*::PreventingBackflow

Overview

Concrete Class

This *SteeringFlow* process is used to ensure that a flow of material cannot be reversed. This process is used in safety design and is realized by a check valve or non-return valve.



Supertypes

- *SteeringFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ClosingTime	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

ClosingTime

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millisecond*,

Value = 800.0))

]

PressureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.PreventingBackflow">
  <Components property="ClosingTime">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TimeIntervalUnit.Millisecond"/>
          </Data>
          <Data property="Value">
            <Double>800.0</Double>
          </Data>
        </AggregatedDataValue>
```

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```
      </Data>
    </Object>
  </Components>
</Object>
```

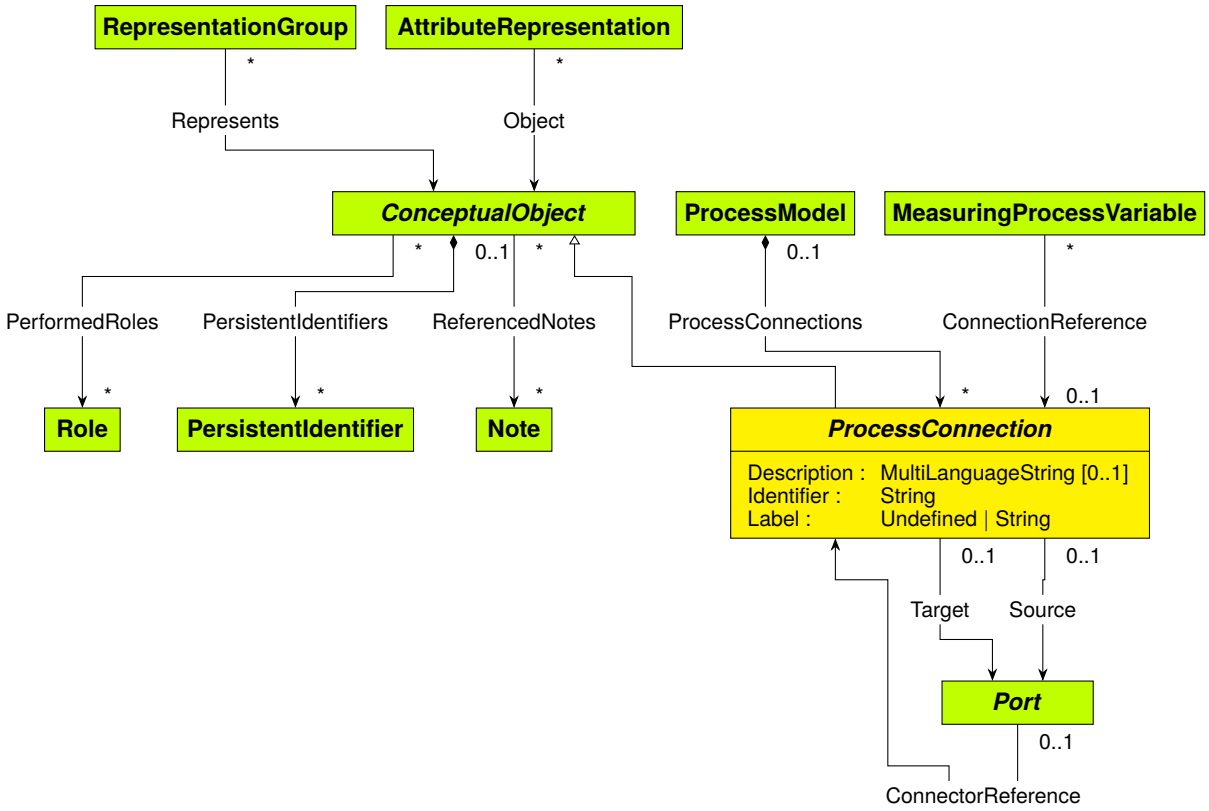
ProcessConnection

Process::*Process*::ProcessConnection

Overview

Abstract Class

This data structure is the abstract parent for all connections between blocks in the DEXPI Process model.



Supertypes

- *ConceptualObject*

Subtypes

- *EnergyFlow*
- *InformationFlow*
- *Stream*

Members

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
Source	1	*Port*	no	no	0..1
Target	1	*Port*	no	no	0..1

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	0..1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
Label	1	*Undefined* | *String*	no	no

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Label

Data Property

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Source

Reference Property

Type: *Port*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

Target

Reference Property

Type: *Port*

Multiplicity: 1

Ordered: no

Unique: no

Opposite Multiplicity: 0..1

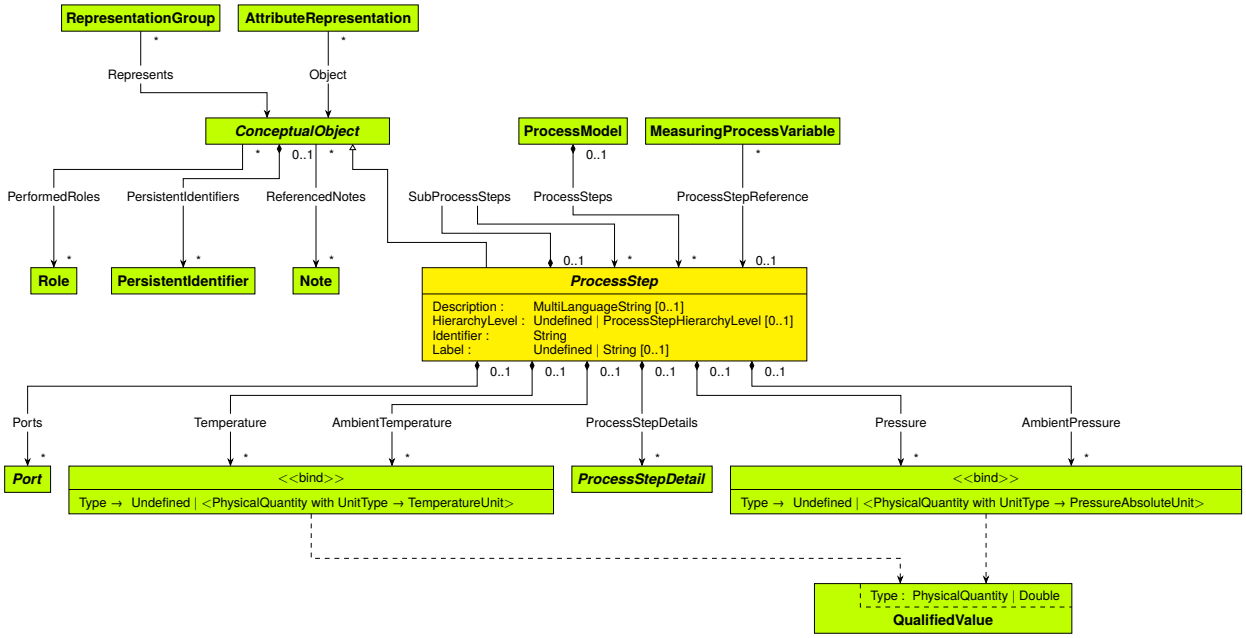
ProcessStep

Process::*Process*::ProcessStep

Overview

Abstract Class

The *ProcessStep* type is the parent type for all process steps in the model.



Supertypes

- *ConceptualObject*

Subtypes

- *Emitting*
- *ExchangingThermalEnergy*
- *Flaring*
- *FormingSolidMaterial*
- *GeneratingFlow*
- *IncreasingParticleSize*
- *Mixing*
- *Packaging*
- *ReactingChemicals*
- *ReducingParticleSize*
- *RemovingThermalEnergy*
- *Separating*
- *Sink*
- *Source*
- *Splitting*
- *SteeringFlow*
- *StoringEnergy*
- *StoringMaterial*
- *SupplyingEnergy*
- *SupplyingMaterial*
- *SupplyingThermalEnergy*
- *TransportingEnergy*
- *TransportingMaterial*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
AmbientPressure	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
AmbientTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no
Ports	*	*Port*	no
Pressure	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
ProcessStepDetails	*	*ProcessStepDetail*	no
SubProcessSteps	*	*ProcessStep*	no
Temperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	0..1	*MultiLanguageString*	no	no
HierarchyLevel	0..1	*Undefined* | *ProcessStepHierarchyLevel*	no	no
Identifier	1	*String*	no	no
Label	0..1	*Undefined* | *String*	no	no

AmbientPressure

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* \| <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = `1.01325`))

]

AmbientTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = `20.0`))

]

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 0..1

Ordered: no

Unique: no

HierarchyLevel

Data Property

Type: *Undefined* | *ProcessStepHierarchyLevel*

Multiplicity: 0..1

Ordered: no

Unique: no

Example

UnitOperation

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Label

Data Property

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Ports

Composition Property

Type: *Port*

Multiplicity: *

Ordered: no

Pressure

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Bar,
            Value = 2.2))
]
```

ProcessStepDetails

Composition Property

Type: *ProcessStepDetail*

Multiplicity: *

Ordered: no

SubProcessSteps

Composition Property

The *ProcessSteps* of the *ProcessStep*.

Type: *ProcessStep*

Multiplicity: *

Ordered: no

Temperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = DegreeCelsius,
            Value = 76.0))
]
```

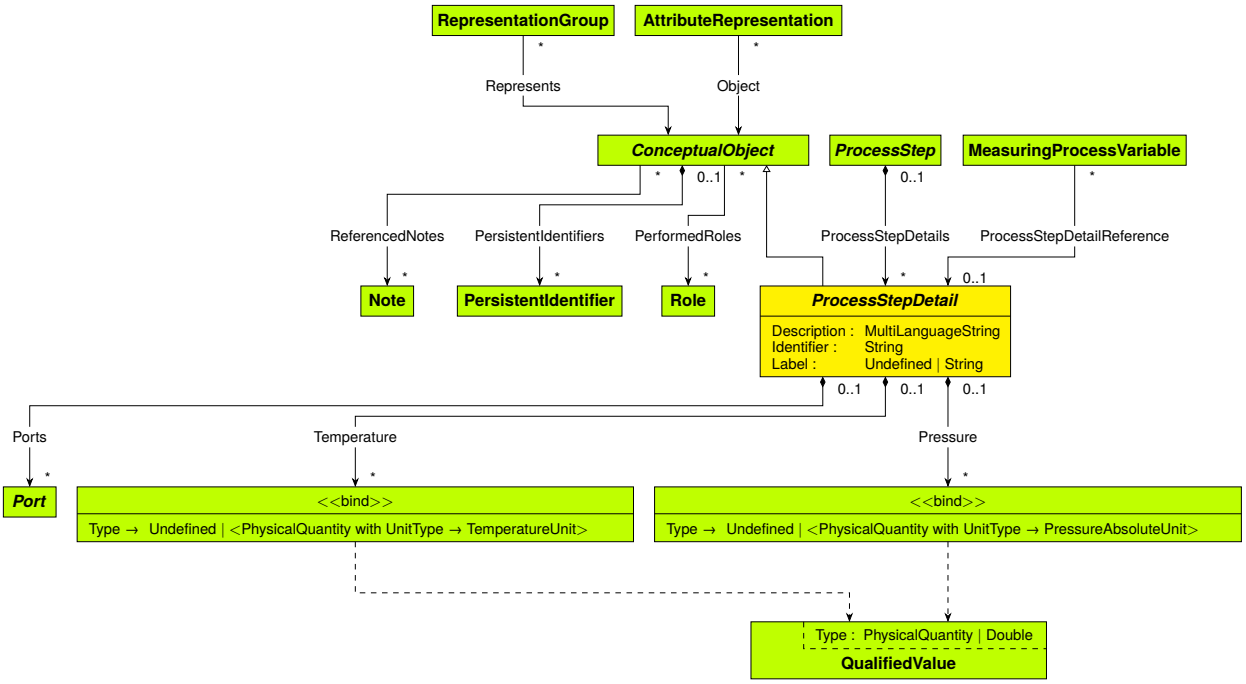
ProcessStepDetail

Process::*Process*::ProcessStepDetail

Overview

Abstract Class

This type is the parent type for processes that cannot be run independently of another process.



Supertypes

- *ConceptualObject*

Subtypes

- *Agitating*
- *ContactingInPacking*
- *ContactingOnTray*
- *SupplyingThermalEnergyWithBurner*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Ports	*	*Port*	no
Pressure	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
Temperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Description	1	*MultiLanguageString*	no	no
Identifier	1	*String*	no	no
Label	1	*Undefined* | *String*	no	no

Description

Data Property

Type: *MultiLanguageString*

Multiplicity: 1

Ordered: no

Unique: no

Identifier

Data Property

Type: *String*

Multiplicity: 1

Ordered: no

Unique: no

Label

Data Property

Type: *Undefined* | *String*

Multiplicity: 1

Ordered: no

Unique: no

Ports

Composition Property

Type: *Port*

Multiplicity: *

Ordered: no

Pressure

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 2.2))

]

Temperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = `76.0`))

]

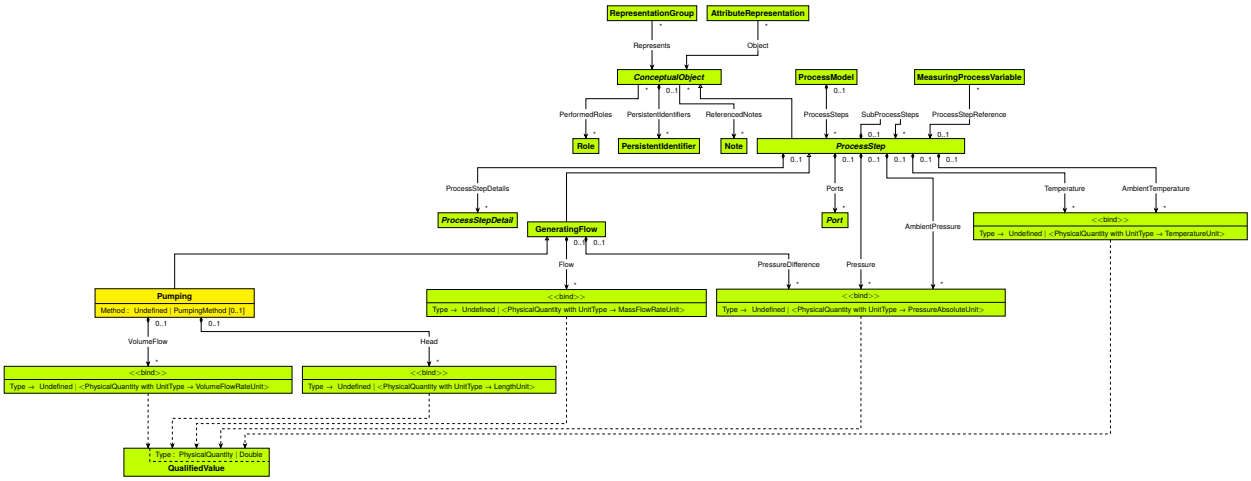
Pumping

Process::*Process*::Pumping

Overview

Concrete Class

This *GeneratingFlow* process represents transfer of mechanical energy to a liquid to increase pressure and generate a flow. The physical principle used to compress the gas can be specified by selecting a value from the *PumpingMethod* enumeration.



Supertypes

- *GeneratingFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Head	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
VolumeFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	0..1	*Undefined* | *PumpingMethod*	no	no

Head

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Metre,
            Value = 7.6))
]
```

Method

Data Property

Type: *Undefined* | *PumpingMethod*

Multiplicity: 0..1

Ordered: no

Unique: no

VolumeFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = LitrePerSecond,
            Value = 12.0))
]
```

Example in DEXPI XML

```
<Object type="Process/Process.Pumping">
  <Components property="Head">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
          </Data>
          <Data property="Value">
            <Double>7.6</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="VolumeFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.
↪LitrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>12.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

PureMaterialComponent

Process::*Process*::PureMaterialComponent

Overview

Concrete Class

A PureMaterialComponent represents a *MaterialComponent* that is modelled as a pure chemical compound with defined composition and structure. This is used in the *MaterialTemplate* to document the composition vector and define properties for use in the process.

Supertypes

- *MaterialComponent*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
ChEBI_identifier	0..1	*Undefined* | *String*	no	no
IUPAC_identifier	0..1	*Undefined* | *String*	no	no

ChEBI_identifier

Data Property

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

IUPAC_identifier

Data Property

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.PureMaterialComponent"/>
```

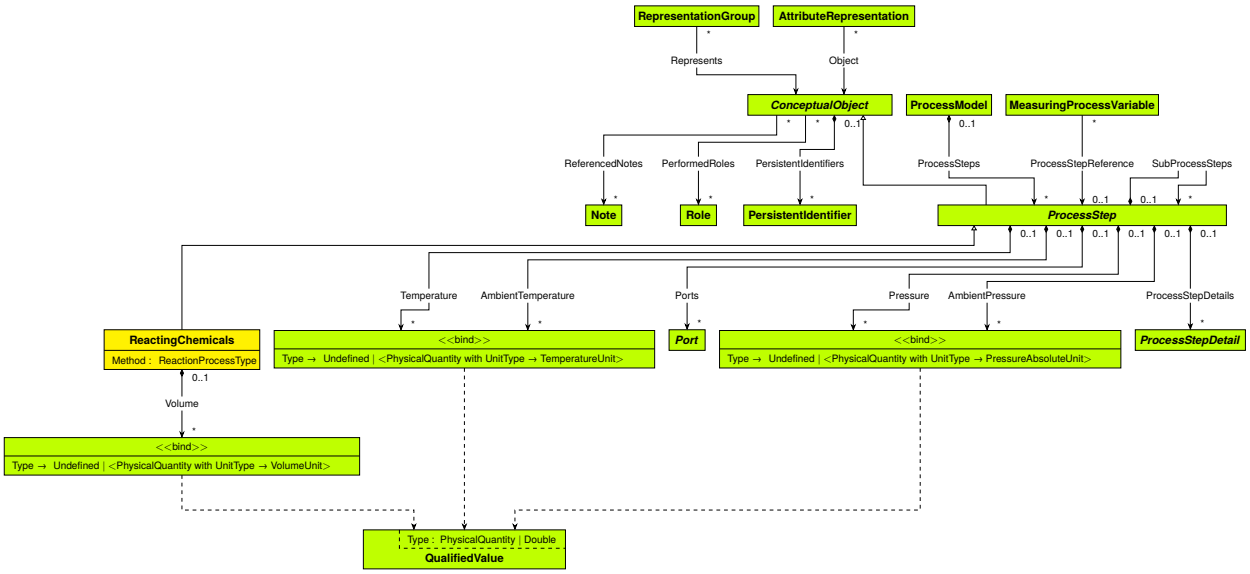
ReactingChemicals

Process::*Process*::ReactingChemicals

Overview

Concrete Class

This process performs chemical reactions on material in order to produce products of value or to remove undesirable chemical compounds.



Supertypes

- *ProcessStep*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Volume	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	1	*ReactionProcessType*	no	no

Method

Data Property

Type: *ReactionProcessType*

Multiplicity: 1

Ordered: no

Unique: no

Volume

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreCubed*,

Value = 4200.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.ReactingChemicals">
  <Components property="Volume">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeUnit.CentimetreCubed"/>
          </Data>
          <Data property="Value">
            <Double>4200.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

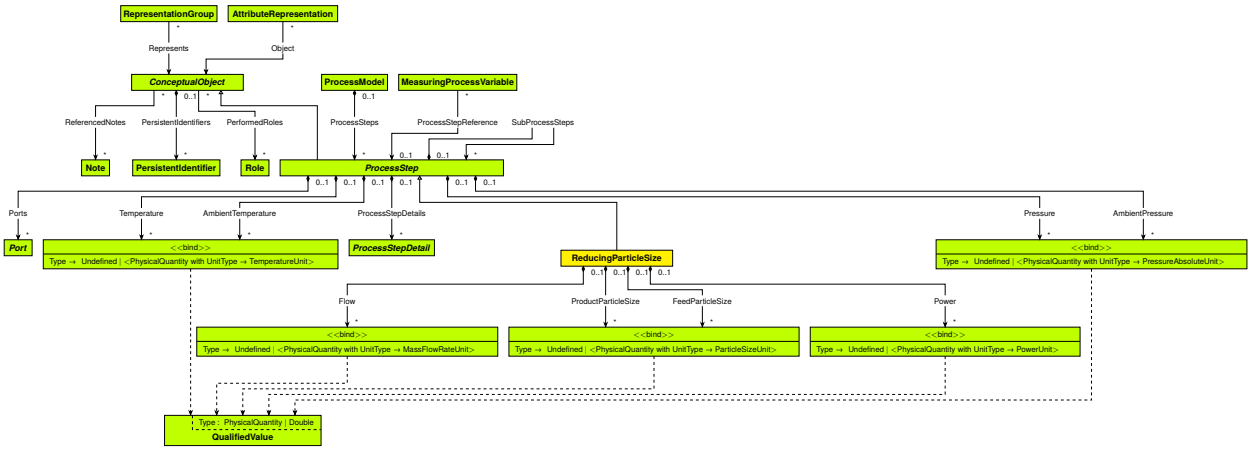
ReducingParticleSize

Process::*Process*::ReducingParticleSize

Overview

Concrete Class

A process where a solid material is broken down into particles with a smaller size. This is the parent class for *Cutting*, *Milling*, *Crushing* and *Grinding*.



Supertypes

- *ProcessStep*

Subtypes

- *Crushing*
- *Cutting*
- *Grinding*
- *Milling*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FeedParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
ProductParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no

FeedParticleSize

Composition Property

Characteristic particle size for the feed.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = `80.0`))

]

Flow

Composition Property

Mass flow rate through process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `90.0`))

]

Power

Composition Property

Power demand.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `80.0`))

]

ProductParticleSize

Composition Property

Characteristic particle size for the product.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 6.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.ReducingParticleSize">
  <Components property="FeedParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>90.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
```

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```
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ProductParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>6.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

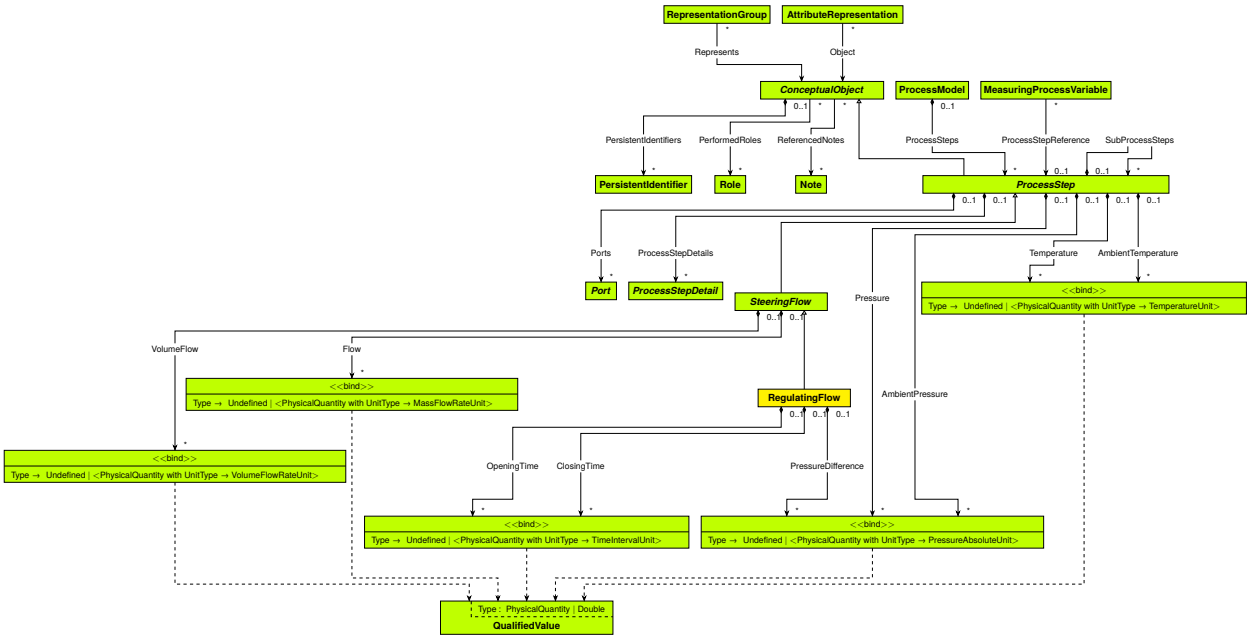
RegulatingFlow

Process::*Process*::RegulatingFlow

Overview

Concrete Class

A *SteeringFlow* process where a flow of material is manipulated over a continuous range of values. The desired flow rate is supplied in the XG1 *InformationPort*.



Supertypes

- *SteeringFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ClosingTime	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>	no
OpeningTime	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

ClosingTime

Composition Property

Closing time.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millisecond*,

Value = `750.0`))

]

OpeningTime

Composition Property

Opening time.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millisecond*,

Value = `1200.0`))

]

PressureDifference

Composition Property

Pressure difference across process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = `2.5`))

]

Example in DEXPI XML

```
<Object type="Process/Process.RegulatingFlow">
  <Components property="ClosingTime">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TimeIntervalUnit.Millisecond"/>
          </Data>
          <Data property="Value">
            <Double>750.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="OpeningTime">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TimeIntervalUnit.Millisecond"/>
          </Data>
          <Data property="Value">
            <Double>1200.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>2.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

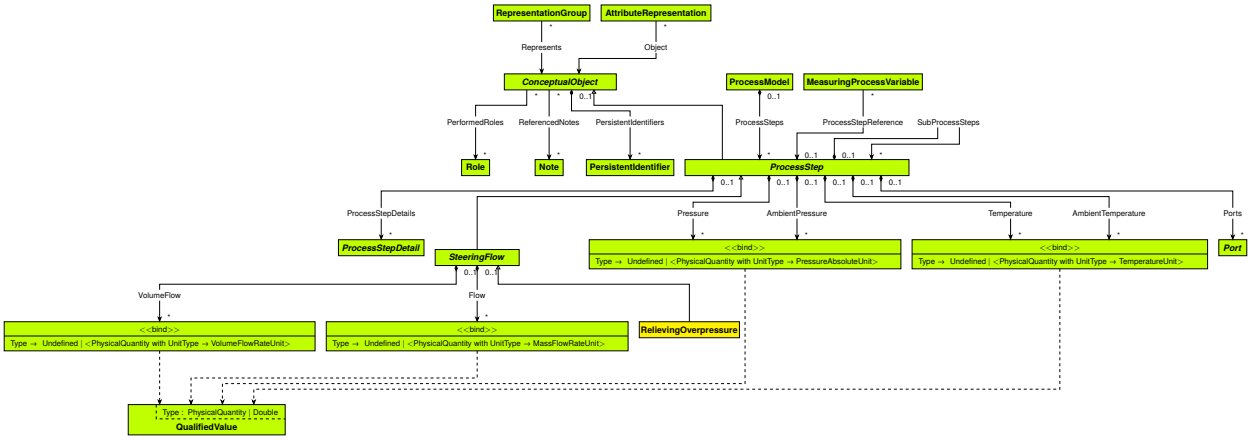
RelievingOverpressure

Process::*Process*::RelievingOverpressure

Overview

Concrete Class

A *SteeringFlow* process where a flow of material is manipulated to ensure that the pressure in a system shall not exceed a specified value.



Supertypes

- *SteeringFlow*

Example in DEXPI XML

```
<Object type="Process/Process.RelievingOverpressure"/>
```

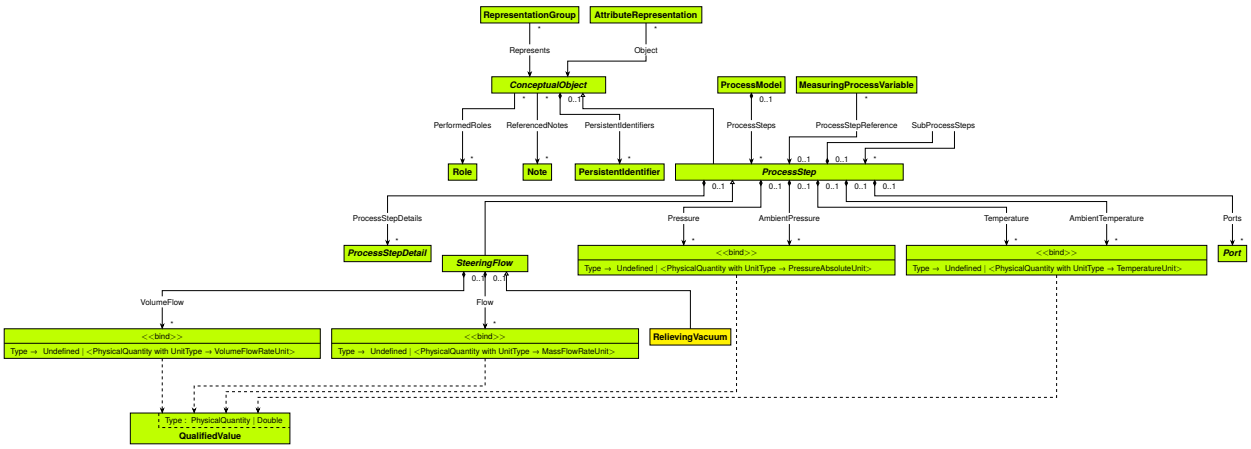
RelievingVacuum

Process::*Process*::RelievingVacuum

Overview

Concrete Class

A *SteeringFlow* process where a flow of material is manipulated to ensure that the pressure in a system shall not become sub-atmospheric.



Supertypes

- *SteeringFlow*

Example in DEXPI XML

```
<Object type="Process/Process.RelievingVacuum"/>
```

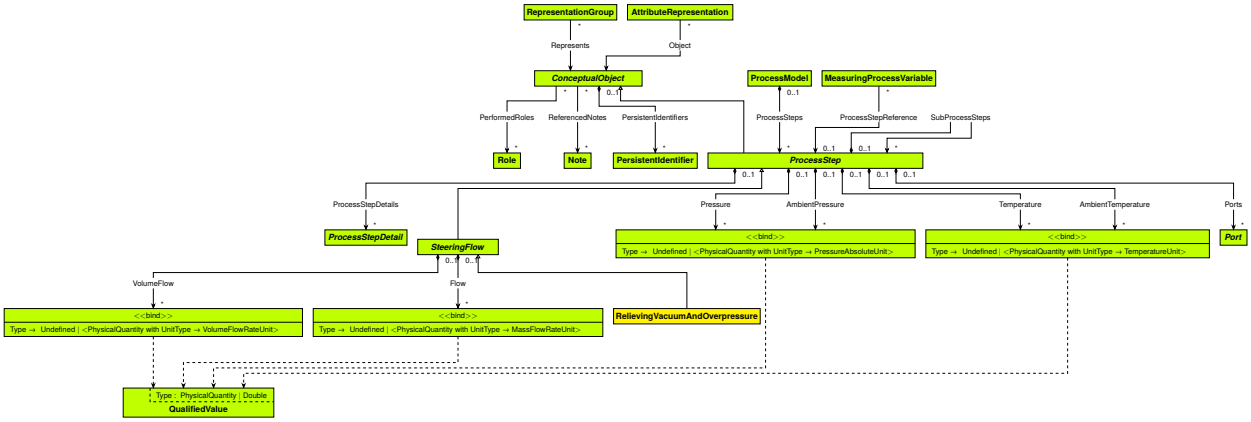
RelievingVacuumAndOverpressure

Process::*Process*::RelievingVacuumAndOverpressure

Overview

Concrete Class

A *SteeringFlow* process where a flow of material is manipulated to ensure that the pressure in a system shall neither become sub-atmospheric nor exceed a specified value.



Supertypes

- *SteeringFlow*

Example in DEXPI XML

```
<Object type="Process/Process.RelievingVacuumAndOverpressure"/>
```

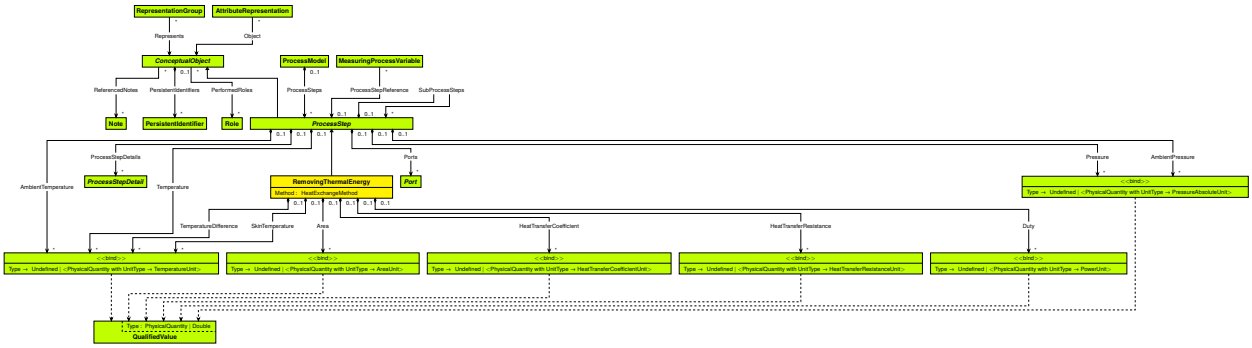
RemovingThermalEnergy

Process::*Process*::RemovingThermalEnergy

Overview

Concrete Class

This process removes enthalpy from a material in order to reduce temperature or change the state of the material. See also *Cooling*.



Supertypes

- *ProcessStep*

Subtypes

- *Cooling*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Area	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>	no
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
HeatTransferCoefficient	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>>	no
HeatTransferResistance	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferResistanceUnit*>>	no
SkinTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no
TemperatureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	1	*HeatExchangeMethod*	no	no

Area

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreSquared*,

Value = `7500.0`))

]

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `120.0`))

]

HeatTransferCoefficient

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilowattPerMetreSquaredKelvin*,

Value = `25.5`))

]

HeatTransferResistance

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferResistanceUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetreSquaredKelvinPerWatt*,

Value = `3.92e-05`))

]

Method

Data Property

Type: *HeatExchangeMethod*

Multiplicity: 1

Ordered: no

Unique: no

SkinTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = `320.0`))

]

TemperatureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kelvin*,

Value = 95.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.RemovingThermalEnergy">
  <Components property="Area">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.AreaUnit.CentimetreSquared"/>
          </Data>
          <Data property="Value">
            <Double>7500.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HeatTransferCoefficient">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.HeatTransferCoefficientUnit.
↪KilowattPerMetreSquaredKelvin"/>
          </Data>
          <Data property="Value">
            <Double>25.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HeatTransferResistance">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.HeatTransferResistanceUnit.
↪MetreSquaredKelvinPerWatt"/>
          </Data>
          <Data property="Value">
            <Double>3.92e-05</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SkinTemperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>320.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="TemperatureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.Kelvin"/>
          </Data>
          <Data property="Value">
            <Double>95.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

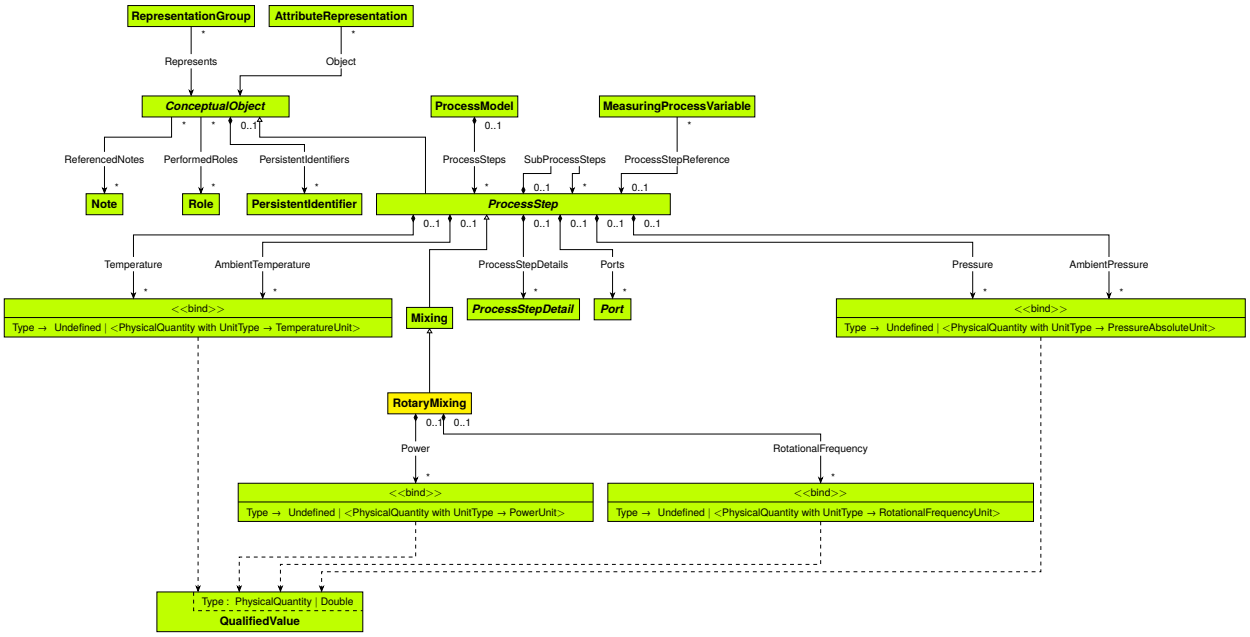
RotaryMixing

Process::*Process*::RotaryMixing

Overview

Concrete Class

This *Mixing* process uses an externally powered rotating impeller to produce a homogeneous material.



Supertypes

- *Mixing*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 190.0))

]

RotationalFrequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 300.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.RotaryMixing">
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>190.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>300.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

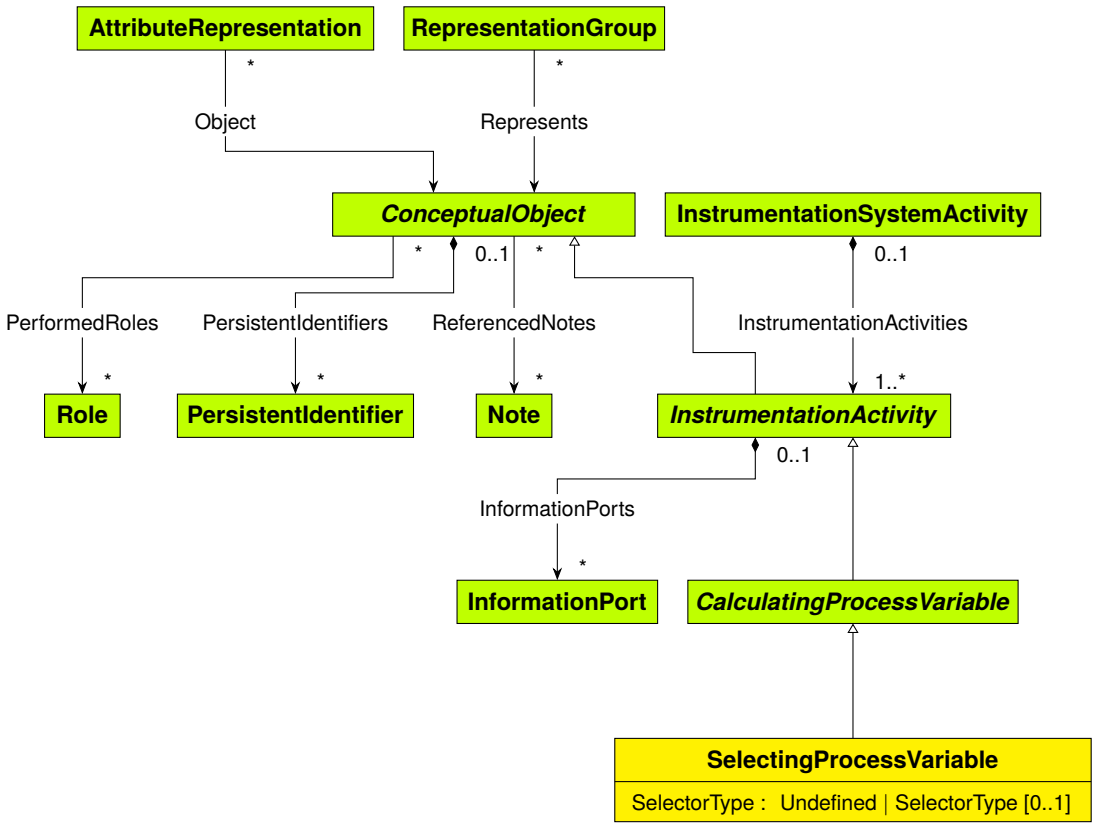
SelectingProcessVariable

Process::*Process*::SelectingProcessVariable

Overview

Concrete Class

This *InstrumentationActivity* selects a single input signal to be sent to the output signal. It can be used to model high select and low select functions.



Supertypes

- *CalculatingProcessVariable*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SelectorType	0..1	*Undefined* | *SelectorType*	no	no

SelectorType

Data Property

Type: *Undefined* | *SelectorType*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.SelectingProcessVariable"/>
```

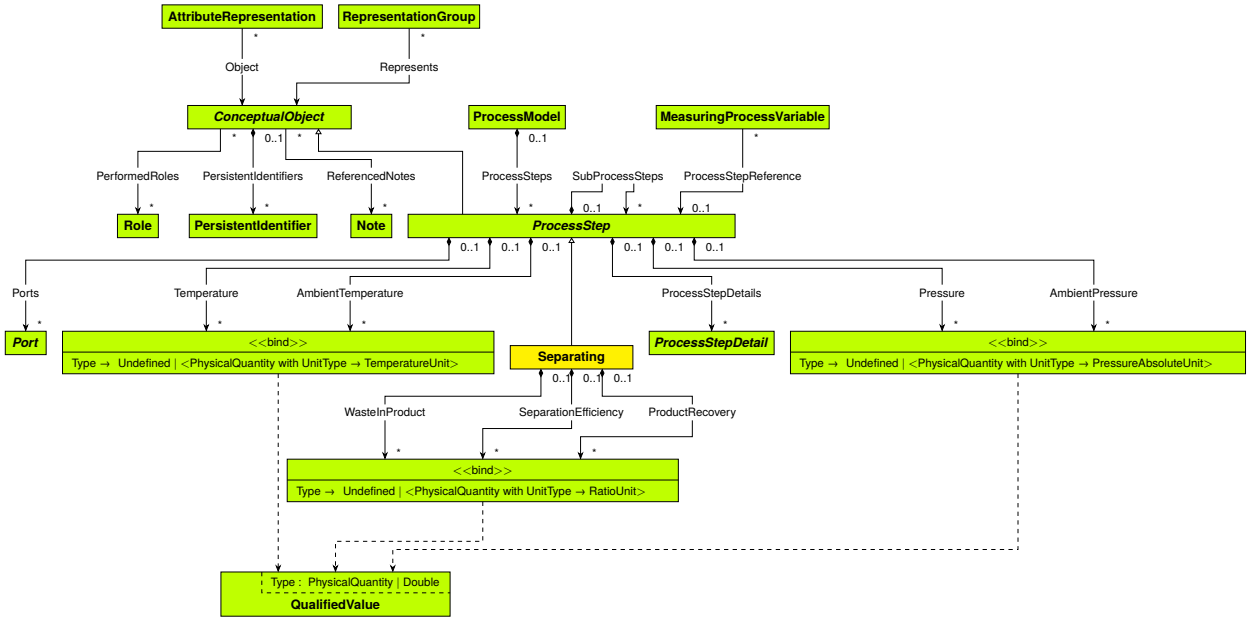
Separating

Process::*Process*::Separating

Overview

Concrete Class

This is the base type for all processes where one or more feeds are transformed into streams of material, each with different intensive properties and chemical composition.



Supertypes

- *ProcessStep*

Subtypes

- *SeparatingByElectromagneticForce*
- *SeparatingByPhaseSeparation*
- *SeparatingByPhysicalProcess*
- *SeparatingByThermalProcess*
- *SeparatingMechanically*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ProductRecovery	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
SeparationEfficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
WasteInProduct	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no

ProductRecovery

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = 35.0))

]

SeparationEfficiency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = 98.0))

]

WasteInProduct

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = 4.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Separating">
  <Components property="ProductRecovery">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>35.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SeparationEfficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>98.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="WasteInProduct">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>4.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

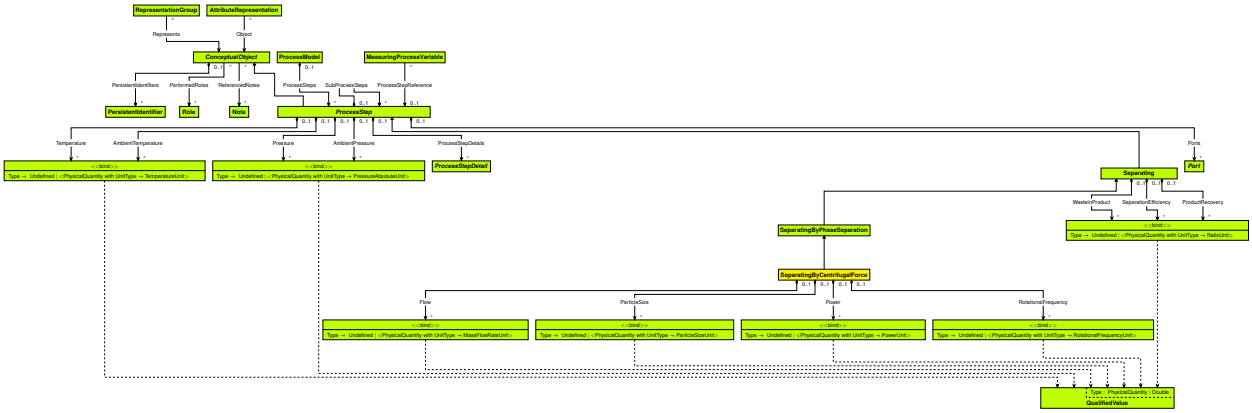
SeparatingByCentrifugalForce

Process::*Process*::SeparatingByCentrifugalForce

Overview

Concrete Class

This is a *SeparatingByPhaseSeparation* process where a fluid mixture is separated into a heavy phase and light phase through the external application of mechanical energy to produce centrifugal forces.



Supertypes

- *SeparatingByPhaseSeparation*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 67.0))

]

ParticleSize

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 0.9))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 120.0))

]

RotationalFrequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 300.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByCentrifugalForce">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
```

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```
          <Data property="Value">
            <Double>67.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>0.9</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>300.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

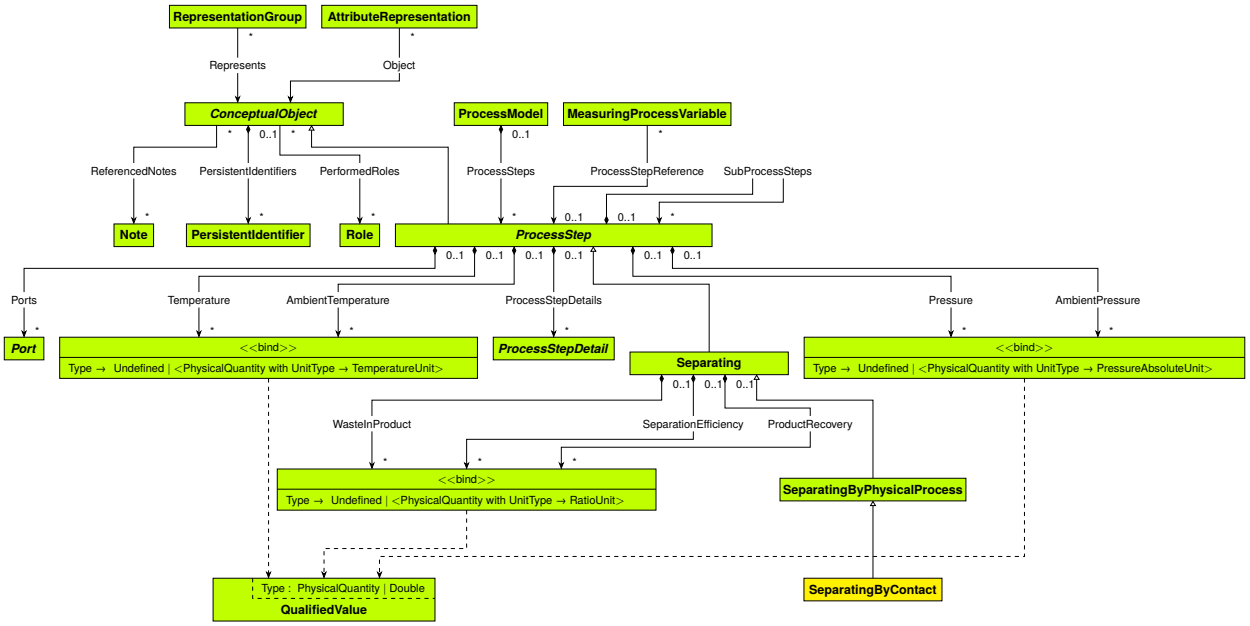
SeparatingByContact

Process::*Process*::SeparatingByContact

Overview

Concrete Class

This is a *SeparatingByPhysicalProcess* process where materials are brought into contact with each to transfer mass and energy.



Supertypes

- *SeparatingByPhysicalProcess*

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByContact"/>
```

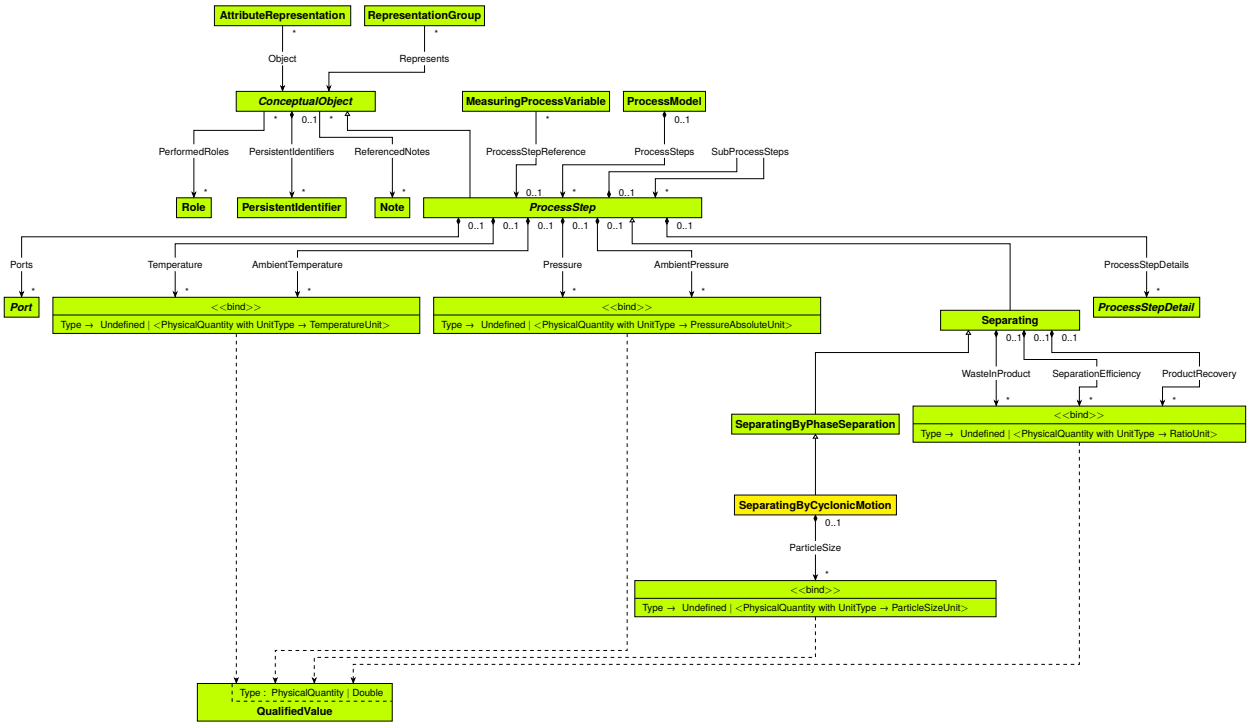
SeparatingByCyclonicMotion

Process::*Process*::SeparatingByCyclonicMotion

Overview

Concrete Class

This is a *SeparatingByPhaseSeparation* process where a fluid mixture is separated into a heavy phase and light phase through the centrifugal forces generated by the flow of fluids through a cyclone arrangement.



Supertypes

- *SeparatingByPhaseSeparation*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no

ParticleSize

Composition Property

Characteristic particle size for separation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 1.2))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByCyclonicMotion">
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>1.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

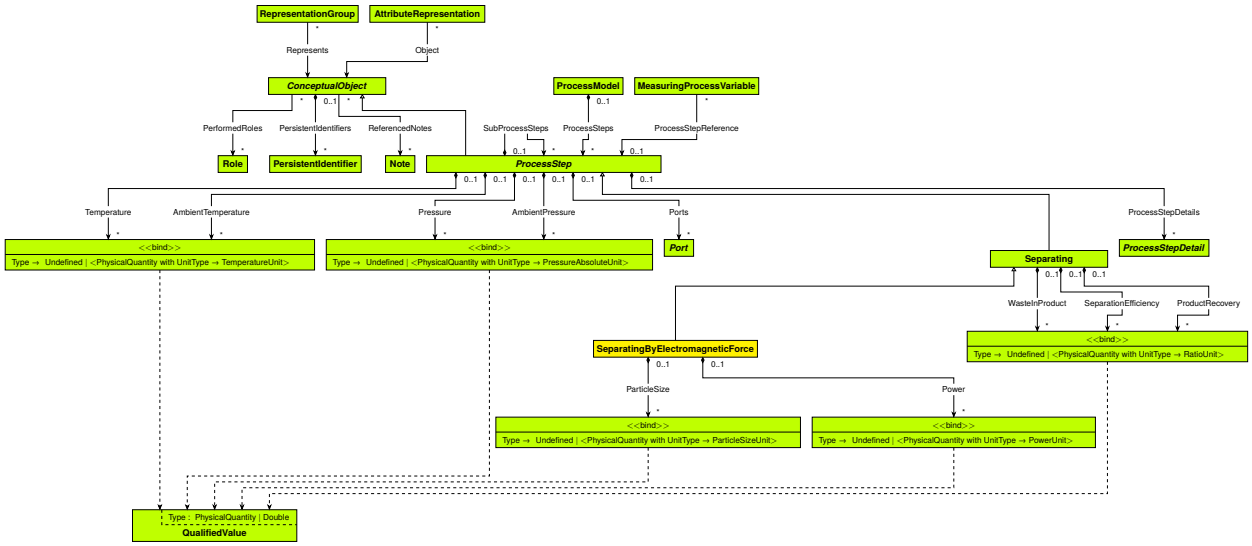
SeparatingByElectromagneticForce

Process::*Process*::SeparatingByElectromagneticForce

Overview

Concrete Class

This is a *Separating* process where a material mixture is separated by the application of an electrical or magnetic field. This type is parent to *SeparatingByElectrostaticForce* and *SeparatingByMagneticForce*.



Supertypes

- *Separating*

Subtypes

- *SeparatingByElectrostaticForce*
- *SeparatingByMagneticForce*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

ParticleSize

Composition Property

Characteristic particle size for separation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = `0.4`))

]

Power

Composition Property

Electrical power demand.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 35.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByElectromagneticForce">
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>0.4</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>35.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

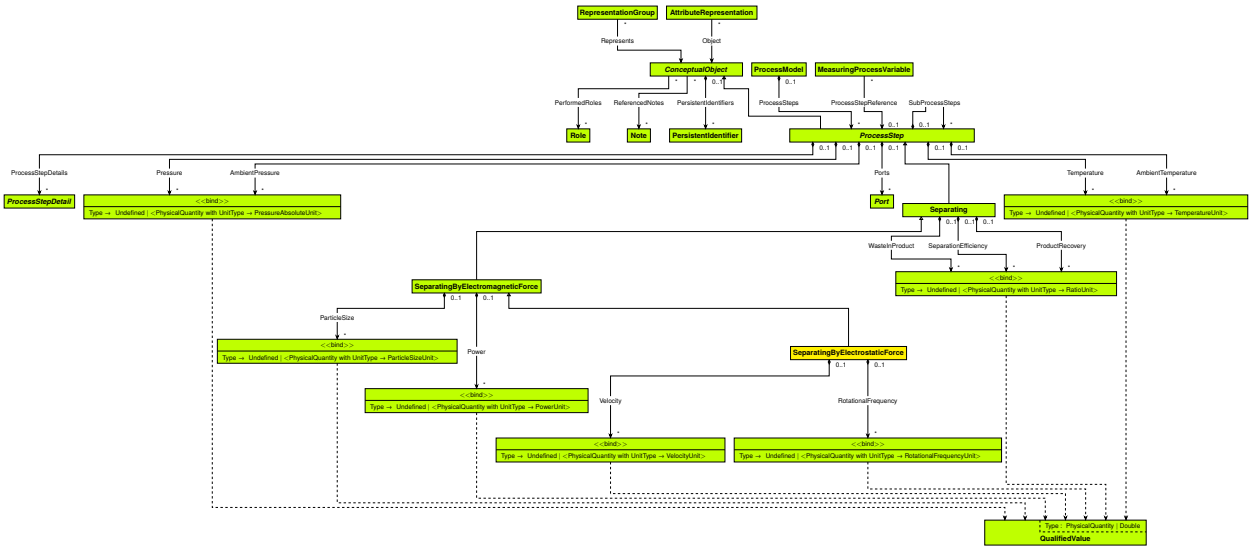
SeparatingByElectrostaticForce

Process::*Process*::SeparatingByElectrostaticForce

Overview

Concrete Class

This is a *SeparatingByElectromagneticForce* process where a material mixture is separated by the application of an electrostatic field.



Supertypes

- *SeparatingByElectromagneticForce*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no
Velocity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VelocityUnit*>>	no

RotationalFrequency

Composition Property

The rotational frequency of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 220.0))

]

Velocity

Composition Property

The velocity of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VelocityUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetrePerSecond*,

Value = 8.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByElectrostaticForce">
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>220.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Velocity">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VelocityUnit.MetrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>8.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

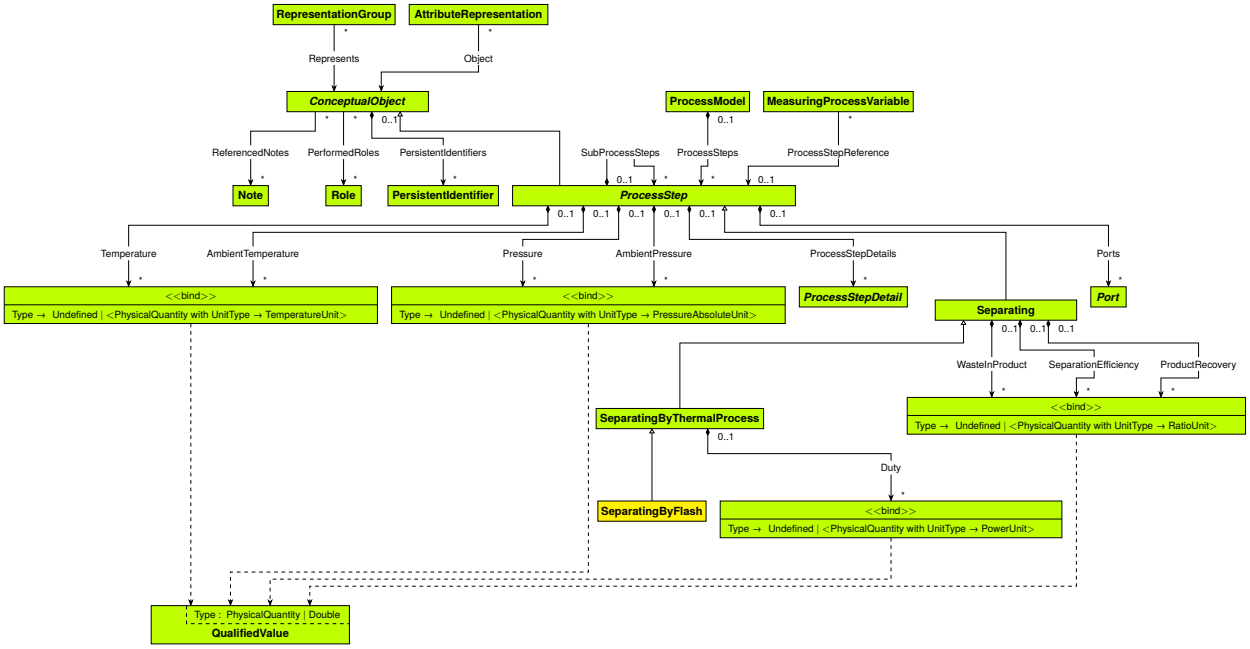
SeparatingByFlash

Process::*Process*::SeparatingByFlash

Overview

Concrete Class

This is a *SeparatingByThermalProcess* process where a fluid mixture is separated into a vapour phase and a liquid phase in a vessel, usually after a sudden decrease in pressure. This is a single-stage process, unlike *Distilling*.



Supertypes

- *SeparatingByThermalProcess*

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByFlash"/>
```

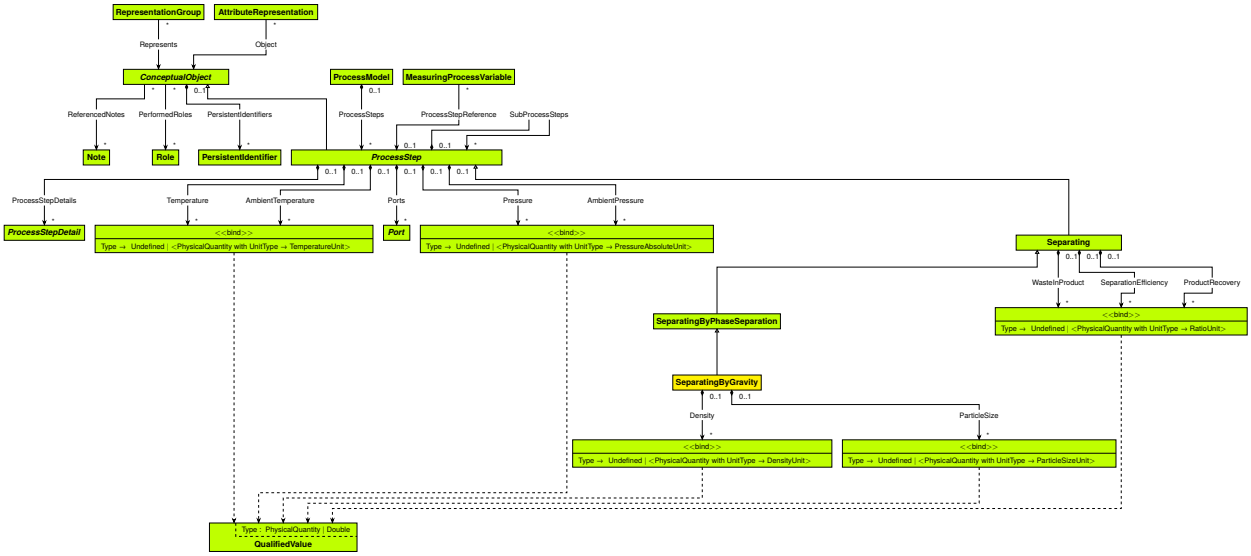
SeparatingByGravity

Process::*Process*::SeparatingByGravity

Overview

Concrete Class

This *SeparatingByPhaseSeparation* process separates substances based on the influence of gravity on substances with different density or specific gravity.



Supertypes

- *SeparatingByPhaseSeparation*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Density	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *DensityUnit*>>	no
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no

Density

Composition Property

Characteristic density for separation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *DensityUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerMetreCubed*,

Value = `1220.0`))

]

ParticleSize

Composition Property

Characteristic particle size for separation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = `0.8`))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByGravity">
  <Components property="Density">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.DensityUnit.
↪KilogramPerMetreCubed"/>
```

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```
          </Data>
          <Data property="Value">
            <Double>1220.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>0.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

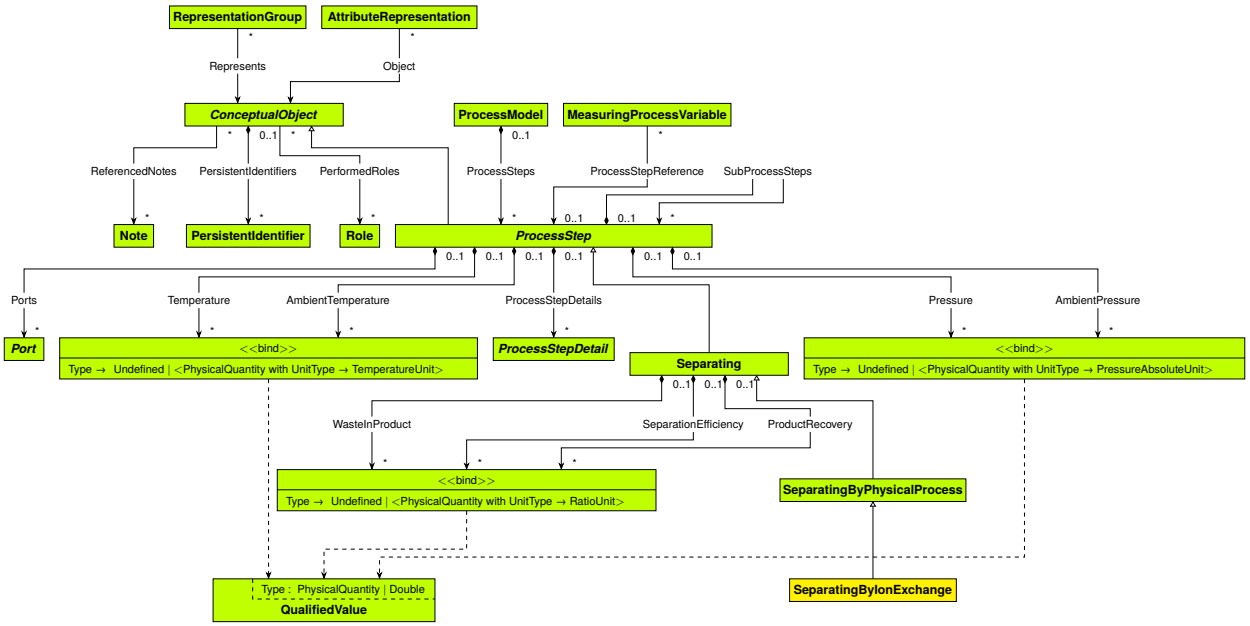
SeparatingByIonExchange

Process::*Process*::SeparatingByIonExchange

Overview

Concrete Class

This *SeparatingByPhysicalProcess* is a reversible interchange of one kind of ion present on an insoluble solid with another of like charge present in a solution surrounding the solid with the reaction being used especially for softening or demineralizing water, the purification of chemicals, or the separation of substances.



Supertypes

- *SeparatingByPhysicalProcess*

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByIonExchange"/>
```

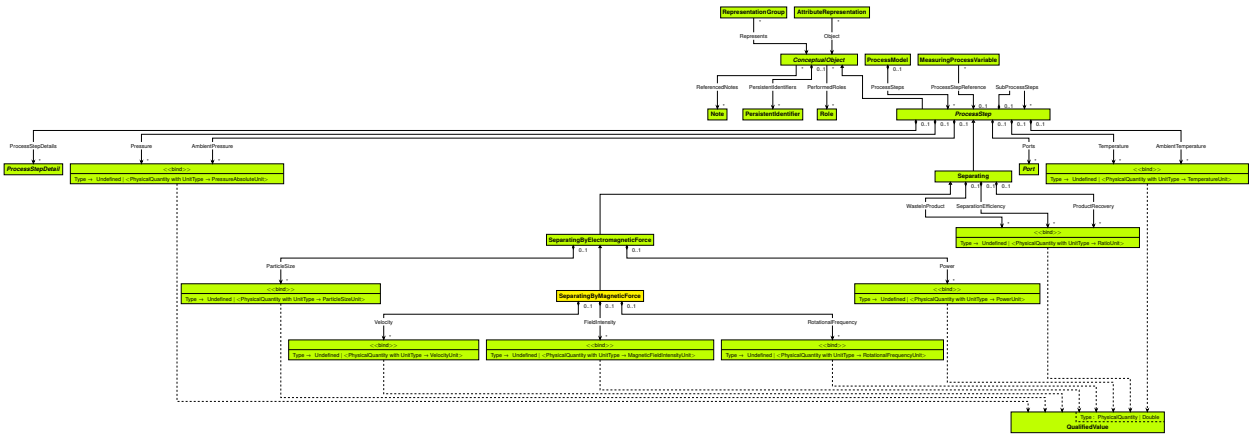
SeparatingByMagneticForce

Process::*Process*::SeparatingByMagneticForce

Overview

Concrete Class

This is a *SeparatingByElectromagneticForce* process where a material mixture is separated by the application of a magnetic field.



Supertypes

- *SeparatingByElectromagneticForce*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FieldIntensity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MagneticFieldIntensityUnit*>>	no
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no
Velocity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VelocityUnit*>>	no

FieldIntensity

Composition Property

Intensity of the magnetic field.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MagneticFieldIntensityUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = KiloamperePerMetre,
            Value = 14.5))
]
```

RotationalFrequency

Composition Property

The rotational frequency of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 380.0))

]

Velocity

Composition Property

The velocity of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VelocityUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetrePerSecond*,

Value = 9.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByMagneticForce">
  <Components property="FieldIntensity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MagneticFieldIntensityUnit.
↪KiloamperePerMetre"/>
          </Data>
          <Data property="Value">
            <Double>14.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>380.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Velocity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VelocityUnit.MetrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>9.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

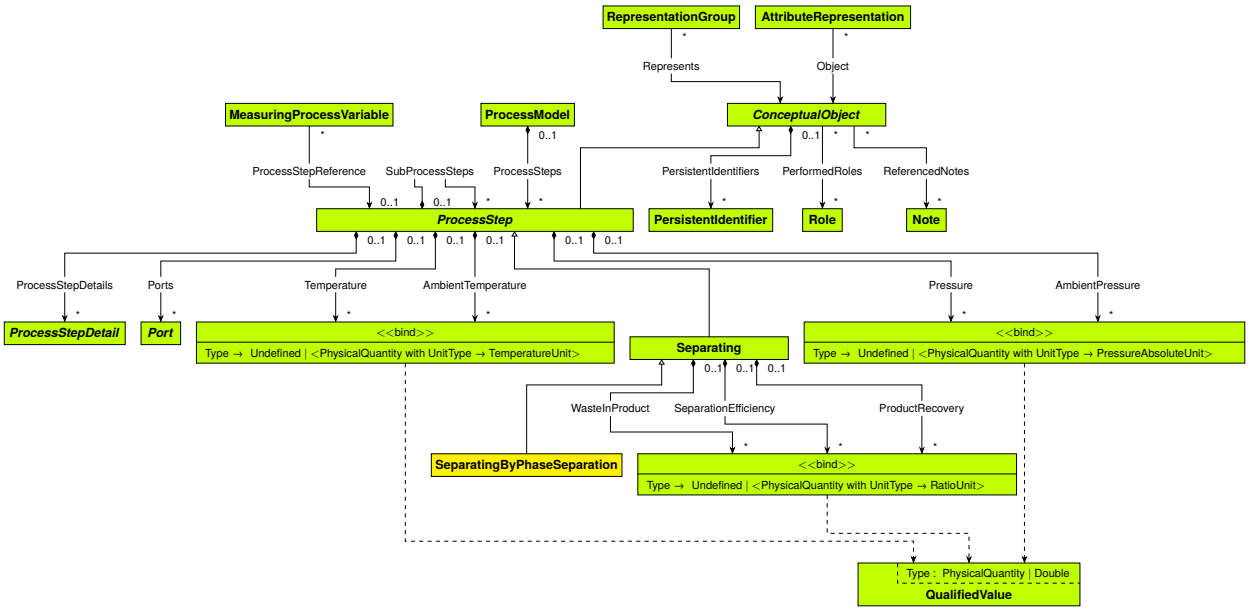
SeparatingByPhaseSeparation

Process::*Process*::SeparatingByPhaseSeparation

Overview

Concrete Class

This is a *Separating* process where the materials form distinct phases, which can then be separated.



Supertypes

- *Separating*

Subtypes

- *SeparatingByCentrifugalForce*
- *SeparatingByCyclonicMotion*
- *SeparatingByGravity*

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByPhaseSeparation"/>
```

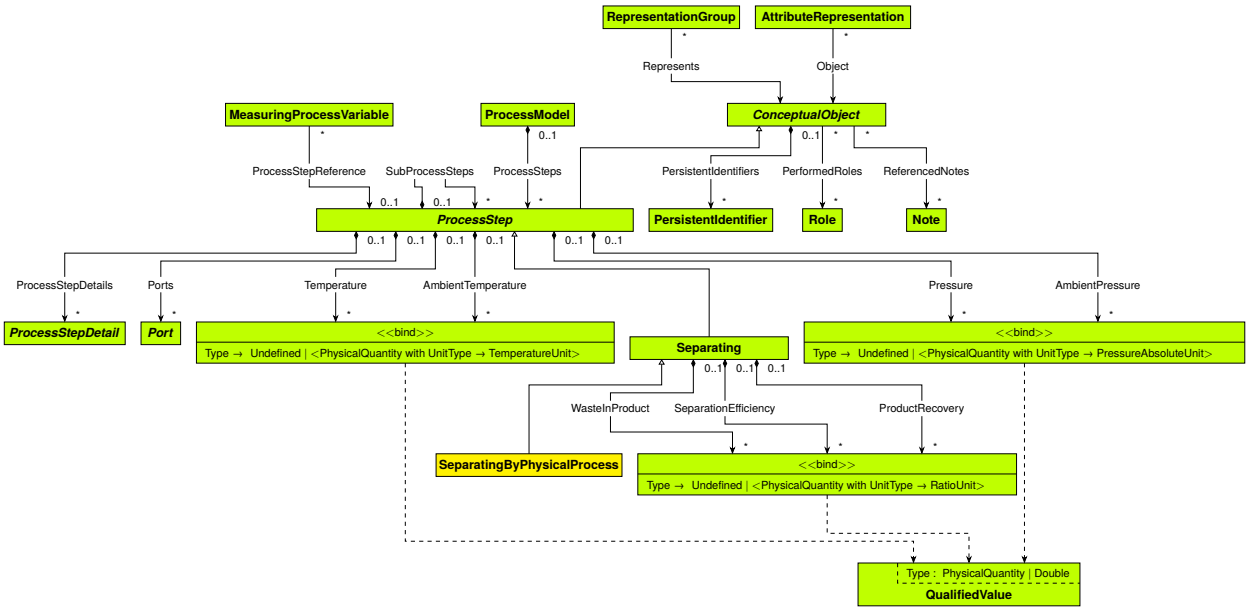
SeparatingByPhysicalProcess

Process::*Process*::SeparatingByPhysicalProcess

Overview

Concrete Class

This *Separating* process uses a physical phenomenon, such as mass transfer, ion exchange or surface tension to separate materials. Its child types are *SeparatingByContact*, *SeparatingByIonExchange*, *Absorbing*, *Adsorbing* and *SeparatingBySurfaceTension*.



Supertypes

- *Separating*

Subtypes

- *Absorbing*
- *Adsorbing*
- *SeparatingByContact*
- *SeparatingByIonExchange*
- *SeparatingBySurfaceTension*

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByPhysicalProcess"/>
```

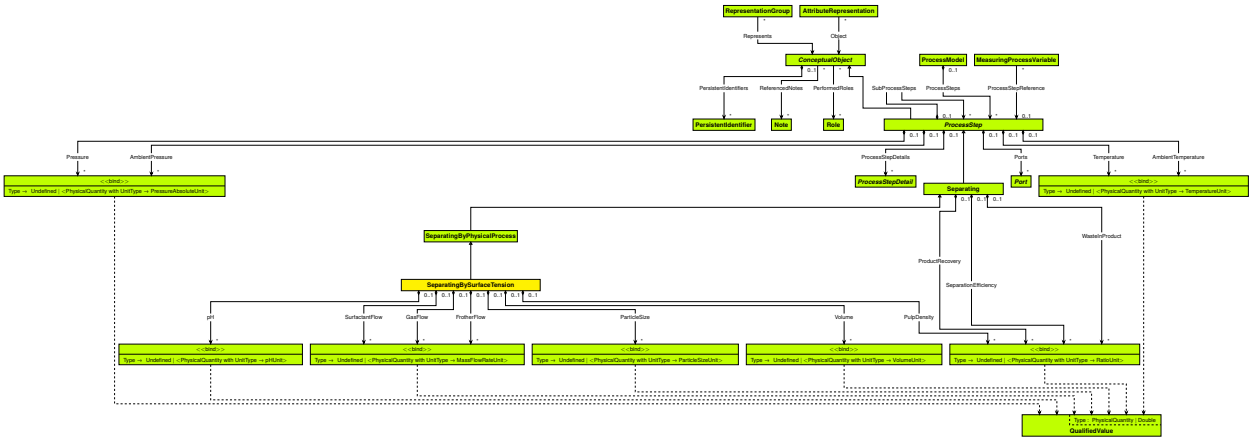
SeparatingBySurfaceTension

Process::*Process*::SeparatingBySurfaceTension

Overview

Concrete Class

This is a *Separating* process where the materials are separated through a difference in surface forces between different liquid phases or between liquids and solid particles. Froth flotation is a typical process of this type.



Supertypes

- *SeparatingByPhysicalProcess*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
FrotherFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
GasFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
PulpDensity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
SurfactantFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Volume	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>>	no
pH	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *pHUnit*>>	no

FrotherFlow

Composition Property

Flow of frothing chemicals.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 12.2))

]

GasFlow

Composition Property

Flow of frothing gas.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 7.8))

]

ParticleSize

Composition Property

Characteristic particle size for separation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 0.8))

]

PulpDensity

Composition Property

Density of the pulp.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Percent,
            Value = 48.0))
]
```

SurfactantFlow

Composition Property

Flow of surfactant chemicals.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = KilogramPerHour,
            Value = 22.0))
]
```

Volume

Composition Property

Volume of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreCubed*,

Value = 2200.0))

]

pH

Composition Property

pH for the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *pHUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *pH*,

Value = 6.1))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingBySurfaceTension">
  <Components property="FrotherFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>12.2</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="GasFlow">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>7.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>0.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PulpDensity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>48.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SurfactantFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>22.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Volume">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeUnit.CentimetreCubed"/>
          </Data>
          <Data property="Value">
            <Double>2200.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="pH">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.pHUnit.pH"/>
          </Data>
          <Data property="Value">
            <Double>6.1</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

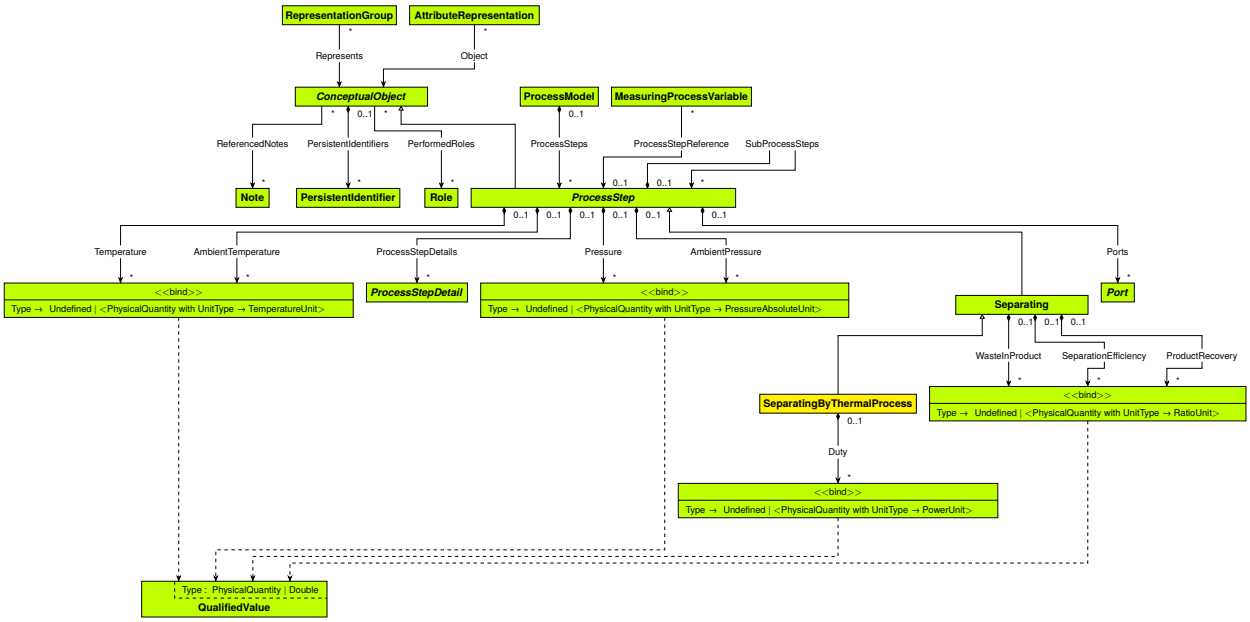
SeparatingByThermalProcess

Process::*Process*::SeparatingByThermalProcess

Overview

Concrete Class

This is a *Separating* process where the materials are separated through the application of heat or thermal energy.



Supertypes

- *Separating*

Subtypes

- *Distilling*
- *Drying*
- *Evaporating*
- *SeparatingByFlash*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

Duty

Composition Property

Duty of the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 90.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingByThermalProcess">
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>90.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

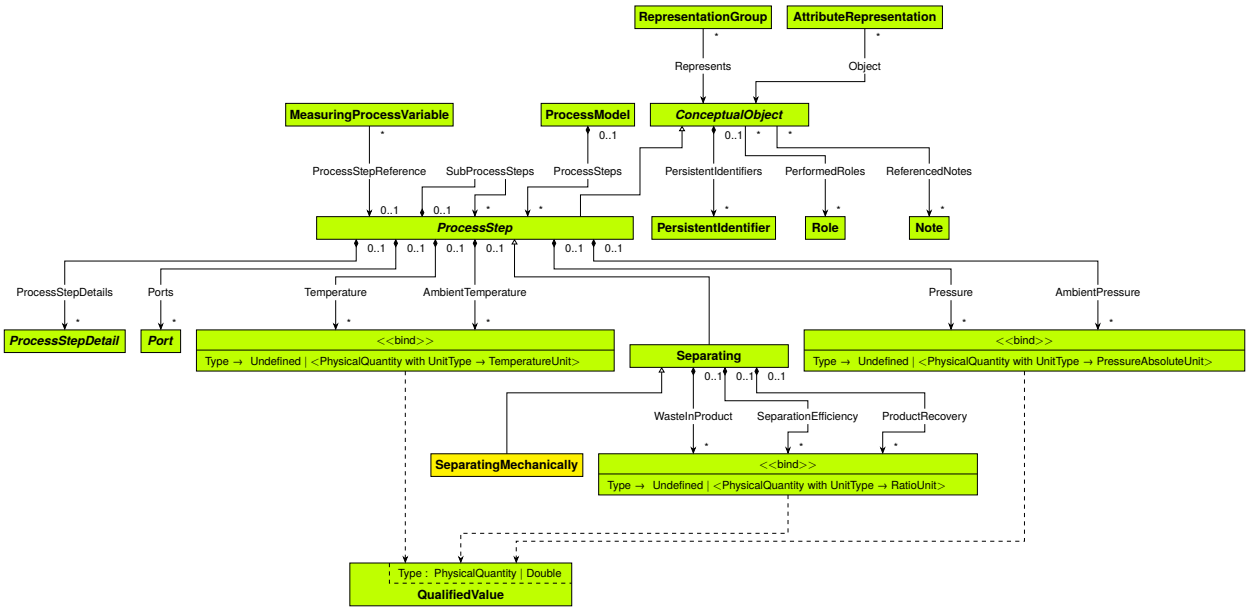
SeparatingMechanically

Process::*Process*::SeparatingMechanically

Overview

Concrete Class

This is a parent process where the materials are separated by a mechanical operation, such as *Filtering*, *Skimming* or *Sieving*.



Supertypes

- *Separating*

Subtypes

- *Filtering*
- *Sieving*
- *Skimming*

Example in DEXPI XML

```
<Object type="Process/Process.SeparatingMechanically"/>
```

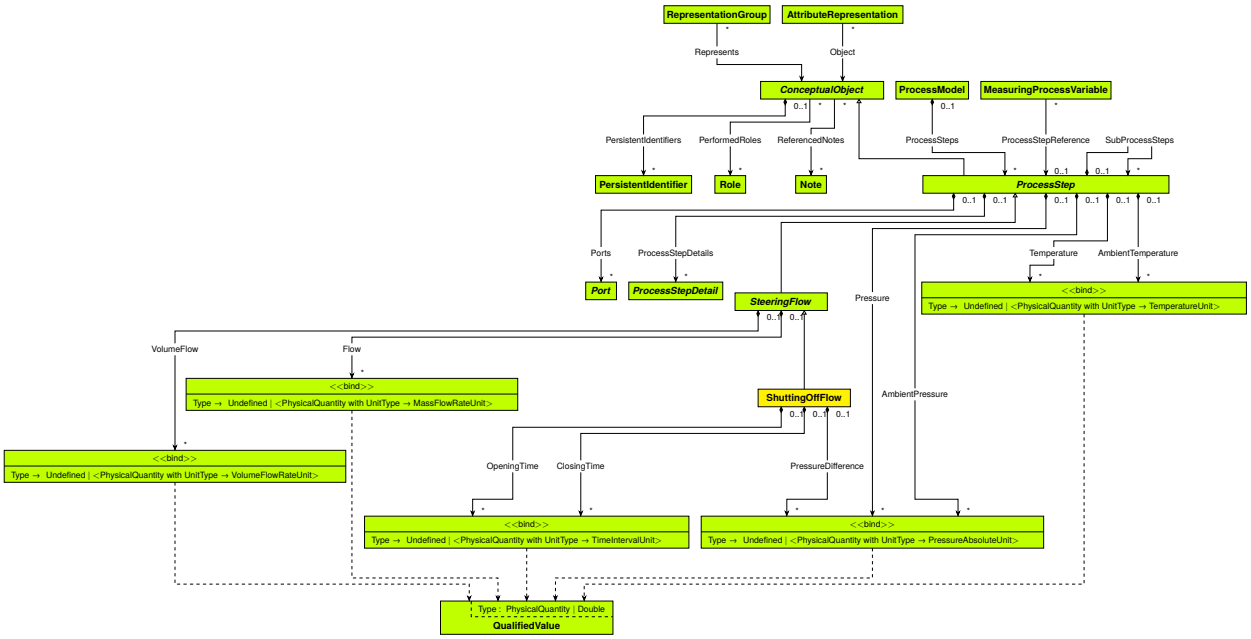
ShuttingOffFlow

Process::*Process*::ShuttingOffFlow

Overview

Concrete Class

This is a *SteeringFlow* process with the purpose of shutting off flow for operational and/or safety reasons. It is usually realized by an on-off valve.



Supertypes

- *SteeringFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ClosingTime	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>	no
OpeningTime	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no

ClosingTime

Composition Property

Closing time.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millisecond*,

Value = `720.0`))

]

OpeningTime

Composition Property

Opening time.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TimeIntervalUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millisecond*,

Value = `1100.0`))

]

PressureDifference

Composition Property

Pressure difference across process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = `3.4`))

]

Example in DEXPI XML

```
<Object type="Process/Process.ShuttingOffFlow">
  <Components property="ClosingTime">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TimeIntervalUnit.Millisecond"/>
          </Data>
          <Data property="Value">
            <Double>720.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="OpeningTime">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TimeIntervalUnit.Millisecond"/>
          </Data>
          <Data property="Value">
            <Double>1100.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>3.4</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

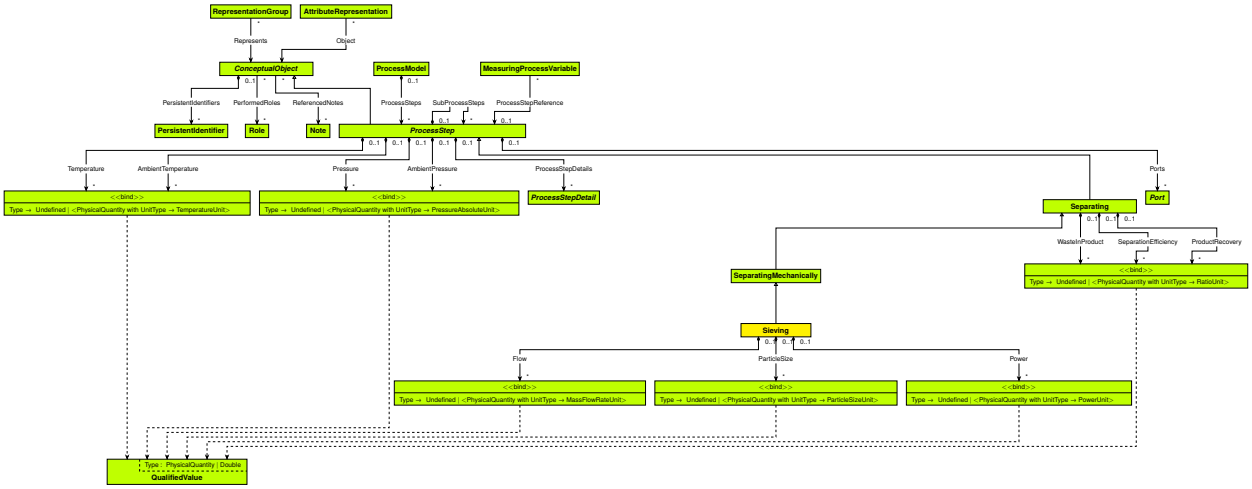
Sieving

Process::*Process*::Sieving

Overview

Concrete Class

This *SeparatingMechanically* processs for solids is based on particle size. Material is passed over a series of screens with a specified aperture size. Smaller particles pass through the screens, while larger particles remain on the screen.



Supertypes

- *SeparatingMechanically*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
ParticleSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

Flow

Composition Property

Mass flow rate through process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 80.0))

]

ParticleSize

Composition Property

Characteristic particle size for separation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ParticleSizeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Millimetre*,

Value = 2.5))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 50.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Sieving">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ParticleSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ParticleSizeUnit.Millimetre"/>
          </Data>
          <Data property="Value">
            <Double>2.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>50.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

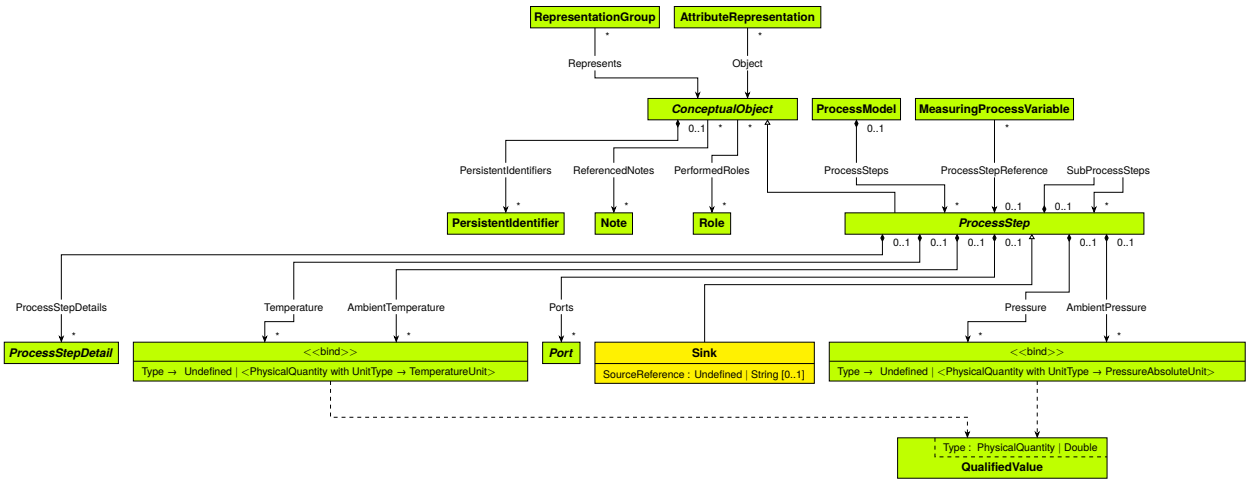
Sink

Process::*Process*::Sink

Overview

Concrete Class

This type is used to represent a flow of material out of the process. It can be used to represent an outgoing off-page connector in a PFD or BFD.



Supertypes

- *ProcessStep*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SourceReference	0..1	*Undefined* | *String*	no	no

SourceReference

Data Property

Reference to *Source* object that represents the same flow.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.Sink"/>
```

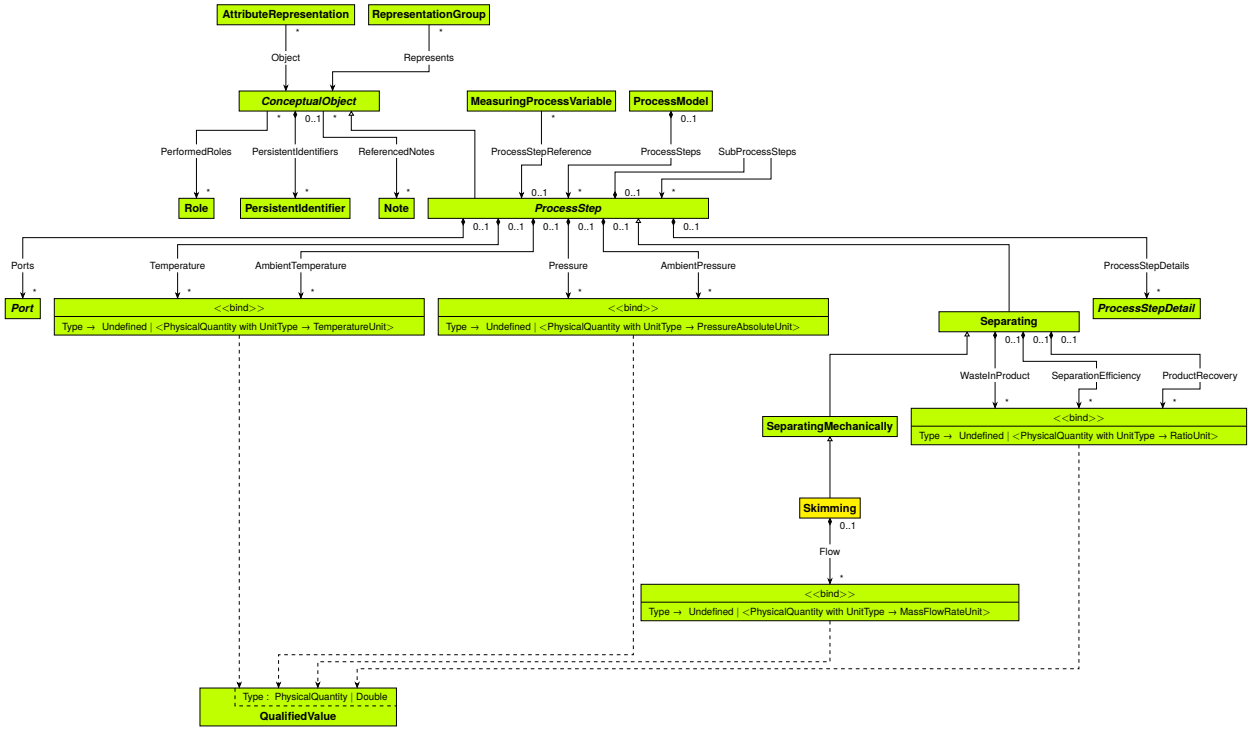
Skimming

Process::*Process*::Skimming

Overview

Concrete Class

This is a *SeparatingMechanically* process in which a lighter immiscible fluid, such as oil, is separated from a heaver fluid, such as water, by mechanical wiping of the surface of the heavier fluid.



Supertypes

- *SeparatingMechanically*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Flow

Composition Property

Mass flow rate through process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerMinute*,

Value = 82.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.Skimming">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.
↪KilogramPerMinute"/>
          </Data>
          <Data property="Value">
            <Double>82.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

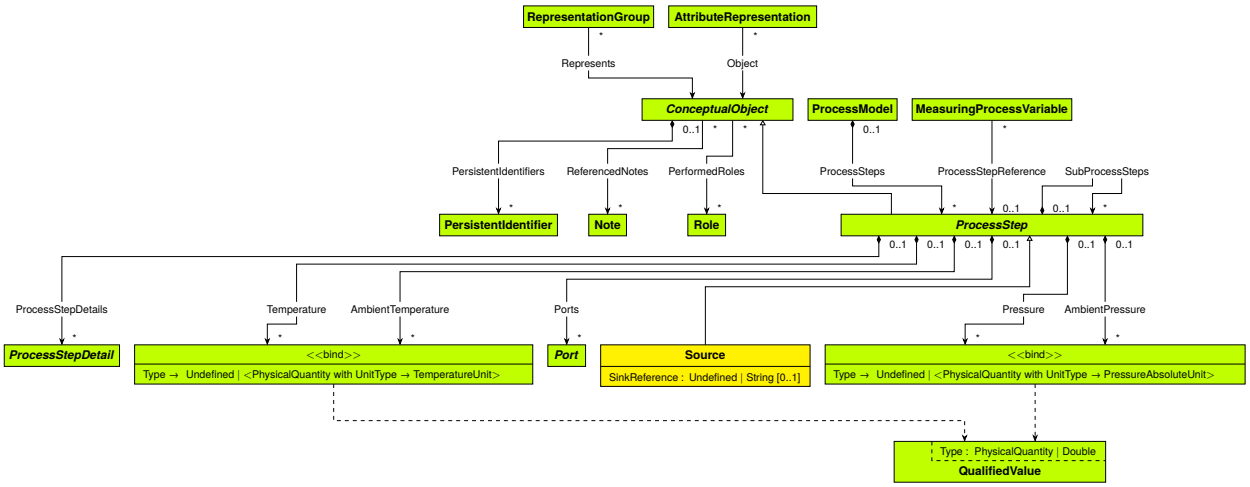
Source

Process::*Process*::Source

Overview

Concrete Class

This type is used to represent a flow of material into the process. It can be used to represent an incoming off-page connector in a PFD or BFD.



Supertypes

- *ProcessStep*

Members

Data Properties

Name	Multiplicity	Type	Ordered	Unique
SinkReference	0..1	*Undefined* | *String*	no	no

SinkReference

Data Property

Reference to *Sink* object that represents the same flow.

Type: *Undefined* | *String*

Multiplicity: 0..1

Ordered: no

Unique: no

Example in DEXPI XML

```
<Object type="Process/Process.Source"/>
```

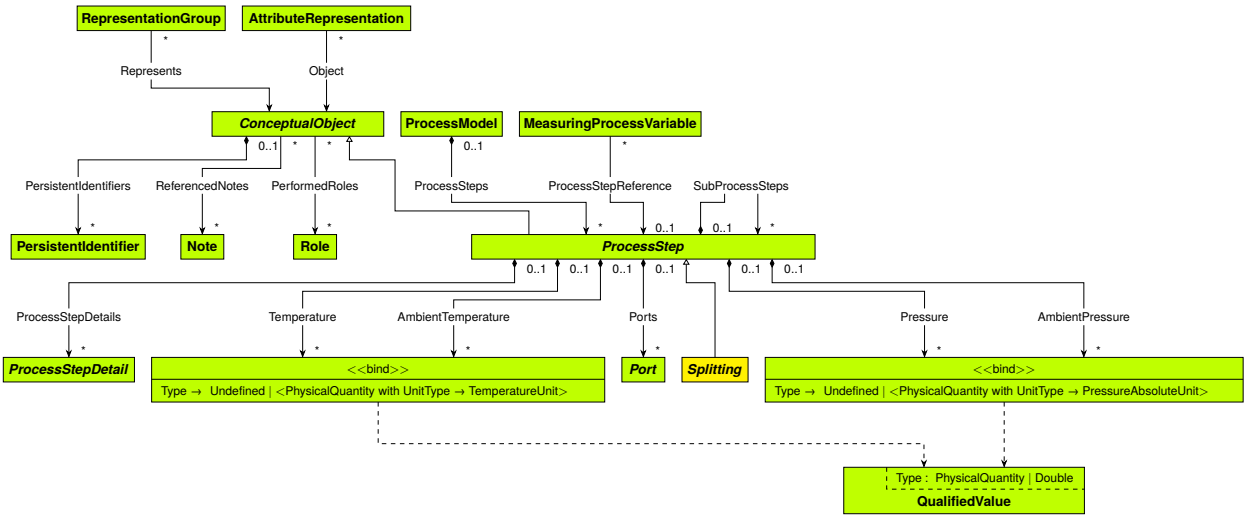
Splitting

Process::*Process*::Splitting

Overview

Abstract Class

This type is used to represent the splitting of a material or energy flow. This type is abstract, and the child types *SplittingMaterial* and *SplittingEnergy* are used in practice.



Supertypes

- *ProcessStep*

Subtypes

- *SplittingEnergy*
- *SplittingMaterial*

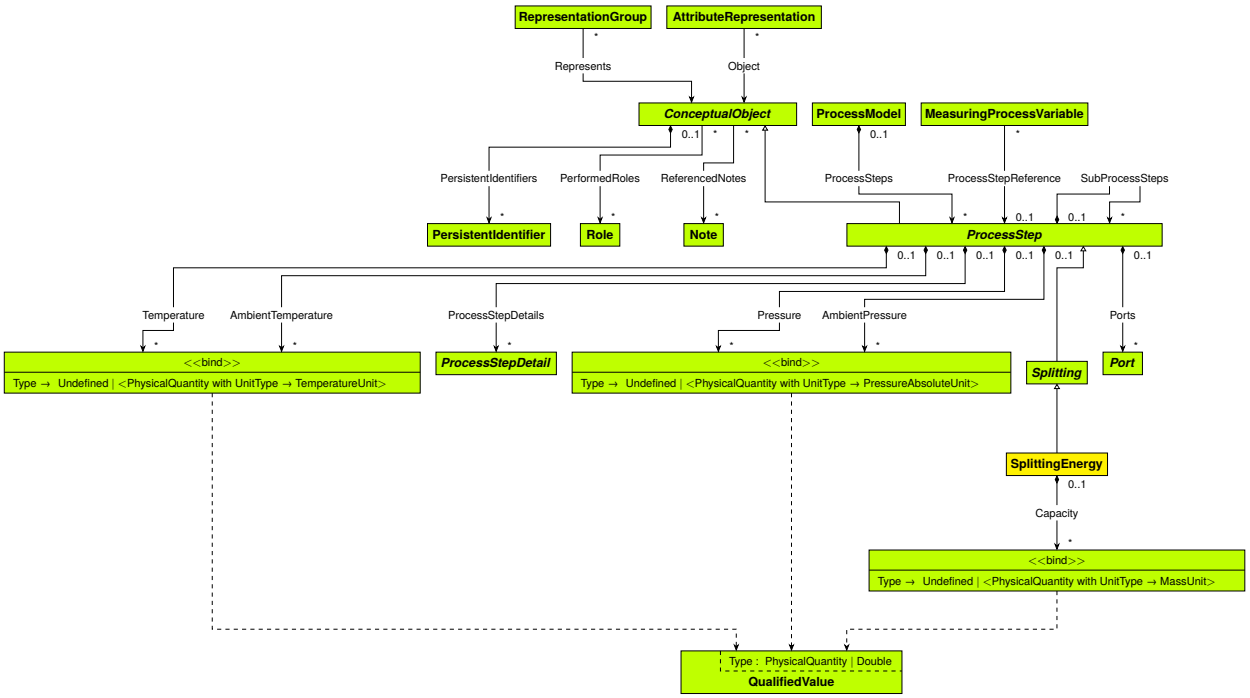
SplittingEnergy

Process::*Process*::SplittingEnergy

Overview

Concrete Class

This type is used to represent the splitting of an energy flow. The intensive properties of the flow remain the same, but the total amount of flow (power) is divided among the outlet ports.



Supertypes

- *Splitting*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Capacity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>	no

Capacity

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilogram*,

Value = 75.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SplittingEnergy">
  <Components property="Capacity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
          </Data>
          <Data property="Value">
            <Double>75.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

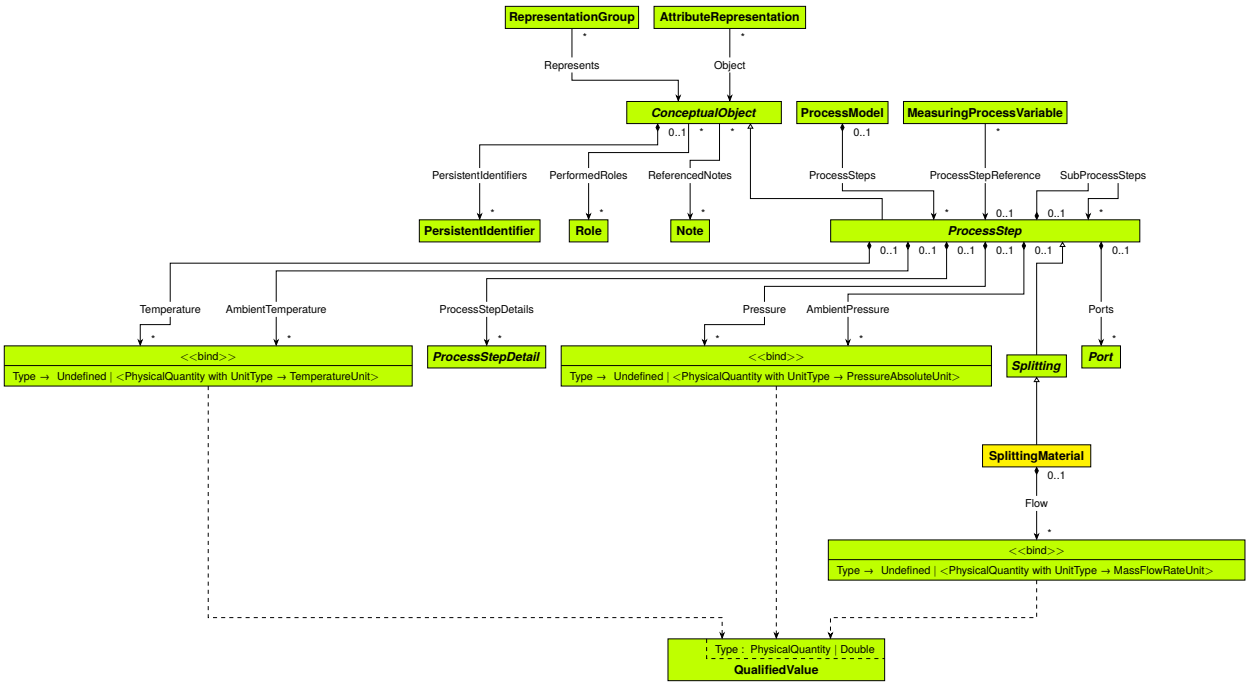
SplittingMaterial

Process::*Process*::SplittingMaterial

Overview

Concrete Class

This process splits an incoming flow of material into two or more outgoing flows of material. The intensive properties of the material flows remain the same.



Supertypes

- *Splitting*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Flow

Composition Property

Mass flow rate through process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 32.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SplittingMaterial">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>32.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
```

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```
  </Components>
</Object>
```

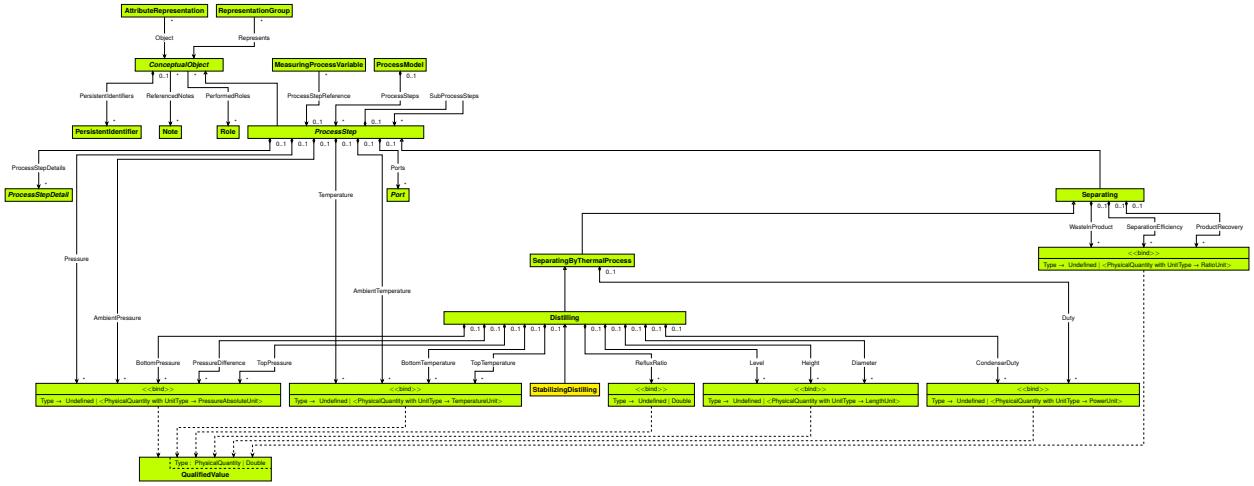
StabilizingDistilling

Process::*Process*::StabilizingDistilling

Overview

Concrete Class

This *Distilling* process has the purpose of producing a stabilized liquid product by removing the volatile chemical compounds that would otherwise make the product unstable for transport or storage.



Supertypes

- *Distilling*

Example in DEXPI XML

```
<Object type="Process/Process.StabilizingDistilling"/>
```

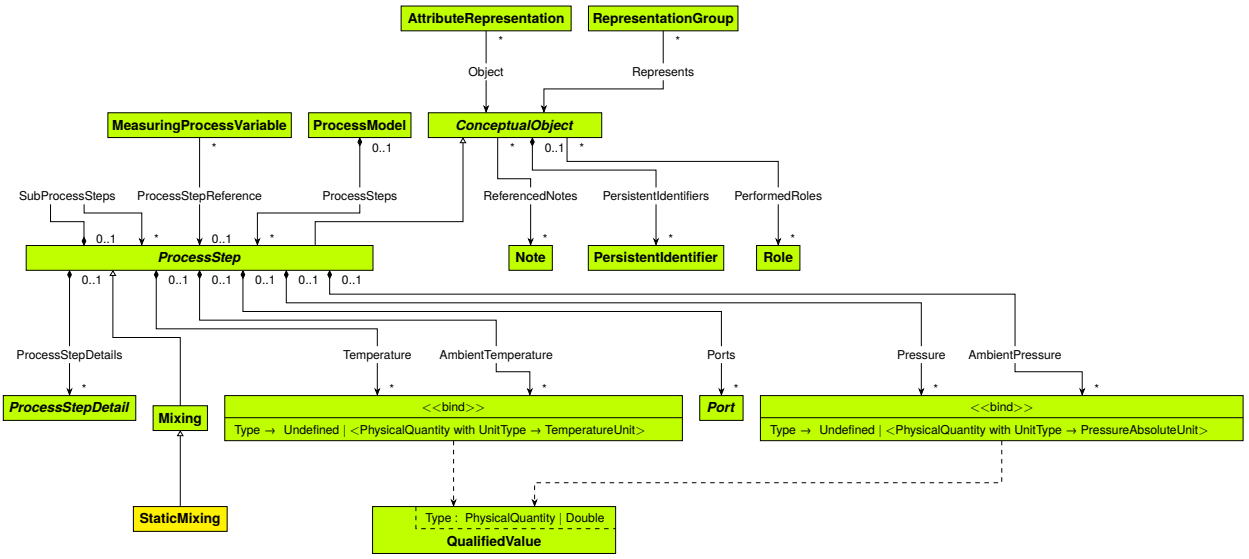
StaticMixing

Process::*Process*::StaticMixing

Overview

Concrete Class

This *Mixing* process uses a stationary element in the flow of material to produce the necessary homogeneity in the material that comes out of the process. It is realized by a *StaticMixer*.



Supertypes

- *Mixing*

Example in DEXPI XML

```
<Object type="Process/Process.StaticMixing"/>
```

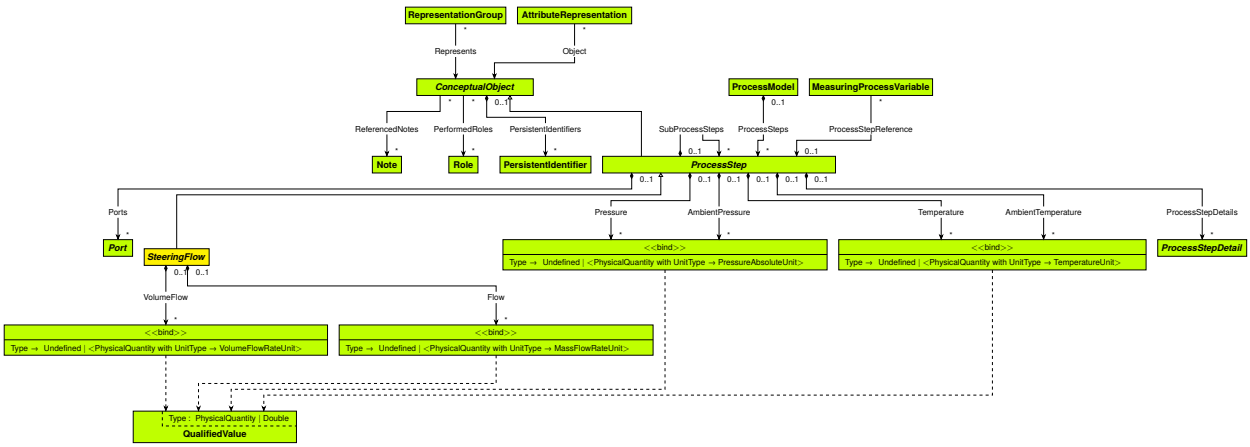
SteeringFlow

Process::*Process*::SteeringFlow

Overview

Abstract Class

The base type for processes that manipulate the rate of flow of material into and out of the process step. This process is usually realized using a valve. Child types of this type have been specified to support design of the process control and safety systems.



Supertypes

- *ProcessStep*

Subtypes

- *BlowingDown*
- *Draining*
- *FeedingMaterial*
- *LimitingFlow*
- *PreventingBackflow*
- *RegulatingFlow*
- *RelievingOverpressure*
- *RelievingVacuum*
- *RelievingVacuumAndOverpressure*
- *ShuttingOffFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
VolumeFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>	no

Flow

Composition Property

Mass flow rate through process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `40.0`))

]

VolumeFlow

Composition Property

Volume flow rate through process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *LitrePerSecond*,

Value = `1.5`))

]

StoringElectricalEnergy

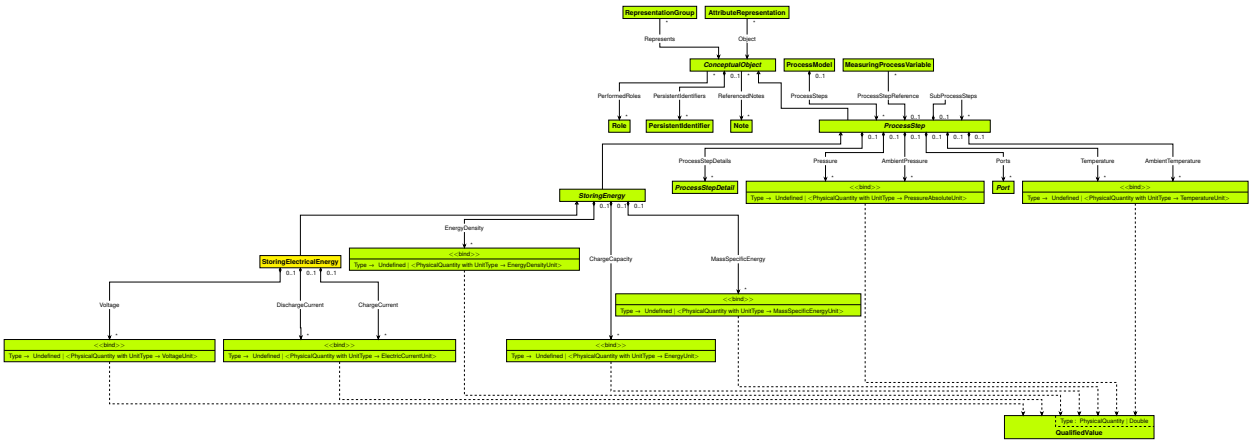
Process::*Process*::StoringElectricalEnergy

Overview

Concrete Class

This process step stores electrical energy. It can be connected to a charging flow of electricity and can also be used as a supplier of electrical energy to other process steps. The principle of storage is unspecified.

The *StoringInBattery* type can be used when a chemical battery is used as the storage system.



Supertypes

- *StoringEnergy*

Subtypes

- *StoringInBattery*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ChargeCurrent	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>	no
DischargeCurrent	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>	no
Voltage	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>	no

ChargeCurrent

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Ampere*,

Value = `12.0`))

]

DischargeCurrent

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Ampere*,

Value = 24.0))

]

Voltage

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Volt*,

Value = 18.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.StoringElectricalEnergy">
  <Components property="ChargeCurrent">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ElectricCurrentUnit.Ampere"/>
          </Data>
          <Data property="Value">
            <Double>12.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="DischargeCurrent">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.ElectricCurrentUnit.Ampere"/>
          </Data>
          <Data property="Value">
            <Double>24.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
```

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```
    </Object>
  </Components>
  <Components property="Voltage">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
          </Data>
          <Data property="Value">
            <Double>18.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

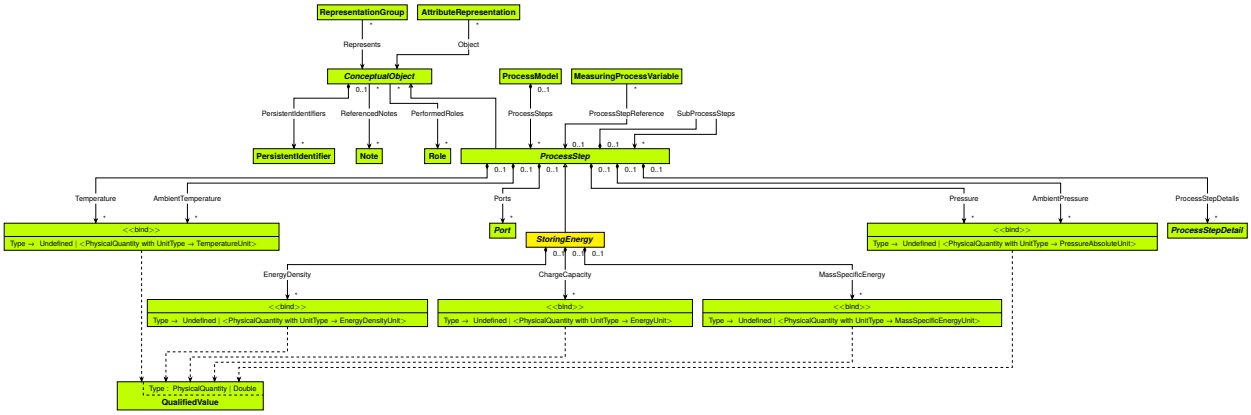
StoringEnergy

Process::*Process*::StoringEnergy

Overview

Abstract Class

An abstract process step that is the parent class for processes that store energy.



Supertypes

- *ProcessStep*

Subtypes

- *StoringElectricalEnergy*
- *StoringMechanicalEnergy*
- *StoringThermalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
ChargeCapacity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *EnergyUnit*>>	no
EnergyDensity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *EnergyDensityUnit*>>	no
MassSpecificEnergy	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassSpecificEnergyUnit*>>	no

ChargeCapacity

Composition Property

The capacity of storage of the *StoringEnergy*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *EnergyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilojoule*,

Value = `300.0`))

]

EnergyDensity

Composition Property

The energy density of the *StoringEnergy*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *EnergyDensityUnit*>>

Multiplicity: *

Ordered: no

MassSpecificEnergy

Composition Property

The mass specific energy of the *StoringEnergy*.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassSpecificEnergyUnit*>>

Multiplicity: *

Ordered: no

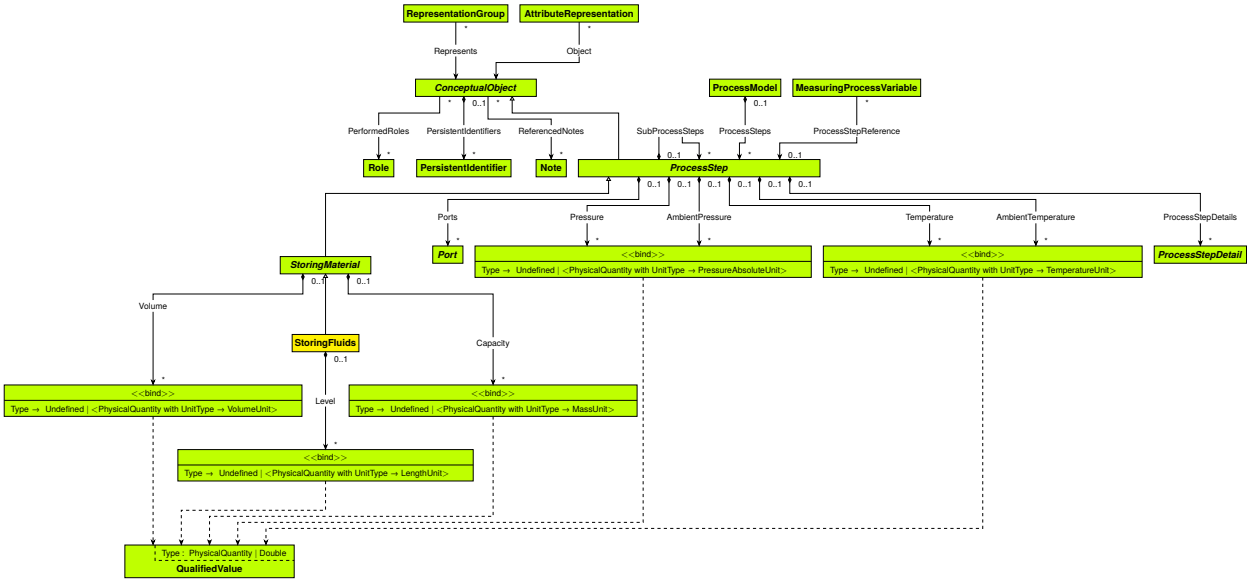
StoringFluids

Process::*Process*::StoringFluids

Overview

Concrete Class

This *StoringMaterial* process accumulates fluids: gases and liquids. It can be connected to a filling flow of material and an optional emptying flow of material. In this way it can be used as supplier of material for other process steps. The principle and construction of the storage is unspecified. The sub-types of this type are differentiated according to whether the storage is pressurised or not. *StoringInTank* is used for atmospheric storage of liquids, whereas *StoringInPressureVessel* is used for storage of gases and fluids at above-atmospheric or sub-atmospheric pressure.



Supertypes

- *StoringMaterial*

Subtypes

- *StoringInPressureVessel*
- *StoringInTank*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Level	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no

Level

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 250.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.StoringFluids">
  <Components property="Level">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>250.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

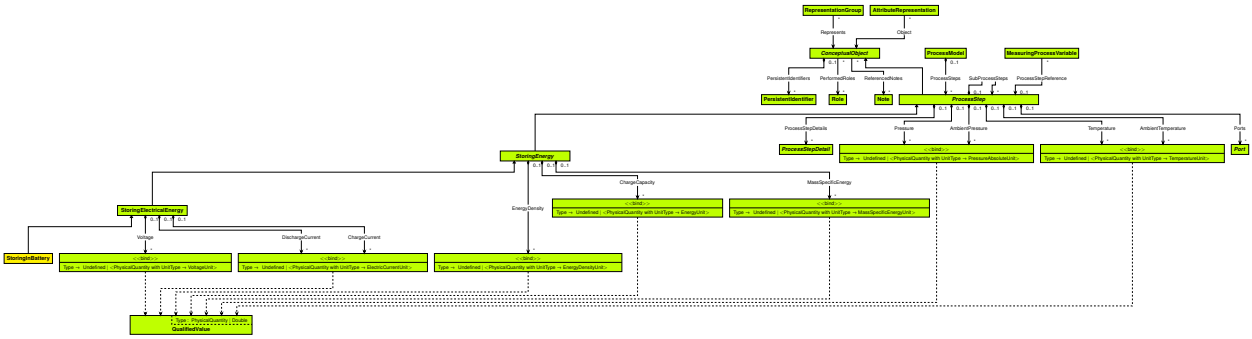
StoringInBattery

Process::*Process*::StoringInBattery

Overview

Concrete Class

This *StoringElectricalEnergy* process step stores electrical energy in a battery. It can be connected to a charging flow of electricity and can also be used as a supplier of electrical energy to other process steps.



Supertypes

- *StoringElectricalEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.StoringInBattery"/>
```

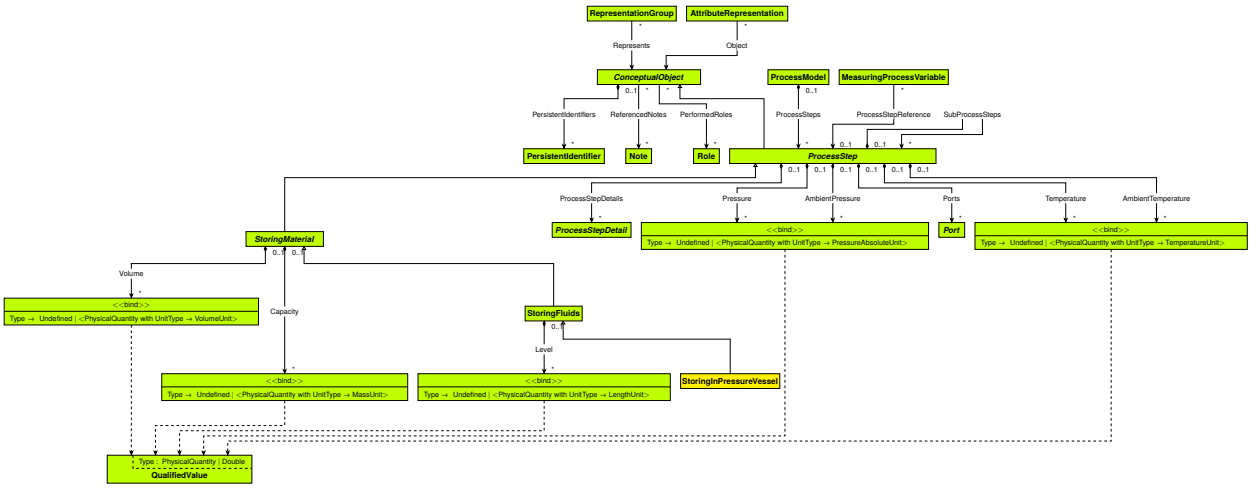
StoringInPressureVessel

Process::*Process*::StoringInPressureVessel

Overview

Concrete Class

This *StoringFluids* process accumulates fluid materials in a *PressureVessel*. This process assumes atmospheric storage of the material at pressures above or below atmospheric pressure. Use *StoringInTank* where fluid is stored at atmospheric conditions. It can be connected to a filling flow of material and an optional emptying flow of material. In this way it can be used as supplier of material for other process steps.



Supertypes

- *StoringFluids*

Example in DEXPI XML

```
<Object type="Process/Process.StoringInPressureVessel"/>
```

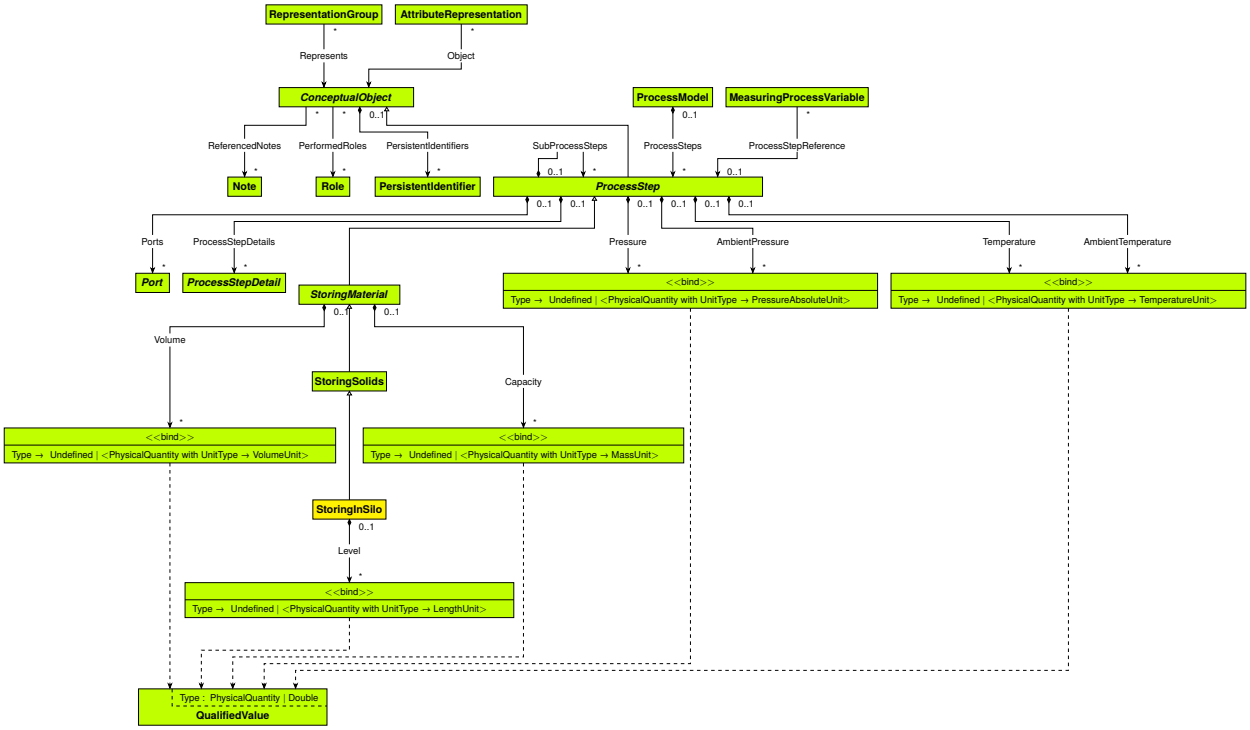
StoringInSilo

Process::*Process*::StoringInSilo

Overview

Concrete Class

This *StoringSolids* process is realized by a *Silo*.



Supertypes

- *StoringSolids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Level	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no

Level

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Metre*,

Value = 3.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.StoringInSilo">
  <Components property="Level">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
          </Data>
          <Data property="Value">
            <Double>3.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

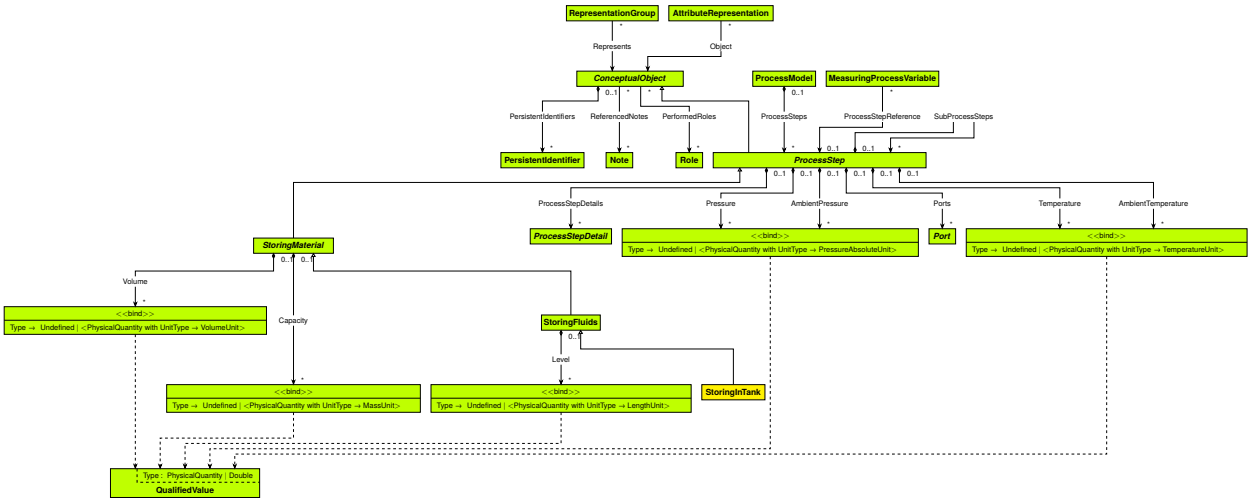
StoringInTank

Process::*Process*::StoringInTank

Overview

Concrete Class

This *StoringFluids* process accumulates fluid, solid or mixed materials in a *Tank*. This process assumes atmospheric storage of the material. Use *StoringInPressureVessel* where fluid or gas is to be stored at above-atmospheric or sub-atmospheric conditions. It can be connected to a filling flow of material and an optional emptying flow of material. In this way it can be used as supplier of material for other process steps.



Supertypes

- *StoringFluids*

Example in DEXPI XML

```
<Object type="Process/Process.StoringInTank"/>
```

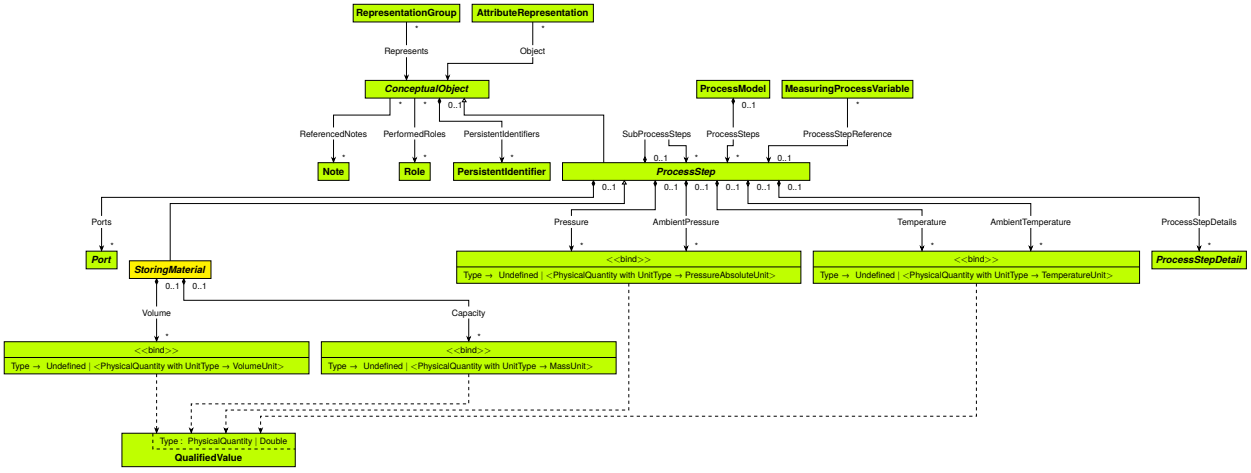
StoringMaterial

Process::*Process*::StoringMaterial

Overview

Abstract Class

An abstract process step that is the parent class for processes that accumulate material. It is often the intention of these steps that the accumulated material can be used as supply for other process steps.



Supertypes

- *ProcessStep*

Subtypes

- *StoringFluids*
- *StoringSolids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Capacity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>	no
Volume	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>>	no

Capacity

Composition Property

Storage capacity of the storage process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilogram*,

Value = `6500.0`))

]

Volume

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetreCubed*,

Value = 8.0))

]

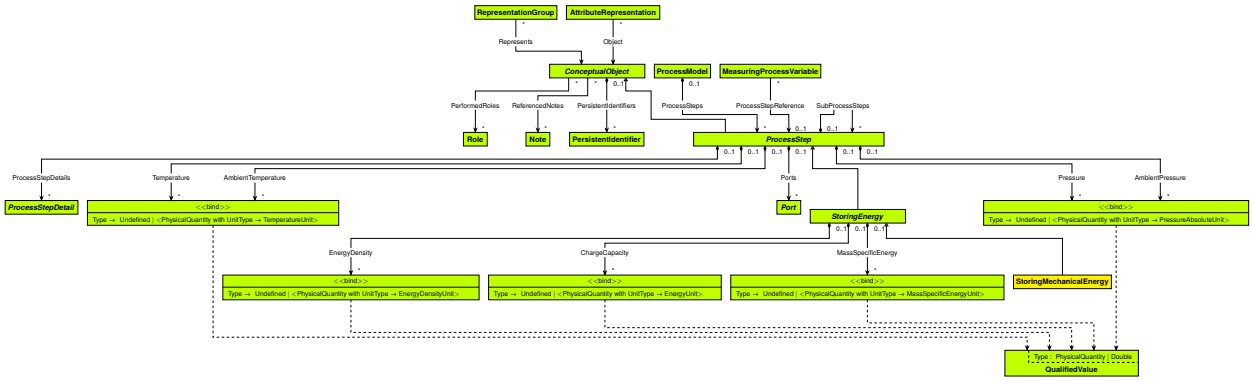
StoringMechanicalEnergy

Process::*Process*::StoringMechanicalEnergy

Overview

Concrete Class

This process accumulates and stores mechanical energy.



Supertypes

- *StoringEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.StoringMechanicalEnergy"/>
```

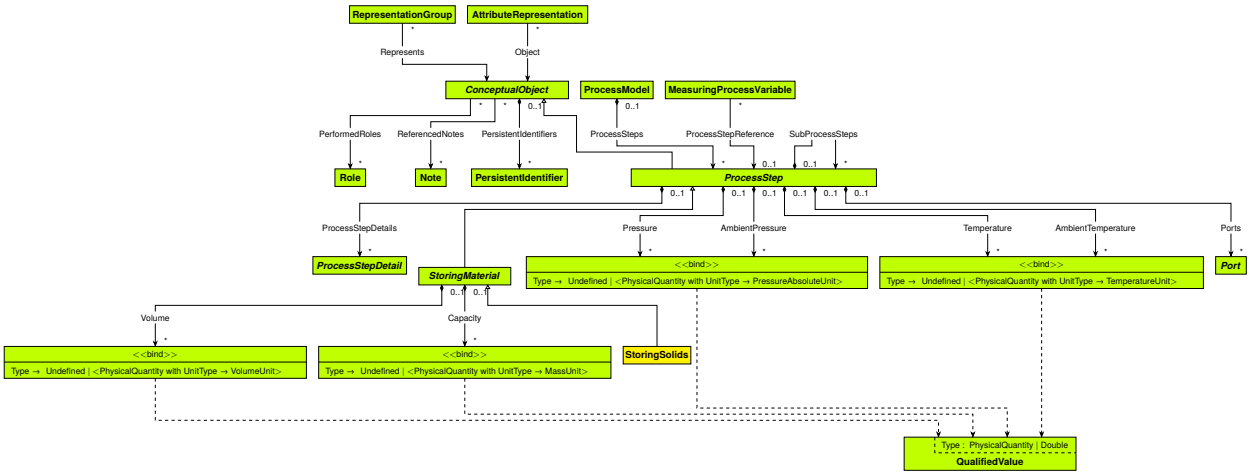
StoringSolids

Process::*Process*::StoringSolids

Overview

Concrete Class

This *StoringMaterial* process accumulates solid material. It can be connected to a filling flow of material and an optional emptying flow of material. In this way it can be used as supplier of material for other process steps. The principle and construction of the storage is unspecified.



Supertypes

- *StoringMaterial*

Subtypes

- *StoringInSilo*

Example in DEXPI XML

```
<Object type="Process/Process.StoringSolids"/>
```

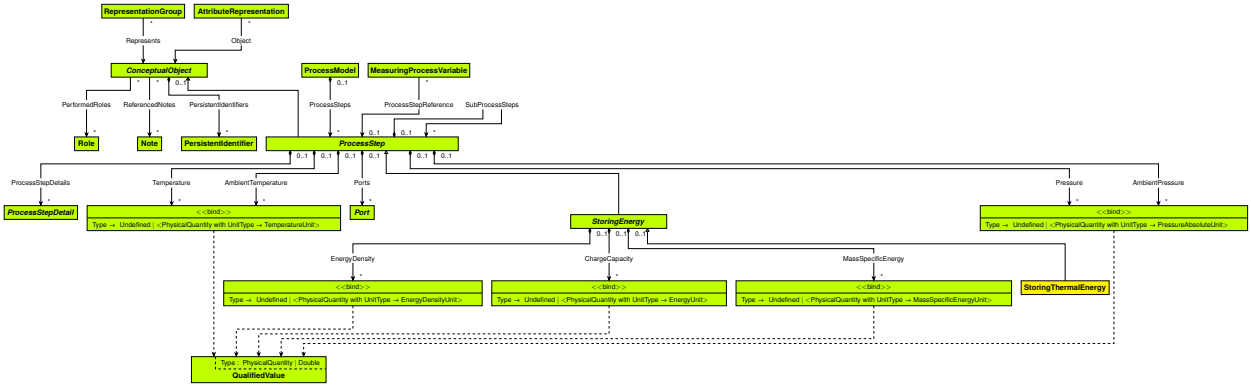
StoringThermalEnergy

Process::*Process*::StoringThermalEnergy

Overview

Concrete Class

This process accumulates and stores thermal energy for use in other processes. A calorifier is an example of this process in HVAC systems.



Supertypes

- *StoringEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.StoringThermalEnergy"/>
```

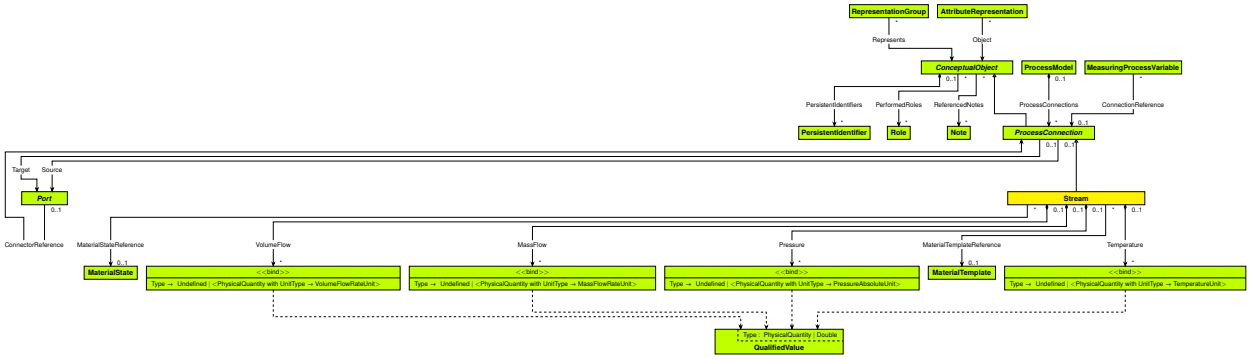
Stream

Process::*Process*::Stream

Overview

Concrete Class

This data structure defines the properties of a flow of fluid or solid material between two *MaterialPort* objects.



Supertypes

- *ProcessConnection*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
MassFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
Pressure	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
Temperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no
VolumeFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>	no

Reference Properties

Name	Multiplicity	Type	Ordered	Unique	Opposite Multiplicity
MaterialStateReference	0..1	*MaterialState*	no	no	*
MaterialTemplateReference	0..1	*MaterialTemplate*	no	no	*

MassFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `45.0`))

]

MaterialStateReference

Reference Property

Type: *MaterialState*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

MaterialTemplateReference

Reference Property

Type: *MaterialTemplate*

Multiplicity: 0..1

Ordered: no

Unique: no

Opposite Multiplicity: *

Pressure

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = `3.0`))

]

Temperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = `52.0`))

]

VolumeFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *LitrePerSecond*,

Value = 2.4))

]

Example in DEXPI XML

```
<Object type="Process/Process.Stream">
  <Components property="MassFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>45.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Pressure">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>3.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Temperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>52.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="VolumeFlow">
    <Object type="Core/QualifiedValue">
```

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```
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.
↪LitrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>2.4</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

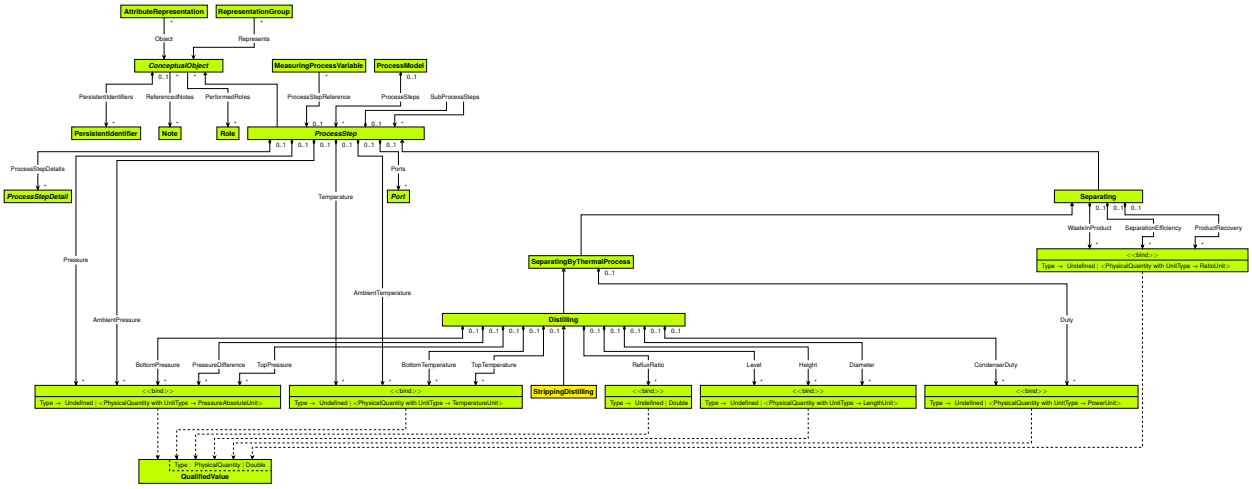
StrippingDistilling

Process::*Process*::StrippingDistilling

Overview

Concrete Class

This *Distilling* process has the purpose of removing volatile components from a fluid.



Supertypes

- *Distilling*

Example in DEXPI XML

```
<Object type="Process/Process.StrippingDistilling"/>
```

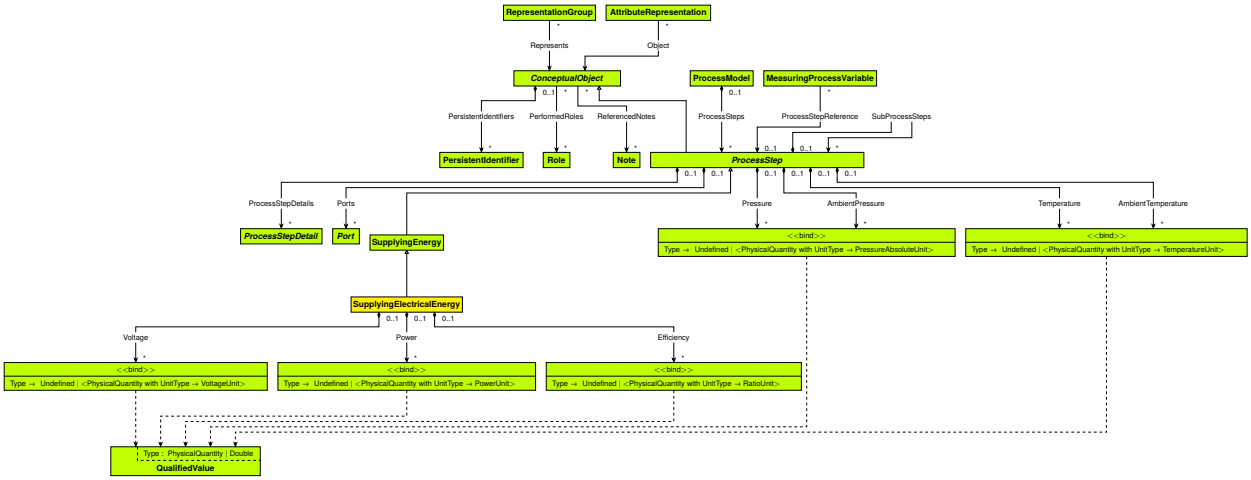
SupplyingElectricalEnergy

Process::*Process*::SupplyingElectricalEnergy

Overview

Concrete Class

This process is a source of electrical energy for use in other processes.



Supertypes

- *SupplyingEnergy*

Subtypes

- *GeneratingACPower*
- *GeneratingDCPower*
- *GeneratingInFuelCell*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Efficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Voltage	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>	no

Efficiency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = `84.0`))

]

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `800.0`))

]

Voltage

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Volt*,

Value = 230.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingElectricalEnergy">
  <Components property="Efficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>84.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>800.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Voltage">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VoltageUnit.Volt"/>
          </Data>
          <Data property="Value">
            <Double>230.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

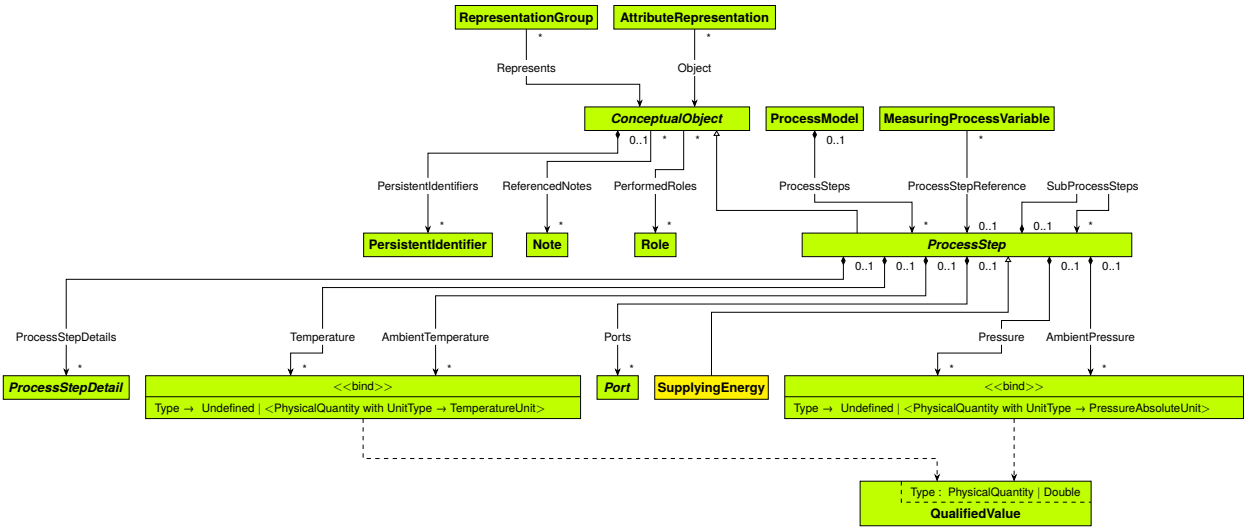
SupplyingEnergy

Process::*Process*::SupplyingEnergy

Overview

Concrete Class

This process is a source of energy for use in other processes.



Supertypes

- *ProcessStep*

Subtypes

- *SupplyingElectricalEnergy*
- *SupplyingMechanicalEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingEnergy"/>
```

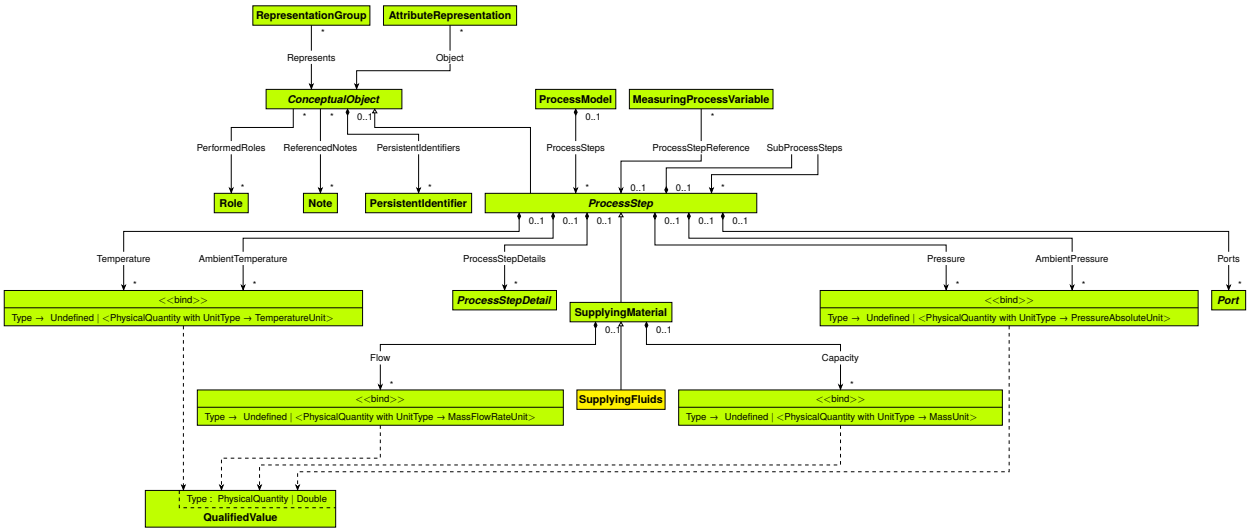
SupplyingFluids

Process::*Process*::SupplyingFluids

Overview

Concrete Class

This process is a source of fluid materials (liquids, gases or multiphase mixtures) for use in other processes.



Supertypes

- *SupplyingMaterial*

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingFluids"/>
```

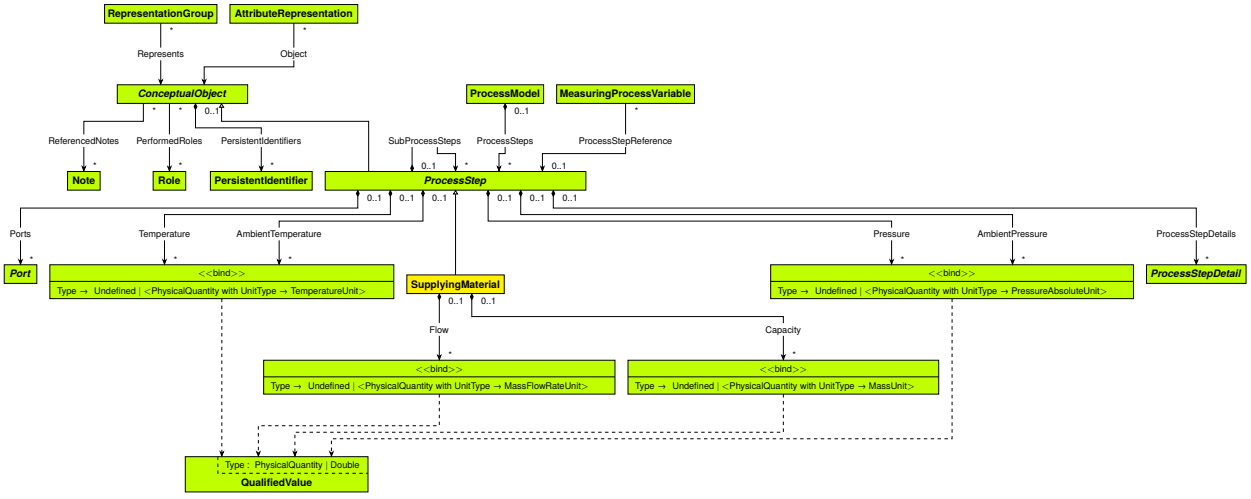
SupplyingMaterial

Process::*Process*::SupplyingMaterial

Overview

Concrete Class

This process is a source of material for use in other processes.



Supertypes

- *ProcessStep*

Subtypes

- *SupplyingFluids*
- *SupplyingSolids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Capacity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>	no
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Capacity

Composition Property

Storage capacity of the supply process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilogram*,

Value = `25.0`))

]

Flow

Composition Property

Mass flow rate through the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 2.4))

]

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingMaterial">
  <Components property="Capacity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
          </Data>
          <Data property="Value">
            <Double>25.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>2.4</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

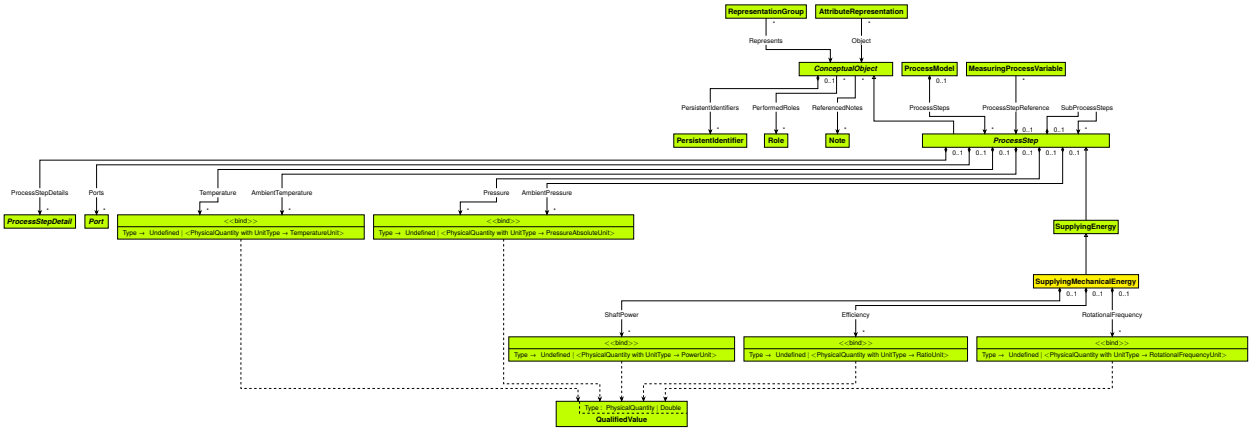
SupplyingMechanicalEnergy

Process::*Process*::SupplyingMechanicalEnergy

Overview

Concrete Class

This process is a source of mechanical energy for use in other processes. It is the parent type for the *DrivingByEngine*, *DrivingByMotor* and *DrivingByTurbine* types.



Supertypes

- *SupplyingEnergy*

Subtypes

- *DrivingByEngine*
- *DrivingByMotor*
- *DrivingByTurbine*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Efficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no
RotationalFrequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>	no
ShaftPower	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no

Efficiency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Percent*,

Value = 72.0))

]

RotationalFrequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RotationalFrequencyUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *ReciprocalMinute*,

Value = 900.0))

]

ShaftPower

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = 200.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingMechanicalEnergy">
  <Components property="Efficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>72.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="RotationalFrequency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RotationalFrequencyUnit.
↪ReciprocalMinute"/>
          </Data>
          <Data property="Value">
            <Double>900.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="ShaftPower">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>200.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

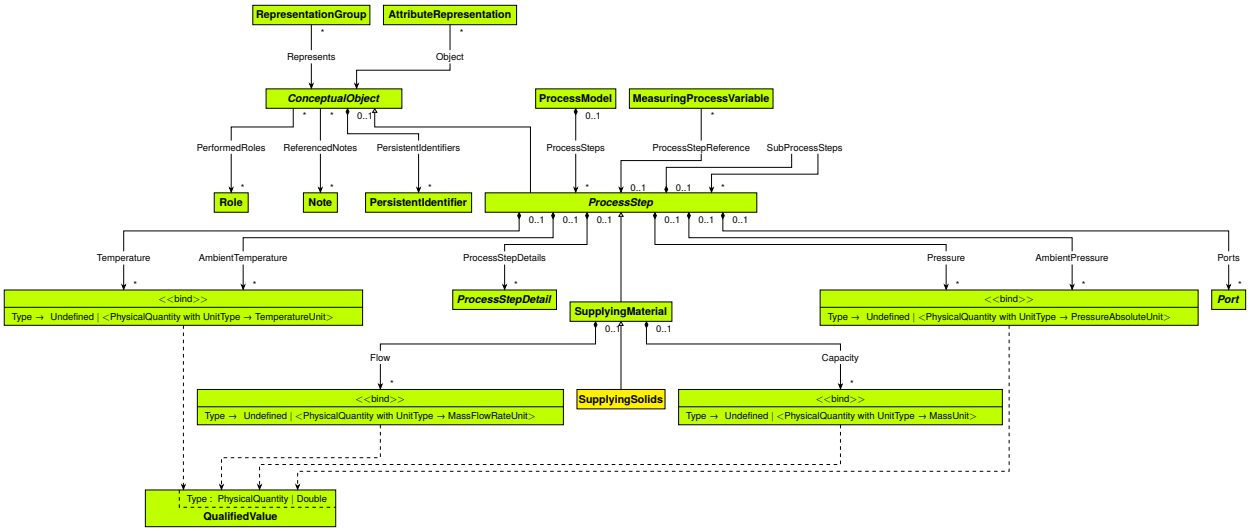
SupplyingSolids

Process::*Process*::SupplyingSolids

Overview

Concrete Class

This process is a source of solid material for use in other processes.



Supertypes

- *SupplyingMaterial*

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingSolids"/>
```

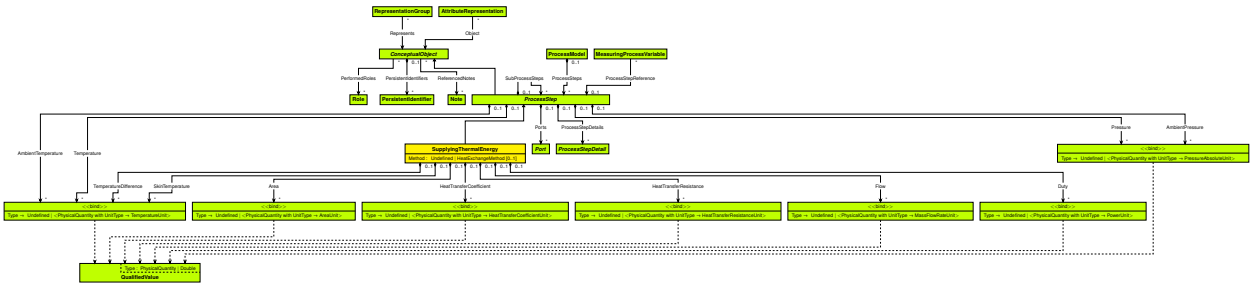
SupplyingThermalEnergy

Process::*Process*::SupplyingThermalEnergy

Overview

Concrete Class

This process is a source of thermal energy for use in other processes.



Supertypes

- *ProcessStep*

Subtypes

- *Boiling*
- *GeneratingSteam*
- *HeatingElectrical*
- *HeatingInFurnace*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Area	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>	no
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no
HeatTransferCoefficient	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>>	no
HeatTransferResistance	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferResistanceUnit*>>	no
SkinTemperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no
TemperatureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Data Properties

Name	Multiplicity	Type	Ordered	Unique
Method	0..1	*Undefined* | *HeatExchangeMethod*	no	no

Area

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* \| <*PhysicalQuantity* with *UnitType* → *AreaUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *CentimetreSquared*,

Value = `700.0`))

]

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `60.0`))

]

Flow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = `120.0`))

]

HeatTransferCoefficient

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferCoefficientUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilowattPerMetreSquaredKelvin*,

Value = `45.0`))

]

HeatTransferResistance

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *HeatTransferResistanceUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetreSquaredKelvinPerWatt*,

Value = `2.2e-05`))

]

Method

Data Property

Type: *Undefined* | *HeatExchangeMethod*

Multiplicity: 0..1

Ordered: no

Unique: no

SkinTemperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = 40.0))

]

TemperatureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kelvin*,

Value = 22.5))

]

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingThermalEnergy">
  <Components property="Area">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.AreaUnit.CentimetreSquared"/>
          </Data>
          <Data property="Value">
            <Double>700.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>60.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HeatTransferCoefficient">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.HeatTransferCoefficientUnit.
↪KilowattPerMetreSquaredKelvin"/>
          </Data>
          <Data property="Value">
            <Double>45.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="HeatTransferResistance">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
```

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```
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.HeatTransferResistanceUnit.
↪MetreSquaredKelvinPerWatt"/>
          </Data>
          <Data property="Value">
            <Double>2.2e-05</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="SkinTemperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>40.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="TemperatureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.Kelvin"/>
          </Data>
          <Data property="Value">
            <Double>22.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

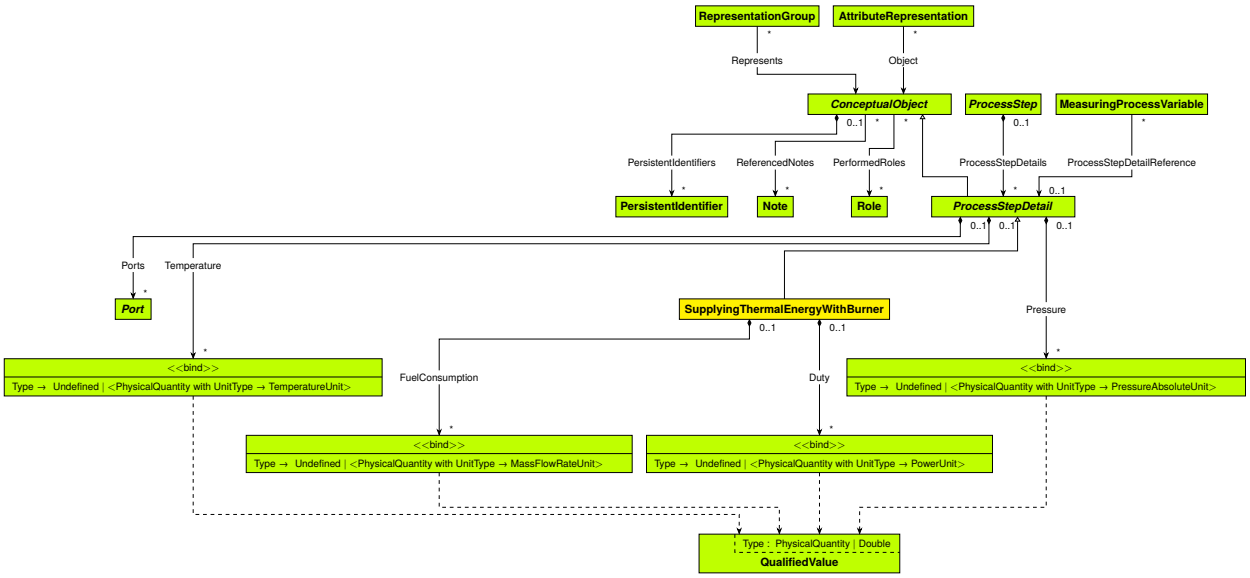
SupplyingThermalEnergyWithBurner

Process::*Process*::SupplyingThermalEnergyWithBurner

Overview

Concrete Class

This *ProcessStepDetail* is used to specify a combustion process as a sub-process of some other process, such as a sub-type of *SupplyingThermalEnergy*. This process is usually realized by one or more *Burner* components.



Supertypes

- *ProcessStepDetail*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Duty	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
FuelConsumption	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Duty

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Kilowatt,
            Value = 65.0))
]
```

FuelConsumption

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 18.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.SupplyingThermalEnergyWithBurner">
  <Components property="Duty">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>65.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="FuelConsumption">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>18.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

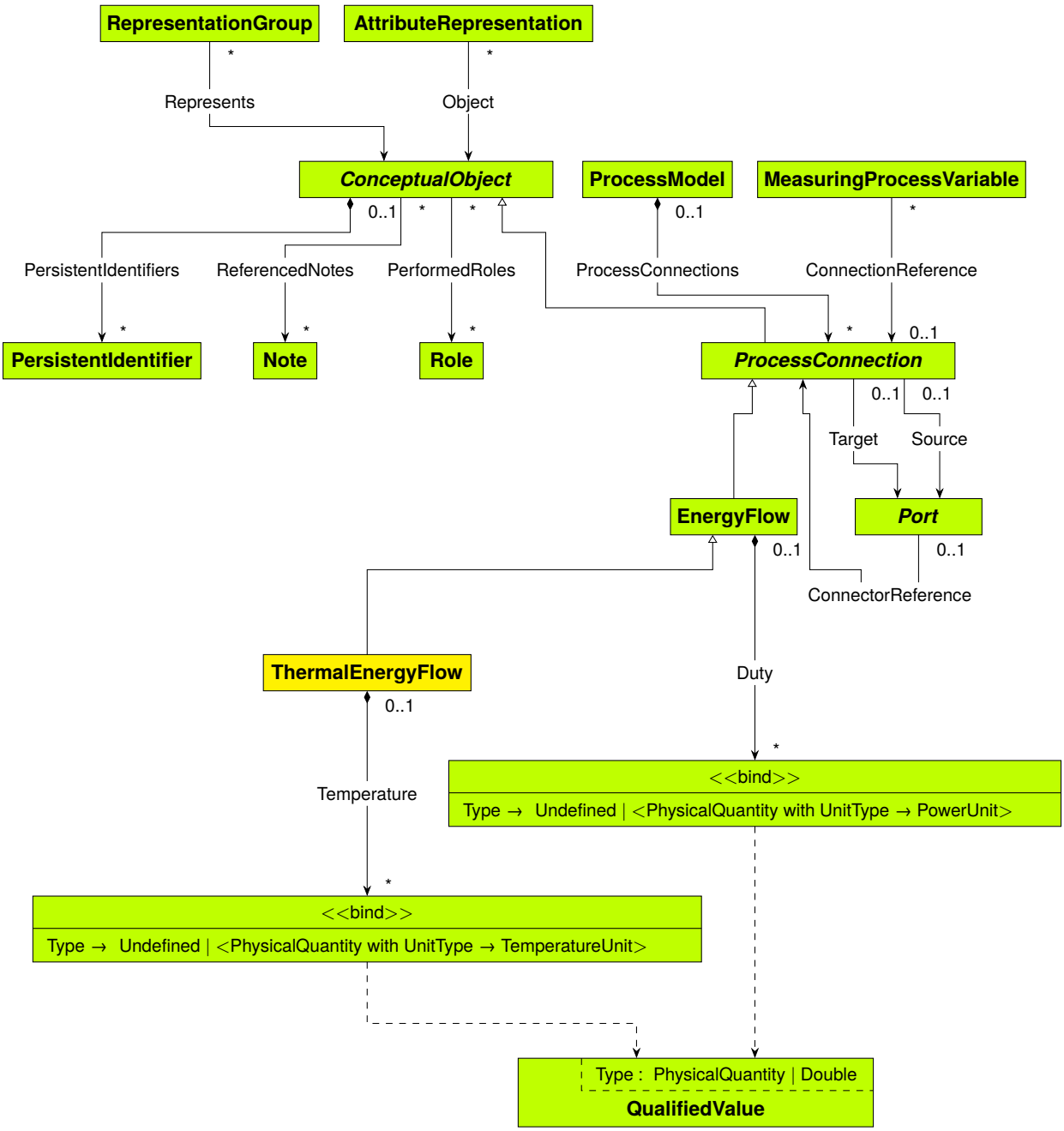
ThermalEnergyFlow

Process::*Process*::ThermalEnergyFlow

Overview

Concrete Class

This data structure defines the properties of a flow of heat or thermal energy between two *ThermalEnergyPort* objects.



Supertypes

- *EnergyFlow*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Temperature	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>	no

Temperature

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *TemperatureUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *DegreeCelsius*,

Value = `120.0`))

]

Example in DEXPI XML

```
<Object type="Process/Process.ThermalEnergyFlow">
  <Components property="Temperature">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.TemperatureUnit.DegreeCelsius"/>
          </Data>
          <Data property="Value">
            <Double>120.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

ThermalEnergyPort

Process::*Process*::ThermalEnergyPort

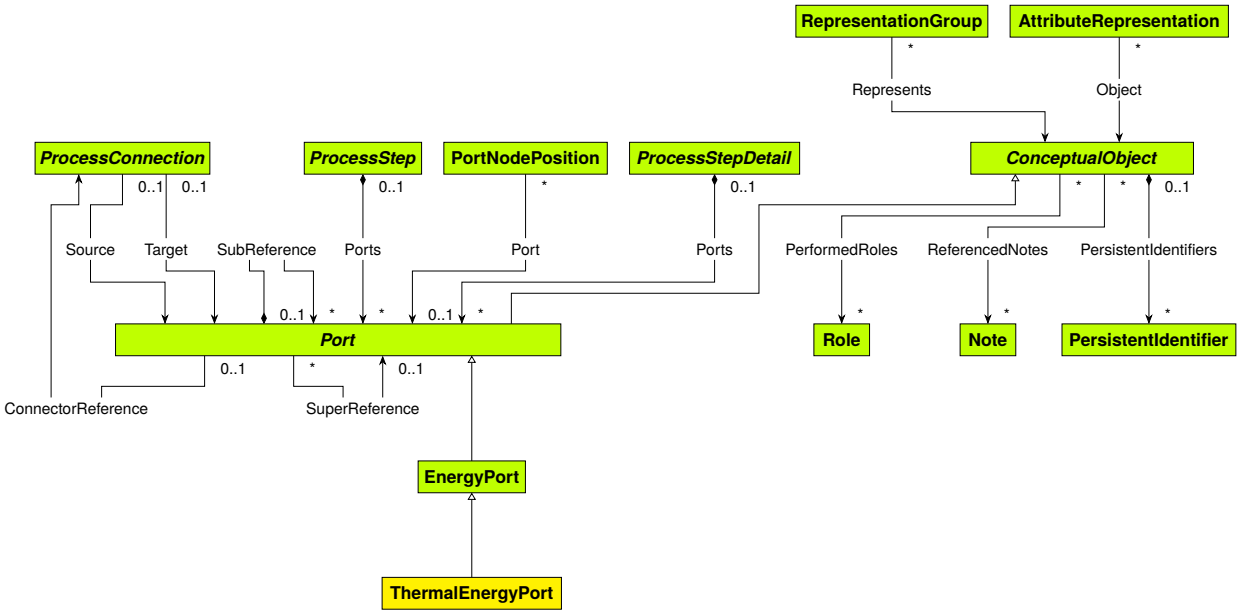
Overview

Concrete Class

This is a *Port* that exchanges heat or thermal energy between processes.

Roles referenced via *PerformedRoles* should have one of the following *Names*:

- Input
- Output



Supertypes

- *EnergyPort*

Example in DEXPI XML

```
<Object type="Process/Process.ThermalEnergyPort"/>
```

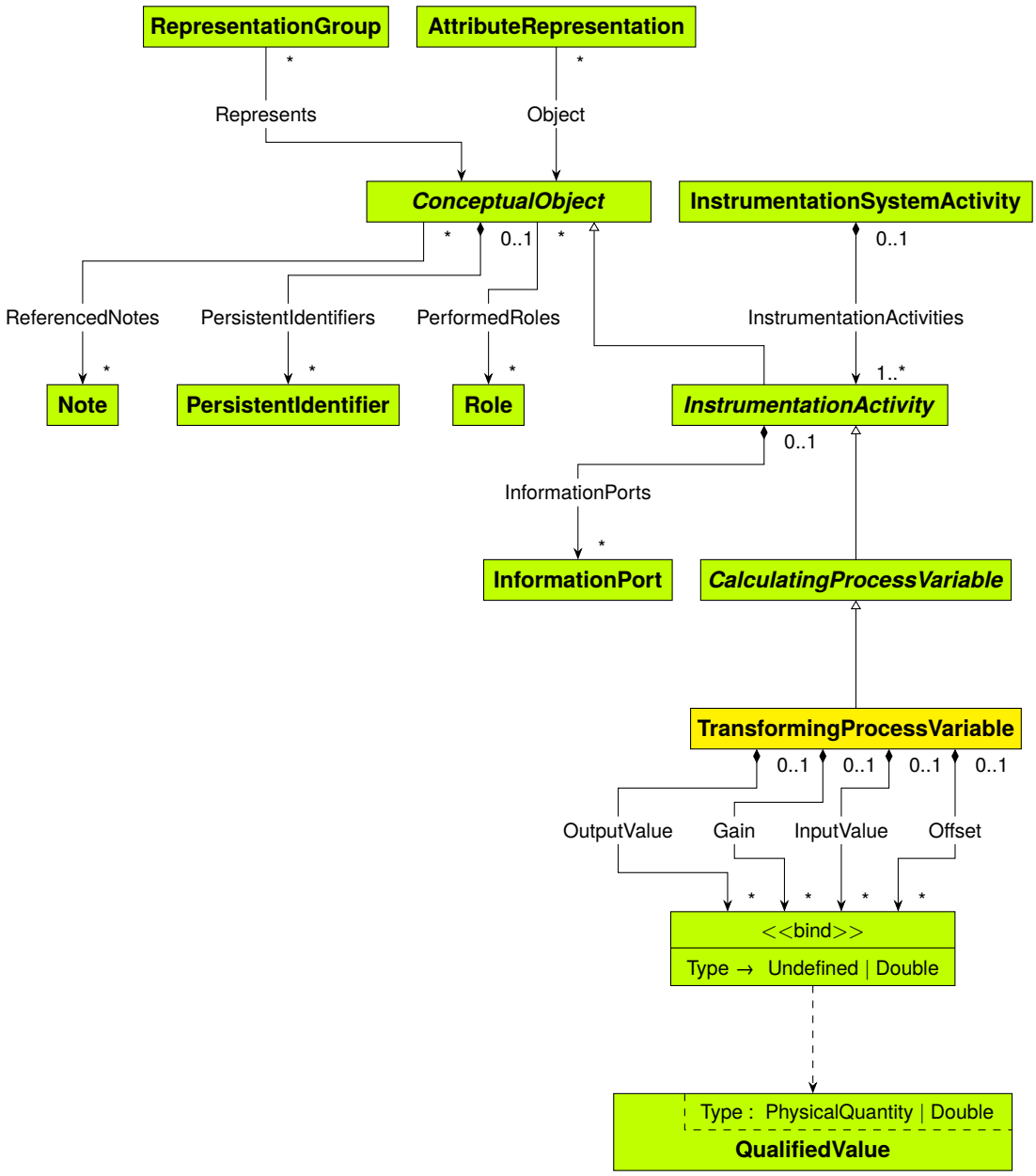
TransformingProcessVariable

Process::*Process*::TransformingProcessVariable

Overview

Concrete Class

This process performs a specified mathematical transformation on one or more input variables to calculate one or more output variables. The input and output variables are *InformationPort* objects owned by the type.



Supertypes

- *CalculatingProcessVariable*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Gain	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
InputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
Offset	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no
OutputValue	*	<*QualifiedValue* with *Type* → *Undefined* | *Double*>	no

Gain

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

InputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Offset

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

OutputValue

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Double*>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.TransformingProcessVariable"/>
```

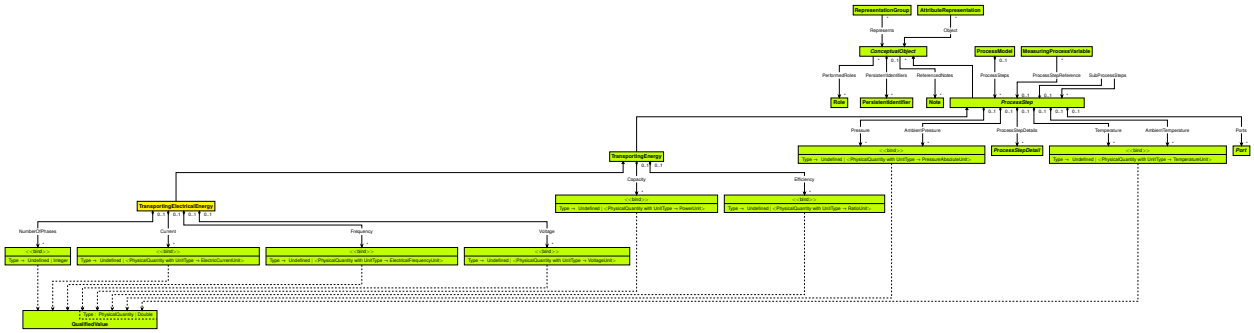
TransportingElectricalEnergy

Process::*Process*::TransportingElectricalEnergy

Overview

Concrete Class

This process transmits electrical energy between processes.



Supertypes

- *TransportingEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Current	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>	no
Frequency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>>	no
NumberOfPhases	*	<*QualifiedValue* with *Type* → *Undefined* | *Integer*>	no
Voltage	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>	no

Current

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricCurrentUnit*>>

Multiplicity: *

Ordered: no

Frequency

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *ElectricalFrequencyUnit*>>

Multiplicity: *

Ordered: no

NumberOfPhases

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | *Integer*>

Multiplicity: *

Ordered: no

Voltage

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VoltageUnit*>>

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/Process.TransportingElectricalEnergy"/>
```

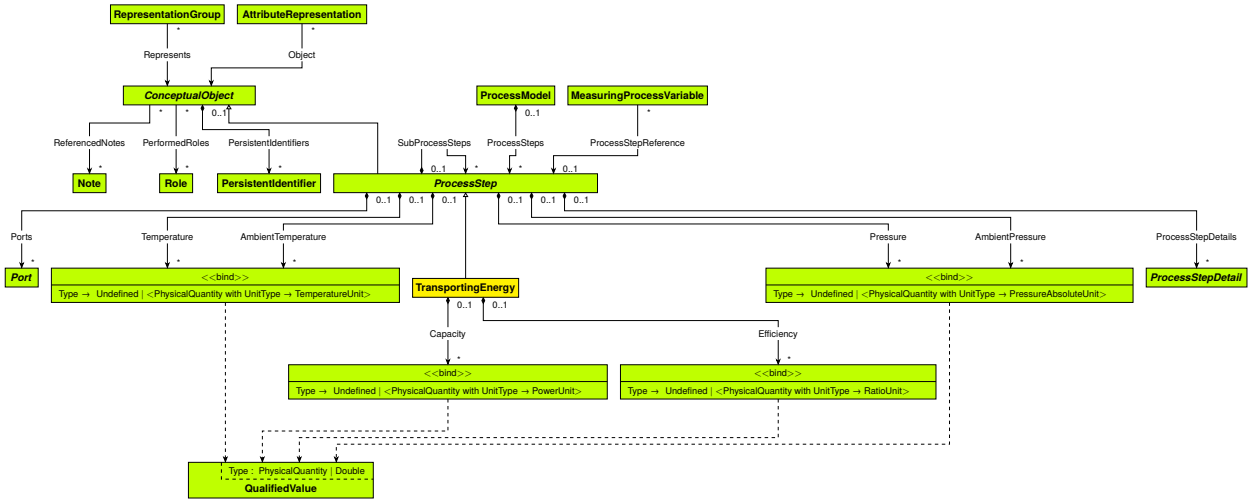
TransportingEnergy

Process::*Process*::TransportingEnergy

Overview

Concrete Class

This process transmits energy between processes.



Supertypes

- *ProcessStep*

Subtypes

- *TransportingElectricalEnergy*
- *TransportingMechanicalEnergy*
- *TransportingThermalEnergy*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Capacity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Efficiency	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>	no

Capacity

Composition Property

Transport capacity.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Kilowatt,
            Value = 300.0))
]
```

Efficiency

Composition Property

Efficiency of energy transportation.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *RatioUnit*>>

Multiplicity: *

Ordered: no

Example

```
[
    QualifiedValue(
        Value = PhysicalQuantity(
            Unit = Percent,
            Value = 89.0))
```

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingEnergy">
  <Components property="Capacity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>300.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Efficiency">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.RatioUnit.Percent"/>
          </Data>
          <Data property="Value">
            <Double>89.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

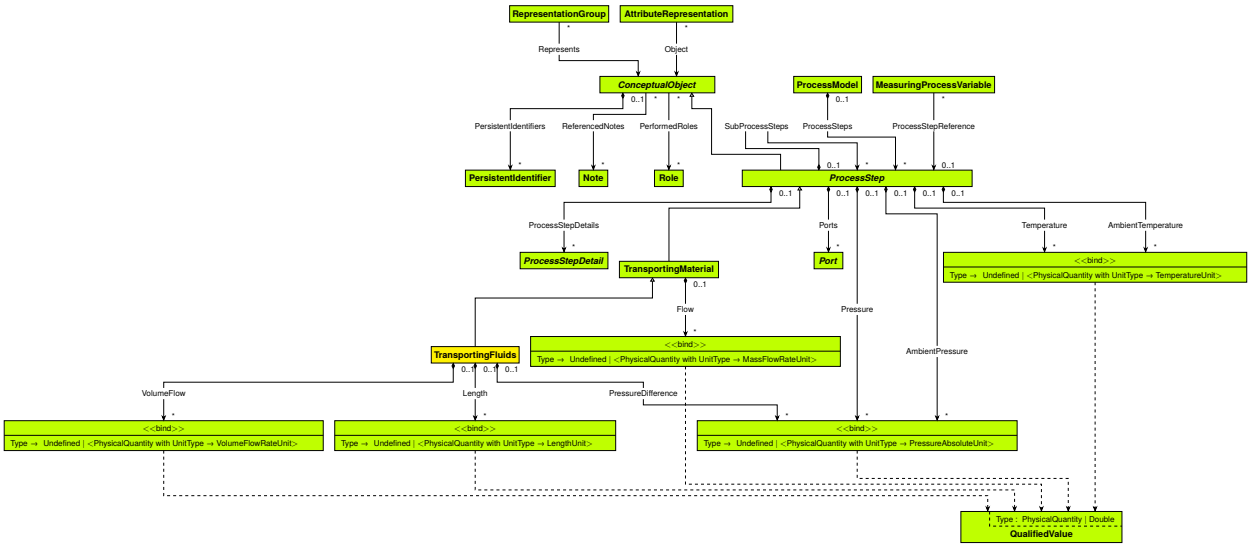
TransportingFluids

Process::*Process*::TransportingFluids

Overview

Concrete Class

This process moves fluids: gas, liquid or multiphase flows, between processes. It is also used to model distribution processes, such as steam supply systems, gas reticulation networks, cooling water systems and flare systems. Three child types are used to specify the realisation of this process, as the realization has implications for process design. The child types are *TransportingFluidsInChannel*, *TransportingFluidsInHose* and *TransportingFluidsInPipe*.



Supertypes

- *TransportingMaterial*

Subtypes

- *TransportingFluidsInChannel*
- *TransportingFluidsInHose*
- *TransportingFluidsInPipe*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Length	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
PressureDifference	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>	no
VolumeFlow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>	no

Length

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Metre*,

Value = 24.0))

]

PressureDifference

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PressureAbsoluteUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Bar*,

Value = 3.8))

]

VolumeFlow

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VolumeFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *LitrePerSecond*,

Value = 20.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingFluids">
  <Components property="Length">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Metre"/>
          </Data>
          <Data property="Value">
            <Double>24.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="PressureDifference">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PressureAbsoluteUnit.Bar"/>
          </Data>
          <Data property="Value">
            <Double>3.8</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="VolumeFlow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VolumeFlowRateUnit.
↪LitrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>20.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

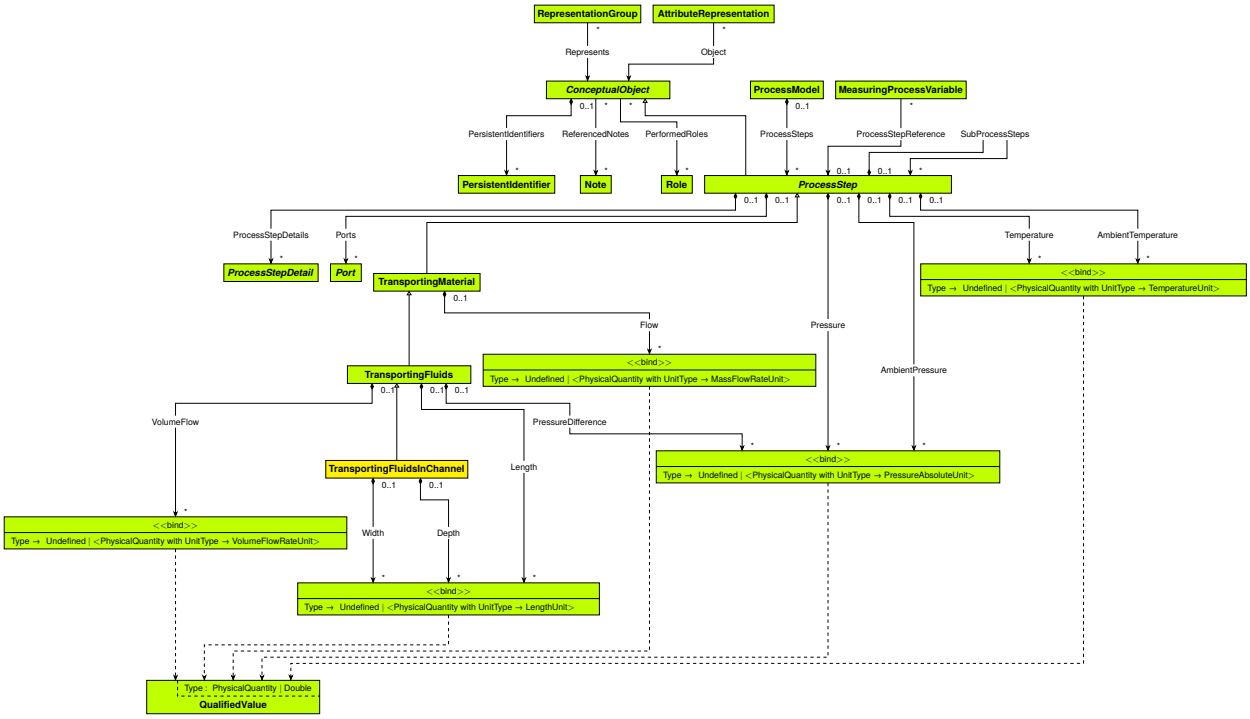
TransportingFluidsInChannel

Process::*Process*::TransportingFluidsInChannel

Overview

Concrete Class

This *TransportingFluids* process is realized by an open channel or drain. This type can be used to model open drain systems.



Supertypes

- *TransportingFluids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Depth	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no
Width	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no

Depth

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 80.0))

]

Width

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 190.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingFluidsInChannel">
  <Components property="Depth">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>80.0</Double>
          </Data>
```

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```
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Width">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>190.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

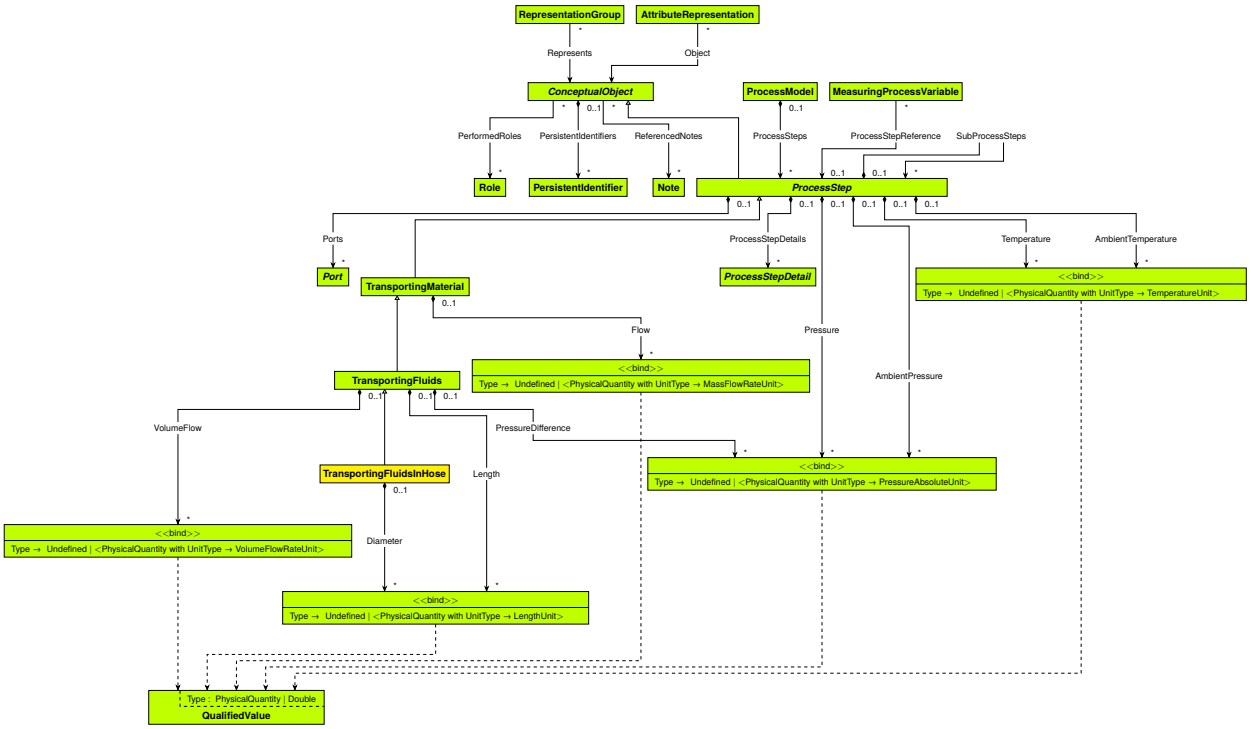
TransportingFluidsInHose

Process::*Process*::TransportingFluidsInHose

Overview

Concrete Class

This *TransportingFluids* process is realized by a flexible connector or hose. This type can be used to model hose or flexible piping systems.



Supertypes

- *TransportingFluids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Diameter	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no

Diameter

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 7.5))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingFluidsInHose">
  <Components property="Diameter">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>7.5</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

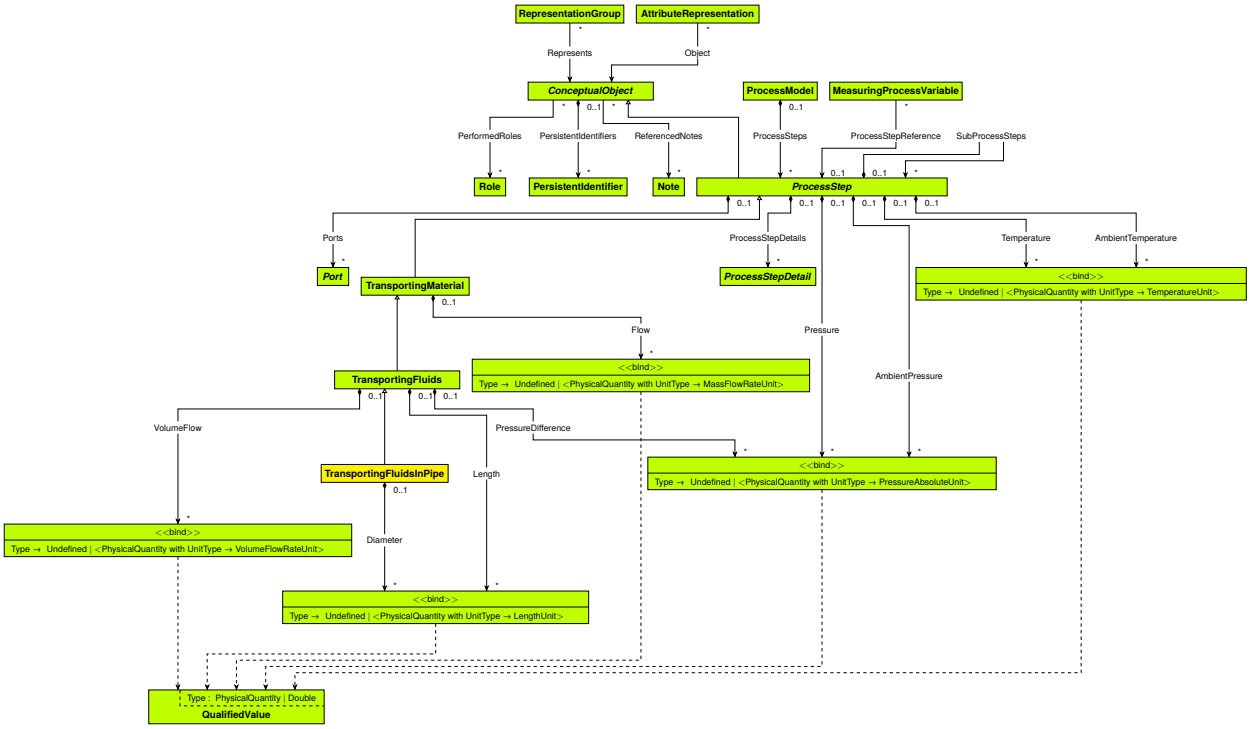
TransportingFluidsInPipe

Process::*Process*::TransportingFluidsInPipe

Overview

Concrete Class

This *TransportingFluids* process is realized by a rigid connector, duct or pipe. This type can be used to pipeline systems, piping-based fluid distribution systems and ducting systems.



Supertypes

- *TransportingFluids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Diameter	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>	no

Diameter

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *LengthUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Centimetre*,

Value = 12.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingFluidsInPipe">
  <Components property="Diameter">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.LengthUnit.Centimetre"/>
          </Data>
          <Data property="Value">
            <Double>12.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

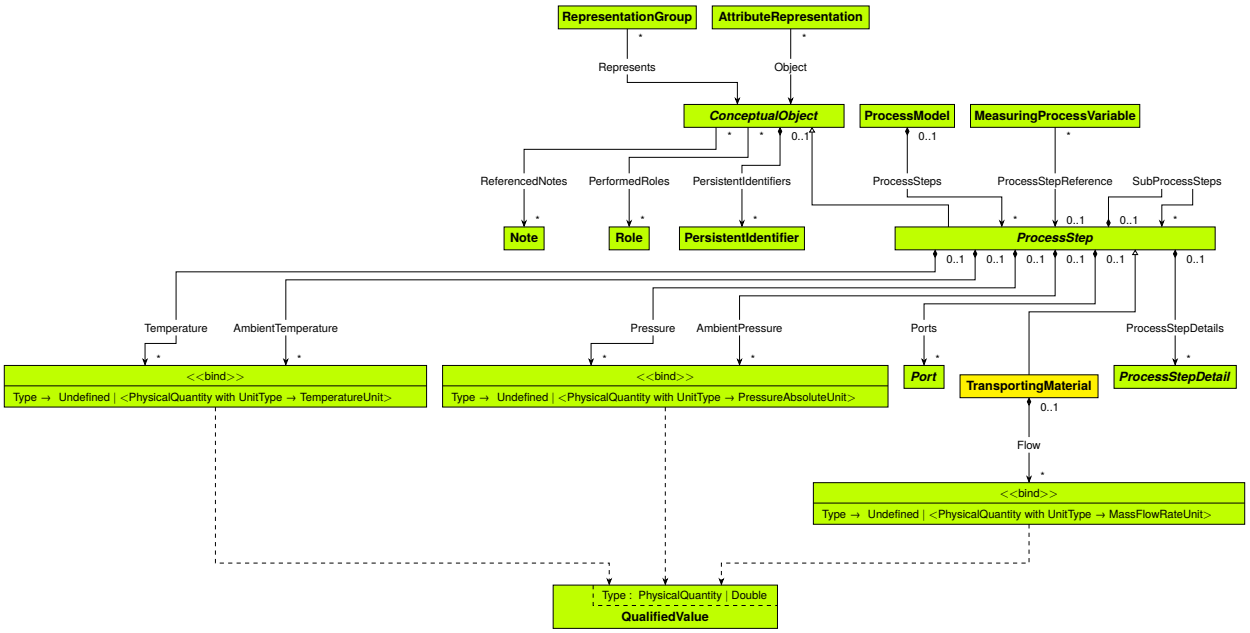
TransportingMaterial

Process::*Process*::TransportingMaterial

Overview

Concrete Class

This process moves material between processes. Child types detail the kind of the transported material (fluid vs. solid).



Supertypes

- *ProcessStep*

Subtypes

- *TransportingFluids*
- *TransportingSolids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Flow	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>	no

Flow

Composition Property

Mass flowrate through the process.

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassFlowRateUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *KilogramPerHour*,

Value = 165.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingMaterial">
  <Components property="Flow">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassFlowRateUnit.KilogramPerHour
↪"/>
          </Data>
          <Data property="Value">
            <Double>165.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

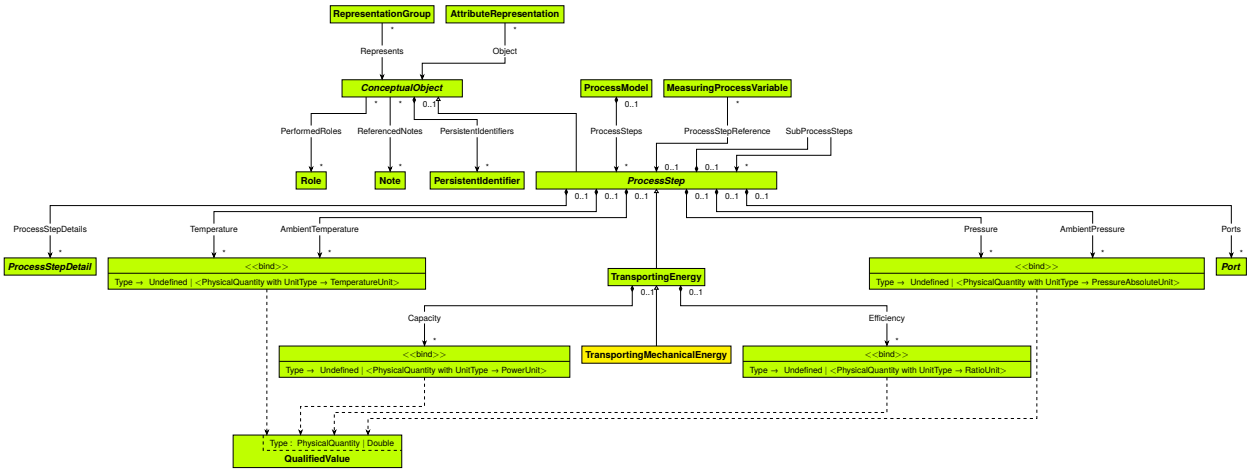
TransportingMechanicalEnergy

Process::*Process*::TransportingMechanicalEnergy

Overview

Concrete Class

This TransportingEnergy process transmits mechanical energy (including rotational energy) between processes. This can be realized by a shaft.



Supertypes

- *TransportingEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.TransportingMechanicalEnergy"/>
```

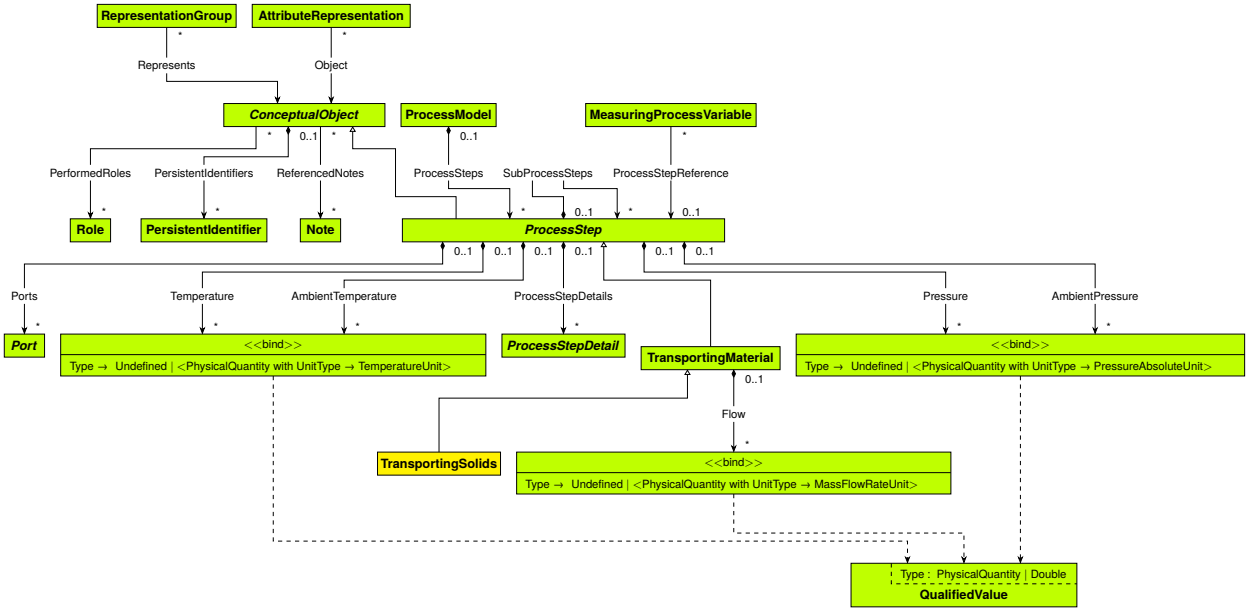
TransportingSolids

Process::*Process*::TransportingSolids

Overview

Concrete Class

This process moves solid material between processes. Two child types are used to specify the realisation of this process, as the realization has implications for process design. The child types are *TransportingSolidsContinuously* and *TransportingSolidsDiscontinuously*.



Supertypes

- *TransportingMaterial*

Subtypes

- *TransportingSolidsContinuously*
- *TransportingSolidsDiscontinuously*

Example in DEXPI XML

```
<Object type="Process/Process.TransportingSolids"/>
```

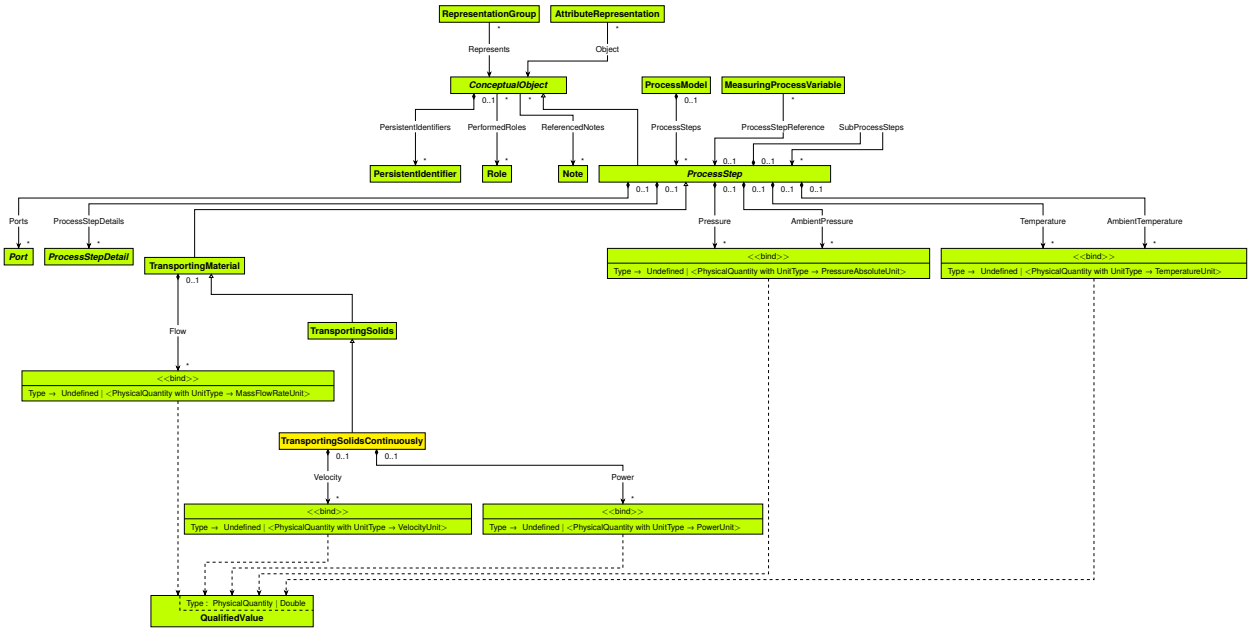
TransportingSolidsContinuously

Process::*Process*::TransportingSolidsContinuously

Overview

Concrete Class

This process moves solid material between processes using a continuous operation, such as a conveyor of various types.



Supertypes

- *TransportingSolids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
Power	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>	no
Velocity	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VelocityUnit*>>	no

Power

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *PowerUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilowatt*,

Value = `30.0`))

]

Velocity

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *VelocityUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *MetrePerSecond*,

Value = `2.0`))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingSolidsContinuously">
  <Components property="Power">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.PowerUnit.Kilowatt"/>
          </Data>
          <Data property="Value">
            <Double>30.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
  <Components property="Velocity">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.VelocityUnit.MetrePerSecond"/>
          </Data>
          <Data property="Value">
            <Double>2.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

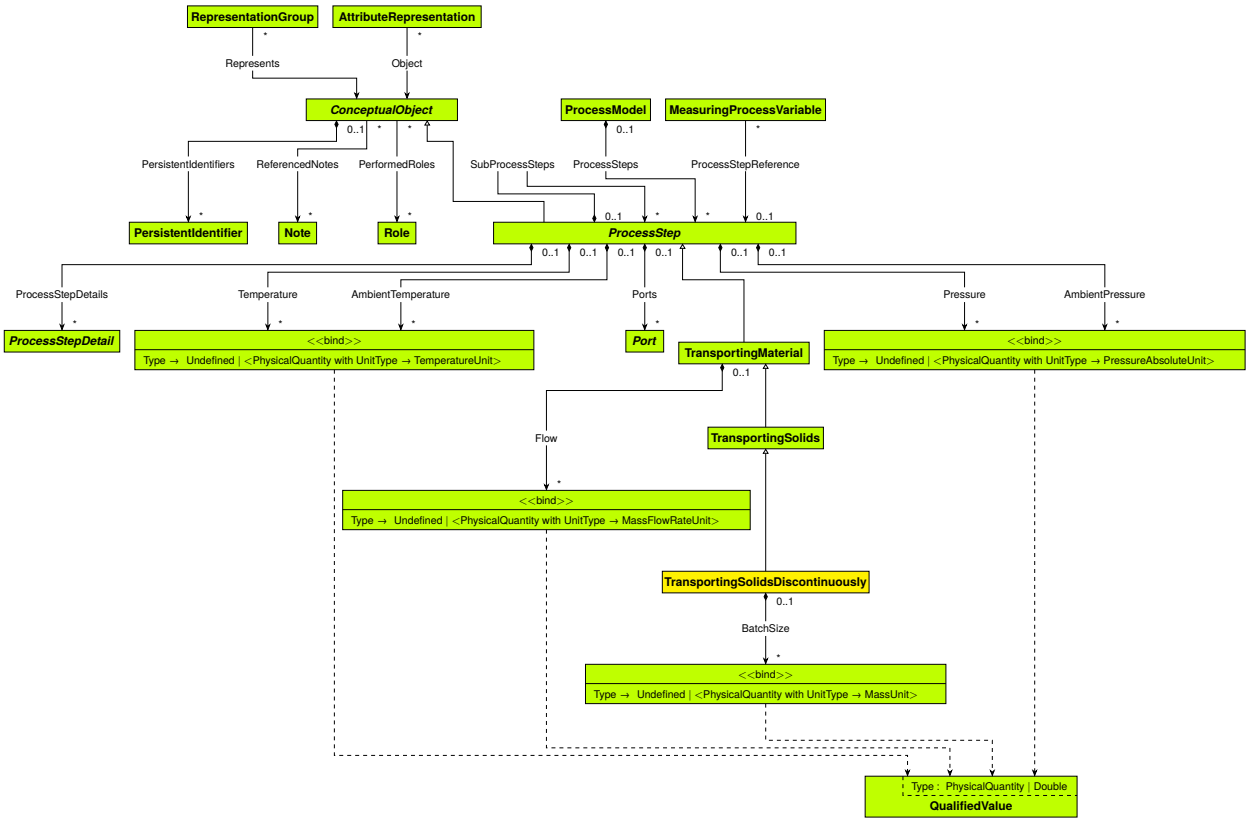
TransportingSolidsDiscontinuously

Process::*Process*::TransportingSolidsDiscontinuously

Overview

Concrete Class

This process moves solid material between processes using a discontinuous or batch operation, such as a vehicle, container or crane.



Supertypes

- *TransportingSolids*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
BatchSize	*	<*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>	no

BatchSize

Composition Property

Type: <*QualifiedValue* with *Type* → *Undefined* | <*PhysicalQuantity* with *UnitType* → *MassUnit*>>

Multiplicity: *

Ordered: no

Example

[

QualifiedValue(

Value = *PhysicalQuantity*(

Unit = *Kilogram*,

Value = 12.0))

]

Example in DEXPI XML

```
<Object type="Process/Process.TransportingSolidsDiscontinuously">
  <Components property="BatchSize">
    <Object type="Core/QualifiedValue">
      <Data property="Value">
        <AggregatedDataValue type="Core/PhysicalQuantities.PhysicalQuantity">
          <Data property="Unit">
            <DataReference data="Core/PhysicalQuantities.MassUnit.Kilogram"/>
          </Data>
          <Data property="Value">
            <Double>12.0</Double>
          </Data>
        </AggregatedDataValue>
      </Data>
    </Object>
  </Components>
</Object>
```

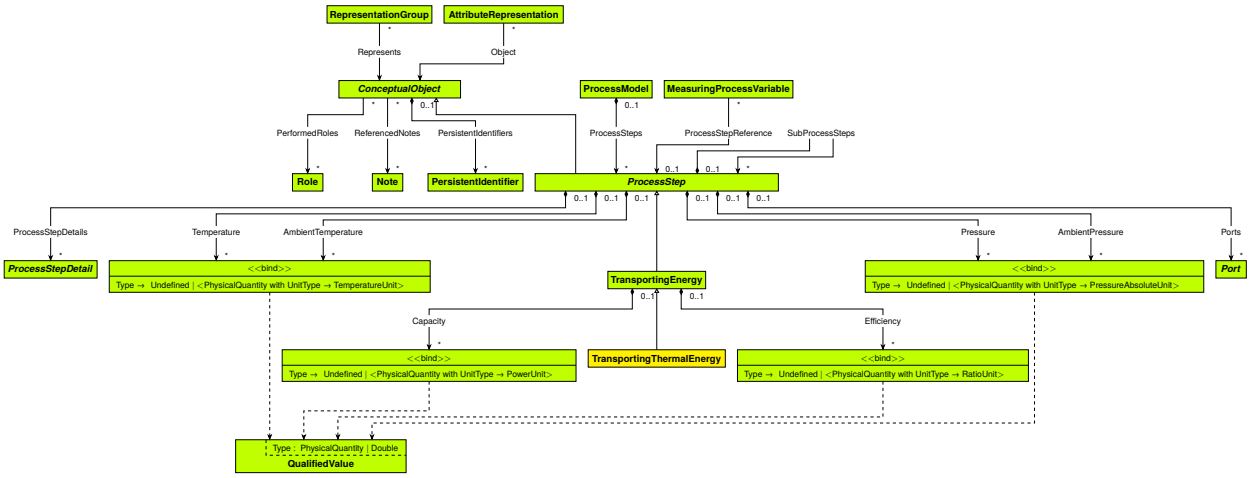
TransportingThermalEnergy

Process::*Process*::TransportingThermalEnergy

Overview

Concrete Class

This TransportingEnergy process transmits thermal energy (including heat) between processes. This is different to a heat exchanging process step in the sense that the transporting thermal energy process step intends to preserve the transported energy between input and output.



Supertypes

- *TransportingEnergy*

Example in DEXPI XML

```
<Object type="Process/Process.TransportingThermalEnergy"/>
```

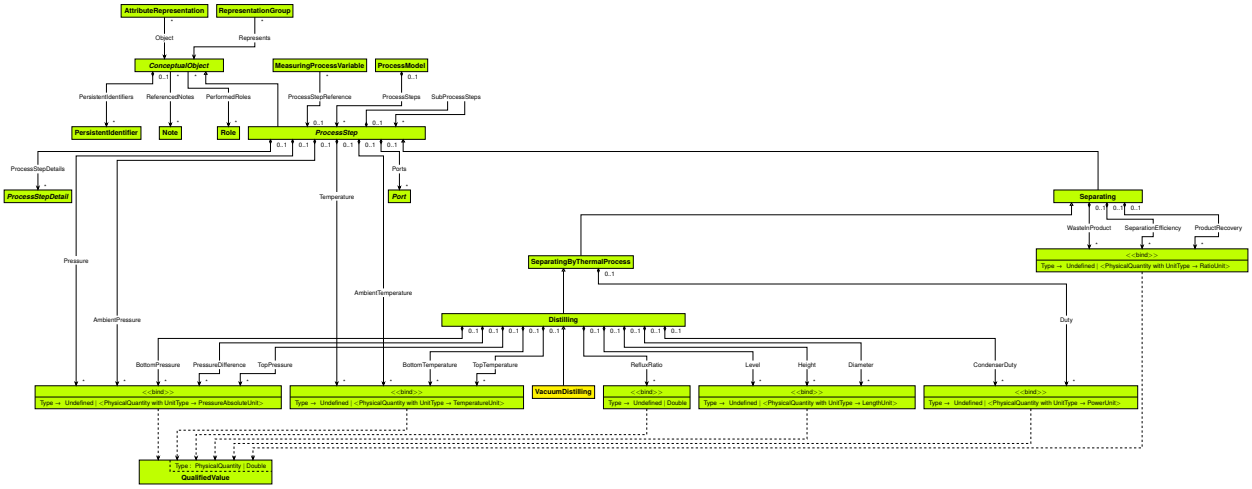
VacuumDistilling

Process::*Process*::VacuumDistilling

Overview

Concrete Class

This is a *Distilling* process that is conducted at sub-atmospheric pressures.



Supertypes

- *Distilling*

Example in DEXPI XML

```
<Object type="Process/Process.VacuumDistilling"/>
```

Process::Process

Overview

Package

Members

Classes

Name	Type
Absorbing	Concrete Class
Adsorbing	Concrete Class
Agglomerating	Concrete Class
Agitating	Concrete Class
BlowingDown	Concrete Class
Boiling	Concrete Class
CalculatingProcessVariable	Abstract Class
CalculatingRatio	Concrete Class
CalculatingSplitRange	Concrete Class
Coalescing	Concrete Class
Composition	Concrete Class
Compressing	Concrete Class
ContactingInPacking	Concrete Class
ContactingOnTray	Concrete Class
ControllingProcessVariable	Concrete Class
ConveyingSignal	Concrete Class
Cooling	Concrete Class
Crushing	Concrete Class
Crystallizing	Concrete Class
CustomMaterialComponent	Concrete Class
Cutting	Concrete Class
Distilling	Concrete Class
Draining	Concrete Class
DrivingByEngine	Concrete Class
DrivingByMotor	Concrete Class
DrivingByTurbine	Concrete Class
Drying	Concrete Class
ElectricalEnergyFlow	Concrete Class
ElectricalEnergyPort	Concrete Class
Emitting	Concrete Class
EnergyFlow	Concrete Class
EnergyPort	Concrete Class
Evaporating	Concrete Class
ExchangingThermalEnergy	Concrete Class

continues on next page

Table 10 – continued from previous page

Name	Type
Extruding	Concrete Class
FeedingMaterial	Concrete Class
Filtering	Concrete Class
Flaring	Concrete Class
Flocculating	Concrete Class
FormingSolidMaterial	Concrete Class
GeneratingACPower	Concrete Class
GeneratingDCPower	Concrete Class
GeneratingFlow	Concrete Class
GeneratingInFuelCell	Concrete Class
GeneratingSteam	Concrete Class
Grinding	Concrete Class
HeatingElectrical	Concrete Class
HeatingInFurnace	Concrete Class
Humidifying	Concrete Class
IncreasingParticleSize	Concrete Class
InformationFlow	Concrete Class
InformationPort	Concrete Class
InformationVariant	Concrete Class
InstrumentationActivity	Abstract Class
InstrumentationSystemActivity	Concrete Class
Kneading	Concrete Class
LimitingFlow	Concrete Class
ListOfMaterialComponents	Concrete Class
MaterialComponent	Abstract Class
MaterialPort	Concrete Class
MaterialState	Concrete Class
MaterialStateType	Concrete Class
MaterialTemplate	Concrete Class
MeasuringProcessVariable	Concrete Class
MechanicalEnergyFlow	Concrete Class
MechanicalEnergyPort	Concrete Class
Milling	Concrete Class
Mixing	Concrete Class
MixingSimple	Concrete Class
Packaging	Concrete Class
Pelletizing	Concrete Class
Port	Abstract Class
PreventingBackflow	Concrete Class
ProcessConnection	Abstract Class
ProcessStep	Abstract Class
ProcessStepDetail	Abstract Class
Pumping	Concrete Class
PureMaterialComponent	Concrete Class
ReactingChemicals	Concrete Class
ReducingParticleSize	Concrete Class
RegulatingFlow	Concrete Class
RelievingOverpressure	Concrete Class
RelievingVacuum	Concrete Class
RelievingVacuumAndOverpressure	Concrete Class

continues on next page

Table 10 – continued from previous page

Name	Type
RemovingThermalEnergy	Concrete Class
RotaryMixing	Concrete Class
SelectingProcessVariable	Concrete Class
Separating	Concrete Class
SeparatingByCentrifugalForce	Concrete Class
SeparatingByContact	Concrete Class
SeparatingByCyclonicMotion	Concrete Class
SeparatingByElectromagneticForce	Concrete Class
SeparatingByElectrostaticForce	Concrete Class
SeparatingByFlash	Concrete Class
SeparatingByGravity	Concrete Class
SeparatingByIonExchange	Concrete Class
SeparatingByMagneticForce	Concrete Class
SeparatingByPhaseSeparation	Concrete Class
SeparatingByPhysicalProcess	Concrete Class
SeparatingBySurfaceTension	Concrete Class
SeparatingByThermalProcess	Concrete Class
SeparatingMechanically	Concrete Class
ShuttingOffFlow	Concrete Class
Sieving	Concrete Class
Sink	Concrete Class
Skimming	Concrete Class
Source	Concrete Class
Splitting	Abstract Class
SplittingEnergy	Concrete Class
SplittingMaterial	Concrete Class
StabilizingDistilling	Concrete Class
StaticMixing	Concrete Class
SteeringFlow	Abstract Class
StoringElectricalEnergy	Concrete Class
StoringEnergy	Abstract Class
StoringFluids	Concrete Class
StoringInBattery	Concrete Class
StoringInPressureVessel	Concrete Class
StoringInSilo	Concrete Class
StoringInTank	Concrete Class
StoringMaterial	Abstract Class
StoringMechanicalEnergy	Concrete Class
StoringSolids	Concrete Class
StoringThermalEnergy	Concrete Class
Stream	Concrete Class
StrippingDistilling	Concrete Class
SupplyingElectricalEnergy	Concrete Class
SupplyingEnergy	Concrete Class
SupplyingFluids	Concrete Class
SupplyingMaterial	Concrete Class
SupplyingMechanicalEnergy	Concrete Class
SupplyingSolids	Concrete Class
SupplyingThermalEnergy	Concrete Class
SupplyingThermalEnergyWithBurner	Concrete Class

continues on next page

Table 10 – continued from previous page

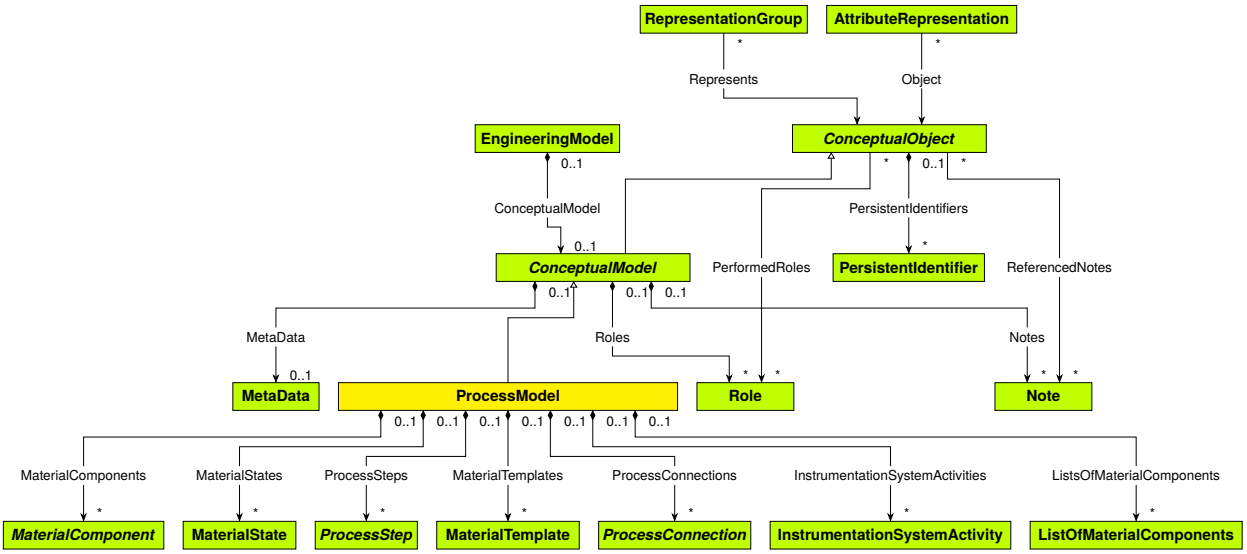
Name	Type
ThermalEnergyFlow	Concrete Class
ThermalEnergyPort	Concrete Class
TransformingProcessVariable	Concrete Class
TransportingElectricalEnergy	Concrete Class
TransportingEnergy	Concrete Class
TransportingFluids	Concrete Class
TransportingFluidsInChannel	Concrete Class
TransportingFluidsInHose	Concrete Class
TransportingFluidsInPipe	Concrete Class
TransportingMaterial	Concrete Class
TransportingMechanicalEnergy	Concrete Class
TransportingSolids	Concrete Class
TransportingSolidsContinuously	Concrete Class
TransportingSolidsDiscontinuously	Concrete Class
TransportingThermalEnergy	Concrete Class
VacuumDistilling	Concrete Class

3.3.4 ProcessModel

Process::ProcessModel

Overview

Concrete Class



Supertypes

- *ConceptualModel*

Members

Composition Properties

Name	Multiplicity	Type	Ordered
InstrumentationSystemActivities	*	*InstrumentationSystemActivity*	no
ListsOfMaterialComponents	*	*ListOfMaterialComponents*	no
MaterialComponents	*	*MaterialComponent*	no
MaterialStates	*	*MaterialState*	no
MaterialTemplates	*	*MaterialTemplate*	no
ProcessConnections	*	*ProcessConnection*	no
ProcessSteps	*	*ProcessStep*	no

InstrumentationSystemActivities

Composition Property

The *InstrumentationSystemActivities* of the *ProcessModel*.

Type: *InstrumentationSystemActivity*

Multiplicity: *

Ordered: no

ListsOfMaterialComponents

Composition Property

The *ListsOfMaterialComponents* of the *ProcessModel*.

Type: *ListOfMaterialComponents*

Multiplicity: *

Ordered: no

MaterialComponents

Composition Property

The *MaterialComponents* of the *ProcessModel*.

Type: *MaterialComponent*

Multiplicity: *

Ordered: no

MaterialStates

Composition Property

The *MaterialStates* of the *ProcessModel*.

Type: *MaterialState*

Multiplicity: *

Ordered: no

MaterialTemplates

Composition Property

The *MaterialTemplates* of the *ProcessModel*.

Type: *MaterialTemplate*

Multiplicity: *

Ordered: no

ProcessConnections

Composition Property

The *ProcessConnections* of the *ProcessModel*.

Type: *ProcessConnection*

Multiplicity: *

Ordered: no

ProcessSteps

Composition Property

The *ProcessSteps* of the *ProcessModel*.

Type: *ProcessStep*

Multiplicity: *

Ordered: no

Example in DEXPI XML

```
<Object type="Process/ProcessModel"/>
```

Process

3.3.5 Overview

Model

URI: https://data.dexpi.org/models/2.0.1/Process.xml

Process.xml

Types for the representation of chemical processes and associated graphical representations.

3.3.6 Members

Packages

Name
Diagram
Enumerations
Process

Classes

Name	Type
ProcessModel	Concrete Class

CHAPTER

FOUR

APPENDIX

4.1 Glossary

4.1.1 Dimension of a Physical Quantity Type

A physical quantity type such as *mass*, *length* or *area* is characterized by its dimension (for example, see https://en.wikipedia.org/wiki/Physical_quantity). It is possible to express the dimension of any physical quantity type using the dimensions of some base quantity types. The choice of the base quantity types is arbitrary to a certain extent. The base quantity types that underly the International System of Units are listed below.

Base Quantity Type	Dimension Symbol
amount of substance	N
electric current	I
length	L
luminous intensity	J
mass	M
thermodynamic temperature	Θ (Greek capital letter Theta)
time	T

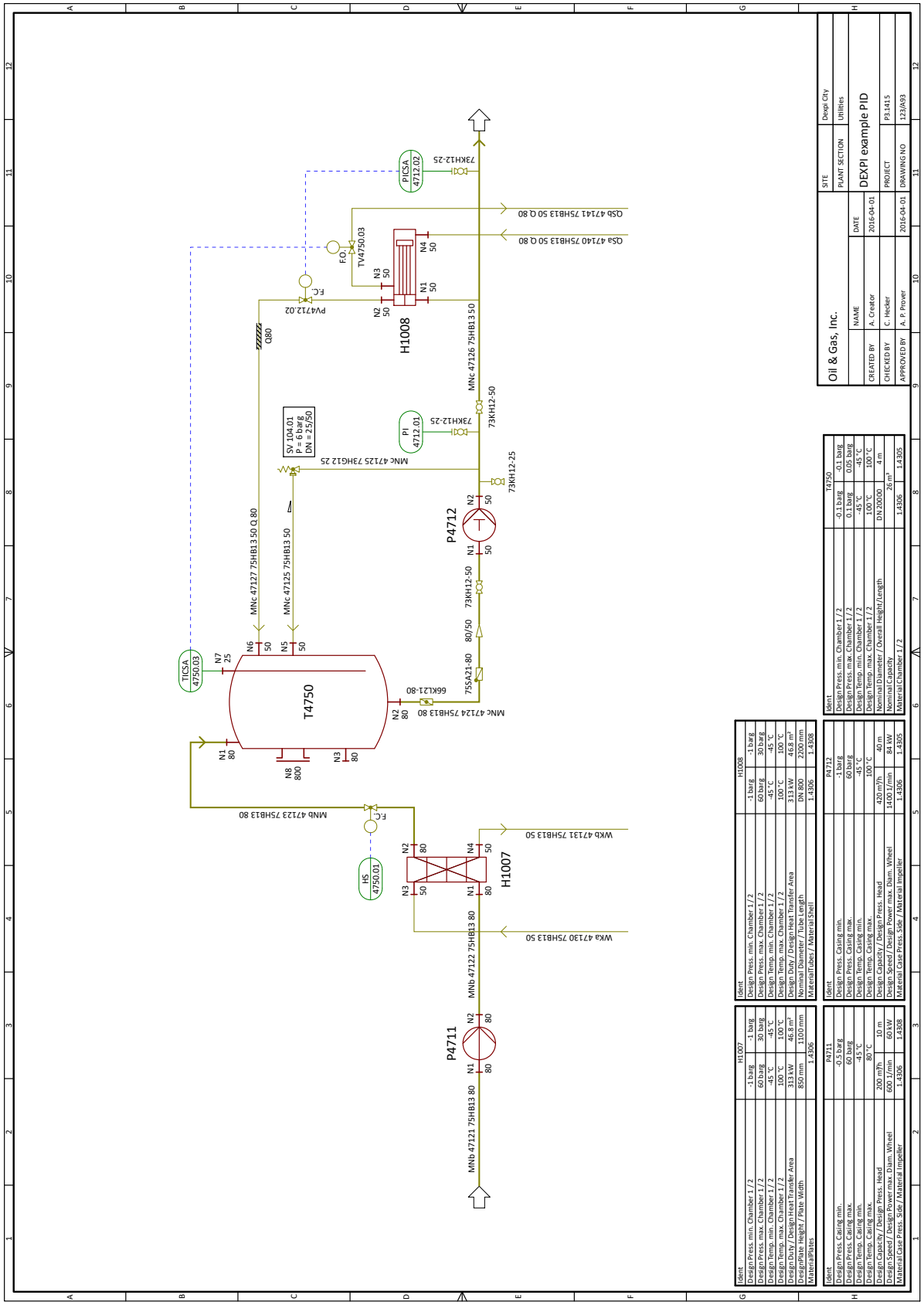
Using the symbols given in the table, the dimension of *length* is L, and the dimension of *area* is L·L, or L^2.

4.1.2 Unified Modeling Language

The Unified Modeling Language (UML) is a general-purpose modeling language for the *analysis, design, and implementation of software-based systems*. Within this specification, we use the notation [UML:x] to refer to section x of *OMG® Unified Modeling Language® (OMG UML®), Version 2.5.1* (see https://www.omg.org/spec/UML/2.5.1).

4.2 Reference P&ID

The DEXPI Reference P&ID serves to demonstrate the features of the DEXPI Plant Model. A graphical representation of the P&ID is shown below.


Oil & Gas, Inc.
DEXPI example PID
SITE
Dexpi City
PLANT SECTION
Utilities
NAME
DATE
CREATED BY
A. Creator
2016-04-01
CHECKED BY
C. Hecker
PROJECT
P3.1415
APPROVED BY
A. P. Prover
2016-04-01
DRAWING NO
123/A93
T4750
H1008
H1007
P4711
P4712
TICSA 4750.03
PICSA 4712.02
PI 4712.01
HS 4750.01
TV4750.03
PV4712.02
SV 104.01
P = 6 barg
DN = 25/50
MNc 47126 75HB13 50
MNc 47125 73HB12 25
MNc 47127 75HB13 50 Q 80
MNc 47125 75HB13 50
MNc 47124 75HB13 80
MNb 47123 75HB13 80
MNb 47122 75HB13 80
MNb 47121 75HB13 80
Wkb 47131 75HB13 50
Wka 47130 75HB13 50
Qsb 47141 75HB13 50 Q 80
Qsa 47140 75HB13 50 Q 80
73KH12-25
73KH12-50
73KH12-25
75SA21-80
80/50
66K121-80
Q80
Ident
Design Press. min. Chamber 1 / 2
Design Press. max. Chamber 1 / 2
Design Temp. min. Chamber 1 / 2
Design Temp. max. Chamber 1 / 2
Design Duty / Design Heat Transfer Area
Design Plate Height / Plate Width
Material Plates
Design Press. Casing min.
Design Press. Casing max.
Design Temp. Casing min.
Design Temp. Casing max.
Design Capacity / Design Press. Head
Design Speed / Design Power max. Diam. Wheel
Material Case Press. Side / Material Impeller
Design Press. min. Chamber 1 / 2
Design Press. max. Chamber 1 / 2
Design Temp. min. Chamber 1 / 2
Design Temp. max. Chamber 1 / 2
Nominal Diameter / Overall Height/Length
Nominal Capacity
Material Chamber 1 / 2

4.3 Changelog

4.3.1 DEXPI Specification 2.0.1

This is a bugfix release for DEXPI Specification 2.0.0.

Model Changes

- *Core* Model
  - modified: enumeration *Core.PhysicalQuantities.RatioUnit* renamed from PercentageUnit; several literals added
- *Plant* Model
  - added: concrete class *Plant.Instrumentation.ProcessSafetyFunction*, subclass of *Plant.Instrumentation.ProcessInstrumentationFunction*
  - moved: composition property *Plant.ProcessEquipment.Heater.TubeBundle*, moved from subclass *Plant.ProcessEquipment.ElectricHeater* to *Plant.ProcessEquipment.Heater*
  - modified: opposite upper multiplicities of properties *Plant.Piping.PipingConnection.SourceItem*, *Plant.Piping.PipingConnection.TargetItem*, *Plant.Piping.PipingNetworkSegment.SourceItem*, and *Plant.Piping.PipingNetworkSegment.TargetItem* are now all unlimited (were 1 before)
  - fixed: RDL references for *Plant.PlantStructure.IndustrialComplex* and *Plant.PlantStructure.PlantSection*
- *Process* Model
  - added: composition property *Process.Process.InstrumentationActivity.InformationPorts*
  - renamed: composition property *Process.Process.Composition.MoleFractions*, renamed from MoleFractiona
  - removed: enumeration Process.Enumerations.CompositionBasis
  - modified: *Process.Process.MaterialStateType.Composition* now composition property with multiplicity 0..1, was reference property with multiplicity 1
  - removed: composition property Process.ProcessModel.Compositions
  - removed: composition property Process.ProcessModel.MaterialStateTypes
  - modified: *Process.Process.MaterialState.Phases* now composition property, was reference property; also renamed from Phase
  - modified: *Process.Process.MaterialState.State* now composition property, was reference property
  - modified: *Process.Process.SeparatingByFlash* now subclass of *Process.Process.SeparatingByThermalProcess*, was (direct) subclass of *Process.Process.Separating*
  - modified: *Process.Process.MeasuringProcessVariable.MeasuredVariable* now data property with type *Builtin.Undefined* | *Process.Enumerations.MeasuredQuantity*, was composition property with type *Core.QualifiedValue*
  - added: class *Process.Process.SelectingProcessVariable*
  - added: enumeration *Process.Enumerations.SelectorType*
  - modified: composition property *Process.Process.StoringEnergy.ChargeCapacity* renamed from Capacity
  - modified: class *Process.Process.StoringEnergy*: description changed
  - modified: composition property *Process.Process.StoringEnergy.ChargeCapacity* renamed from Capacity
  - added: class *Process.Process.StoringMechanicalEnergy*

- added: class *Process.Process.SupplyingEnergy*
- modified: *Process.Process.SupplyingElectricalEnergy* now subclass of *Process.Process.SupplyingEnergy*, was (direct) subclass of *Process.Process.ProcessStep*
- modified: *Process.Process.SupplyingMechanicalEnergy* now subclass of *Process.Process.SupplyingEnergy*, was (direct) subclass of *Process.Process.ProcessStep*
- added: class *Process.Process.SupplyingMaterial*
- modified: *Process.Process.SupplyingFluids* now subclass of *Process.Process.SupplyingMaterial*, was (direct) subclass of *Process.Process.ProcessStep*; properties removed as they are now inherited
- modified: *Process.Process.SupplyingSolids* now subclass of *Process.Process.SupplyingMaterial*, was (direct) subclass of *Process.Process.ProcessStep*; properties removed as they are now inherited
- added: class *Process.Process.TransportingEnergy*
- modified: *Process.Process.TransportingElectricalEnergy* now subclass of *Process.Process.TransportingEnergy*, was (direct) subclass of *Process.Process.ProcessStep*
- modified: Capacity moved from *Process.Process.TransportingElectricalEnergy* to *Process.Process.TransportingEnergy.Capacity*
- added: class *Process.Process.TransportingMechanicalEnergy*
- added: class *Process.Process.TransportingThermalEnergy*
- added: class *Process.Process.TransportingMaterial*
- modified: *Process.Process.TransportingFluids* now subclass of *Process.Process.TransportingMaterial*, was (direct) subclass of *Process.Process.ProcessStep*; property Flow removed as it is now inherited from the superclass
- modified: *Process.Process.TransportingSolids* now subclass of *Process.Process.TransportingMaterial*, was (direct) subclass of *Process.Process.ProcessStep*; property Flow removed as it is now inherited from the superclass
- added: class *Process.Diagram.PortNodePosition*
- added: property *Process.Process.ProcessStepDetail.Ports*

Reference P&ID

- *DEXPI Reference P&ID*: types of general *Plant.ProcessEquipment.Nozzle* items refined to adequate subclasses *Plant.ProcessEquipment.AccessNozzle*, *Plant.ProcessEquipment.InstrumentNozzle*, and *Plant.ProcessEquipment.ProcessNozzle*

Minor Fixes

- spelling errors fixed in descriptions of *Process.Process.CalculatingSplitRange*, *Process.Process.InformationPort*, *Process.Process.MaterialPort*, *Process.Process.SeparatingByCentrifugalForce*, and *Process.Process.ShuttingOffFlow*