

DEXPI Process Information Model

Version 1.0

Released by the DEXPI Initiative
on December 15, 2023



www.dexpi.org

License

This specification is provided by the DEXPI Initiative under the terms of the *Creative Commons Attribution 4.0 International License (CC BY 4.0)*. The full Legal Code of the license is available at <https://creativecommons.org/licenses/by/4.0/legalcode>. The following informative text is reproduced from <https://creativecommons.org/licenses/by/4.0>:

You are free to:

- **Share** – copy and redistribute the material in any medium or format
- **Adapt** – remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

- **Attribution** – You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
- **No additional restrictions** – You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

Notices:

You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation.

No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material.

Contributors

- David Cameron (University of Oslo)
- Eric Carnet (Aveva)
- Behnam Ghahraman (Aucotec)
- Iskandar Halim (ISCEE)
- Leon Hanke (Aucotec)
- Monica Hole (Aibel)
- Idar Pe Ingebrigtsen (Equinor)
- Anselm Klose (TU Dresden)
- Wilhelm Otten (WOtten-Consulting)
- Andreas Schüller (Yncoris/NAMUR)
- Maged Selim (Aveva)
- Martin te Lintelo (USPI)
- Heiner Temmen (Evonik)
- Manfred Theißen (pnb plants & bytes)
- Gregor Tolksdorf (Evonik)

1	Information Model	9
1	Package PhysicalQuantities	11
1.1	Area	11
1.2	AreaUnit	12
1.3	Density	12
1.4	DensityUnit	13
1.5	DynamicViscosity	13
1.6	DynamicViscosityUnit	14
1.7	ElectricCurrent	15
1.8	ElectricCurrentUnit	15
1.9	ElectricalFrequency	16
1.10	ElectricalFrequencyUnit	17
1.11	Energy	17
1.12	EnergyUnit	18
1.13	Force	18
1.14	ForceUnit	19
1.15	HeatTransferCoefficient	20
1.16	HeatTransferCoefficientUnit	20
1.17	HeatTransferResistance	21
1.18	HeatTransferResistanceUnit	22
1.19	Length	22
1.20	LengthUnit	23
1.21	MagneticFieldIntensity	23
1.22	MagneticFieldIntensityUnit	24
1.23	Mass	24
1.24	MassFlowRate	25
1.25	MassFlowRateUnit	26
1.26	MassSpecificEnergy	27
1.27	MassSpecificEnergyUnit	27
1.28	MassUnit	28
1.29	MoleFlow	28
1.30	MoleFlowUnit	29
1.31	MomentOfForce	29
1.32	MomentOfForceUnit	30
1.33	NULL_AREA	31
1.34	NULL_DENSITY	31
1.35	NULL_DYNAMIC_VISCOSITY	31
1.36	NULL_ELECTRICAL_FREQUENCY	31
1.37	NULL_ELECTRIC_CURRENT	32
1.38	NULL_ENERGY	32
1.39	NULL_FORCE	32
1.40	NULL_HEAT_TRANSFER_COEFFICIENT	33
1.41	NULL_HEAT_TRANSFER_RESISTANCE	33
1.42	NULL_LENGTH	33
1.43	NULL_MAGNETIC_FIELD_INTENSITY	34
1.44	NULL_MASS	34
1.45	NULL_MASS_FLOW_RATE	34
1.46	NULL_MASS_SPECIFIC_ENERGY	35

1.47	NULL_MOLE_FLOW	35
1.48	NULL_MOMENT_OF_FORCE	35
1.49	NULL_NUMBER_PER_TIME_INTERVAL	36
1.50	NULL_PARTICLE_SIZE	36
1.51	NULL_PERCENTAGE	36
1.52	NULL_PH	37
1.53	NULL_POWER	37
1.54	NULL_PRESSURE_ABSOLUTE	37
1.55	NULL_PRESSURE_GAUGE	38
1.56	NULL_ROTATIONAL_FREQUENCY	38
1.57	NULL_TEMPERATURE	38
1.58	NULL_TIME_INTERVAL	39
1.59	NULL_VELOCITY	39
1.60	NULL_VOLTAGE	39
1.61	NULL_VOLUME	40
1.62	NULL_VOLUME_FLOW_RATE	40
1.63	NullArea	40
1.64	NullDensity	41
1.65	NullDynamicViscosity	41
1.66	NullElectricCurrent	42
1.67	NullElectricalFrequency	42
1.68	NullEnergy	43
1.69	NullForce	43
1.70	NullHeatTransferCoefficient	44
1.71	NullHeatTransferResistance	44
1.72	NullLength	45
1.73	NullMagneticFieldIntensity	45
1.74	NullMass	46
1.75	NullMassFlowRate	46
1.76	NullMassSpecificEnergy	47
1.77	NullMoleFlow	47
1.78	NullMomentOfForce	48
1.79	NullNumberPerTimeInterval	48
1.80	NullParticleSize	49
1.81	NullPercentage	49
1.82	NullPower	50
1.83	NullPressureAbsolute	50
1.84	NullPressureGauge	51
1.85	NullRotationalFrequency	51
1.86	NullTemperature	52
1.87	NullTimeInterval	53
1.88	NullVelocity	53
1.89	NullVoltage	54
1.90	NullVolume	54
1.91	NullVolumeFlowRate	55
1.92	NullableArea	55
1.93	NullableDensity	56
1.94	NullableDynamicViscosity	56
1.95	NullableElectricCurrent	57
1.96	NullableElectricalFrequency	57
1.97	NullableEnergy	58
1.98	NullableForce	59
1.99	NullableFrequency	59
1.100	NullableHeatTransferCoefficient	60
1.101	NullableHeatTransferResistance	60
1.102	NullableLength	61
1.103	NullableMagneticFieldIntensity	61
1.104	NullableMass	62
1.105	NullableMassFlowRate	62
1.106	NullableMassSpecificEnergy	63

1.107	NullableMoleFlow	63
1.108	NullableMomentOfForce	64
1.109	NullableNumberPerTimeInterval	64
1.110	NullableParticleSize	65
1.111	NullablePercentage	66
1.112	NullablePower	66
1.113	NullablePressure	67
1.114	NullablePressureAbsolute	67
1.115	NullablePressureGauge	68
1.116	NullableRotationalFrequency	69
1.117	NullableTemperature	69
1.118	NullableTimeInterval	70
1.119	NullableVelocity	70
1.120	NullableVoltage	71
1.121	NullableVolume	71
1.122	NullableVolumeFlowRate	72
1.123	NullablepH	72
1.124	NullpH	73
1.125	NumberPerTimeInterval	73
1.126	NumberPerTimeIntervalUnit	74
1.127	ParticleSize	75
1.128	ParticleSizeUnit	76
1.129	Percentage	76
1.130	PercentageUnit	77
1.131	PhysicalQuantity	77
1.132	Power	78
1.133	PowerUnit	79
1.134	PressureAbsolute	79
1.135	PressureAbsoluteUnit	80
1.136	PressureGauge	80
1.137	PressureGaugeUnit	81
1.138	QualifiedPhysicalQuantity	82
1.139	QuantityMode	83
1.140	QuantityProvenance	83
1.141	QuantityRange	84
1.142	RotationalFrequency	84
1.143	RotationalFrequencyUnit	85
1.144	Temperature	85
1.145	TemperatureUnit	86
1.146	TimeInterval	86
1.147	TimeIntervalUnit	87
1.148	Velocity	88
1.149	VelocityUnit	88
1.150	Voltage	89
1.151	VoltageUnit	90
1.152	Volume	90
1.153	VolumeFlowRate	91
1.154	VolumeFlowRateUnit	92
1.155	VolumeUnit	92
1.156	pH	92
1.157	pHUnit	93
2	Package DataTypes	95
2.1	AnyURI	95
2.2	Boolean	95
2.3	DateTime	95
2.4	Double	96
2.5	Integer	96
2.6	MultiLanguageString	96
2.7	NULL_ANY_URI	97

2.8	NULL_DATE_TIME	97
2.9	NULL_INTEGER	98
2.10	NULL_STRING	98
2.11	NullAnyURI	98
2.12	NullDateTime	99
2.13	NullInteger	99
2.14	NullString	99
2.15	NullableAnyURI	100
2.16	NullableDateTime	100
2.17	NullableInteger	100
2.18	NullableString	101
2.19	SingleLanguageString	101
2.20	String	102
2.21	UnsignedByte	102
3	Package Process	103
3.1	Absorbing	103
3.2	Adsorbing	104
3.3	Agglomerating	106
3.4	Agitating	107
3.5	BlowingDown	108
3.6	Boiling	109
3.7	CalculatingProcessVariable	110
3.8	CalculatingRatio	111
3.9	CalculatingSplitRange	113
3.10	Composition	115
3.11	CompositionBasis	117
3.12	CompositionDisplay	117
3.13	Compressing	117
3.14	CompressionMethod	120
3.15	ContactingInPacking	120
3.16	ContactingOnTray	121
3.17	ControllingProcessVariable	122
3.18	ConveyingSignal	123
3.19	Cooling	124
3.20	Crushing	125
3.21	Crystallize	126
3.22	CustomMaterialComponent	127
3.23	CustomMilling	128
3.24	Cutting	129
3.25	Distilling	130
3.26	Draining	134
3.27	DrivingByEngine	135
3.28	DrivingByMotor	136
3.29	DrivingByTurbine	138
3.30	Drying	139
3.31	ElectricalEnergyFlow	141
3.32	ElectricalEnergyPort	142
3.33	Emitting	143
3.34	EnergyFlow	144
3.35	EnergyPort	145
3.36	EngineDriveMethod	146
3.37	Evaporating	146
3.38	ExchangingThermalEnergy	148
3.39	Extruding	151
3.40	FeedingMaterial	152
3.41	Filtering	153
3.42	Flaring	155
3.43	Flocculating	157
3.44	FormingSolidMaterial	158

3.45	GeneratingACPower	160
3.46	GeneratingCustom	162
3.47	GeneratingDCPower	162
3.48	GeneratingFlow	163
3.49	GeneratingInFuelCell	165
3.50	GeneratingSteam	166
3.51	Grinding	167
3.52	HeatExchangeMethod	167
3.53	HeatingElectrical	168
3.54	HeatingInFurnace	169
3.55	Humidifying	171
3.56	IncreasingParticleSize	172
3.57	InformationFlow	174
3.58	InformationPort	175
3.59	InformationVariant	176
3.60	InformationVariantType	177
3.61	InstrumentationActivity	177
3.62	InstrumentationSystemActivity	178
3.63	Kneading	179
3.64	LimitingFlow	180
3.65	ListOfMaterialComponents	181
3.66	MaterialComponent	182
3.67	MaterialPort	183
3.68	MaterialState	184
3.69	MaterialStateType	185
3.70	MaterialTemplate	187
3.71	MeasuredQuantity	188
3.72	MeasuringProcessVariable	189
3.73	MechanicalEnergyFlow	191
3.74	MechanicalEnergyPort	192
3.75	Milling	193
3.76	Mixing	193
3.77	MixingSimple	195
3.78	MotorDriveMethod	195
3.79	Packaging	196
3.80	Pelletizing	197
3.81	Port	198
3.82	PortDirection	200
3.83	PreventingBackflow	200
3.84	ProcessConnection	201
3.85	ProcessStep	202
3.86	ProcessStepDetail	205
3.87	Pumping	206
3.88	PumpingMethod	208
3.89	PureMaterialComponent	208
3.90	ReactingChemicals	209
3.91	ReactionProcessType	211
3.92	ReducingParticleSize	211
3.93	RegulatingFlow	213
3.94	RelievingOverpressure	214
3.95	RelievingVacuum	215
3.96	RelievingVacuumAndOverpressure	216
3.97	RemovingThermalEnergy	217
3.98	RotaryMixing	220
3.99	Separating	222
3.100	SeparatingByCentrifugalForce	223
3.101	SeparatingByContact	225
3.102	SeparatingByCyclonicMotion	226
3.103	SeparatingByElectromagneticForce	228
3.104	SeparatingByElectrostaticForce	229

3.105	SeparatingByFlash	231
3.106	SeparatingByGravity	231
3.107	SeparatingByIonExchange	233
3.108	SeparatingByMagneticForce	234
3.109	SeparatingByPhaseSeparation	235
3.110	SeparatingByPhysicalProcess	236
3.111	SeparatingBySurfaceTension	237
3.112	SeparatingByThermalProcess	239
3.113	SeparatingMechanically	240
3.114	ShuttingOffFlow	241
3.115	Sieving	243
3.116	Sink	245
3.117	Skimming	246
3.118	Source	246
3.119	Splitting	247
3.120	SplittingEnergy	248
3.121	SplittingMaterial	249
3.122	StabilizingDistilling	250
3.123	StaticMixing	251
3.124	SteeringFlow	252
3.125	Storing	254
3.126	StoringElectricalEnergy	255
3.127	StoringFluids	256
3.128	StoringInBattery	258
3.129	StoringInPressureVessel	259
3.130	StoringInSilo	259
3.131	StoringInTank	260
3.132	StoringSolids	261
3.133	Stream	263
3.134	StrippingDistilling	264
3.135	SupplyFluids	265
3.136	SupplyingElectricalEnergy	267
3.137	SupplyingMechanicalEnergy	268
3.138	SupplyingSolids	270
3.139	SupplyingThermalEnergy	271
3.140	SupplyingThermalEnergyWithBurner	274
3.141	ThermalEnergyFlow	276
3.142	ThermalEnergyPort	277
3.143	TransformingProcessVariable	277
3.144	TransportingElectricalEnergy	279
3.145	TransportingFluids	280
3.146	TransportingFluidsInChannel	282
3.147	TransportingFluidsInHose	284
3.148	TransportingFluidsInPipe	285
3.149	TransportingSolids	286
3.150	TransportingSolidsContinuously	287
3.151	TransportingSolidsDiscontinuously	289
3.152	TrayRole	290
3.153	TurbineDriveMethod	290
3.154	VacuumDistilling	290

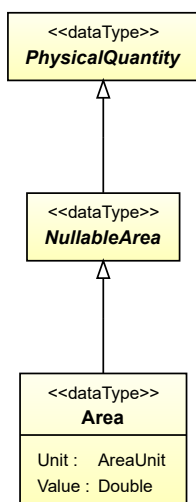
Part 1

Information Model

1.1 Area

1.1.1 Overview

Data type



Supertypes

- *NullableArea*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>AreaUnit</i>
<i>Value</i>	1	<i>Double</i>

1.1.2 Unit

Attribute (data)

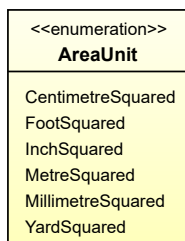
1.1.3 Value

Attribute (data)

1.2 AreaUnit

1.2.1 Overview

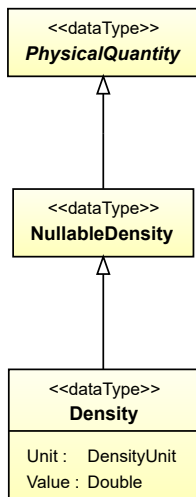
Enumeration



1.3 Density

1.3.1 Overview

Data type



Supertypes

- *NullableDensity*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>DensityUnit</i>
<i>Value</i>	1	<i>Double</i>

1.3.2 Unit

Attribute (data)

1.3.3 Value

Attribute (data)

1.4 DensityUnit

1.4.1 Overview

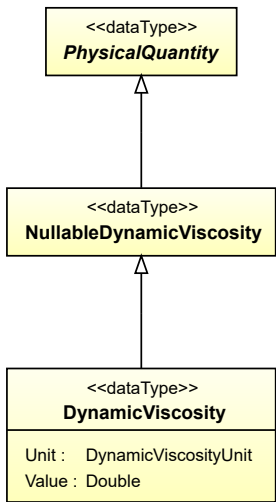
Enumeration

<<enumeration>> DensityUnit
KilogramPerMetreCubed PoundMassPerFootCubed KilogramPerLitre PoundMassPerUsGallon

1.5 DynamicViscosity

1.5.1 Overview

Data type



Supertypes

- *NullableDynamicViscosity*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>DynamicViscosityUnit</i>
<i>Value</i>	1	<i>Double</i>

1.5.2 Unit

Attribute (data)

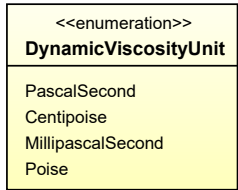
1.5.3 Value

Attribute (data)

1.6 DynamicViscosityUnit

1.6.1 Overview

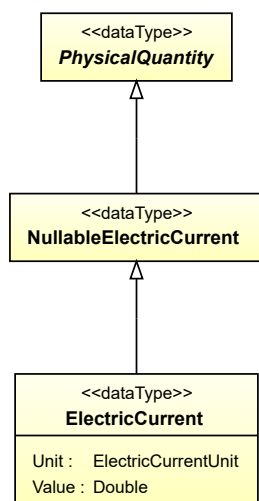
Enumeration



1.7 ElectricCurrent

1.7.1 Overview

Data type



Supertypes

- *NullableElectricCurrent*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>ElectricCurrentUnit</i>
<i>Value</i>	1	<i>Double</i>

1.7.2 Unit

Attribute (data)

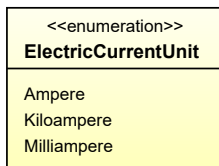
1.7.3 Value

Attribute (data)

1.8 ElectricCurrentUnit

1.8.1 Overview

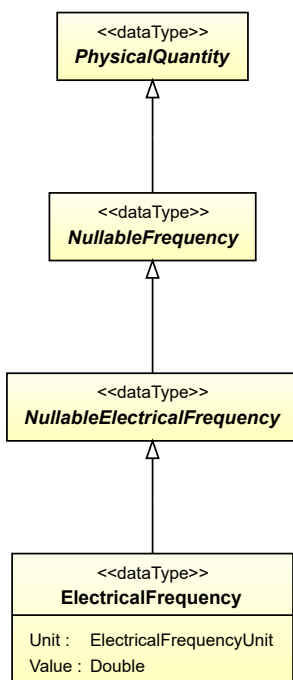
Enumeration



1.9 ElectricalFrequency

1.9.1 Overview

Data type



Supertypes

- *NullableElectricalFrequency*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>ElectricalFrequencyUnit</i>
<i>Value</i>	1	<i>Double</i>

1.9.2 Unit

Attribute (data)

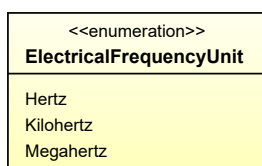
1.9.3 Value

Attribute (data)

1.10 ElectricalFrequencyUnit

1.10.1 Overview

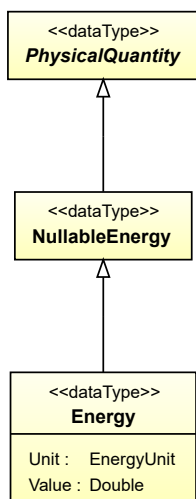
Enumeration



1.11 Energy

1.11.1 Overview

Data type



Supertypes

- *NullableEnergy*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>EnergyUnit</i>
<i>Value</i>	1	<i>Double</i>

1.11.2 Unit

Attribute (data)

1.11.3 Value

Attribute (data)

1.12 EnergyUnit

1.12.1 Overview

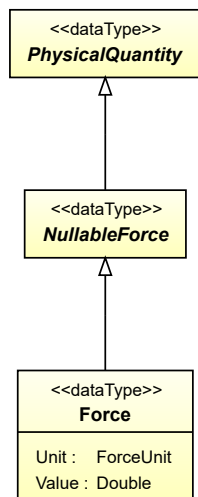
Enumeration

<<enumeration>> EnergyUnit
KilowattHour MegawattHour Joule Kilojoule Megajoule

1.13 Force

1.13.1 Overview

Data type



Supertypes

- *NullableForce*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>ForceUnit</i>
<i>Value</i>	1	<i>Double</i>

1.13.2 Unit

Attribute (data)

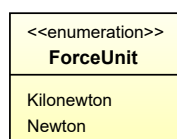
1.13.3 Value

Attribute (data)

1.14 ForceUnit

1.14.1 Overview

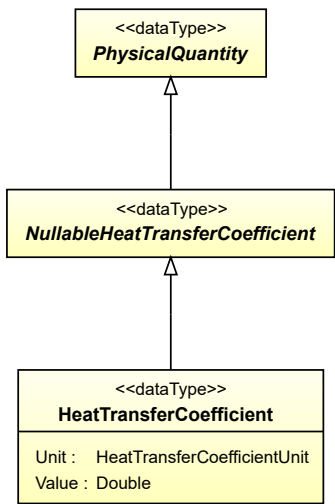
Enumeration



1.15 HeatTransferCoefficient

1.15.1 Overview

Data type



Supertypes

- *NullableHeatTransferCoefficient*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>HeatTransferCoefficientUnit</i>
<i>Value</i>	1	<i>Double</i>

1.15.2 Unit

Attribute (data)

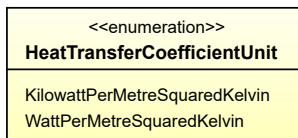
1.15.3 Value

Attribute (data)

1.16 HeatTransferCoefficientUnit

1.16.1 Overview

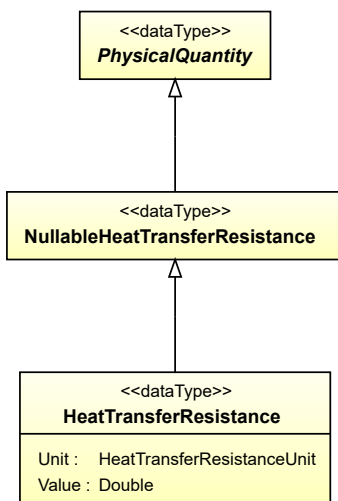
Enumeration



1.17 HeatTransferResistance

1.17.1 Overview

Data type



Supertypes

- *NullableHeatTransferResistance*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>HeatTransferResistanceUnit</i>
<i>Value</i>	1	<i>Double</i>

1.17.2 Unit

Attribute (data)

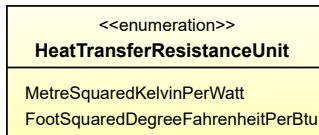
1.17.3 Value

Attribute (data)

1.18 HeatTransferResistanceUnit

1.18.1 Overview

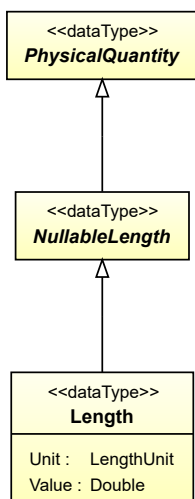
Enumeration



1.19 Length

1.19.1 Overview

Data type



Supertypes

- *NullableLength*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>LengthUnit</i>
<i>Value</i>	1	<i>Double</i>

1.19.2 Unit

Attribute (data)

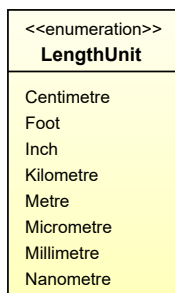
1.19.3 Value

Attribute (data)

1.20 LengthUnit

1.20.1 Overview

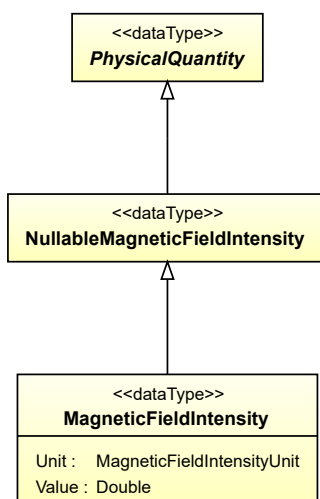
Enumeration



1.21 MagneticFieldIntensity

1.21.1 Overview

Data type



Supertypes

- *NullableMagneticFieldIntensity*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>MagneticFieldIntensityUnit</i>
<i>Value</i>	1	<i>Double</i>

1.21.2 Unit

Attribute (data)

1.21.3 Value

Attribute (data)

1.22 MagneticFieldIntensityUnit

1.22.1 Overview

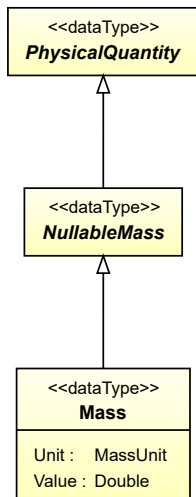
Enumeration

<<enumeration>> MagneticFieldIntensityUnit
Oersted KiloamperePerMetre AmperePerMetre

1.23 Mass

1.23.1 Overview

Data type



Supertypes

- *NullableMass*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>MassUnit</i>
<i>Value</i>	1	<i>Double</i>

1.23.2 Unit

Attribute (data)

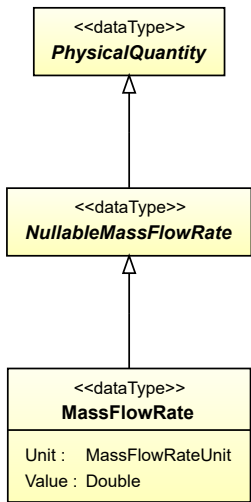
1.23.3 Value

Attribute (data)

1.24 MassFlowRate

1.24.1 Overview

Data type



Supertypes

- *NullableMassFlowRate*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>MassFlowRateUnit</i>
<i>Value</i>	1	<i>Double</i>

1.24.2 Unit

Attribute (data)

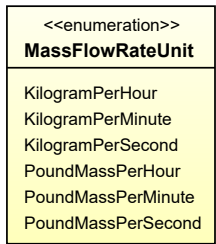
1.24.3 Value

Attribute (data)

1.25 MassFlowRateUnit

1.25.1 Overview

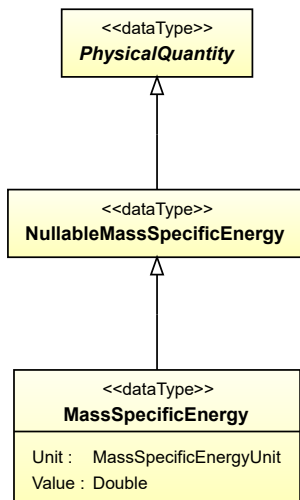
Enumeration



1.26 MassSpecificEnergy

1.26.1 Overview

Data type



Supertypes

- *NullableMassSpecificEnergy*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>MassSpecificEnergyUnit</i>
<i>Value</i>	1	<i>Double</i>

1.26.2 Unit

Attribute (data)

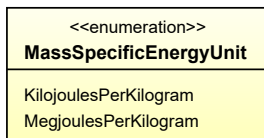
1.26.3 Value

Attribute (data)

1.27 MassSpecificEnergyUnit

1.27.1 Overview

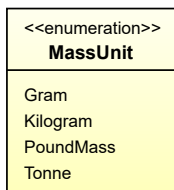
Enumeration



1.28 MassUnit

1.28.1 Overview

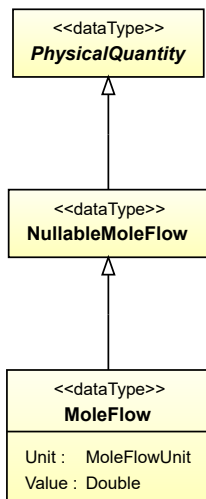
Enumeration



1.29 MoleFlow

1.29.1 Overview

Data type



Supertypes

- *NullableMoleFlow*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>MoleFlowUnit</i>
<i>Value</i>	1	<i>Double</i>

1.29.2 Unit

Attribute (data)

1.29.3 Value

Attribute (data)

1.30 MoleFlowUnit

1.30.1 Overview

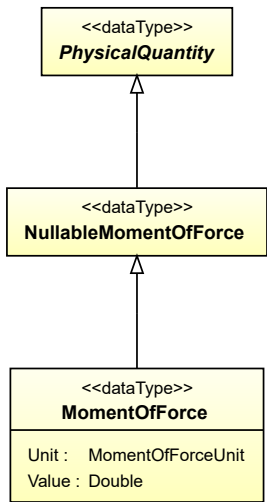
Enumeration

<<enumeration>> MoleFlowUnit
KilomolePerSecond PoundMolePerSecond

1.31 MomentOfForce

1.31.1 Overview

Data type



Supertypes

- *NullableMomentOfForce*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>MomentOfForceUnit</i>
<i>Value</i>	1	<i>Double</i>

1.31.2 Unit

Attribute (data)

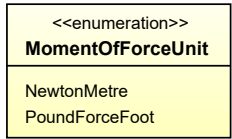
1.31.3 Value

Attribute (data)

1.32 MomentOfForceUnit

1.32.1 Overview

Enumeration



1.33 NULL_AREA

1.33.1 Overview

Instance

NULL_AREA : NullArea

Type

- *NullArea*

1.34 NULL_DENSITY

1.34.1 Overview

Instance

NULL_DENSITY : NullDensity

Type

- *NullDensity*

1.35 NULL_DYNAMIC_VISCOSITY

1.35.1 Overview

Instance

NULL_DYNAMIC_VISCOSITY : NullDynamicViscosity

Type

- *NullDynamicViscosity*

1.36 NULL_ELECTRICAL_FREQUENCY

1.36.1 Overview

Instance

NULL_ELECTRICAL_FREQUENCY : NullElectricalFrequency

Type

- *NullElectricalFrequency*

1.37 NULL_ELECTRIC_CURRENT

1.37.1 Overview

Instance

NULL_ELECTRIC_CURRENT : NullElectricCurrent

Type

- *NullElectricCurrent*

1.38 NULL_ENERGY

1.38.1 Overview

Instance

NULL_ENERGY : NullEnergy

Type

- *NullEnergy*

1.39 NULL_FORCE

1.39.1 Overview

Instance

NULL_FORCE : NullForce

Type

- *NullForce*

1.40 NULL_HEAT_TRANSFER_COEFFICIENT

1.40.1 Overview

Instance

NULL_HEAT_TRANSFER_COEFFICIENT : NullHeatTransferCoefficient

Type

- *NullHeatTransferCoefficient*

1.41 NULL_HEAT_TRANSFER_RESISTANCE

1.41.1 Overview

Instance

NULL_HEAT_TRANSFER_RESISTANCE : NullHeatTransferResistance

Type

- *NullHeatTransferResistance*

1.42 NULL_LENGTH

1.42.1 Overview

Instance

NULL_LENGTH : NullLength

Type

- *NullLength*

1.43 NULL_MAGNETIC_FIELD_INTENSITY

1.43.1 Overview

Instance

NULL_MAGNETIC_FIELD_INTENSITY : NullMagneticFieldIntensity

Type

- *NullMagneticFieldIntensity*

1.44 NULL_MASS

1.44.1 Overview

Instance

NULL_MASS : NullMass

Type

- *NullMass*

1.45 NULL_MASS_FLOW_RATE

1.45.1 Overview

Instance

NULL_MASS_FLOW_RATE : NullMassFlowRate

Type

- *NullMassFlowRate*

1.46 NULL_MASS_SPECIFIC_ENERGY

1.46.1 Overview

Instance

NULL_MASS_SPECIFIC_ENERGY : NullMassSpecificEnergy

Type

- *NullMassSpecificEnergy*

1.47 NULL_MOLE_FLOW

1.47.1 Overview

Instance

NULL_MOLE_FLOW : NullMoleFlow

Type

- *NullMoleFlow*

1.48 NULL_MOMENT_OF_FORCE

1.48.1 Overview

Instance

NULL_MOMENT_OF_FORCE : NullMomentOfForce

Type

- *NullMomentOfForce*

1.49 NULL_NUMBER_PER_TIME_INTERVAL

1.49.1 Overview

Instance

NULL_NUMBER_PER_TIME_INTERVAL : NullNumberPerTimeInterval

Type

- *NullNumberPerTimeInterval*

1.50 NULL_PARTICLE_SIZE

1.50.1 Overview

Instance

NULL_PARTICLE_SIZE : NullParticleSize

Type

- *NullParticleSize*

1.51 NULL_PERCENTAGE

1.51.1 Overview

Instance

NULL_PERCENTAGE : NullPercentage

Type

- *NullPercentage*

1.52 NULL_PH

1.52.1 Overview

Instance

NULL_PH : NullpH

Type

- *NullpH*

1.53 NULL_POWER

1.53.1 Overview

Instance

NULL_POWER : NullPower

Type

- *NullPower*

1.54 NULL_PRESSURE_ABSOLUTE

1.54.1 Overview

Instance

NULL_PRESSURE_ABSOLUTE : NullPressureAbsolute

Type

- *NullPressureAbsolute*

1.55 NULL_PRESSURE_GAUGE

1.55.1 Overview

Instance

NULL_PRESSURE_GAUGE : NullPressureGauge

Type

- *NullPressureGauge*

1.56 NULL_ROTATIONAL_FREQUENCY

1.56.1 Overview

Instance

NULL_ROTATIONAL_FREQUENCY : NullRotationalFrequency

Type

- *NullRotationalFrequency*

1.57 NULL_TEMPERATURE

1.57.1 Overview

Instance

NULL_TEMPERATURE : NullTemperature

Type

- *NullTemperature*

1.58 NULL_TIME_INTERVAL

1.58.1 Overview

Instance

NULL_TIME_INTERVAL : NullTimeInterval

Type

- *NullTimeInterval*

1.59 NULL_VELOCITY

1.59.1 Overview

Instance

NULL_VELOCITY : NullVelocity

Type

- *NullVelocity*

1.60 NULL_VOLTAGE

1.60.1 Overview

Instance

NULL_VOLTAGE : NullVoltage

Type

- *NullVoltage*

1.61 NULL_VOLUME

1.61.1 Overview

Instance

NULL_VOLUME : NullVolume

Type

- *NullVolume*

1.62 NULL_VOLUME_FLOW_RATE

1.62.1 Overview

Instance

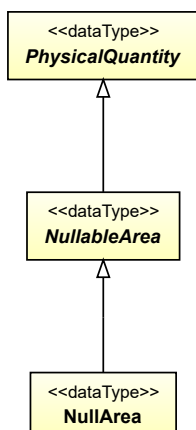
NULL_VOLUME_FLOW_RATE : NullVolumeFlowRate

Type

- *NullVolumeFlowRate*

1.63 NullArea

1.63.1 Overview

Data type

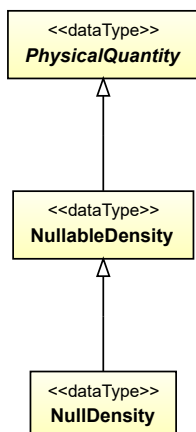
Supertypes

- *NullableArea*

1.64 NullDensity

1.64.1 Overview

Data type



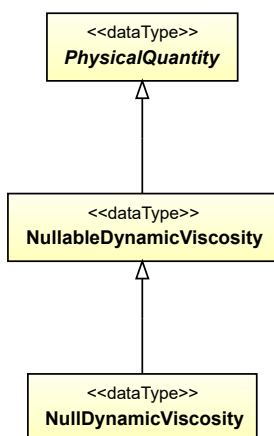
Supertypes

- *NullableDensity*

1.65 NullDynamicViscosity

1.65.1 Overview

Data type



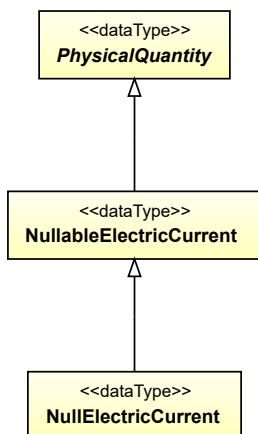
Supertypes

- *NullableDynamicViscosity*

1.66 NullElectricCurrent

1.66.1 Overview

Data type



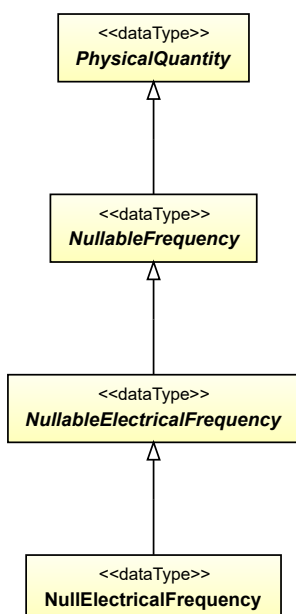
Supertypes

- *NullableElectricCurrent*

1.67 NullElectricalFrequency

1.67.1 Overview

Data type



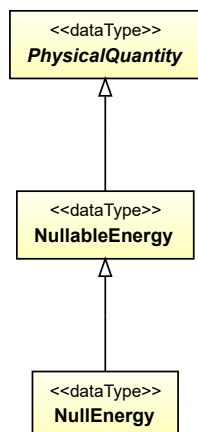
Supertypes

- *NullableElectricalFrequency*

1.68 NullEnergy

1.68.1 Overview

Data type



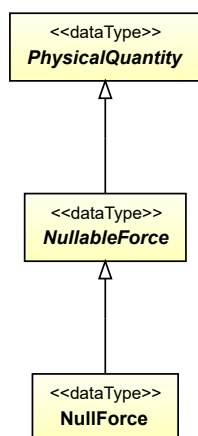
Supertypes

- *NullableEnergy*

1.69 NullForce

1.69.1 Overview

Data type



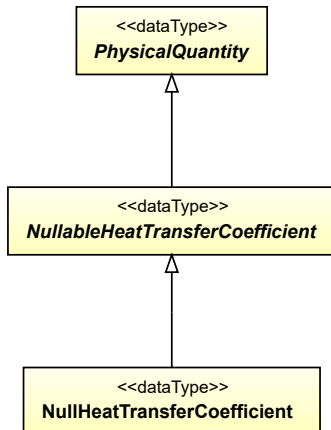
Supertypes

- *NullableForce*

1.70 NullHeatTransferCoefficient

1.70.1 Overview

Data type



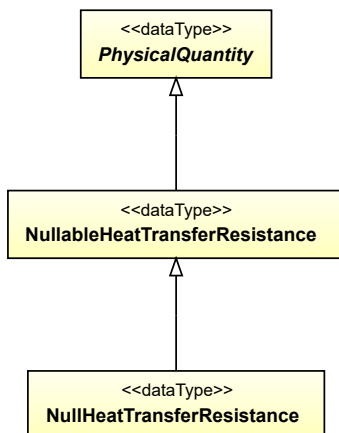
Supertypes

- *NullableHeatTransferCoefficient*

1.71 NullHeatTransferResistance

1.71.1 Overview

Data type



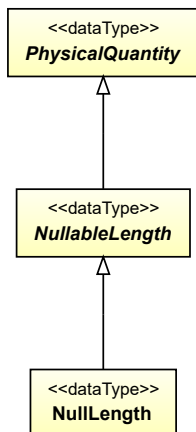
Supertypes

- *NullableHeatTransferResistance*

1.72 NullLength

1.72.1 Overview

Data type



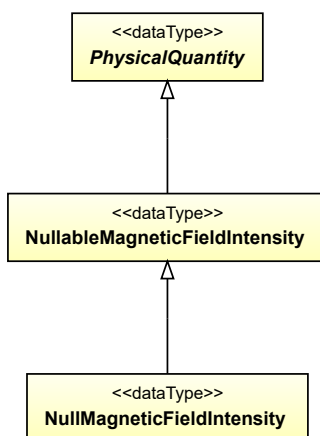
Supertypes

- *NullableLength*

1.73 NullMagneticFieldIntensity

1.73.1 Overview

Data type



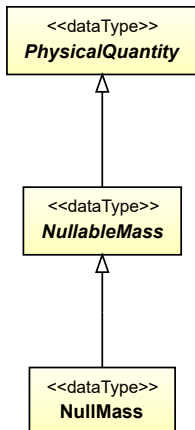
Supertypes

- *NullableMagneticFieldIntensity*

1.74 NullMass

1.74.1 Overview

Data type



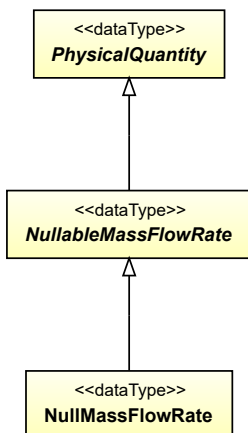
Supertypes

- *NullableMass*

1.75 NullMassFlowRate

1.75.1 Overview

Data type



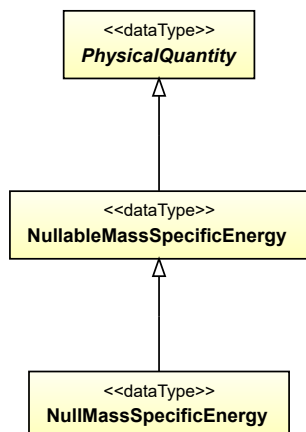
Supertypes

- *NullableMassFlowRate*

1.76 NullMassSpecificEnergy

1.76.1 Overview

Data type



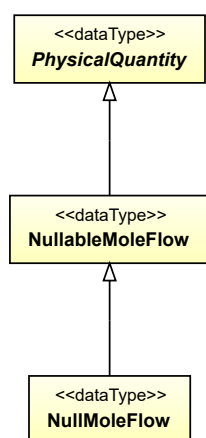
Supertypes

- *NullableMassSpecificEnergy*

1.77 NullMoleFlow

1.77.1 Overview

Data type



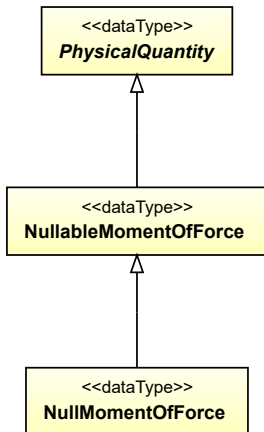
Supertypes

- *NullableMoleFlow*

1.78 NullMomentOfForce

1.78.1 Overview

Data type



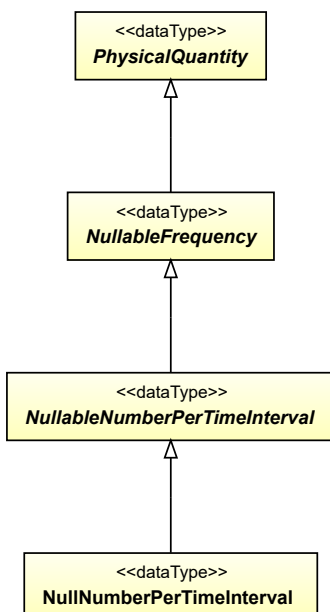
Supertypes

- *NullableMomentOfForce*

1.79 NullNumberPerTimeInterval

1.79.1 Overview

Data type



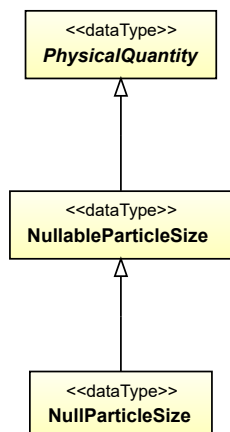
Supertypes

- *NullableNumberPerTimeInterval*

1.80 NullParticleSize

1.80.1 Overview

Data type



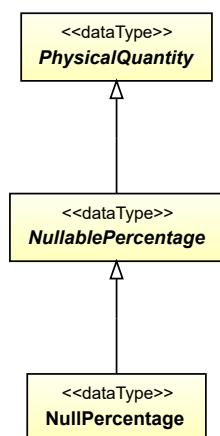
Supertypes

- *NullableParticleSize*

1.81 NullPercentage

1.81.1 Overview

Data type



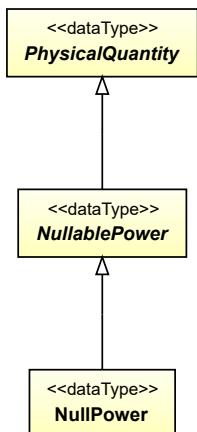
Supertypes

- *NullablePercentage*

1.82 NullPower

1.82.1 Overview

Data type



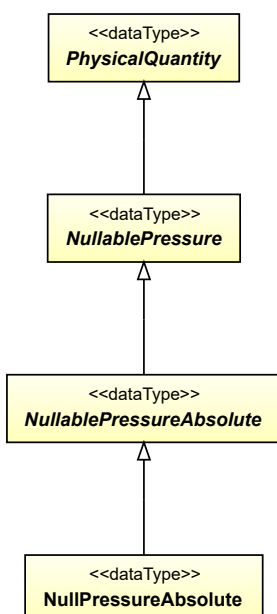
Supertypes

- *NullablePower*

1.83 NullPressureAbsolute

1.83.1 Overview

Data type



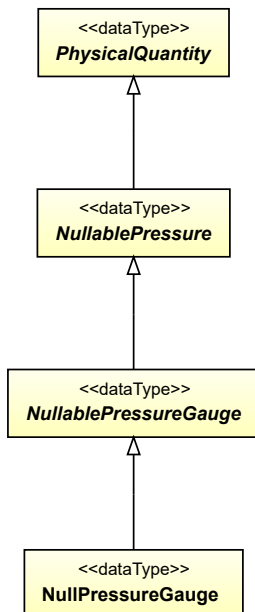
Supertypes

- *NullablePressureAbsolute*

1.84 NullPressureGauge

1.84.1 Overview

Data type



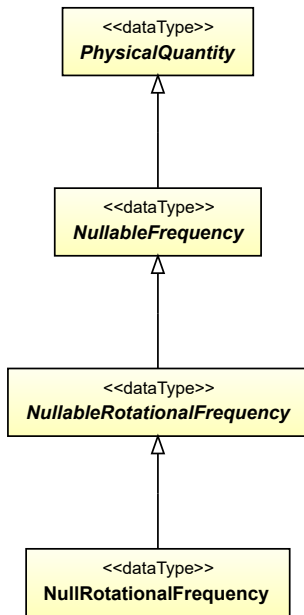
Supertypes

- *NullablePressureGauge*

1.85 NullRotationalFrequency

1.85.1 Overview

Data type



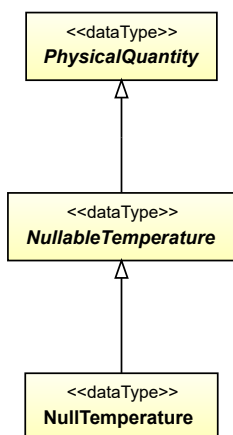
Supertypes

- *NullableRotationalFrequency*

1.86 NullTemperature

1.86.1 Overview

Data type



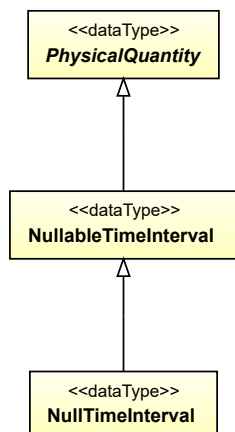
Supertypes

- *NullableTemperature*

1.87 NullTimeInterval

1.87.1 Overview

Data type



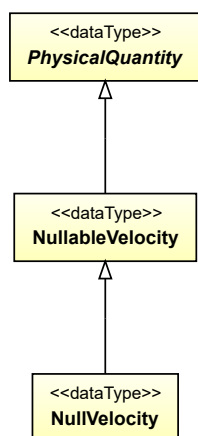
Supertypes

- *NullableTimeInterval*

1.88 NullVelocity

1.88.1 Overview

Data type



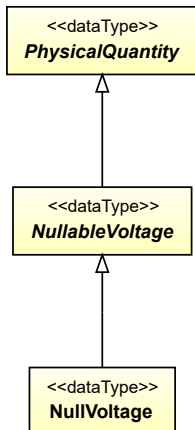
Supertypes

- *NullableVelocity*

1.89 NullVoltage

1.89.1 Overview

Data type



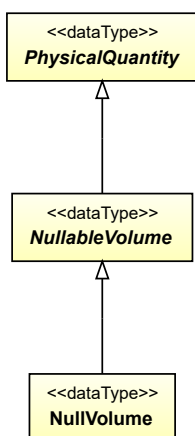
Supertypes

- *NullableVoltage*

1.90 NullVolume

1.90.1 Overview

Data type



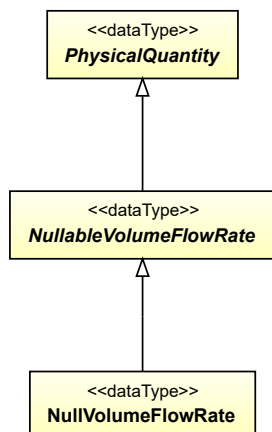
Supertypes

- *NullableVolume*

1.91 NullVolumeFlowRate

1.91.1 Overview

Data type



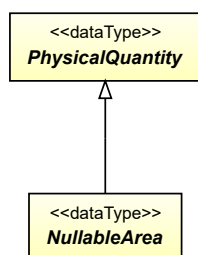
Supertypes

- *NullableVolumeFlowRate*

1.92 NullableArea

1.92.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

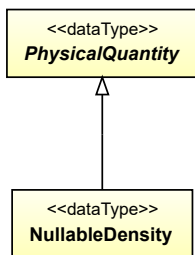
Subtypes

- *Area*
- *NullArea*

1.93 NullableDensity

1.93.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

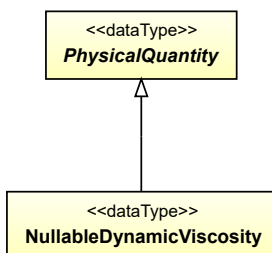
Subtypes

- *Density*
- *NullDensity*

1.94 NullableDynamicViscosity

1.94.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

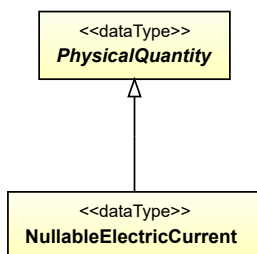
Subtypes

- *DynamicViscosity*
- *NullDynamicViscosity*

1.95 NullableElectricCurrent

1.95.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

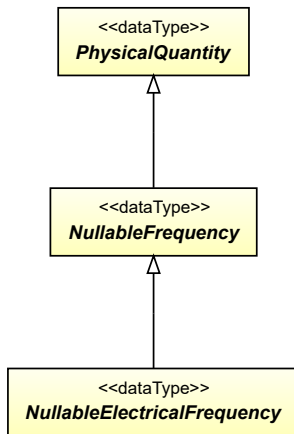
Subtypes

- *ElectricCurrent*
- *NullElectricCurrent*

1.96 NullableElectricalFrequency

1.96.1 Overview

Abstract data type



Supertypes

- *NullableFrequency*

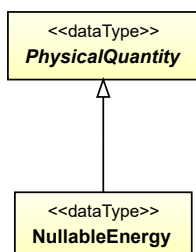
Subtypes

- *ElectricalFrequency*
- *NullElectricalFrequency*

1.97 NullableEnergy

1.97.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

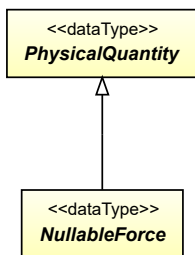
Subtypes

- *Energy*
- *NullEnergy*

1.98 NullableForce

1.98.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

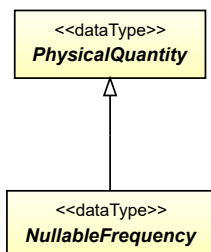
Subtypes

- *Force*
- *NullForce*

1.99 NullableFrequency

1.99.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

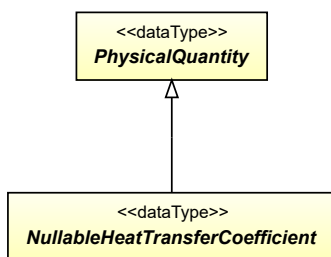
Subtypes

- *NullableElectricalFrequency*
- *NullableNumberPerTimeInterval*
- *NullableRotationalFrequency*

1.100 NullableHeatTransferCoefficient

1.100.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

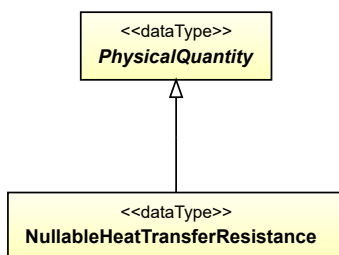
Subtypes

- *HeatTransferCoefficient*
- *NullHeatTransferCoefficient*

1.101 NullableHeatTransferResistance

1.101.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

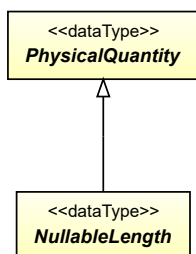
Subtypes

- *HeatTransferResistance*
- *NullHeatTransferResistance*

1.102 NullableLength

1.102.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

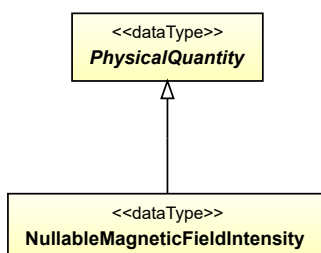
Subtypes

- *Length*
- *NullLength*

1.103 NullableMagneticFieldIntensity

1.103.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

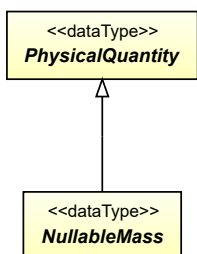
Subtypes

- *MagneticFieldIntensity*
- *NullMagneticFieldIntensity*

1.104 NullableMass

1.104.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

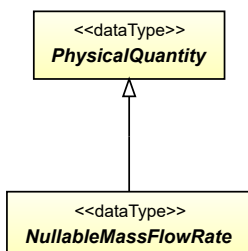
Subtypes

- *Mass*
- *NullMass*

1.105 NullableMassFlowRate

1.105.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

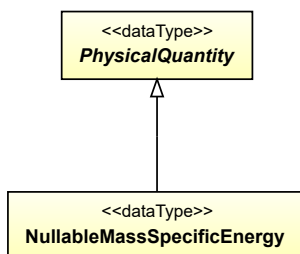
Subtypes

- *MassFlowRate*
- *NullMassFlowRate*

1.106 NullableMassSpecificEnergy

1.106.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

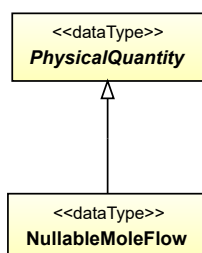
Subtypes

- *MassSpecificEnergy*
- *NullMassSpecificEnergy*

1.107 NullableMoleFlow

1.107.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

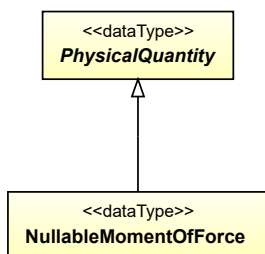
Subtypes

- *MoleFlow*
- *NullMoleFlow*

1.108 NullableMomentOfForce

1.108.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

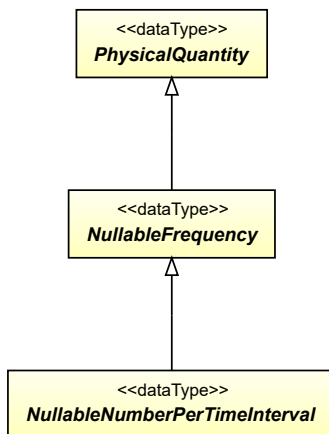
Subtypes

- *MomentOfForce*
- *NullMomentOfForce*

1.109 NullableNumberPerTimeInterval

1.109.1 Overview

Abstract data type



Supertypes

- *NullableFrequency*

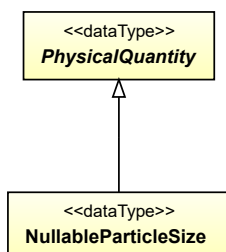
Subtypes

- *NullNumberPerTimeInterval*
- *NumberPerTimeInterval*

1.110 NullableParticleSize

1.110.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

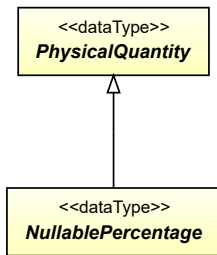
Subtypes

- *NullParticleSize*
- *ParticleSize*

1.111 NullablePercentage

1.111.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

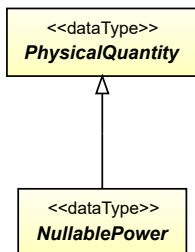
Subtypes

- *NullPercentage*
- *Percentage*

1.112 NullablePower

1.112.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

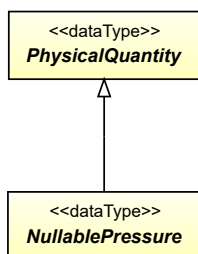
Subtypes

- *NullPower*
- *Power*

1.113 NullablePressure

1.113.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

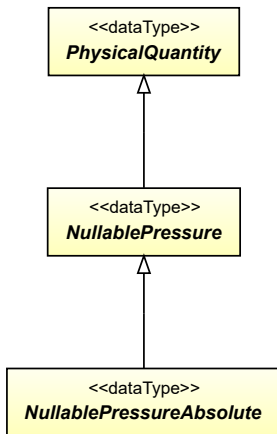
Subtypes

- *NullablePressureAbsolute*
- *NullablePressureGauge*

1.114 NullablePressureAbsolute

1.114.1 Overview

Abstract data type



Supertypes

- *NullablePressure*

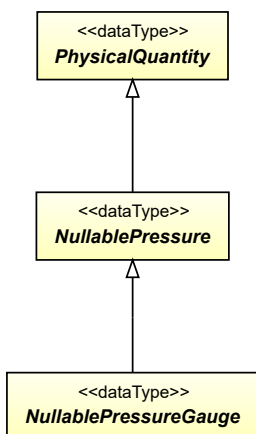
Subtypes

- *NullPressureAbsolute*
- *PressureAbsolute*

1.115 NullablePressureGauge

1.115.1 Overview

Abstract data type



Supertypes

- *NullablePressure*

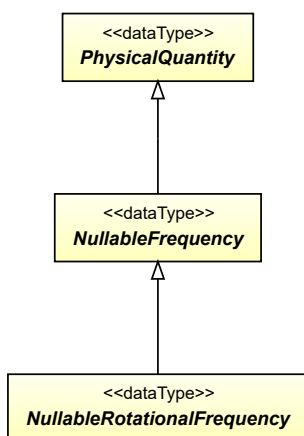
Subtypes

- *NullPressureGauge*
- *PressureGauge*

1.116 NullableRotationalFrequency

1.116.1 Overview

Abstract data type



Supertypes

- *NullableFrequency*

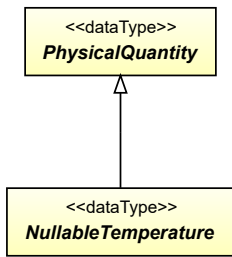
Subtypes

- *NullRotationalFrequency*
- *RotationalFrequency*

1.117 NullableTemperature

1.117.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

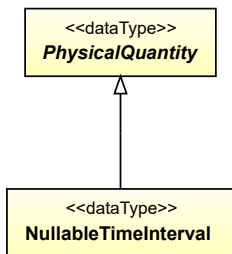
Subtypes

- *NullTemperature*
- *Temperature*

1.118 NullableTimeInterval

1.118.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

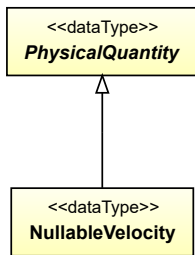
Subtypes

- *NullTimeInterval*
- *TimeInterval*

1.119 NullableVelocity

1.119.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

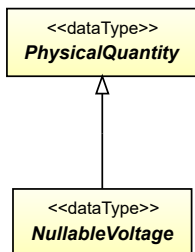
Subtypes

- *NullVelocity*
- *Velocity*

1.120 NullableVoltage

1.120.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

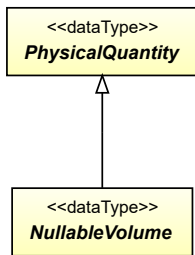
Subtypes

- *NullVoltage*
- *Voltage*

1.121 NullableVolume

1.121.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

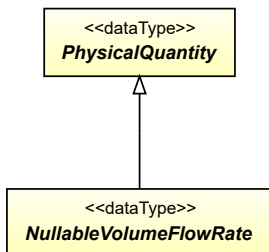
Subtypes

- *NullVolume*
- *Volume*

1.122 NullableVolumeFlowRate

1.122.1 Overview

Abstract data type



Supertypes

- *PhysicalQuantity*

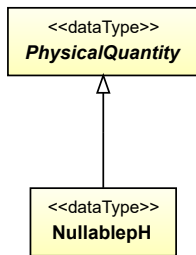
Subtypes

- *NullVolumeFlowRate*
- *VolumeFlowRate*

1.123 NullablepH

1.123.1 Overview

Data type



Supertypes

- *PhysicalQuantity*

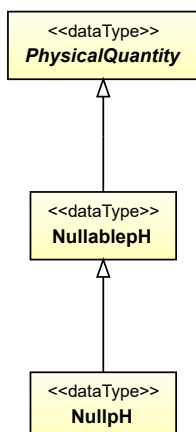
Subtypes

- *NullpH*
- *pH*

1.124 NullpH

1.124.1 Overview

Data type



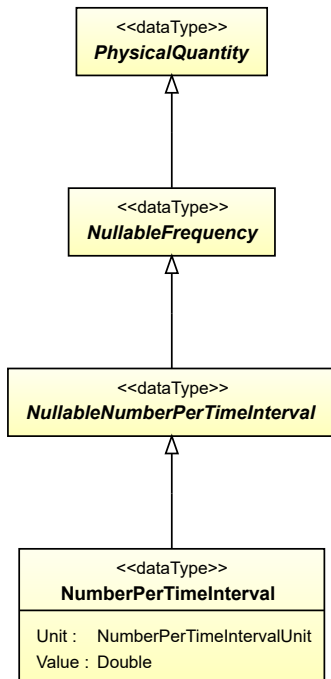
Supertypes

- *NullablepH*

1.125 NumberPerTimeInterval

1.125.1 Overview

Data type



Supertypes

- *NullableNumberPerTimeInterval*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>NumberPerTimeIntervalUnit</i>
<i>Value</i>	1	<i>Double</i>

1.125.2 Unit

Attribute (data)

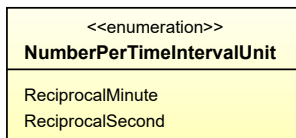
1.125.3 Value

Attribute (data)

1.126 NumberPerTimeIntervalUnit

1.126.1 Overview

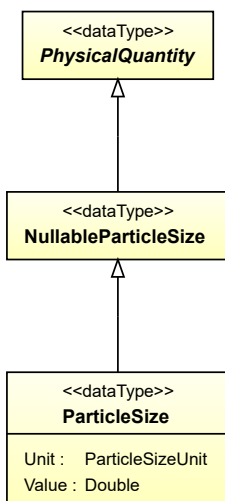
Enumeration



1.127 ParticleSize

1.127.1 Overview

Data type



Supertypes

- *NullableParticleSize*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>ParticleSizeUnit</i>
<i>Value</i>	1	<i>Double</i>

1.127.2 Unit

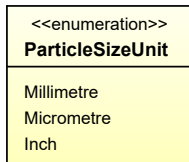
Attribute (data)

1.127.3 Value

Attribute (data)

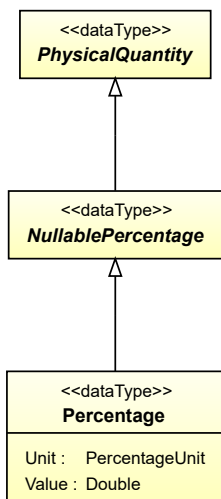
1.128 ParticleSizeUnit

1.128.1 Overview

Enumeration

1.129 Percentage

1.129.1 Overview

Data type**Supertypes**

- *NullablePercentage*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>PercentageUnit</i>
<i>Value</i>	1	<i>Double</i>

1.129.2 Unit

Attribute (data)

1.129.3 Value

Attribute (data)

1.130 PercentageUnit

1.130.1 Overview

Enumeration

<<enumeration>> PercentageUnit
Percent

1.131 PhysicalQuantity

1.131.1 Overview

Abstract data type

<<dataType>> PhysicalQuantity

Subtypes

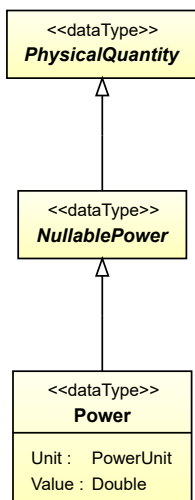
- *NullableArea*
- *NullableDensity*
- *NullableDynamicViscosity*
- *NullableElectricCurrent*
- *NullableEnergy*
- *NullableForce*
- *NullableFrequency*
- *NullableHeatTransferCoefficient*
- *NullableHeatTransferResistance*
- *NullableLength*
- *NullableMagneticFieldIntensity*
- *NullableMass*
- *NullableMassFlowRate*
- *NullableMassSpecificEnergy*
- *NullableMoleFlow*
- *NullableMomentOfForce*

- *NullableParticleSize*
- *NullablePercentage*
- *NullablePower*
- *NullablePressure*
- *NullableTemperature*
- *NullableTimeInterval*
- *NullableVelocity*
- *NullableVoltage*
- *NullableVolume*
- *NullableVolumeFlowRate*
- *NullablepH*

1.132 Power

1.132.1 Overview

Data type



Supertypes

- *NullablePower*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>PowerUnit</i>
<i>Value</i>	1	<i>Double</i>

1.132.2 Unit

Attribute (data)

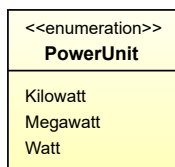
1.132.3 Value

Attribute (data)

1.133 PowerUnit

1.133.1 Overview

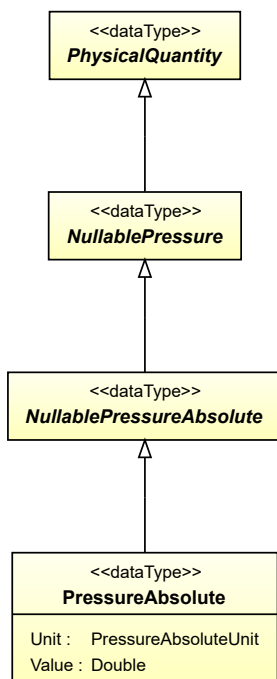
Enumeration



1.134 PressureAbsolute

1.134.1 Overview

Data type



Supertypes

- *NullablePressureAbsolute*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>PressureAbsoluteUnit</i>
<i>Value</i>	1	<i>Double</i>

1.134.2 Unit

Attribute (data)

1.134.3 Value

Attribute (data)

1.135 PressureAbsoluteUnit

1.135.1 Overview

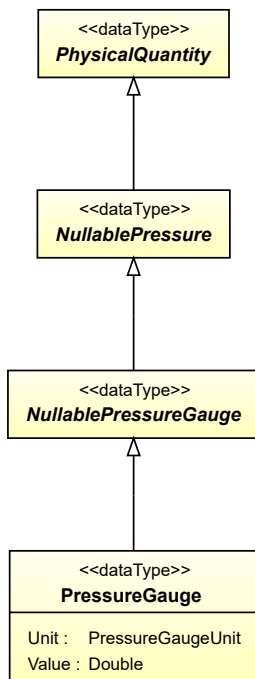
Enumeration

<<enumeration>> PressureAbsoluteUnit
Bar Kilopascal Megapascal Millibar Pascal PoundForcePerInchSquared

1.136 PressureGauge

1.136.1 Overview

Data type



Supertypes

- *NullablePressureGauge*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>PressureGaugeUnit</i>
<i>Value</i>	1	<i>Double</i>

1.136.2 Unit

Attribute (data)

1.136.3 Value

Attribute (data)

1.137 PressureGaugeUnit

1.137.1 Overview

Enumeration

<<enumeration>> PressureGaugeUnit
Bar Kilopascal Megapascal Millibar Pascal PoundForcePerInchSquared

1.138 QualifiedPhysicalQuantity

1.138.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
<i>Case</i>	0..1	<i>NullableString</i>
<i>Description</i>	0..1	<i>MultiLanguageString</i>
<i>Label</i>	0..1	<i>NullableString</i>
<i>Mode</i>	1	<i>QuantityMode</i>
<i>Provenance</i>	1	<i>QuantityProvenance</i>
<i>ProvenanceURI</i>	0..1	<i>NullableAnyURI</i>
<i>Range</i>	1	<i>QuantityRange</i>
<i>ReferenceDataURI</i>	0..1	<i>NullableAnyURI</i>
<i>SourceURI</i>	0..1	<i>NullableAnyURI</i>

1.138.2 Case

Attribute (data)

1.138.3 Description

Attribute (data)

1.138.4 Label

Attribute (data)

1.138.5 Mode

Attribute (data)

1.138.6 Provenance

Attribute (data)

1.138.7 ProvenanceURI

Attribute (data)

1.138.8 Range

Attribute (data)

1.138.9 ReferenceDataURI

Attribute (data)

1.138.10 SourceURI

Attribute (data)

1.139 QuantityMode

1.139.1 Overview

Enumeration

<<enumeration>> QuantityMode
Design Allowable Incidental Expected Operating Test

1.140 QuantityProvenance

1.140.1 Overview

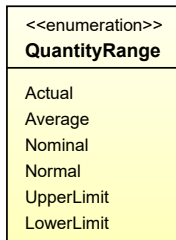
Enumeration

<<enumeration>> QuantityProvenance
Set Specified Estimated Calculated Observed

1.141 QuantityRange

1.141.1 Overview

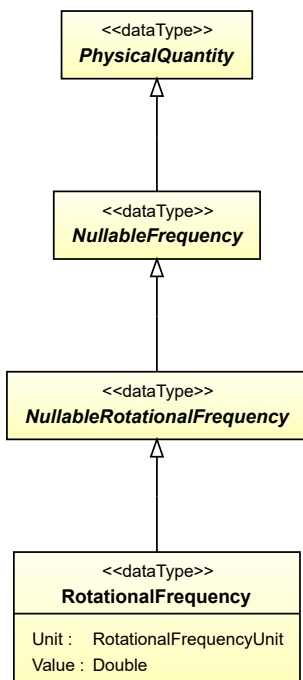
Enumeration



1.142 RotationalFrequency

1.142.1 Overview

Data type



Supertypes

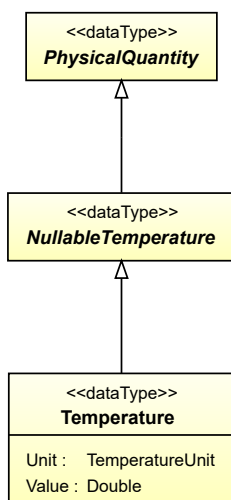
- *NullableRotationalFrequency*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>RotationalFrequencyUnit</i>
<i>Value</i>	1	<i>Double</i>

1.142.2 Unit**Attribute (data)****1.142.3 Value****Attribute (data)****1.143 RotationalFrequencyUnit****1.143.1 Overview****Enumeration**

<<enumeration>> RotationalFrequencyUnit
ReciprocalMinute ReciprocalSecond

1.144 Temperature**1.144.1 Overview****Data type**

Supertypes

- *NullableTemperature*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>TemperatureUnit</i>
<i>Value</i>	1	<i>Double</i>

1.144.2 Unit

Attribute (data)

1.144.3 Value

Attribute (data)

1.145 TemperatureUnit

1.145.1 Overview

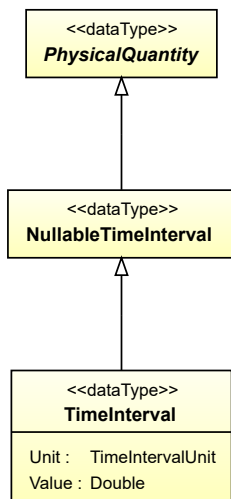
Enumeration

<<enumeration>> TemperatureUnit
DegreeCelsius DegreeFahrenheit Kelvin

1.146 TimeInterval

1.146.1 Overview

Data type



Supertypes

- *NullableTimeInterval*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>TimeIntervalUnit</i>
<i>Value</i>	1	<i>Double</i>

1.146.2 Unit

Attribute (data)

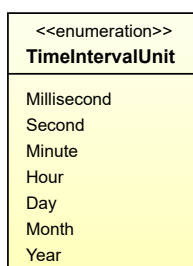
1.146.3 Value

Attribute (data)

1.147 TimeIntervalUnit

1.147.1 Overview

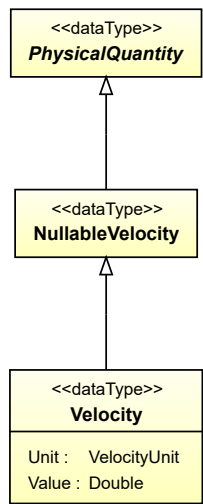
Enumeration



1.148 Velocity

1.148.1 Overview

Data type



Supertypes

- *NullableVelocity*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>VelocityUnit</i>
<i>Value</i>	1	<i>Double</i>

1.148.2 Unit

Attribute (data)

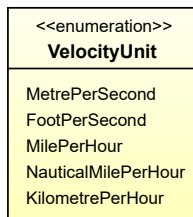
1.148.3 Value

Attribute (data)

1.149 VelocityUnit

1.149.1 Overview

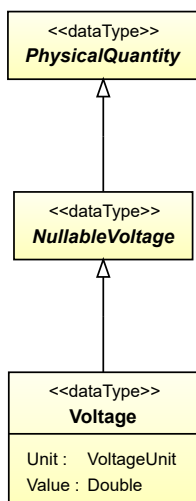
Enumeration



1.150 Voltage

1.150.1 Overview

Data type



Supertypes

- *NullableVoltage*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>VoltageUnit</i>
<i>Value</i>	1	<i>Double</i>

1.150.2 Unit

Attribute (data)

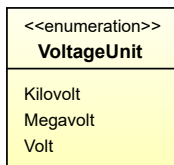
1.150.3 Value

Attribute (data)

1.151 VoltageUnit

1.151.1 Overview

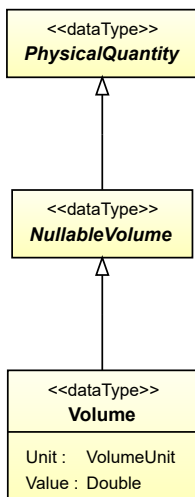
Enumeration



1.152 Volume

1.152.1 Overview

Data type



Supertypes

- *NullableVolume*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>VolumeUnit</i>
<i>Value</i>	1	<i>Double</i>

1.152.2 Unit

Attribute (data)

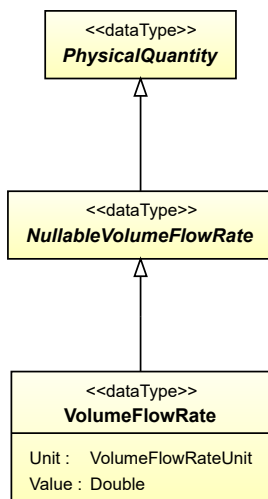
1.152.3 Value

Attribute (data)

1.153 VolumeFlowRate

1.153.1 Overview

Data type



Supertypes

- *NullableVolumeFlowRate*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>VolumeFlowRateUnit</i>
<i>Value</i>	1	<i>Double</i>

1.153.2 Unit**Attribute (data)****1.153.3 Value****Attribute (data)****1.154 VolumeFlowRateUnit****1.154.1 Overview****Enumeration**

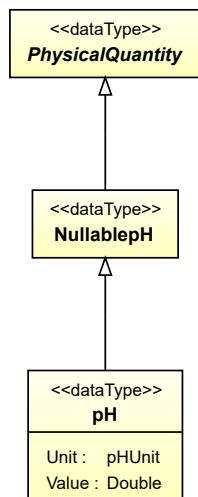
<<enumeration>> VolumeFlowRateUnit
FootCubedPerHour FootCubedPerMinute LitrePerSecond MetreCubedPerDay MetreCubedPerHour MetreCubedPerMinute MetreCubedPerSecond

1.155 VolumeUnit**1.155.1 Overview****Enumeration**

<<enumeration>> VolumeUnit
CentimetreCubed DecimetreCubed FootCubed Litre MetreCubed UsFluidOunce UsGallon

1.156 pH**1.156.1 Overview**

Data type



Supertypes

- *NullablepH*

Attributes (data)

Name	Multiplicity	Type
<i>Unit</i>	1	<i>pHUnit</i>
<i>Value</i>	1	<i>Double</i>

1.156.2 Unit

Attribute (data)

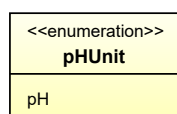
1.156.3 Value

Attribute (data)

1.157 pHUnit

1.157.1 Overview

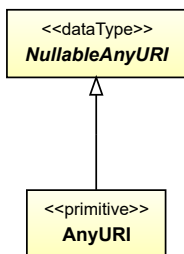
Enumeration



2.1 AnyURI

2.1.1 Overview

Data type



Supertypes

- *NullableAnyURI*

2.2 Boolean

2.2.1 Overview

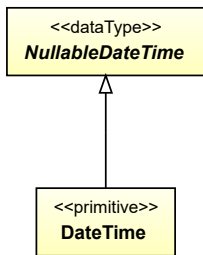
Data type



2.3 DateTime

2.3.1 Overview

Data type



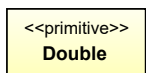
Supertypes

- *NullableDateTime*

2.4 Double

2.4.1 Overview

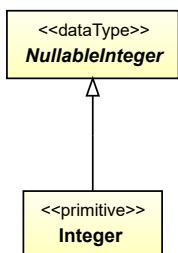
Data type



2.5 Integer

2.5.1 Overview

Data type



Supertypes

- *NullableInteger*

2.6 MultiLanguageString

2.6.1 Overview

Data type

<<dataType>> MultiLanguageString
SingleLanguageStrings : SingleLanguageString [1..*]

Attributes (data)

Name	Multiplicity	Type
<i>SingleLanguageStrings</i>	1..*	<i>SingleLanguageString</i>

2.6.2 SingleLanguageStrings

Attribute (data)

2.7 NULL_ANY_URI

2.7.1 Overview

Instance

NULL_ANY_URI : NullAnyURI

Type

- *NullAnyURI*

2.8 NULL_DATE_TIME

2.8.1 Overview

Instance

NULL_DATE_TIME : NullDateTime

Type

- *NullDateTime*

2.9 NULL_INTEGER

2.9.1 Overview

Instance

NULL_INTEGER : NullInteger

Type

- *NullInteger*

2.10 NULL_STRING

2.10.1 Overview

Instance

NULL_STRING : NullString

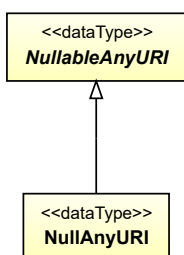
Type

- *NullString*

2.11 NullAnyURI

2.11.1 Overview

Data type



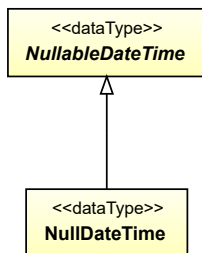
Supertypes

- *NullableAnyURI*

2.12 NullDateTime

2.12.1 Overview

Data type



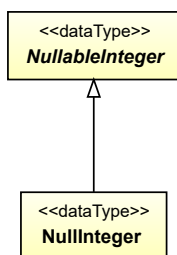
Supertypes

- *NullableDateTime*

2.13 NullInteger

2.13.1 Overview

Data type



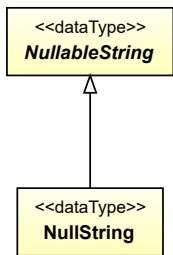
Supertypes

- *NullableInteger*

2.14 NullString

2.14.1 Overview

Data type



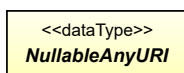
Supertypes

- *NullableString*

2.15 NullableAnyURI

2.15.1 Overview

Abstract data type



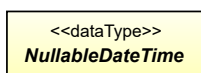
Subtypes

- *AnyURI*
- *NullAnyURI*

2.16 NullableDateTime

2.16.1 Overview

Abstract data type



Subtypes

- *DateTime*
- *NullDateTime*

2.17 NullableInteger

2.17.1 Overview

Abstract data type

```
<<dataType>>
NullableInteger
```

Subtypes

- *Integer*
- *NullInteger*

2.18 NullableString

2.18.1 Overview

Abstract data type

```
<<dataType>>
NullableString
```

Subtypes

- *NullString*
- *String*

2.19 SingleLanguageString

2.19.1 Overview

Data type

```
<<dataType>>
SingleLanguageString
Language : NullableString
Value : NullableString
```

Attributes (data)

Name	Multiplicity	Type
<i>Language</i>	1	<i>NullableString</i>
<i>Value</i>	1	<i>NullableString</i>

2.19.2 Language

Attribute (data)

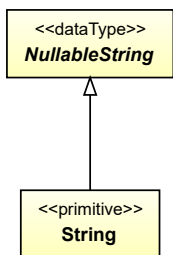
2.19.3 Value

Attribute (data)

2.20 String

2.20.1 Overview

Data type



Supertypes

- *NullableString*

2.21 UnsignedByte

2.21.1 Overview

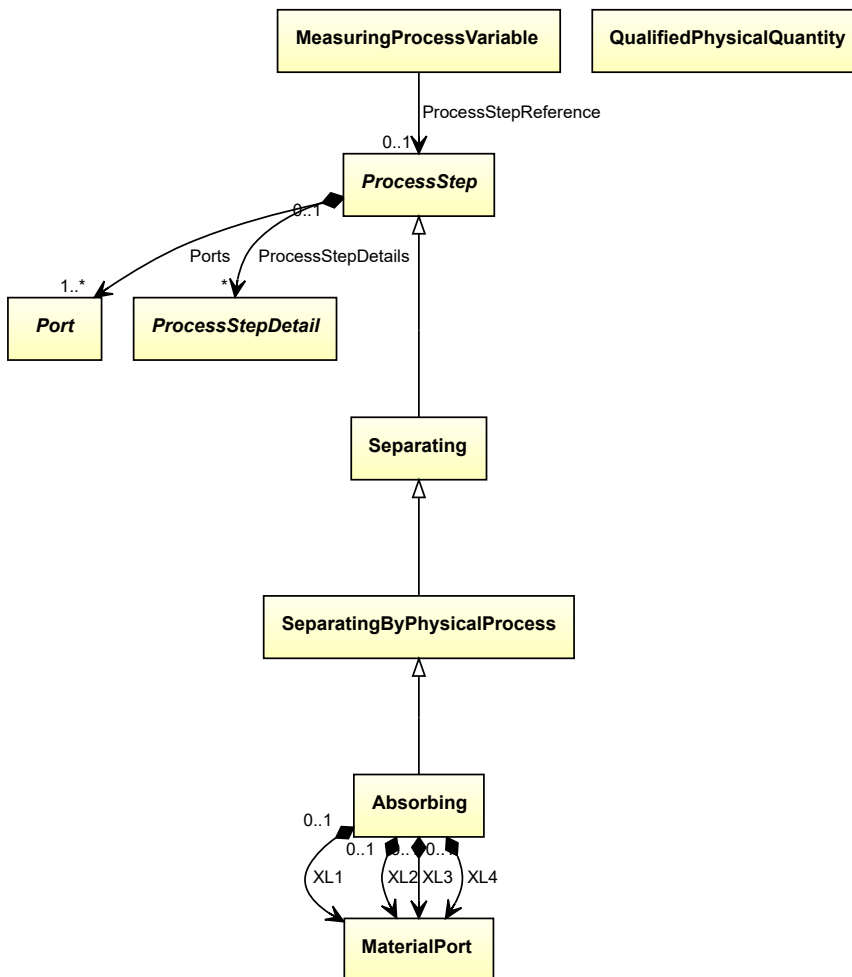
Data type



3.1 Absorbing

3.1.1 Overview

Class



Supertypes

- *SeparatingByPhysicalProcess*

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>
<i>XL4</i>	1	<i>MaterialPort</i>

3.1.2 XL1

Attribute (composition)

3.1.3 XL2

Attribute (composition)

3.1.4 XL3

Attribute (composition)

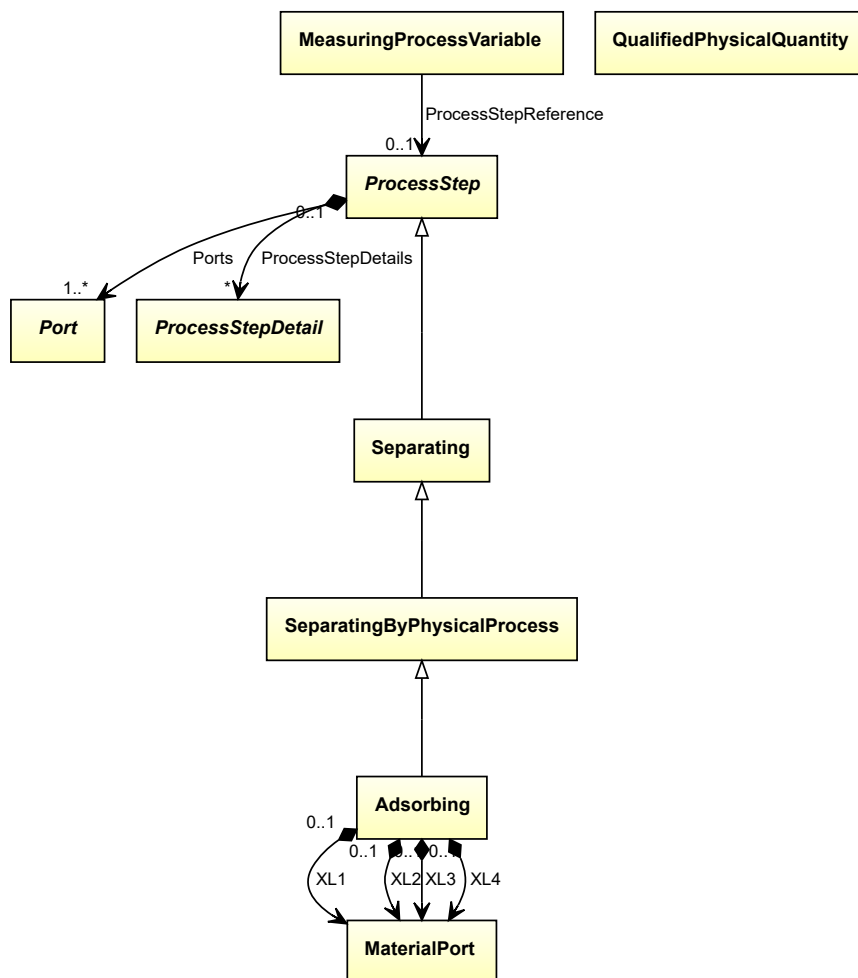
3.1.5 XL4

Attribute (composition)

3.2 Adsorbing

3.2.1 Overview

Class



Supertypes

- *SeparatingByPhysicalProcess*

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>
<i>XL4</i>	1	<i>MaterialPort</i>

3.2.2 XL1

Attribute (composition)

3.2.3 XL2

Attribute (composition)

3.2.4 XL3

Attribute (composition)

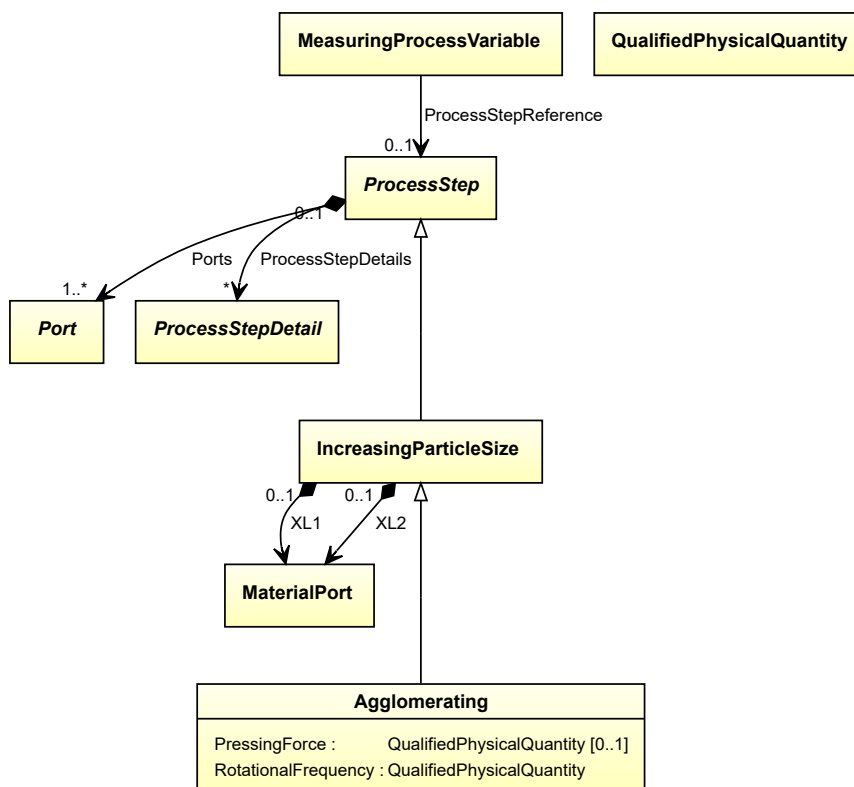
3.2.5 XL4

Attribute (composition)

3.3 Agglomerating

3.3.1 Overview

Class



Supertypes

- *IncreasingParticleSize*

Attributes (composition)

Name	Multiplicity	Type
<i>PressingForce</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>

3.3.2 PressingForce

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableForce`.

3.3.3 RotationalFrequency

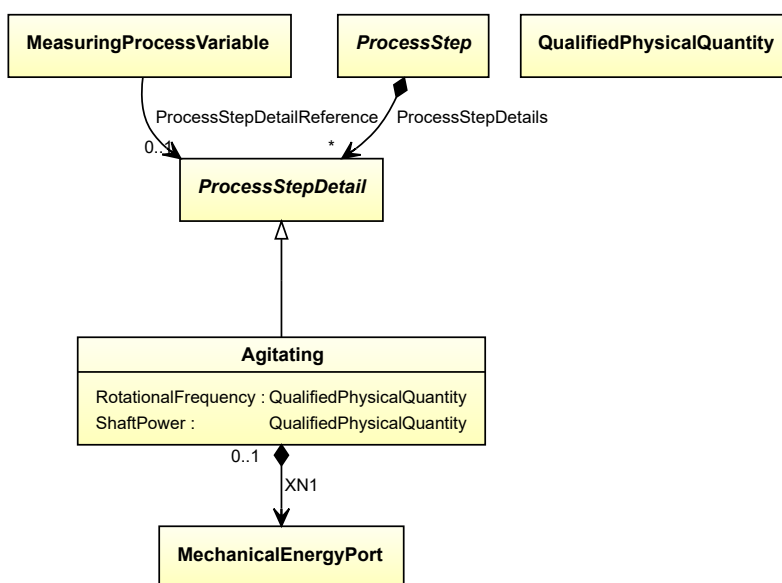
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

3.4 Agitating

3.4.1 Overview

Class



Supertypes

- *ProcessStepDetail*

Attributes (composition)

Name	Multiplicity	Type
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ShaftPower</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XN1</i>	1	<i>MechanicalEnergyPort</i>

3.4.2 RotationalFrequency**Attribute (composition)**

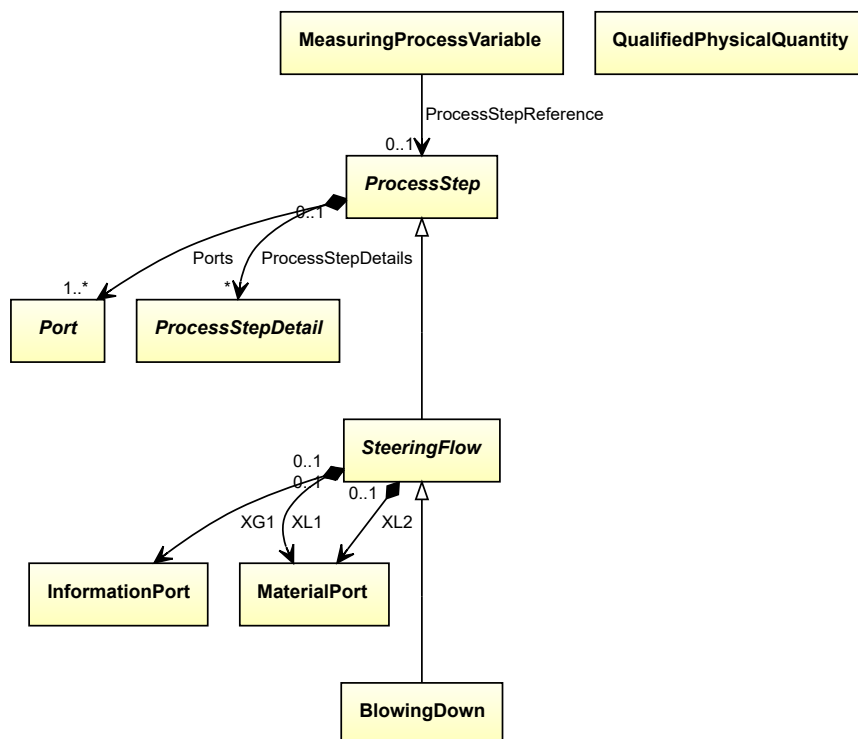
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

3.4.3 ShaftPower**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.4.4 XN1**Attribute (composition)****3.5 BlowingDown****3.5.1 Overview**

Class



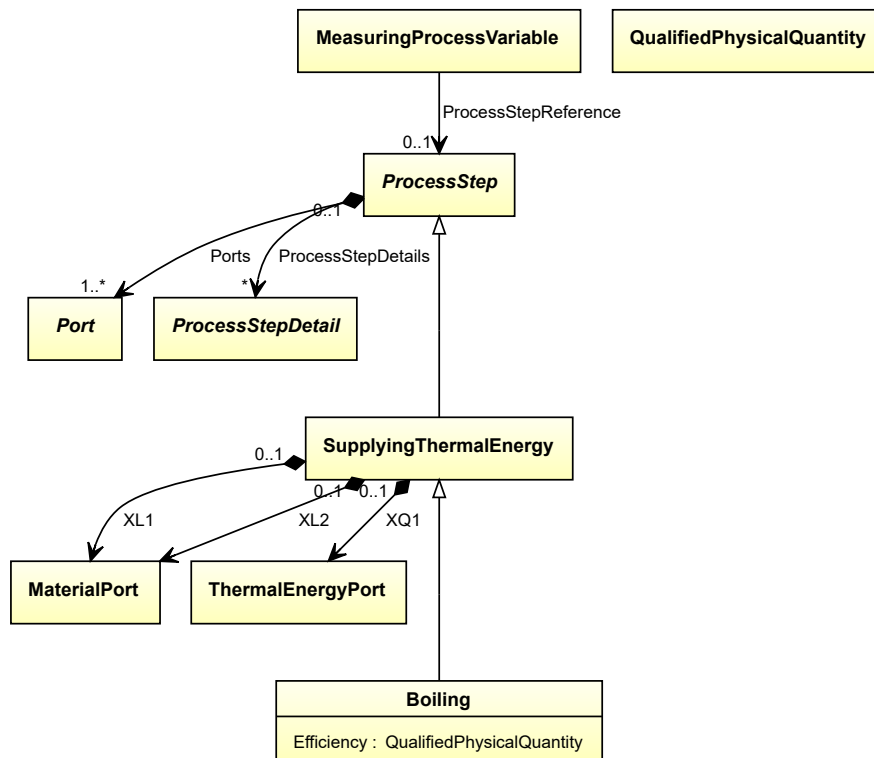
Supertypes

- *SteeringFlow*

3.6 Boiling

3.6.1 Overview

Class



Supertypes

- *SupplyingThermalEnergy*

Attributes (composition)

Name	Multiplicity	Type
<i>Efficiency</i>	1	<i>QualifiedPhysicalQuantity</i>

3.6.2 Efficiency

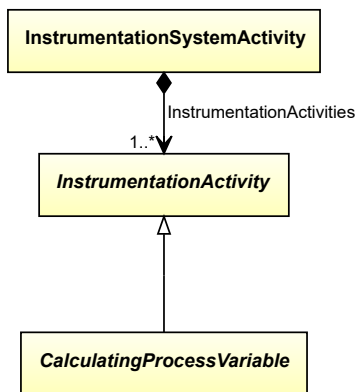
Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullablePercentage*.

3.7 CalculatingProcessVariable

3.7.1 Overview

Abstract class



Supertypes

- *InstrumentationActivity*

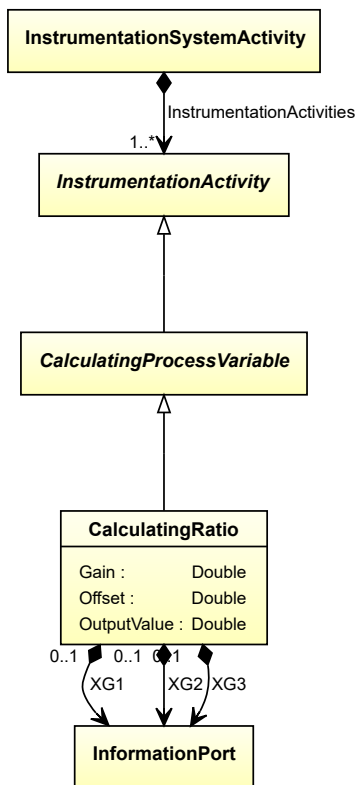
Subtypes

- *CalculatingRatio*
- *CalculatingSplitRange*
- *TransformingProcessVariable*

3.8 CalculatingRatio

3.8.1 Overview

Class



Supertypes

- *CalculatingProcessVariable*

Attributes (data)

Name	Multiplicity	Type
<i>Gain</i>	1	<i>Double</i>
<i>Offset</i>	1	<i>Double</i>
<i>OutputValue</i>	1	<i>Double</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XG1</i>	1	<i>InformationPort</i>
<i>XG2</i>	1	<i>InformationPort</i>
<i>XG3</i>	1	<i>InformationPort</i>

3.8.2 Gain

Attribute (data)

3.8.3 Offset

Attribute (data)

3.8.4 OutputValue

Attribute (data)

3.8.5 XG1

Attribute (composition)

3.8.6 XG2

Attribute (composition)

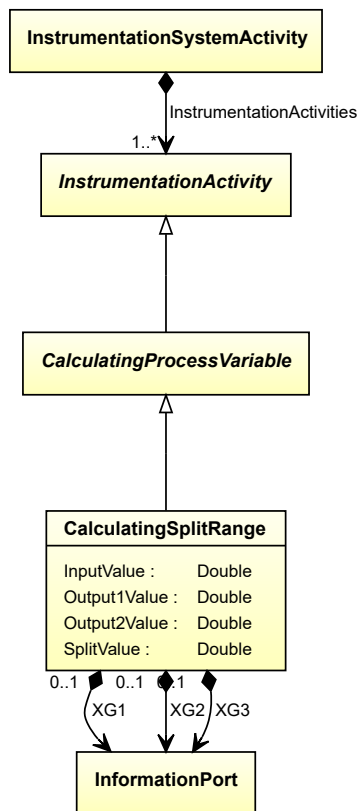
3.8.7 XG3

Attribute (composition)

3.9 CalculatingSplitRange

3.9.1 Overview

Class



Supertypes

- *CalculatingProcessVariable*

Attributes (data)

Name	Multiplicity	Type
<i>InputValue</i>	1	<i>Double</i>
<i>Output1Value</i>	1	<i>Double</i>
<i>Output2Value</i>	1	<i>Double</i>
<i>SplitValue</i>	1	<i>Double</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XG1</i>	1	<i>InformationPort</i>
<i>XG2</i>	1	<i>InformationPort</i>
<i>XG3</i>	1	<i>InformationPort</i>

3.9.2 InputValue

Attribute (data)

3.9.3 Output1Value

Attribute (data)

3.9.4 Output2Value

Attribute (data)

3.9.5 SplitValue

Attribute (data)

3.9.6 XG1

Attribute (composition)

3.9.7 XG2

Attribute (composition)

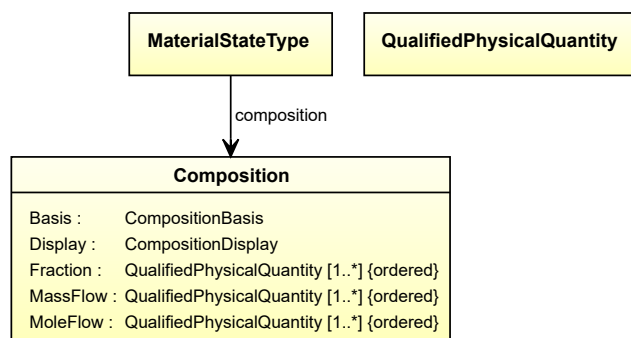
3.9.8 XG3

Attribute (composition)

3.10 Composition

3.10.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
<i>Basis</i>	1	<i>CompositionBasis</i>
<i>Display</i>	1	<i>CompositionDisplay</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Fraction</i>	1..*	<i>QualifiedPhysicalQuantity</i>
<i>MassFlow</i>	1..*	<i>QualifiedPhysicalQuantity</i>
<i>MoleFlow</i>	1..*	<i>QualifiedPhysicalQuantity</i>

3.10.2 Basis**Attribute (data)****3.10.3 Display****Attribute (data)****3.10.4 Fraction****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `Percentage`.

3.10.5 MassFlow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `MassFlowRate`.

3.10.6 MoleFlow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMoleFlow`.

3.11 CompositionBasis

3.11.1 Overview

Enumeration

<<enumeration>> CompositionBasis
Mass Mole

3.12 CompositionDisplay

3.12.1 Overview

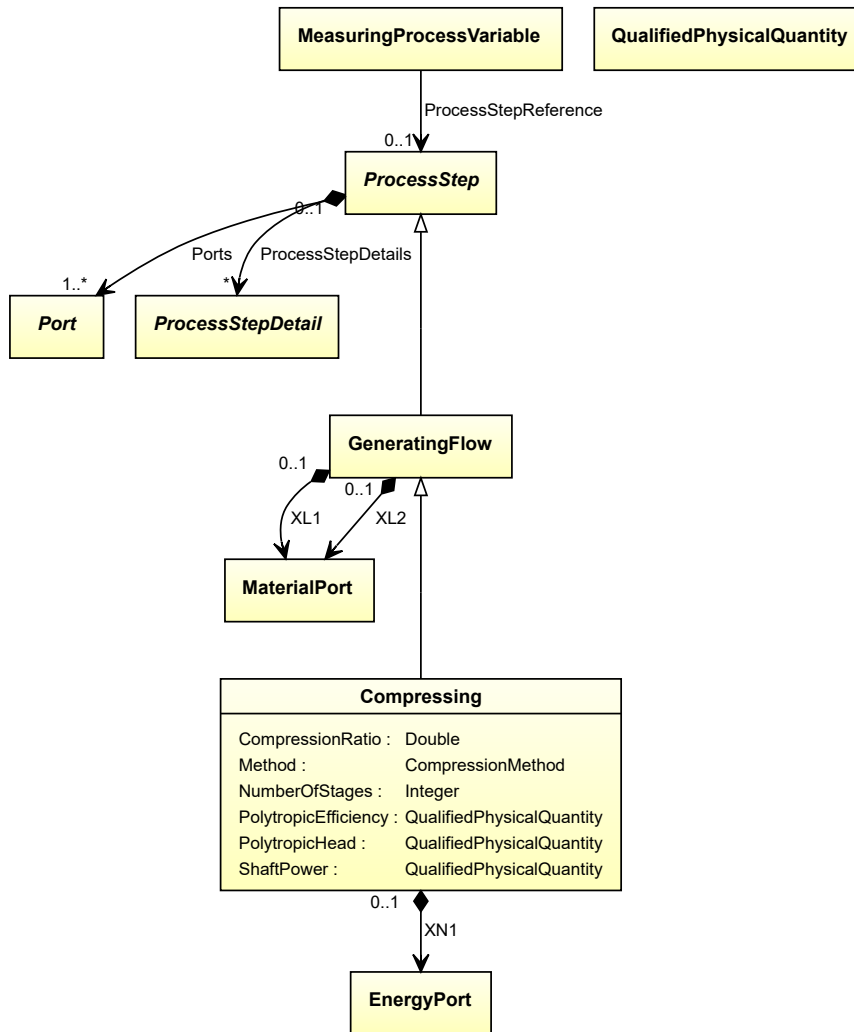
Enumeration

<<enumeration>> CompositionDisplay
Fraction Percent AbsoluteValue

3.13 Compressing

3.13.1 Overview

Class



Supertypes

- *GeneratingFlow*

Attributes (data)

Name	Multiplicity	Type
<i>CompressionRatio</i>	1	<i>Double</i>
<i>Method</i>	1	<i>CompressionMethod</i>
<i>NumberOfStages</i>	1	<i>Integer</i>

Attributes (composition)

Name	Multiplicity	Type
<i>PolytropicEfficiency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PolytropicHead</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ShaftPower</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XN1</i>	1	<i>EnergyPort</i>

3.13.2 CompressionRatio**Attribute (data)****3.13.3 Method****Attribute (data)****3.13.4 NumberOfStages****Attribute (data)****3.13.5 PolytropicEfficiency****Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullablePercentage*.

3.13.6 PolytropicHead**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableLength*.

3.13.7 ShaftPower**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullablePower*.

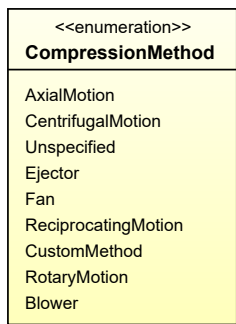
3.13.8 XN1

Attribute (composition)

3.14 CompressionMethod

3.14.1 Overview

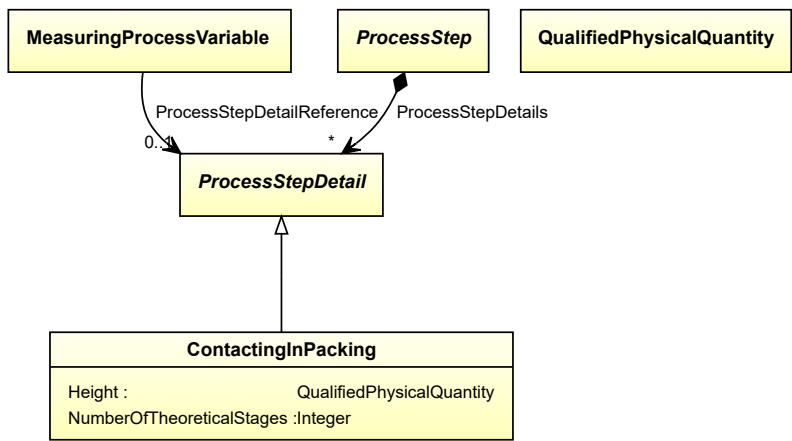
Enumeration



3.15 ContactingInPacking

3.15.1 Overview

Class



Supertypes

- *ProcessStepDetail*

Attributes (data)

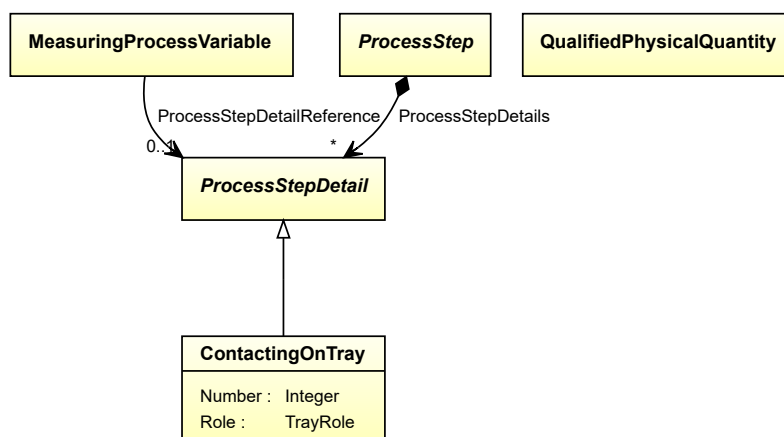
Name	Multiplicity	Type
<i>NumberOfTheoreticalStages</i>	1	<i>Integer</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Height</i>	1	<i>QualifiedPhysicalQuantity</i>

3.15.2 Height**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.15.3 NumberOfTheoreticalStages**Attribute (data)****3.16 ContactingOnTray****3.16.1 Overview****Class**

Supertypes

- *ProcessStepDetail*

Attributes (data)

Name	Multiplicity	Type
<i>Number</i>	1	<i>Integer</i>
<i>Role</i>	1	<i>TrayRole</i>

3.16.2 Number

Attribute (data)

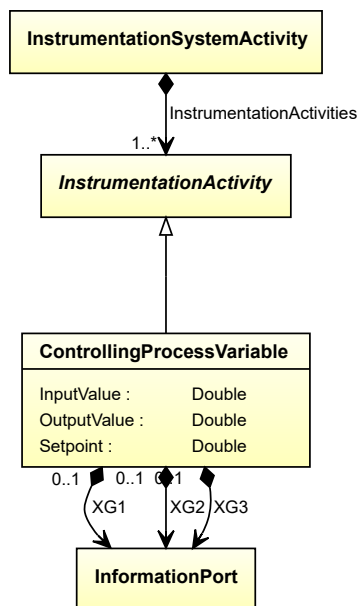
3.16.3 Role

Attribute (data)

3.17 ControllingProcessVariable

3.17.1 Overview

Class



Supertypes

- *InstrumentationActivity*

Attributes (data)

Name	Multiplicity	Type
<i>InputValue</i>	1	<i>Double</i>
<i>OutputValue</i>	1	<i>Double</i>
<i>Setpoint</i>	1	<i>Double</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XG1</i>	1	<i>InformationPort</i>
<i>XG2</i>	1	<i>InformationPort</i>
<i>XG3</i>	1	<i>InformationPort</i>

3.17.2 InputValue

Attribute (data)

3.17.3 OutputValue

Attribute (data)

3.17.4 Setpoint

Attribute (data)

3.17.5 XG1

Attribute (composition)

3.17.6 XG2

Attribute (composition)

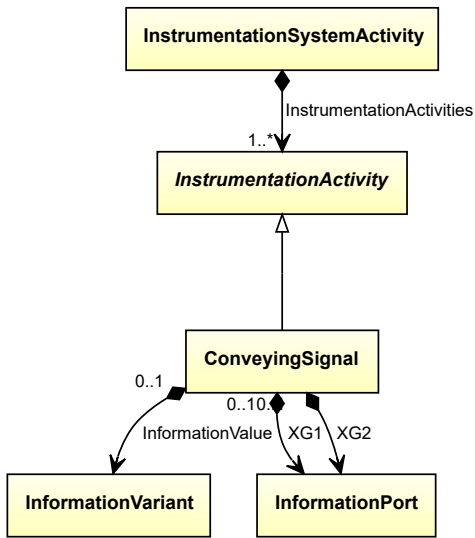
3.17.7 XG3

Attribute (composition)

3.18 ConveyingSignal

3.18.1 Overview

Class



Supertypes

- *InstrumentationActivity*

Attributes (composition)

Name	Multiplicity	Type
<i>InformationValue</i>	1	<i>InformationVariant</i>
<i>XG1</i>	1	<i>InformationPort</i>
<i>XG2</i>	1	<i>InformationPort</i>

3.18.2 InformationValue

Attribute (composition)

3.18.3 XG1

Attribute (composition)

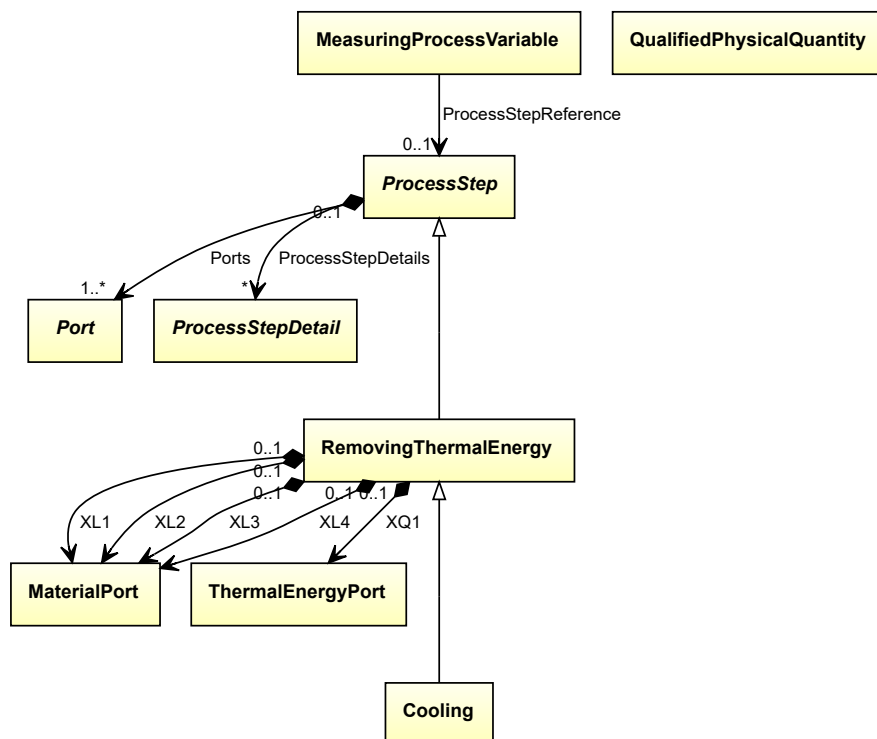
3.18.4 XG2

Attribute (composition)

3.19 Cooling

3.19.1 Overview

Class



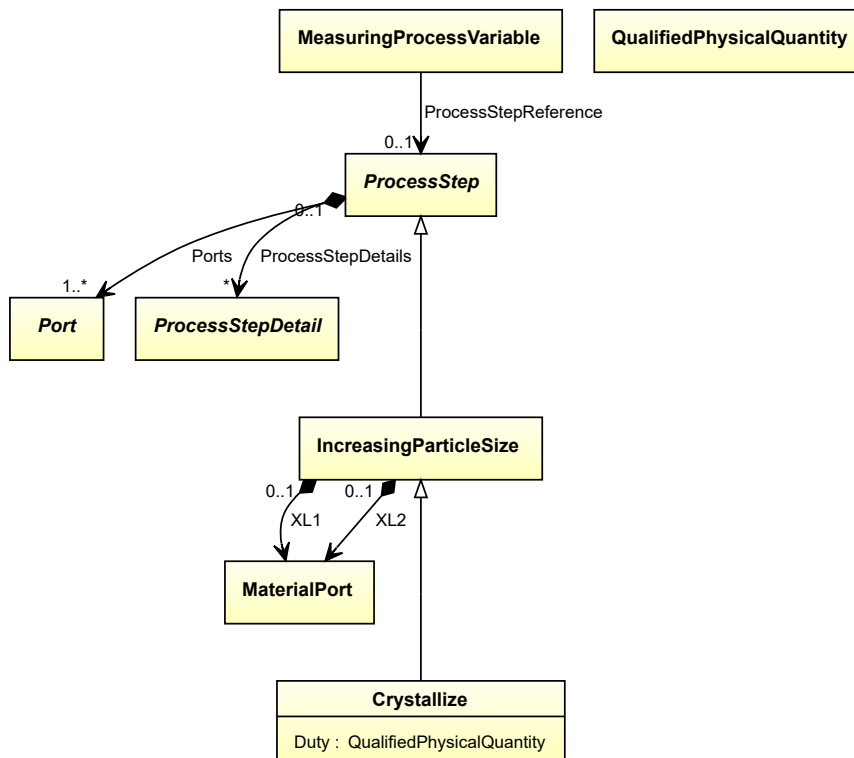
Supertypes

- *RemovingThermalEnergy*

3.20 Crushing

3.20.1 Overview

Class



Supertypes

- *IncreasingParticleSize*

Attributes (composition)

Name	Multiplicity	Type
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>

3.21.2 Duty

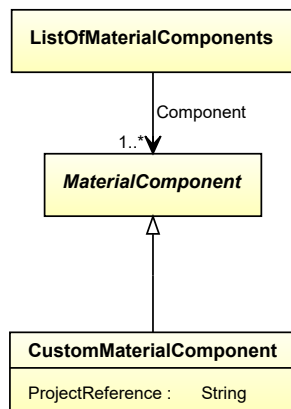
Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullablePower*.

3.22 CustomMaterialComponent

3.22.1 Overview

Class



Supertypes

- *MaterialComponent*

Attributes (data)

Name	Multiplicity	Type
<i>ProjectReference</i>	1	<i>String</i>

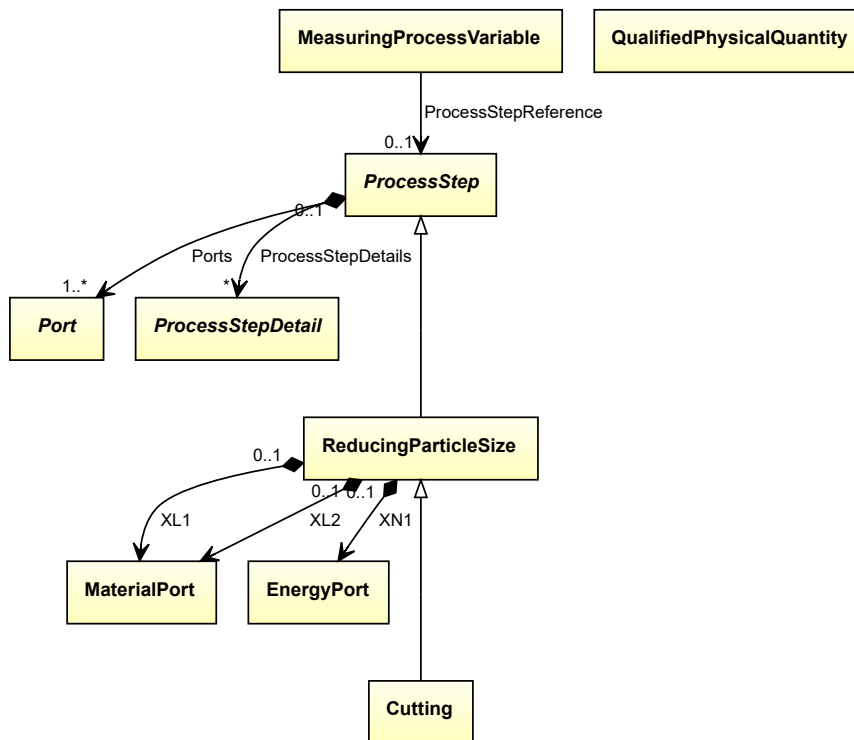
3.22.2 ProjectReference

Attribute (data)

3.23 CustomMilling

3.23.1 Overview

Class



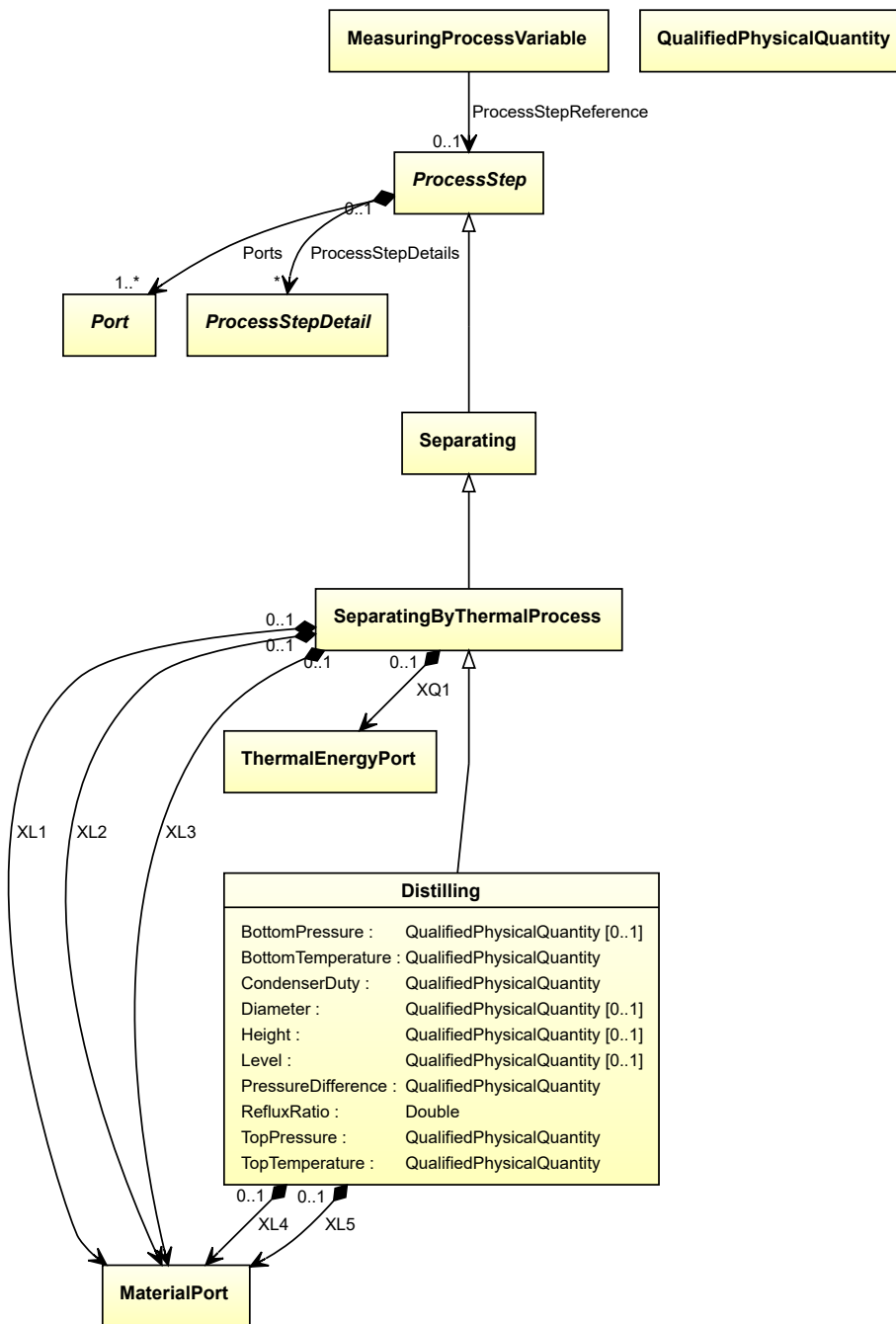
Supertypes

- *ReducingParticleSize*

3.25 Distilling

3.25.1 Overview

Class



Supertypes

- *SeparatingByThermalProcess*

Subtypes

- *StabilizingDistilling*
- *StrippingDistilling*
- *VacuumDistilling*

Attributes (data)

Name	Multiplicity	Type
<i>RefluxRatio</i>	1	<i>Double</i>

Attributes (composition)

Name	Multiplicity	Type
<i>BottomPressure</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>BottomTemperature</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>CondenserDuty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Diameter</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>Height</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>Level</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>TopPressure</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>TopTemperature</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL4</i>	1	<i>MaterialPort</i>
<i>XL5</i>	1	<i>MaterialPort</i>

3.25.2 BottomPressure**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.25.3 BottomTemperature**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.25.4 CondenserDuty

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.25.5 Diameter

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.25.6 Height

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.25.7 Level

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.25.8 PressureDifference

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.25.9 RefluxRatio

Attribute (data)

3.25.10 TopPressure

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.25.11 TopTemperature

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.25.12 XL4

Attribute (composition)

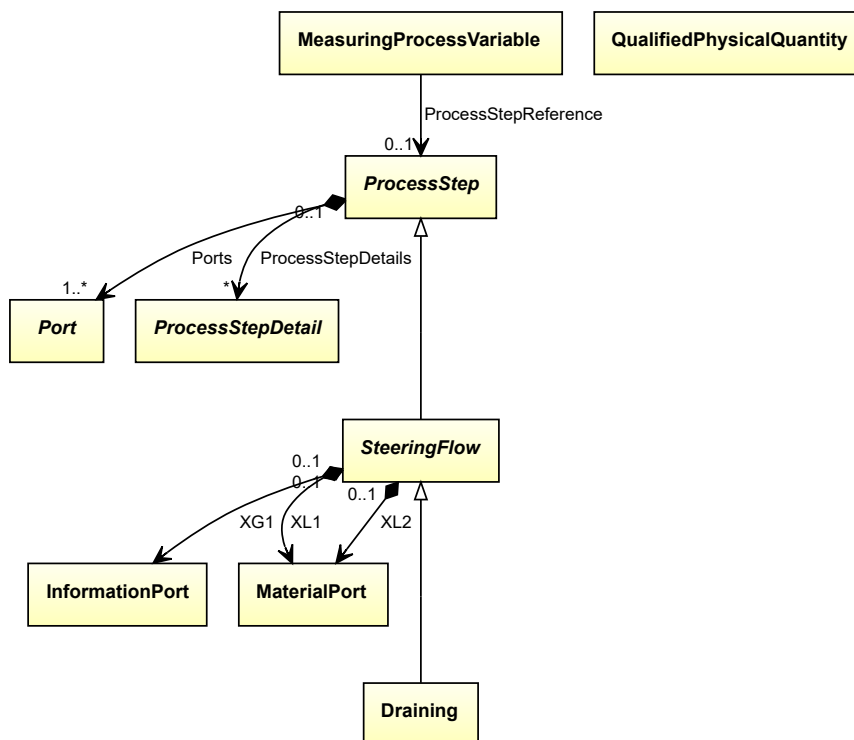
3.25.13 XL5

Attribute (composition)

3.26 Draining

3.26.1 Overview

Class



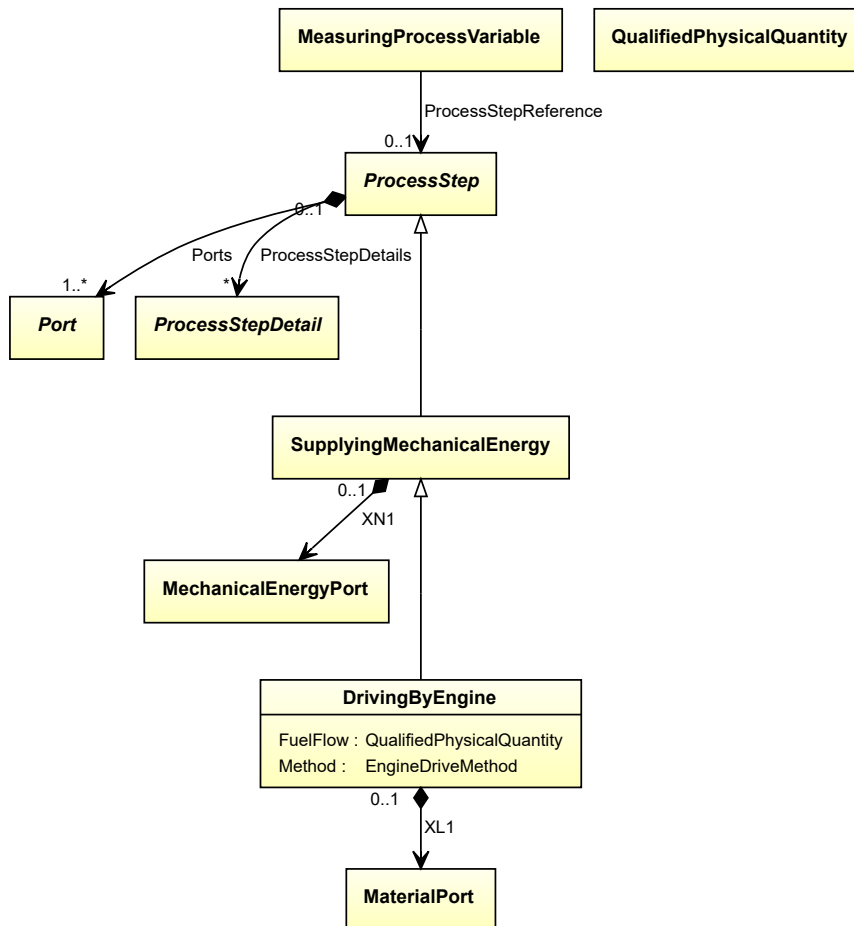
Supertypes

- *SteeringFlow*

3.27 DrivingByEngine

3.27.1 Overview

Class



Supertypes

- *SupplyingMechanicalEnergy*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>EngineDriveMethod</i>

Attributes (composition)

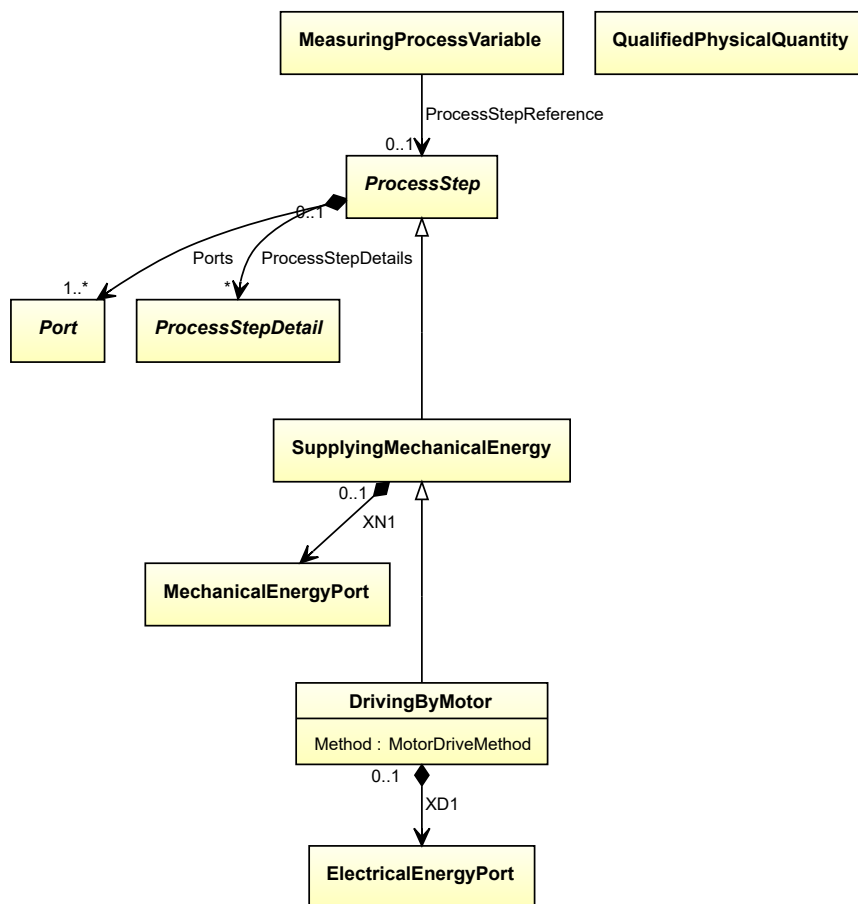
Name	Multiplicity	Type
<i>FuelFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>

3.27.2 FuelFlow**Attribute (composition)**

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableMassFlowRate.

3.27.3 Method**Attribute (data)****3.27.4 XL1****Attribute (composition)****3.28 DrivingByMotor****3.28.1 Overview**

Class



Supertypes

- *SupplyingMechanicalEnergy*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>MotorDriveMethod</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XD1</i>	1	<i>ElectricalEnergyPort</i>

3.28.2 Method

Attribute (data)

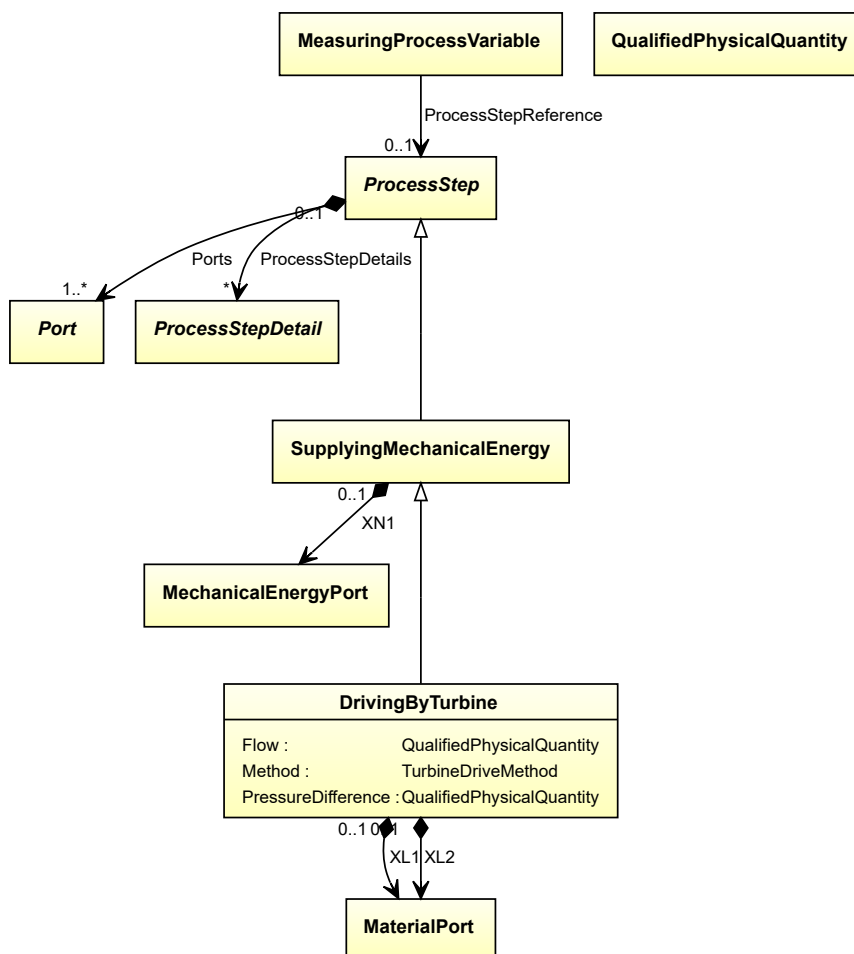
3.28.3 XD1

Attribute (composition)

3.29 DrivingByTurbine

3.29.1 Overview

Class



Supertypes

- *SupplyingMechanicalEnergy*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>TurbineDriveMethod</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.29.2 Flow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.29.3 Method**Attribute (data)****3.29.4 PressureDifference****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.29.5 XL1**Attribute (composition)****3.29.6 XL2****Attribute (composition)****3.30 Drying****3.30.1 Overview**

3.30.2 Area

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableArea`.

3.30.3 GasMassFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.30.4 SolidsMassFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

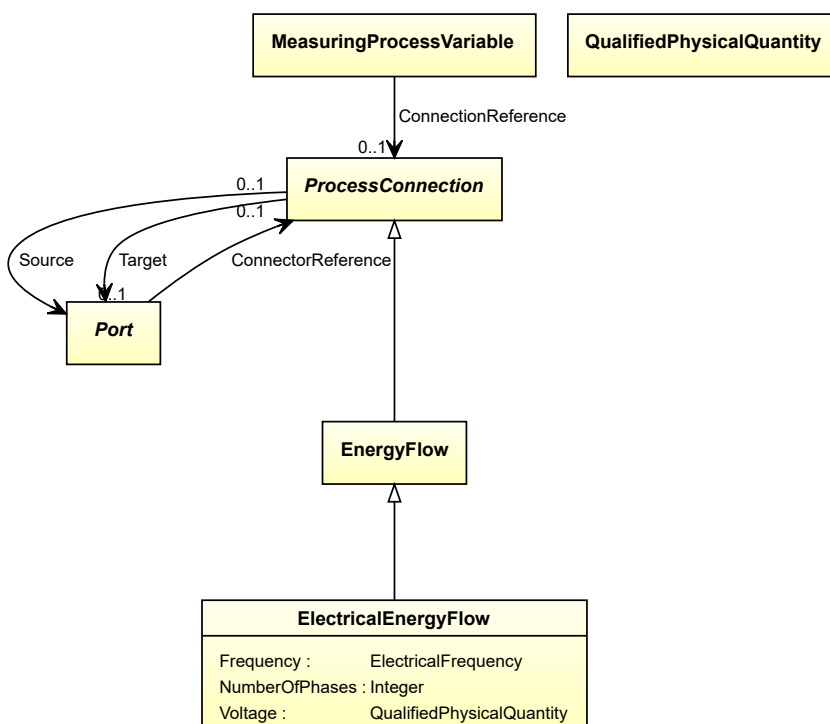
3.30.5 XL4

Attribute (composition)

3.31 ElectricalEnergyFlow

3.31.1 Overview

Class



Supertypes

- *EnergyFlow*

Attributes (data)

Name	Multiplicity	Type
<i>Frequency</i>	1	<i>ElectricalFrequency</i>
<i>NumberOfPhases</i>	1	<i>Integer</i>

Attributes (composition)

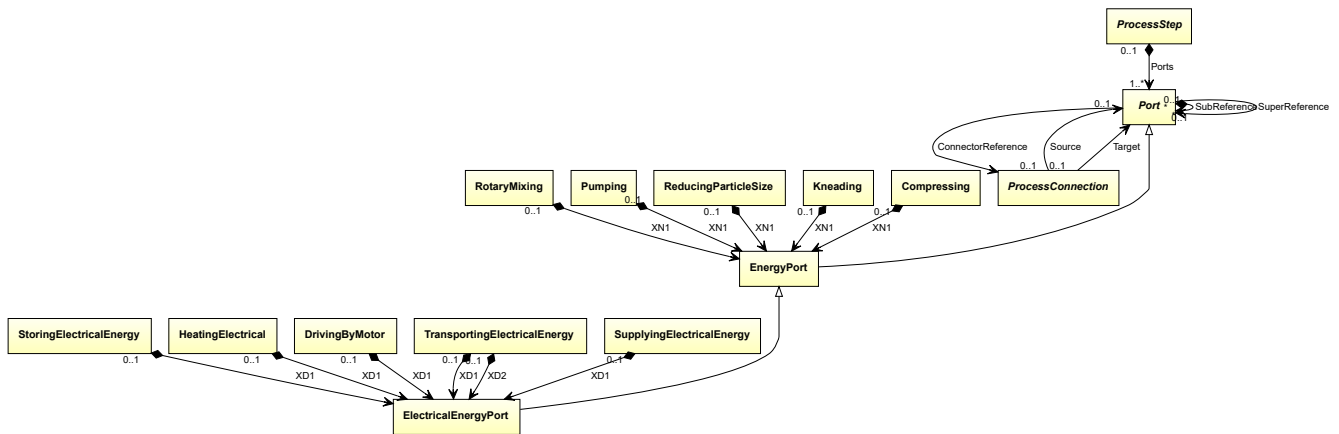
Name	Multiplicity	Type
<i>Voltage</i>	1	<i>QualifiedPhysicalQuantity</i>

3.31.2 Frequency**Attribute (data)****3.31.3 NumberOfPhases****Attribute (data)****3.31.4 Voltage****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `Voltage`.

3.32 ElectricalEnergyPort**3.32.1 Overview**

Class



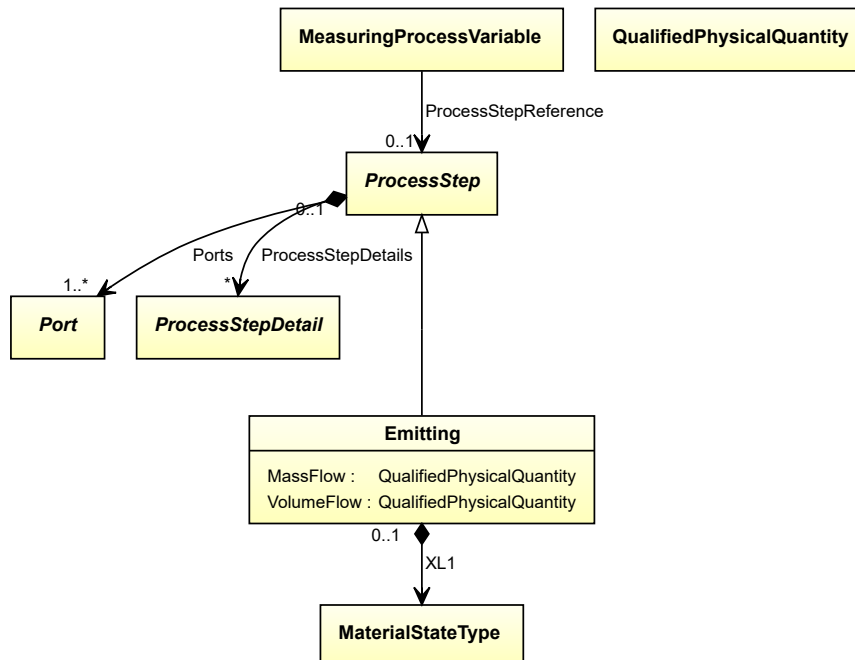
Supertypes

- *EnergyPort*

3.33 Emitting

3.33.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (composition)

Name	Multiplicity	Type
<i>MassFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>VolumeFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialStateType</i>

3.33.2 MassFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.33.3 VolumeFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolumeFlowRate`.

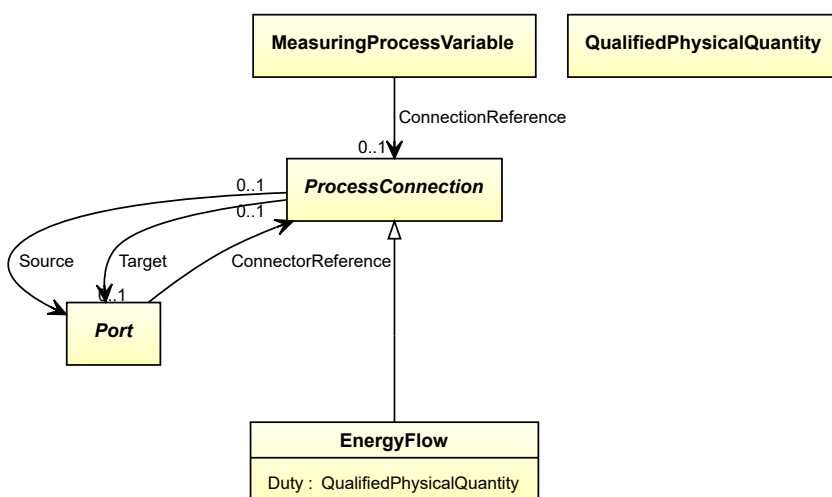
3.33.4 XL1

Attribute (composition)

3.34 EnergyFlow

3.34.1 Overview

Class



Supertypes

- *ProcessConnection*

Subtypes

- *ElectricalEnergyFlow*
- *MechanicalEnergyFlow*
- *ThermalEnergyFlow*

Attributes (composition)

Name	Multiplicity	Type
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>

3.34.2 Duty

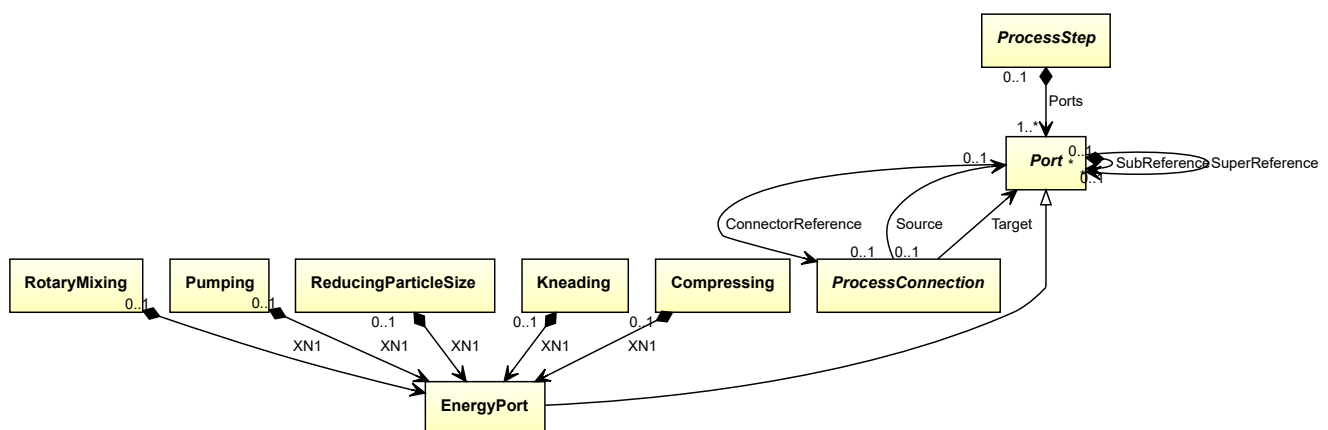
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.35 EnergyPort

3.35.1 Overview

Class



Supertypes

- *Port*

Subtypes

- *ElectricalEnergyPort*
- *MechanicalEnergyPort*
- *ThermalEnergyPort*

3.36 EngineDriveMethod

3.36.1 Overview

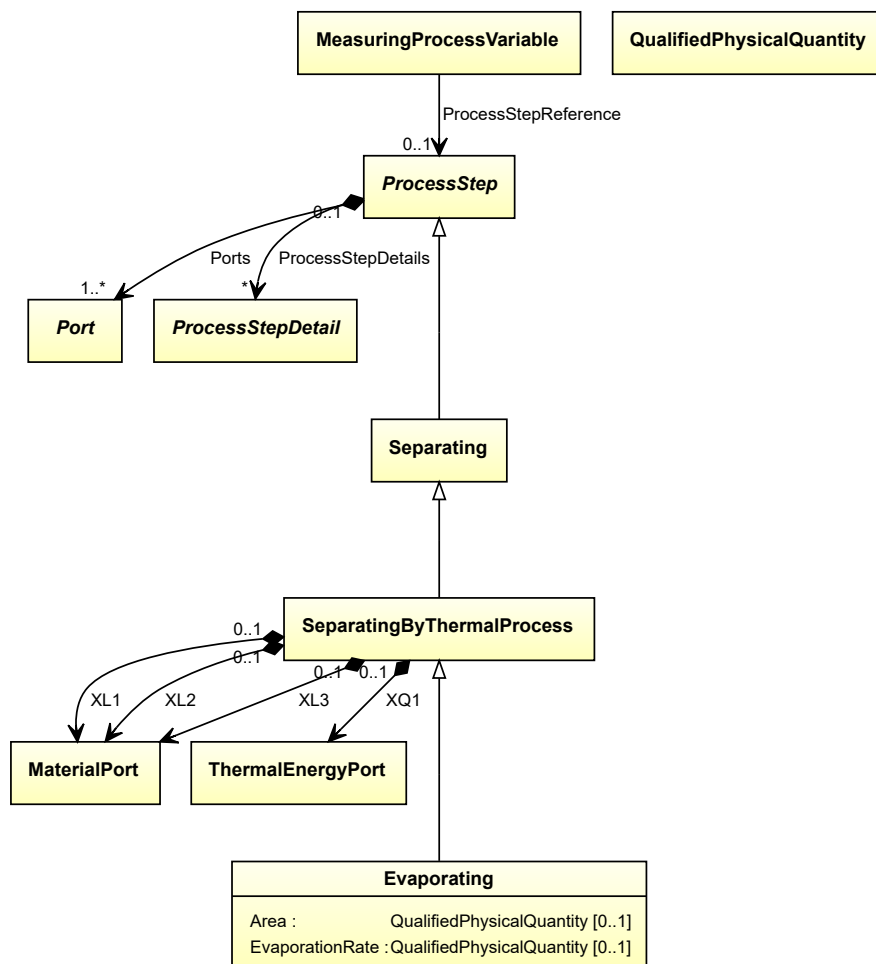
Enumeration

<<enumeration>> EngineDriveMethod
Unspecified OttoCycle Diesel GasTurbine

3.37 Evaporating

3.37.1 Overview

Class



Supertypes

- *SeparatingByThermalProcess*

Attributes (composition)

Name	Multiplicity	Type
<i>Area</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>EvaporationRate</i>	0..1	<i>QualifiedPhysicalQuantity</i>

3.37.2 Area

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableArea`.

3.37.3 EvaporationRate

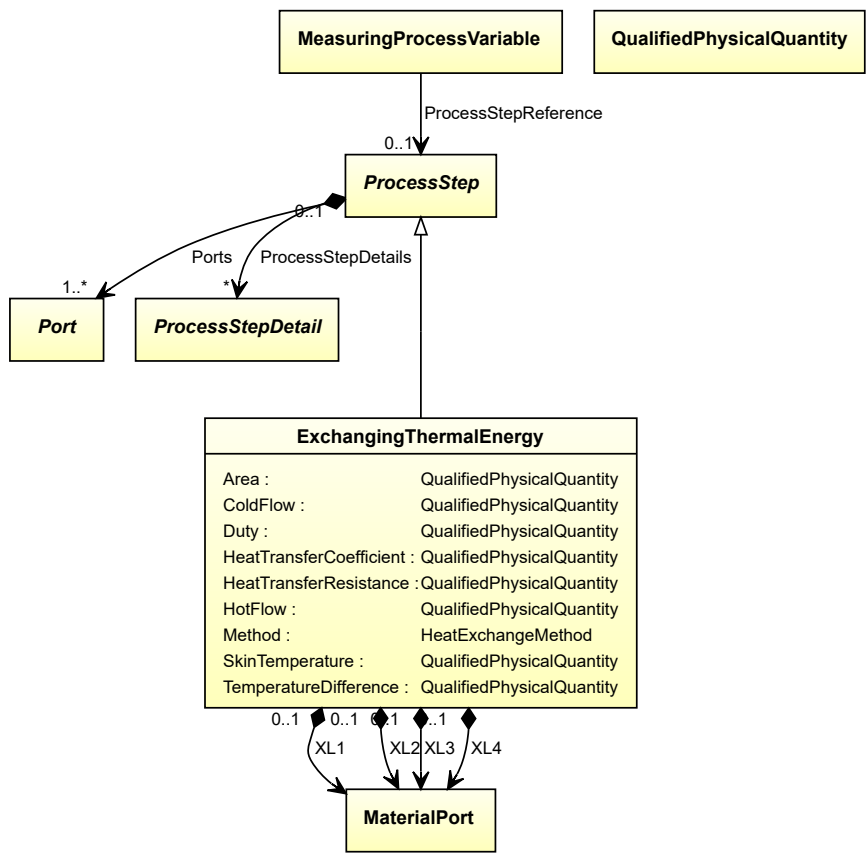
Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableMassFlowRate.

3.38 ExchangingThermalEnergy

3.38.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>HeatExchangeMethod</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Area</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ColdFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HeatTransferCoefficient</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HeatTransferResistance</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HotFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SkinTemperature</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>TemperatureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>
<i>XL4</i>	1	<i>MaterialPort</i>

3.38.2 Area**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableArea*.

3.38.3 ColdFlow**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableMassFlowRate*.

3.38.4 Duty

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.38.5 HeatTransferCoefficient

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableHeatTransferCoefficient`.

3.38.6 HeatTransferResistance

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableHeatTransferResistance`.

3.38.7 HotFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.38.8 Method

Attribute (data)

3.38.9 SkinTemperature

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.38.10 TemperatureDifference

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.38.11 XL1

Attribute (composition)

3.38.12 XL2

Attribute (composition)

3.38.13 XL3

Attribute (composition)

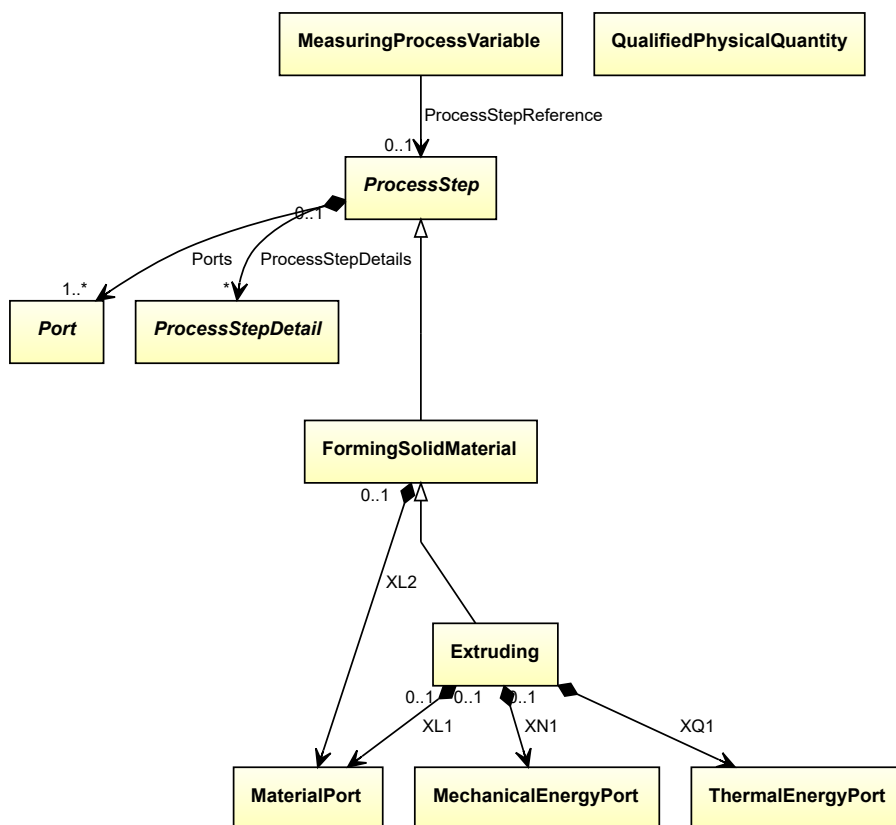
3.38.14 XL4

Attribute (composition)

3.39 Extruding

3.39.1 Overview

Class



Supertypes

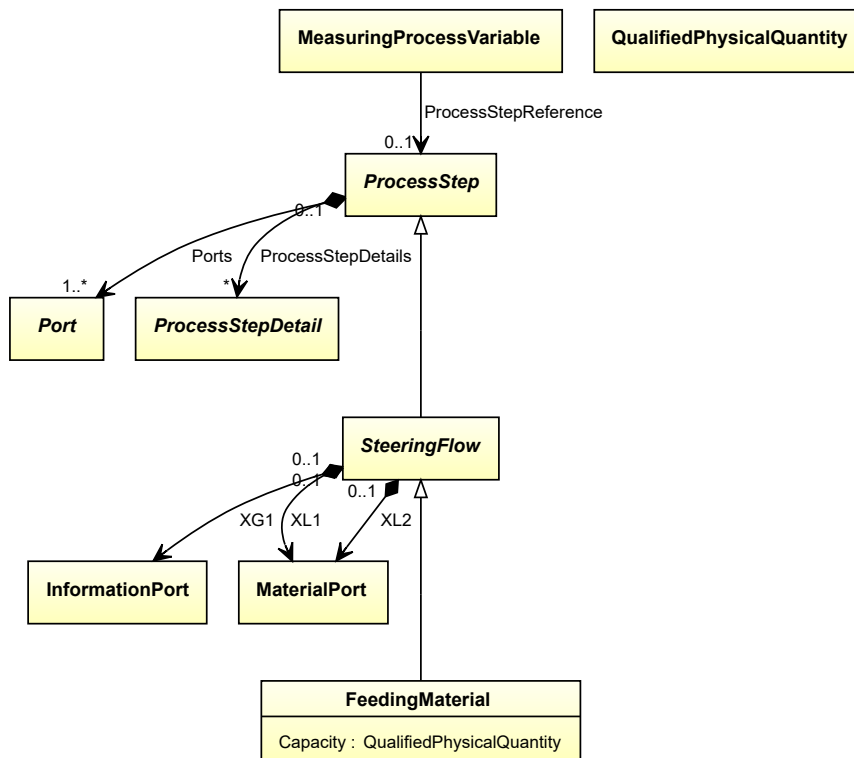
- *FormingSolidMaterial*

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XN1</i>	1	<i>MechanicalEnergyPort</i>
<i>XQ1</i>	1	<i>ThermalEnergyPort</i>

3.39.2 XL1**Attribute (composition)****3.39.3 XN1****Attribute (composition)****3.39.4 XQ1****Attribute (composition)****3.40 FeedingMaterial****3.40.1 Overview**

Class



Supertypes

- *SteeringFlow*

Attributes (composition)

Name	Multiplicity	Type
<i>Capacity</i>	1	<i>QualifiedPhysicalQuantity</i>

3.40.2 Capacity

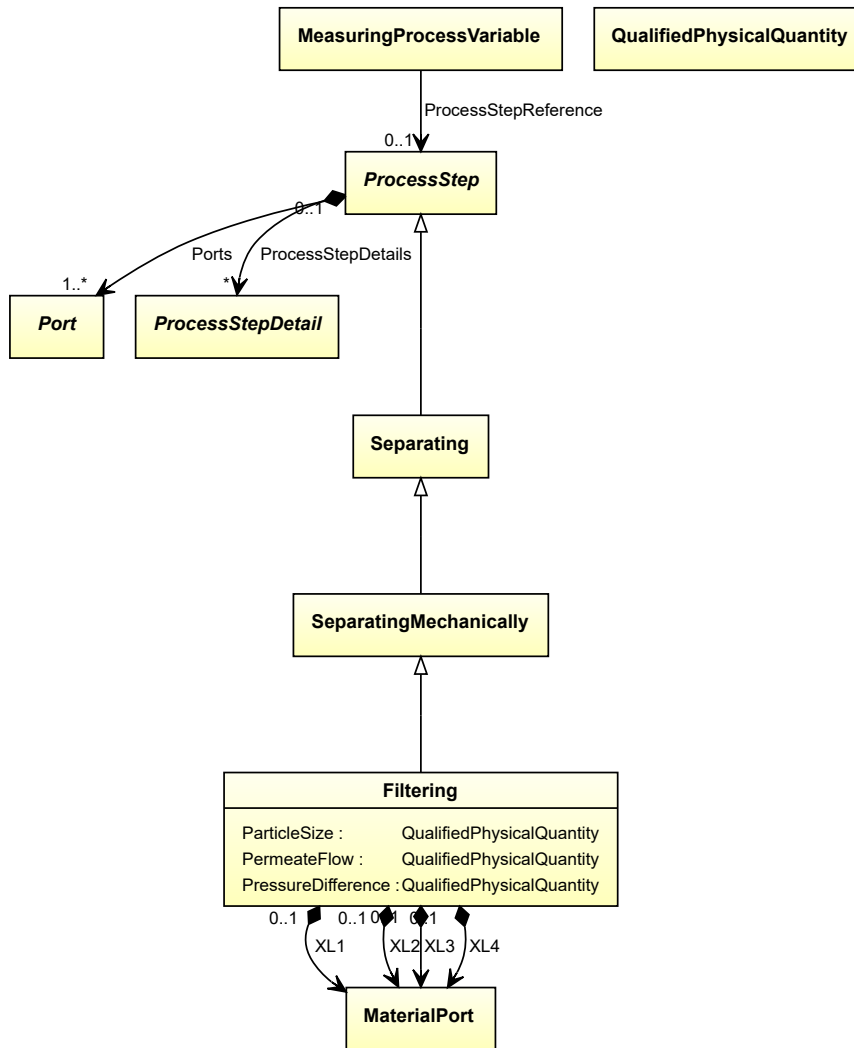
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `Mass`.

3.41 Filtering

3.41.1 Overview

Class



Supertypes

- *SeparatingMechanically*

Attributes (composition)

Name	Multiplicity	Type
<i>ParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PermeateFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>
<i>XL4</i>	1	<i>MaterialPort</i>

3.41.2 ParticleSize

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableParticleSize.

3.41.3 PermeateFlow

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableMassFlowRate.

3.41.4 PressureDifference

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullablePressureAbsolute.

3.41.5 XL1

Attribute (composition)

3.41.6 XL2

Attribute (composition)

3.41.7 XL3

Attribute (composition)

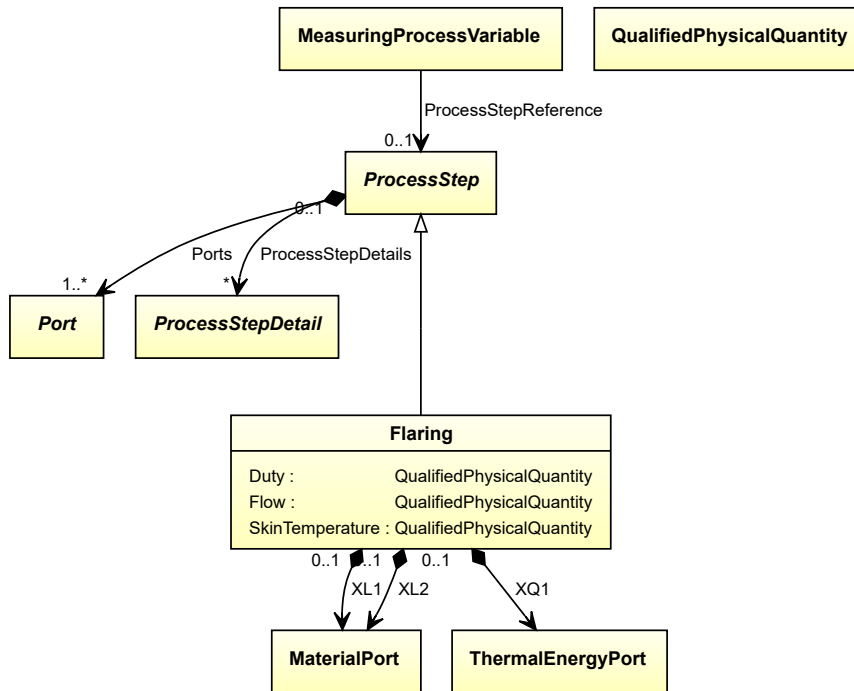
3.41.8 XL4

Attribute (composition)

3.42 Flaring

3.42.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (composition)

Name	Multiplicity	Type
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SkinTemperature</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XQ1</i>	1	<i>ThermalEnergyPort</i>

3.42.2 Duty

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.42.3 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.42.4 SkinTemperature

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.42.5 XL1

Attribute (composition)

3.42.6 XL2

Attribute (composition)

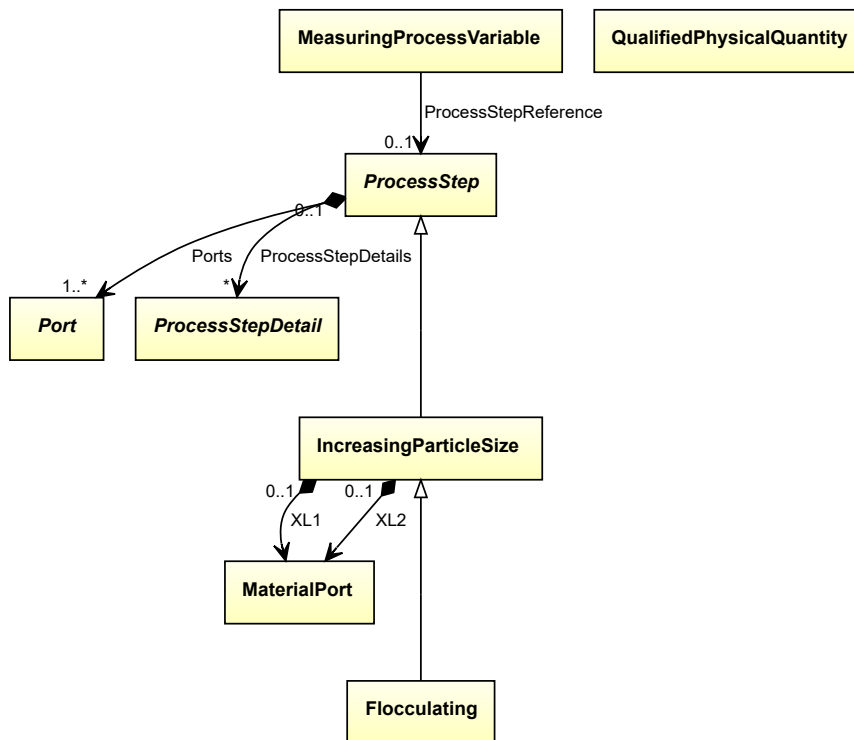
3.42.7 XQ1

Attribute (composition)

3.43 Flocculating

3.43.1 Overview

Class



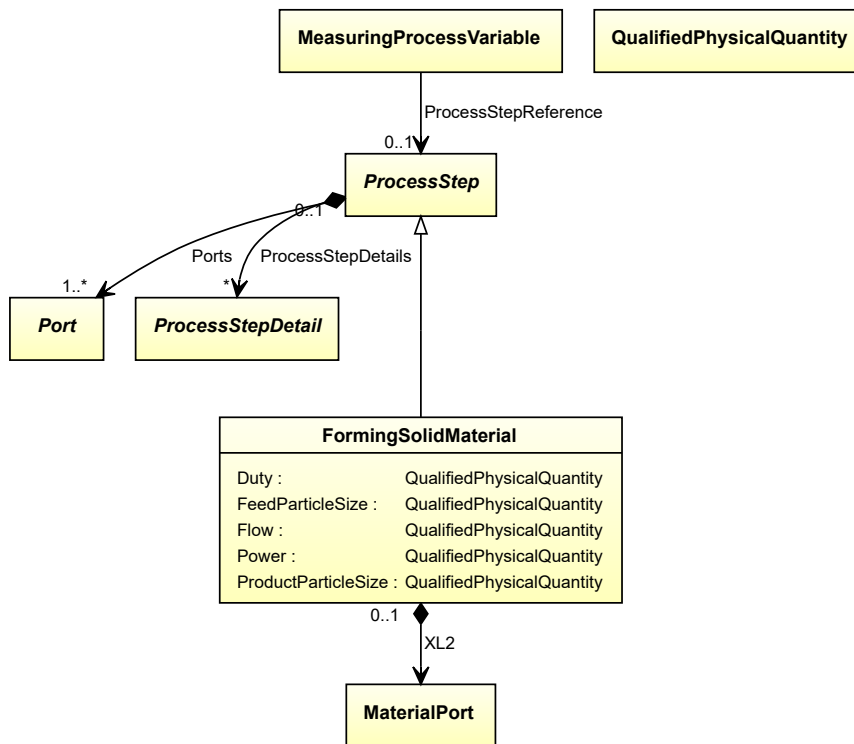
Supertypes

- *IncreasingParticleSize*

3.44 FormingSolidMaterial

3.44.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *Extruding*
- *Pelletizing*

Attributes (composition)

Name	Multiplicity	Type
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>FeedParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ProductParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.44.2 Duty

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.44.3 FeedParticleSize

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.44.4 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.44.5 Power

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.44.6 ProductParticleSize

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

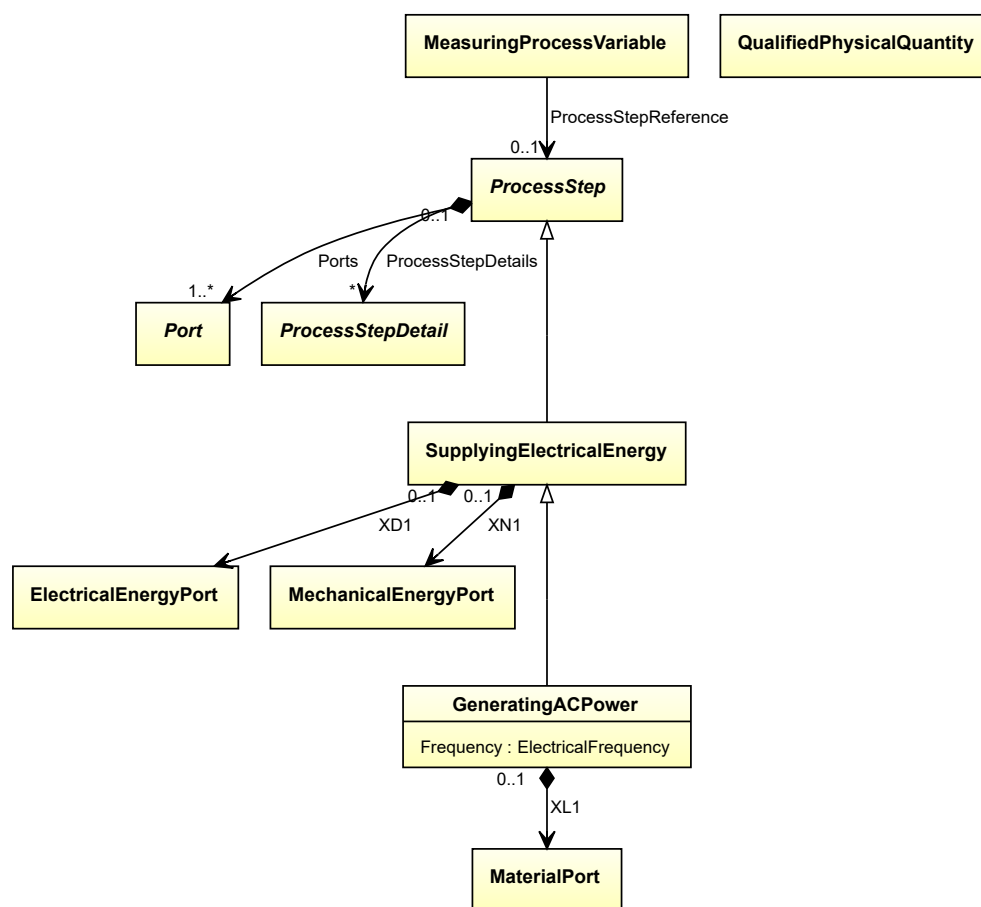
3.44.7 XL2

Attribute (composition)

3.45 GeneratingACPower

3.45.1 Overview

Class



Supertypes

- *SupplyingElectricalEnergy*

Attributes (data)

Name	Multiplicity	Type
<i>Frequency</i>	1	<i>ElectricalFrequency</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>

3.45.2 Frequency

Attribute (data)

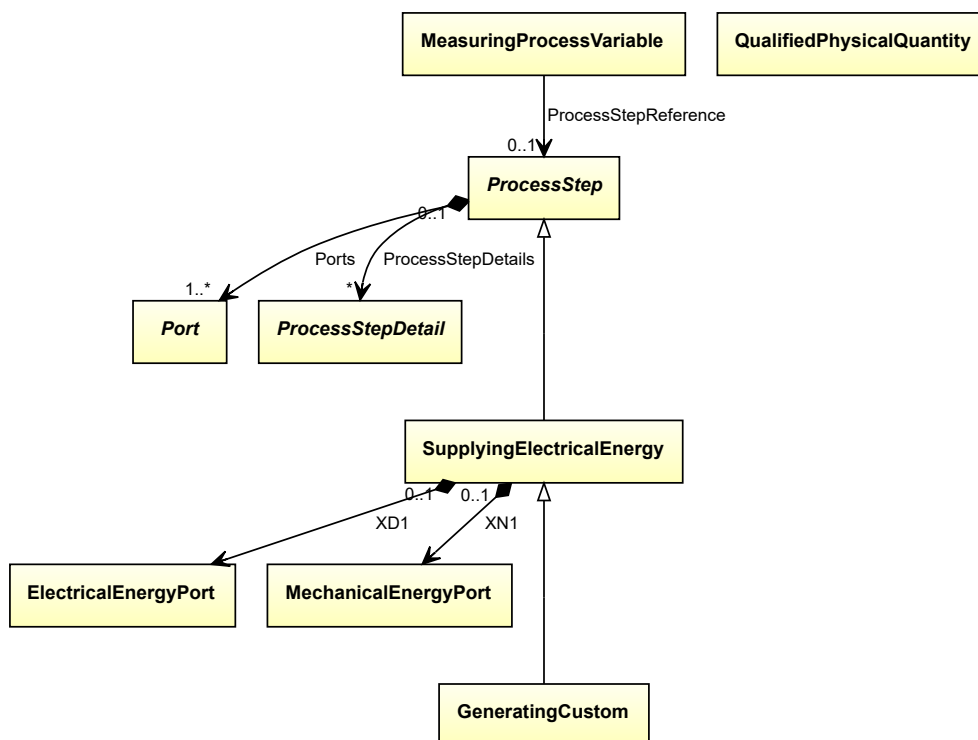
3.45.3 XL1

Attribute (composition)

3.46 GeneratingCustom

3.46.1 Overview

Class



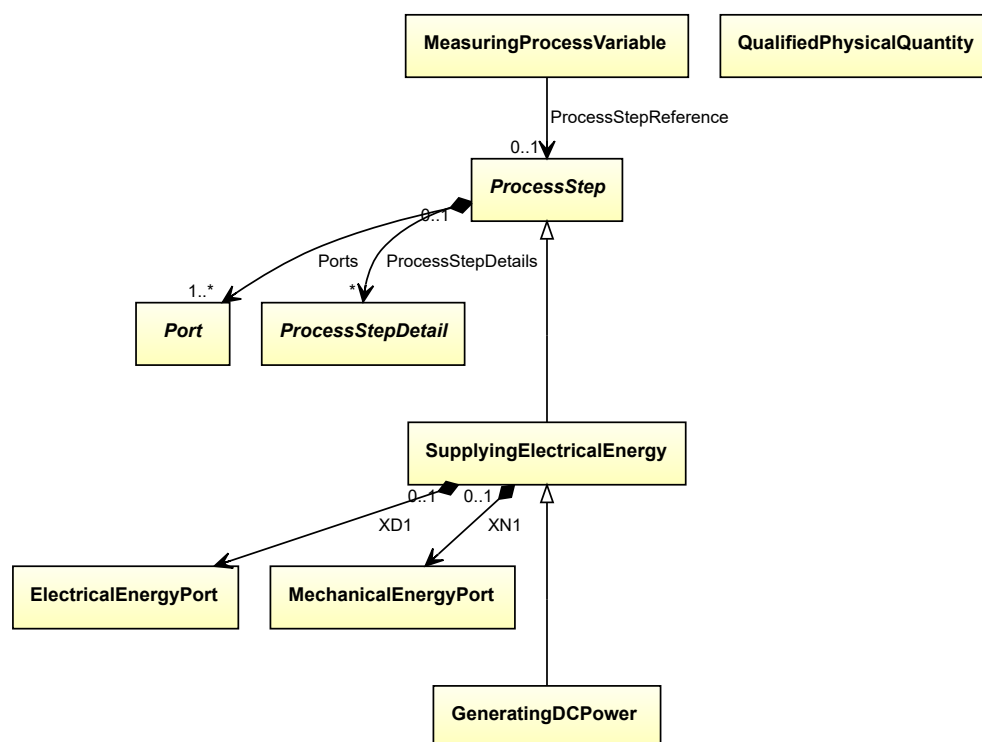
Supertypes

- *SupplyingElectricalEnergy*

3.47 GeneratingDCPower

3.47.1 Overview

Class



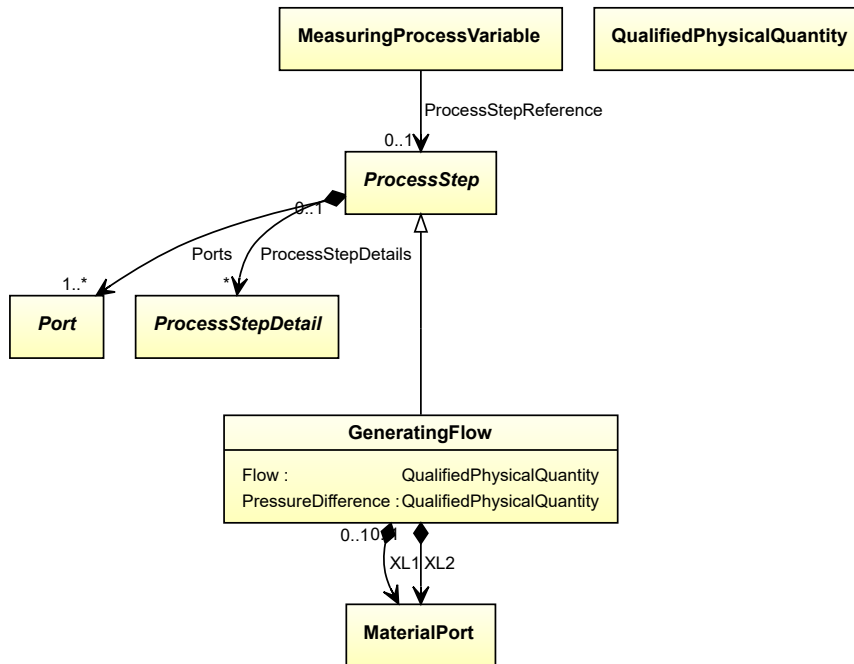
Supertypes

- *SupplyingElectricalEnergy*

3.48 GeneratingFlow

3.48.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *Compressing*
- *Pumping*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.48.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.48.3 PressureDifference

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.48.4 XL1

Attribute (composition)

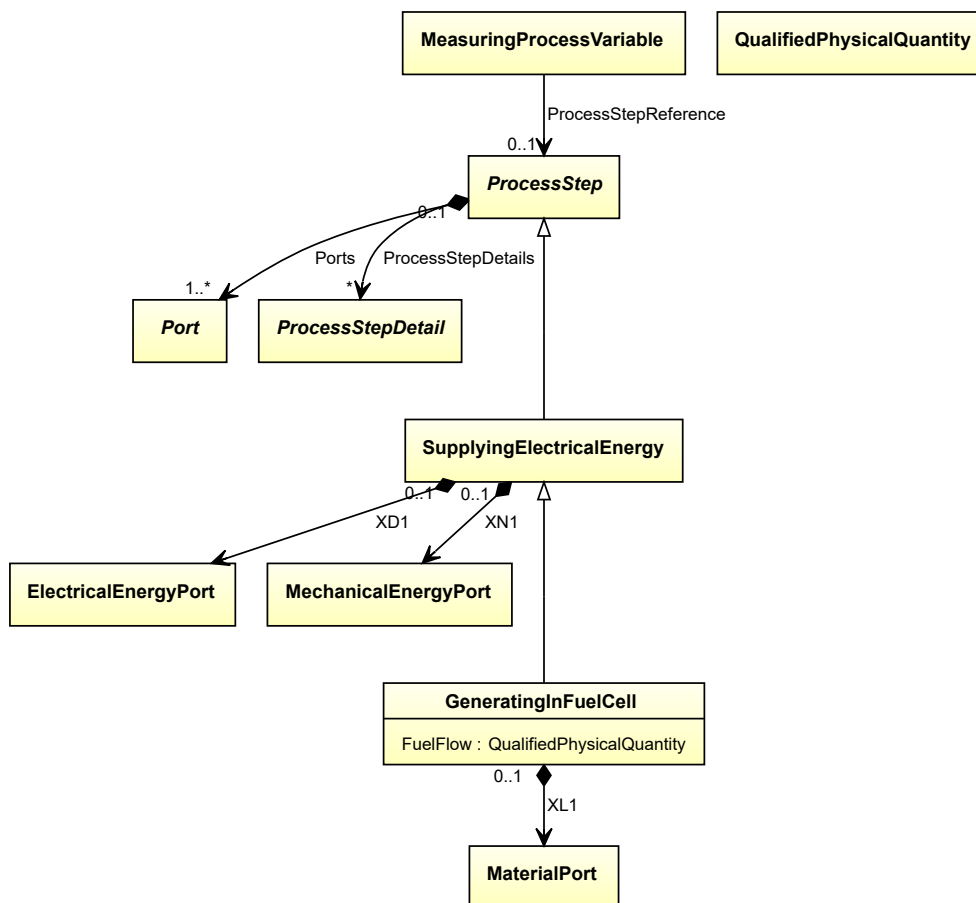
3.48.5 XL2

Attribute (composition)

3.49 GeneratingInFuelCell

3.49.1 Overview

Class



Supertypes

- *SupplyingElectricalEnergy*

Attributes (composition)

Name	Multiplicity	Type
<i>FuelFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>

3.49.2 FuelFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

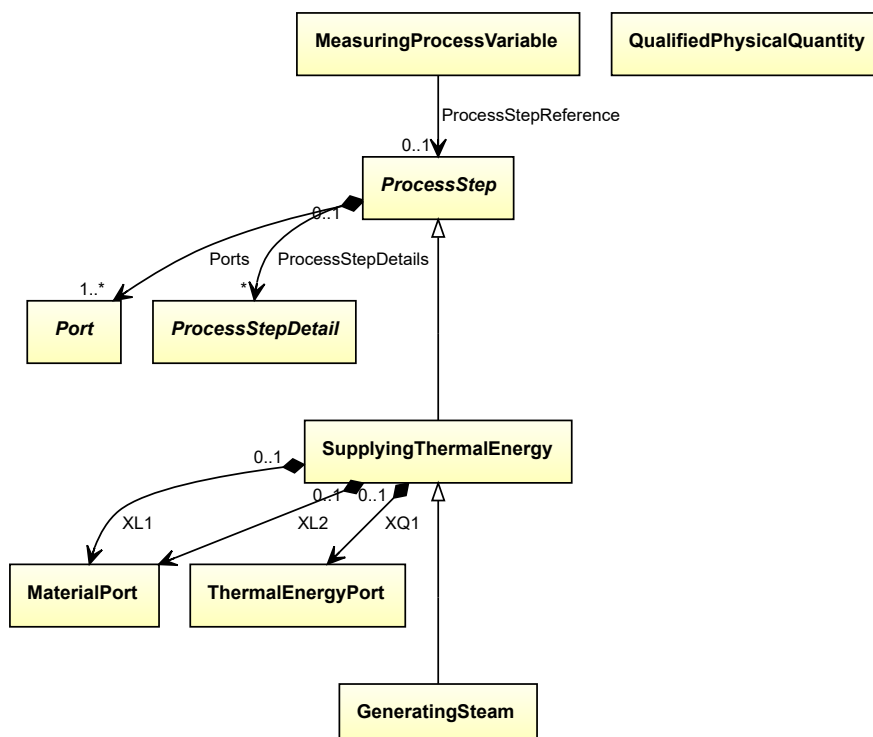
3.49.3 XL1

Attribute (composition)

3.50 GeneratingSteam

3.50.1 Overview

Class



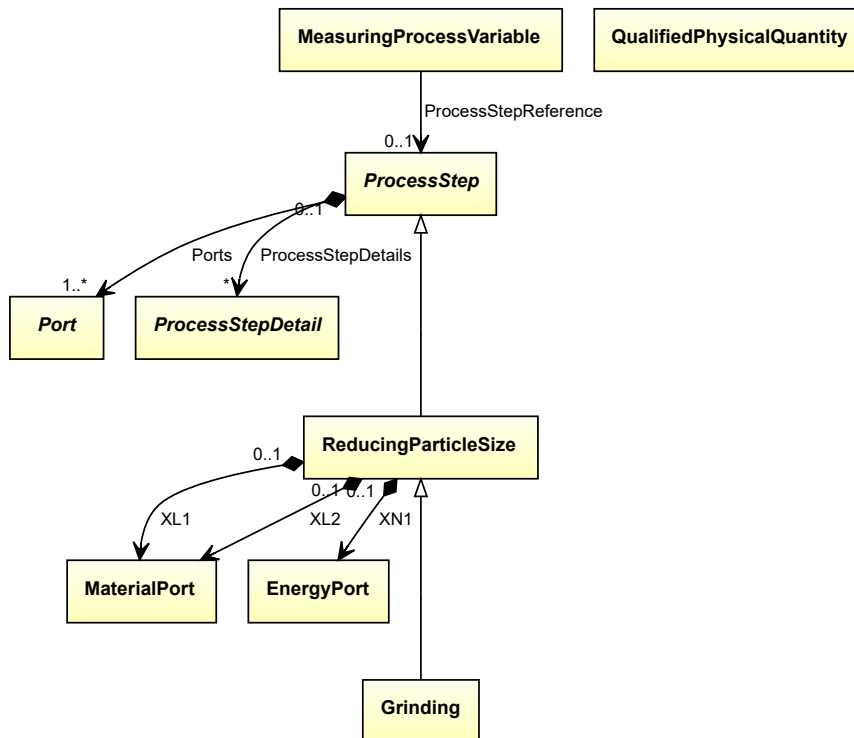
Supertypes

- *SupplyingThermalEnergy*

3.51 Grinding

3.51.1 Overview

Class



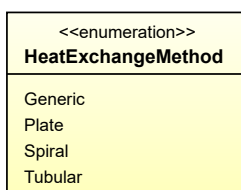
Supertypes

- *ReducingParticleSize*

3.52 HeatExchangeMethod

3.52.1 Overview

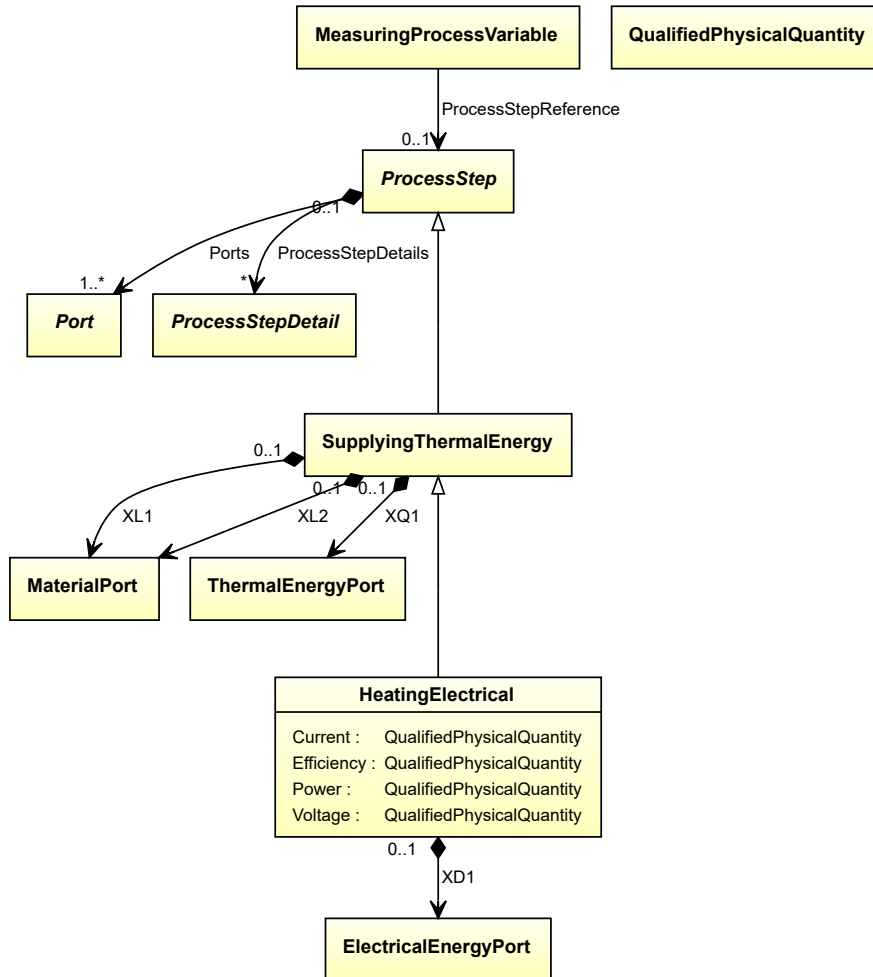
Enumeration



3.53 HeatingElectrical

3.53.1 Overview

Class



Supertypes

- *SupplyingThermalEnergy*

Attributes (composition)

Name	Multiplicity	Type
<i>Current</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Efficiency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Voltage</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XD1</i>	1	<i>ElectricalEnergyPort</i>

3.53.2 Current

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableElectricCurrent`.

3.53.3 Efficiency

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.53.4 Power

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.53.5 Voltage

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVoltage`.

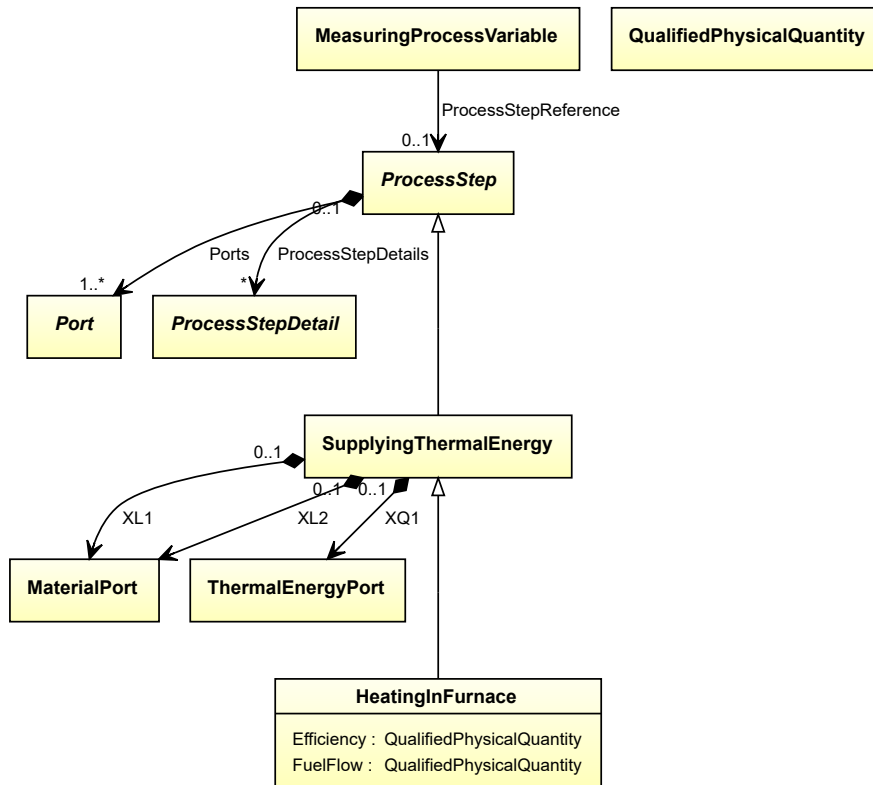
3.53.6 XD1

Attribute (composition)

3.54 HeatingInFurnace

3.54.1 Overview

Class



Supertypes

- *SupplyingThermalEnergy*

Attributes (composition)

Name	Multiplicity	Type
<i>Efficiency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>FuelFlow</i>	1	<i>QualifiedPhysicalQuantity</i>

3.54.2 Efficiency

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.54.3 FuelFlow

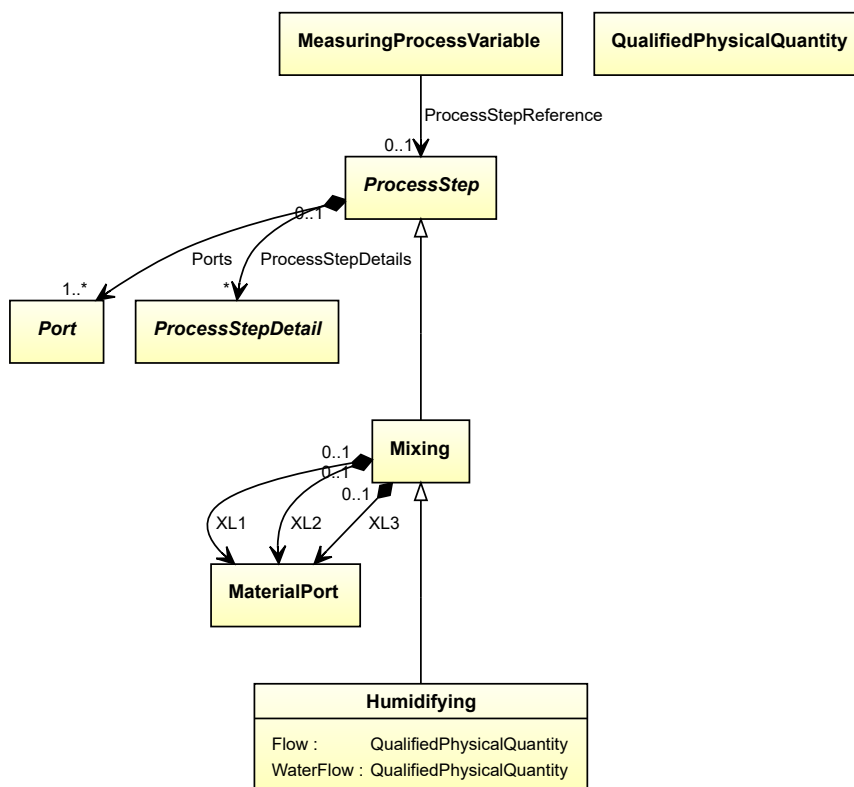
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.55 Humidifying

3.55.1 Overview

Class



Supertypes

- *Mixing*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>WaterFlow</i>	1	<i>QualifiedPhysicalQuantity</i>

3.55.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.55.3 WaterFlow

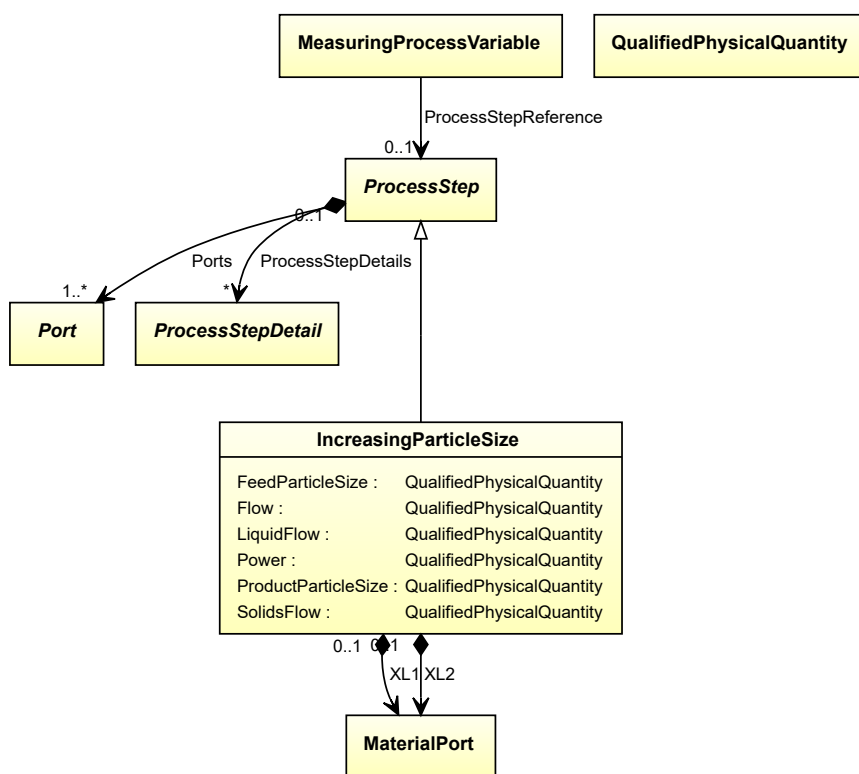
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.56 IncreasingParticleSize

3.56.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *Agglomerating*
- *Crystallize*
- *Flocculating*

Attributes (composition)

Name	Multiplicity	Type
<i>FeedParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>LiquidFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ProductParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SolidsFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.56.2 FeedParticleSize

Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableParticleSize*.

3.56.3 Flow

Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableMassFlowRate*.

3.56.4 LiquidFlow

Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableMassFlowRate*.

3.56.5 Power

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullablePower.

3.56.6 ProductParticleSize

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableParticleSize.

3.56.7 SolidsFlow

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableMassFlowRate.

3.56.8 XL1

Attribute (composition)

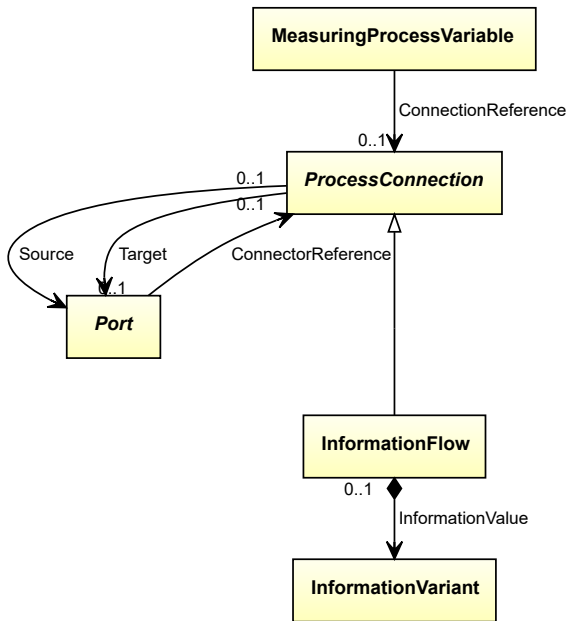
3.56.9 XL2

Attribute (composition)

3.57 InformationFlow

3.57.1 Overview

Class



Supertypes

- *ProcessConnection*

Attributes (composition)

Name	Multiplicity	Type
<i>InformationValue</i>	1	<i>InformationVariant</i>

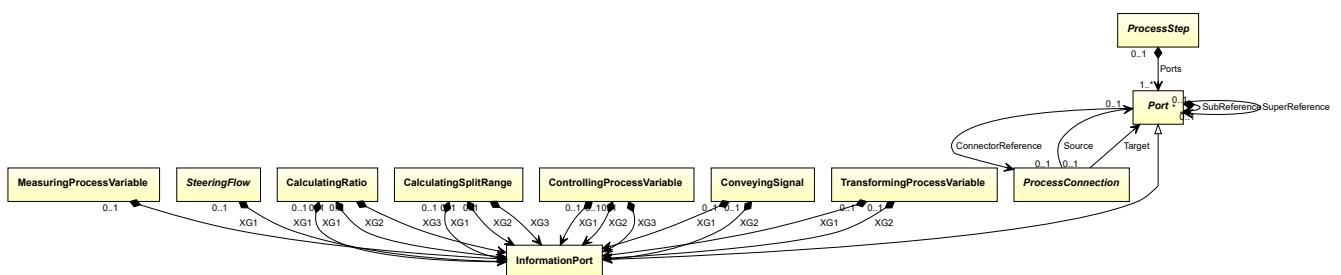
3.57.2 InformationValue

Attribute (composition)

3.58 InformationPort

3.58.1 Overview

Class



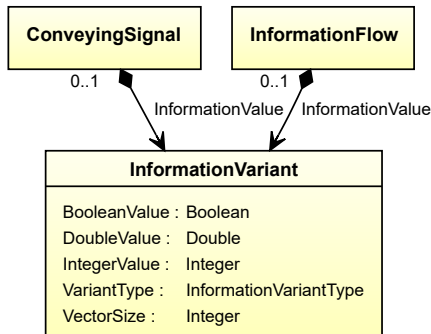
Supertypes

- *Port*

3.59 InformationVariant

3.59.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
<i>BooleanValue</i>	1	<i>Boolean</i>
<i>DoubleValue</i>	1	<i>Double</i>
<i>IntegerValue</i>	1	<i>Integer</i>
<i>VariantType</i>	1	<i>InformationVariantType</i>
<i>VectorSize</i>	1	<i>Integer</i>

3.59.2 BooleanValue

Attribute (data)

3.59.3 DoubleValue

Attribute (data)

3.59.4 IntegerValue

Attribute (data)

3.59.5 VariantType

Attribute (data)

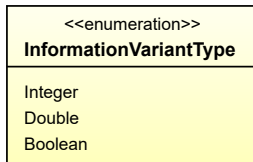
3.59.6 VectorSize

Attribute (data)

3.60 InformationVariantType

3.60.1 Overview

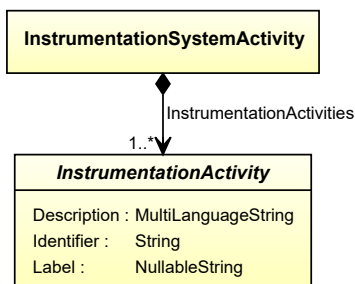
Enumeration



3.61 InstrumentationActivity

3.61.1 Overview

Abstract class



Subtypes

- *CalculatingProcessVariable*
- *ControllingProcessVariable*
- *ConveyingSignal*
- *MeasuringProcessVariable*

Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>NullableString</i>

3.61.2 Description

Attribute (data)

3.61.3 Identifier

Attribute (data)

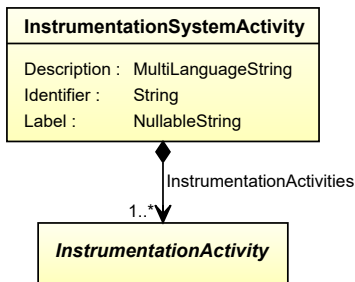
3.61.4 Label

Attribute (data)

3.62 InstrumentationSystemActivity

3.62.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>NullableString</i>

Attributes (composition)

Name	Multiplicity	Type
<i>InstrumentationActivities</i>	1..*	<i>InstrumentationActivity</i>

3.62.2 Description

Attribute (data)

3.62.3 Identifier

Attribute (data)

3.62.4 InstrumentationActivities

Attribute (composition)

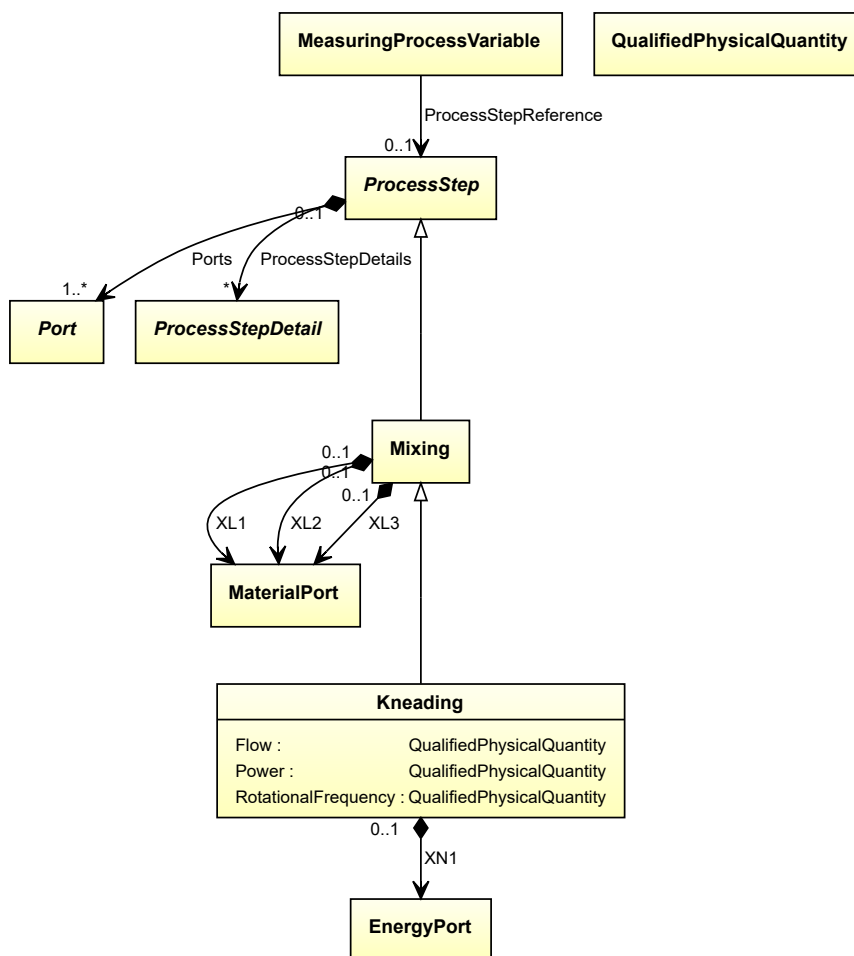
3.62.5 Label

Attribute (data)

3.63 Kneading

3.63.1 Overview

Class



Supertypes

- *Mixing*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XN1</i>	1	<i>EnergyPort</i>

3.63.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.63.3 Power

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.63.4 RotationalFrequency

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

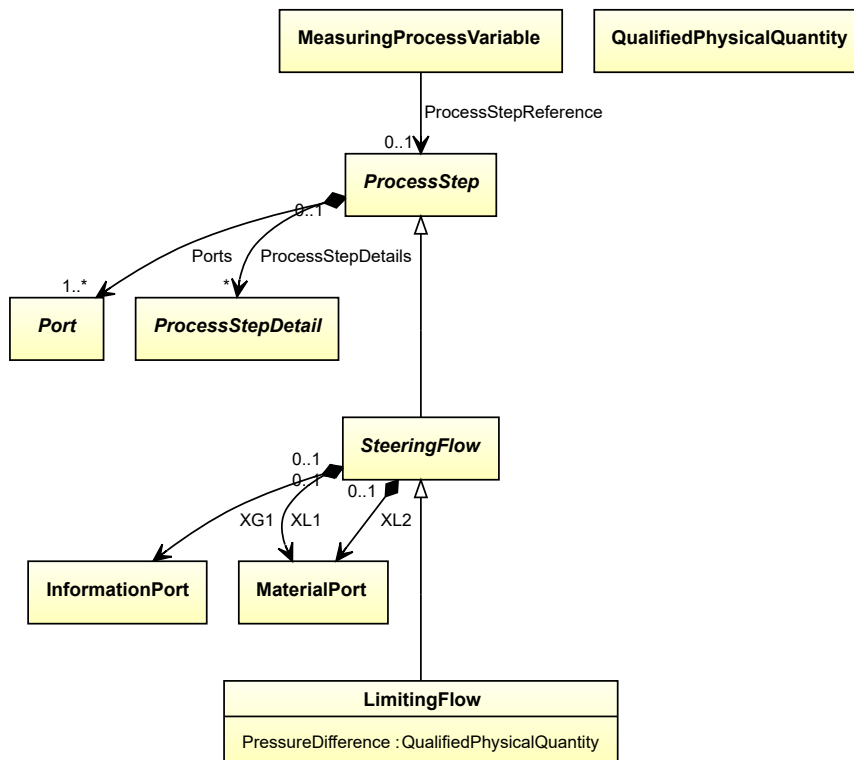
3.63.5 XN1

Attribute (composition)

3.64 LimitingFlow

3.64.1 Overview

Class



Supertypes

- *SteeringFlow*

Attributes (composition)

Name	Multiplicity	Type
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>

3.64.2 PressureDifference

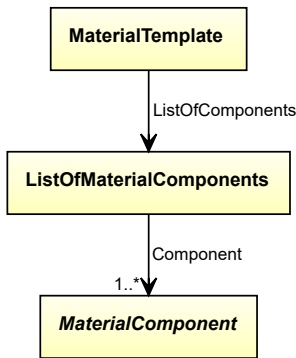
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.65 ListOfMaterialComponents

3.65.1 Overview

Class



Attributes (reference)

Name	Multiplicity	Type
<i>Component</i>	1..*	<i>MaterialComponent</i>

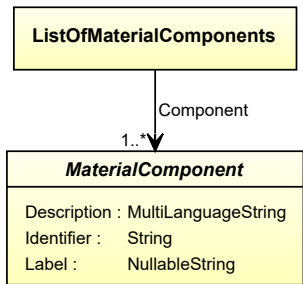
3.65.2 Component

Attribute (reference)

3.66 MaterialComponent

3.66.1 Overview

Abstract class

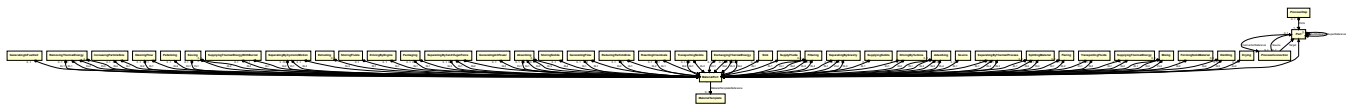


Subtypes

- CustomMaterialComponent*
- PureMaterialComponent*

Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>NullableString</i>

3.66.2 Description**Attribute (data)****3.66.3 Identifier****Attribute (data)****3.66.4 Label****Attribute (data)****3.67 MaterialPort****3.67.1 Overview****Class****Supertypes**

- *Port*

Attributes (reference)

Name	Multiplicity	Type
<i>MaterialTemplateReference</i>	0..1	<i>MaterialTemplate</i>

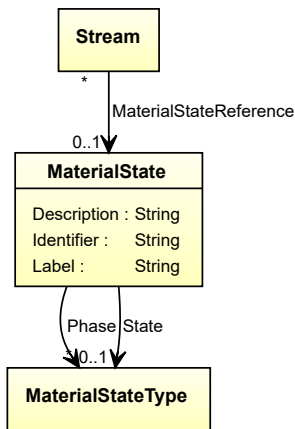
3.67.2 MaterialTemplateReference

Attribute (reference)

3.68 MaterialState

3.68.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
Description	1	String
Identifier	1	String
Label	1	String

Attributes (reference)

Name	Multiplicity	Type
Phase	*	MaterialStateType
State	0..1	MaterialStateType

3.68.2 Description

Attribute (data)

3.68.3 Identifier

Attribute (data)

3.68.4 Label

Attribute (data)

3.68.5 Phase

Attribute (reference)

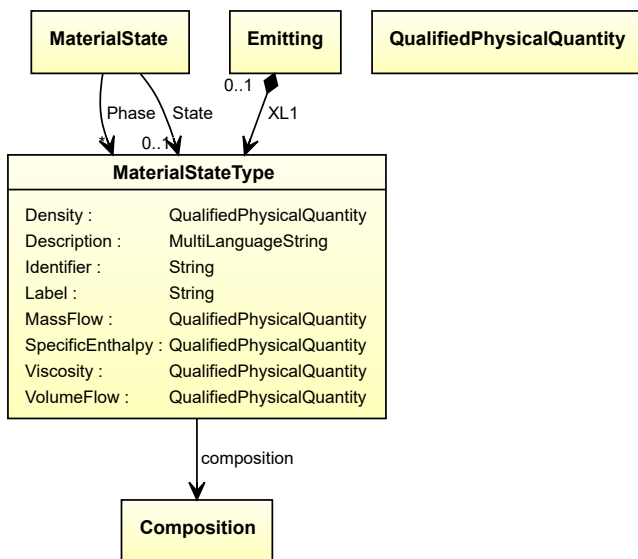
3.68.6 State

Attribute (reference)

3.69 MaterialStateType

3.69.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>String</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Density</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>MassFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SpecificEnthalpy</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Viscosity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>VolumeFlow</i>	1	<i>QualifiedPhysicalQuantity</i>

Attributes (reference)

Name	Multiplicity	Type
<i>composition</i>	1	<i>Composition</i>

3.69.2 Density**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableDensity`.

3.69.3 Description**Attribute (data)****3.69.4 Identifier****Attribute (data)****3.69.5 Label****Attribute (data)****3.69.6 MassFlow****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.69.7 SpecificEnthalpy

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassSpecificEnergy`.

3.69.8 Viscosity

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableDynamicViscosity`.

3.69.9 VolumeFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolumeFlowRate`.

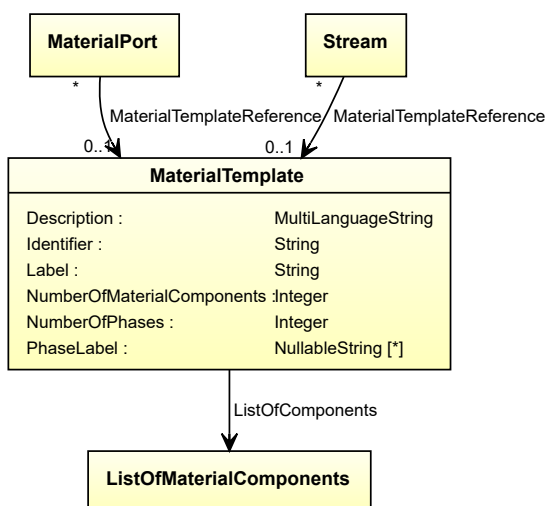
3.69.10 composition

Attribute (reference)

3.70 MaterialTemplate

3.70.1 Overview

Class



Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>String</i>
<i>NumberOfMaterialComponents</i>	1	<i>Integer</i>
<i>NumberOfPhases</i>	1	<i>Integer</i>
<i>PhaseLabel</i>	*	<i>NullableString</i>

Attributes (reference)

Name	Multiplicity	Type
<i>ListOfComponents</i>	1	<i>ListOfMaterialComponents</i>

3.70.2 Description**Attribute (data)****3.70.3 Identifier****Attribute (data)****3.70.4 Label****Attribute (data)****3.70.5 ListOfComponents****Attribute (reference)****3.70.6 NumberOfMaterialComponents****Attribute (data)****3.70.7 NumberOfPhases****Attribute (data)****3.70.8 PhaseLabel****Attribute (data)****3.71 MeasuredQuantity****3.71.1 Overview**

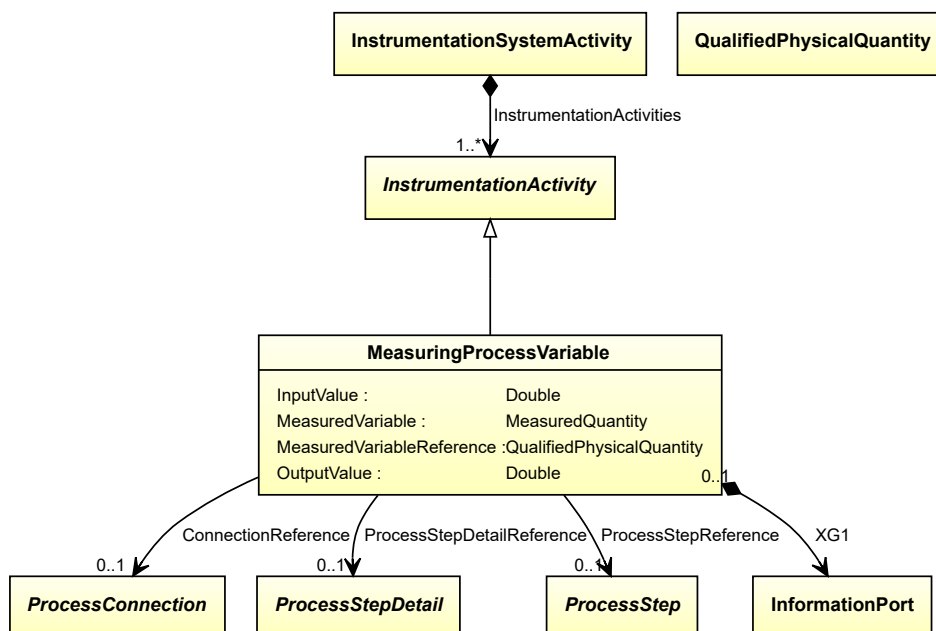
Enumeration

<<enumeration>>	
MeasuredQuantity	
WeightMassForce	
Velocity	
Time	
SpatialDimension	
Radiation	
Quality	
Pressure	
Power	
NumberOfEvents	
MultipleQuantities	
Level	
Humidity	
Flow	
Energy	
ElectromagneticField	
ElectricPotential	
ElectricCurrent	
Density	
AudioVisual	
VibrationOrTorque	
PressureDifference	

3.72 MeasuringProcessVariable

3.72.1 Overview

Class



Supertypes

- *InstrumentationActivity*

Attributes (data)

Name	Multiplicity	Type
<i>InputValue</i>	1	<i>Double</i>
<i>MeasuredVariable</i>	1	<i>MeasuredQuantity</i>
<i>OutputValue</i>	1	<i>Double</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XG1</i>	1	<i>InformationPort</i>

Attributes (reference)

Name	Multiplicity	Type
<i>ConnectionReference</i>	0..1	<i>ProcessConnection</i>
<i>MeasuredVariableReference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ProcessStepDetailReference</i>	0..1	<i>ProcessStepDetail</i>
<i>ProcessStepReference</i>	0..1	<i>ProcessStep</i>

3.72.2 ConnectionReference**Attribute (reference)****3.72.3 InputValue****Attribute (data)****3.72.4 MeasuredVariable****Attribute (data)****3.72.5 MeasuredVariableReference****Attribute (reference)****3.72.6 OutputValue**

Attribute (data)

3.72.7 ProcessStepDetailReference

Attribute (reference)

3.72.8 ProcessStepReference

Attribute (reference)

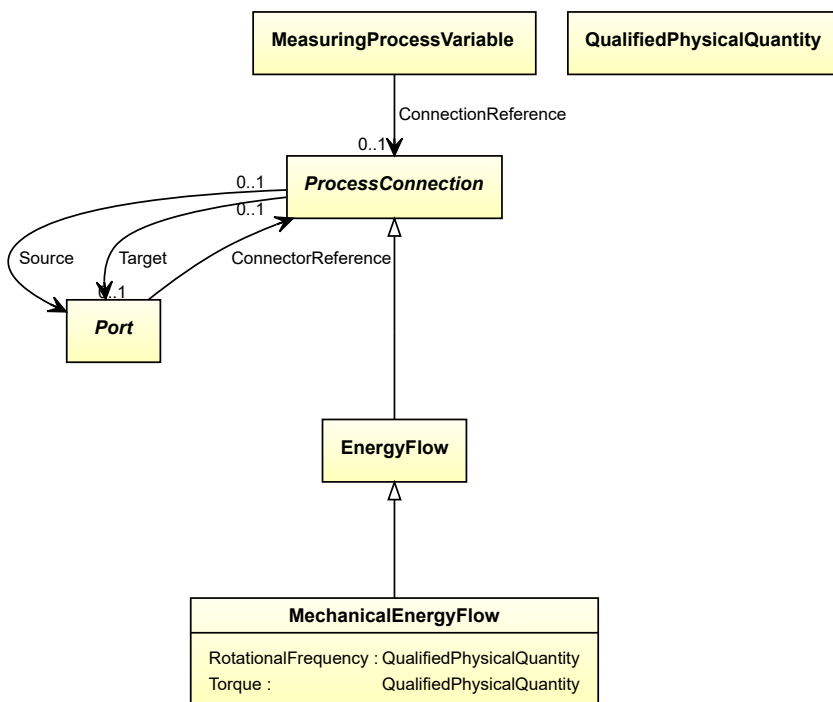
3.72.9 XG1

Attribute (composition)

3.73 MechanicalEnergyFlow

3.73.1 Overview

Class



Supertypes

- *EnergyFlow*

Attributes (composition)

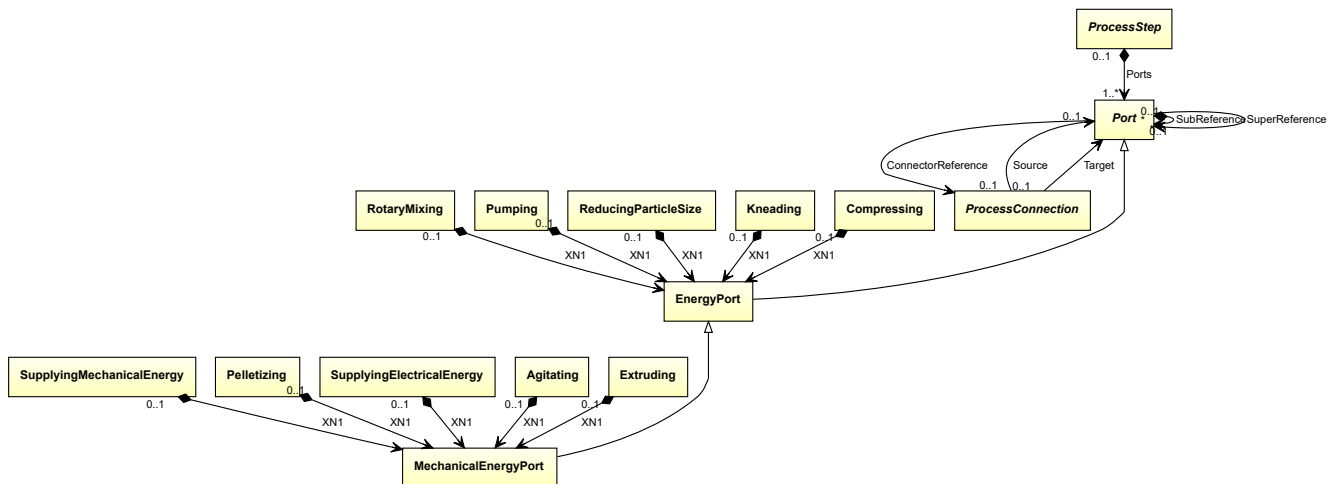
Name	Multiplicity	Type
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Torque</i>	1	<i>QualifiedPhysicalQuantity</i>

3.73.2 RotationalFrequency**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

3.73.3 Torque**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMomentOfForce`.

3.74 MechanicalEnergyPort**3.74.1 Overview****Class**

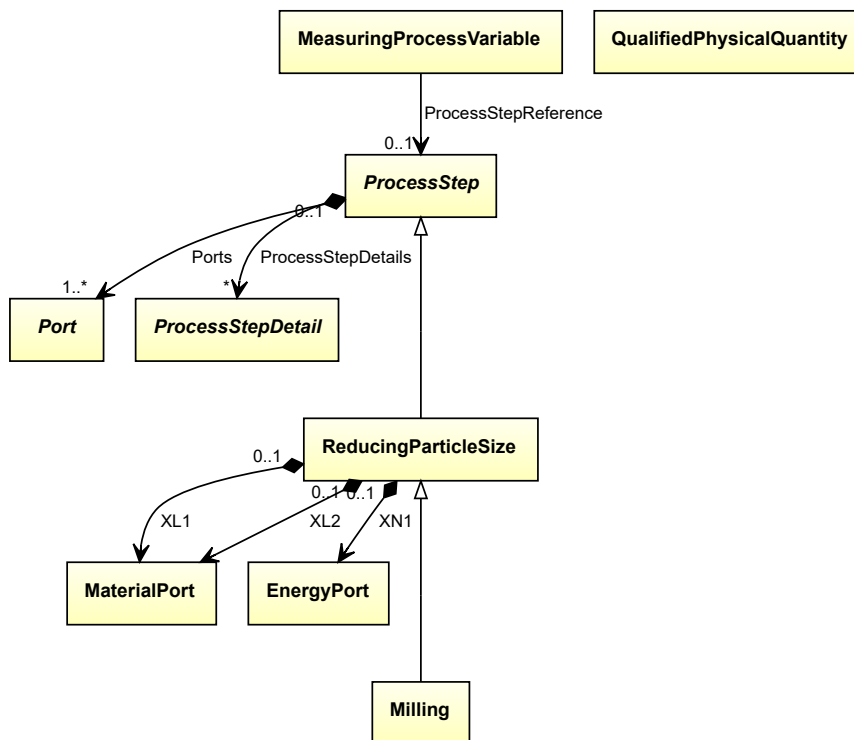
Supertypes

- *EnergyPort*

3.75 Milling

3.75.1 Overview

Class



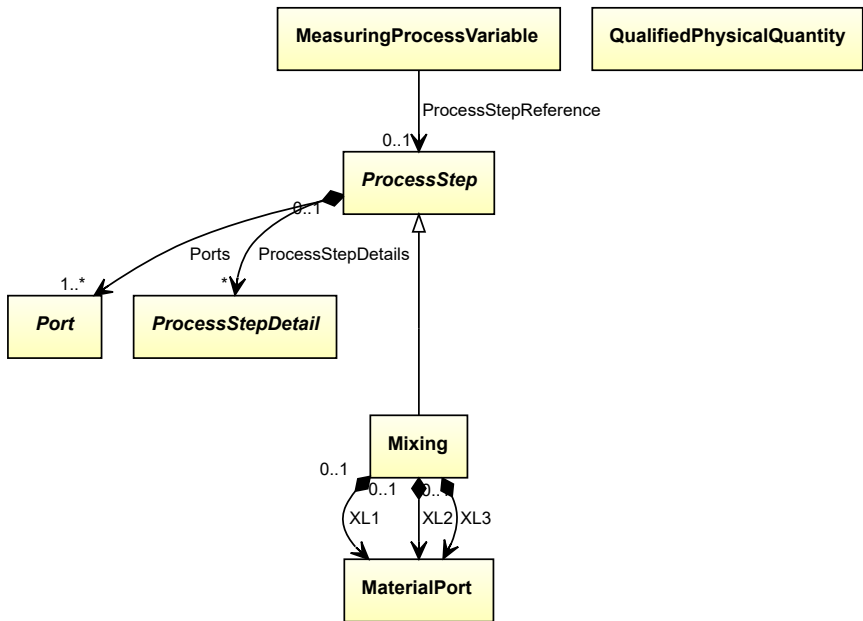
Supertypes

- *ReducingParticleSize*

3.76 Mixing

3.76.1 Overview

Class



Supertypes

- ProcessStep*

Subtypes

- Humidifying*
- Kneading*
- MixingSimple*
- RotaryMixing*
- StaticMixing*

Attributes (composition)

Name	Multiplicity	Type
XL1	1	MaterialPort
XL2	1	MaterialPort
XL3	1	MaterialPort

3.76.2 XL1

Attribute (composition)

3.76.3 XL2

Attribute (composition)

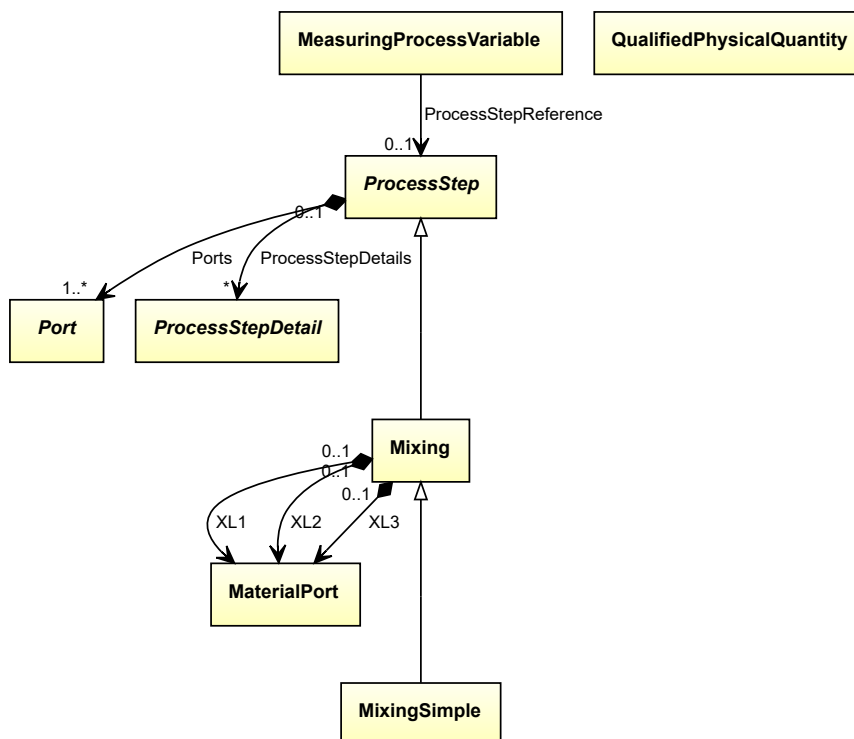
3.76.4 XL3

Attribute (composition)

3.77 MixingSimple

3.77.1 Overview

Class



Supertypes

- *Mixing*

3.78 MotorDriveMethod

3.78.1 Overview

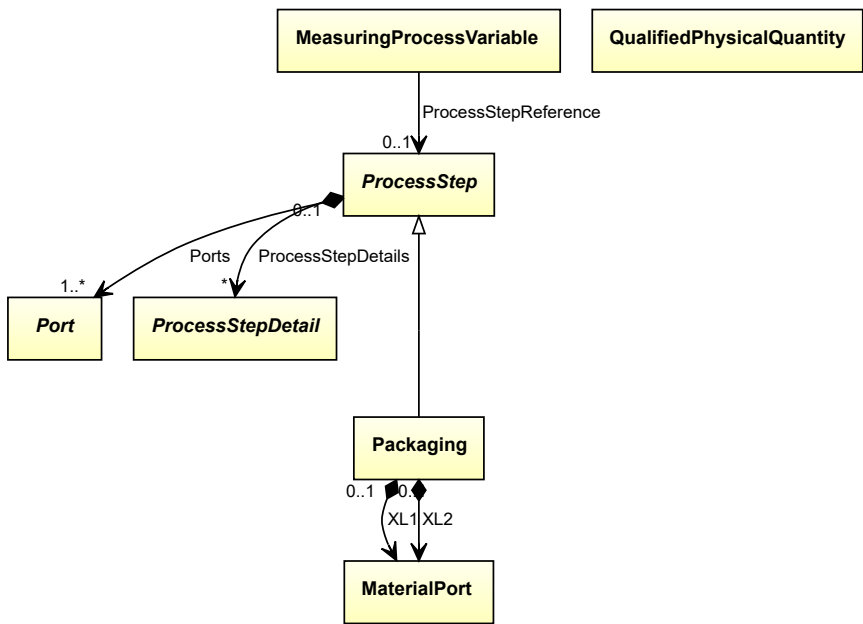
Enumeration

<<enumeration>> MotorDriveMethod
Unspecified AlternatingCurrent DirectCurrent StepperMotor

3.79 Packaging

3.79.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.79.2 XL1

Attribute (composition)

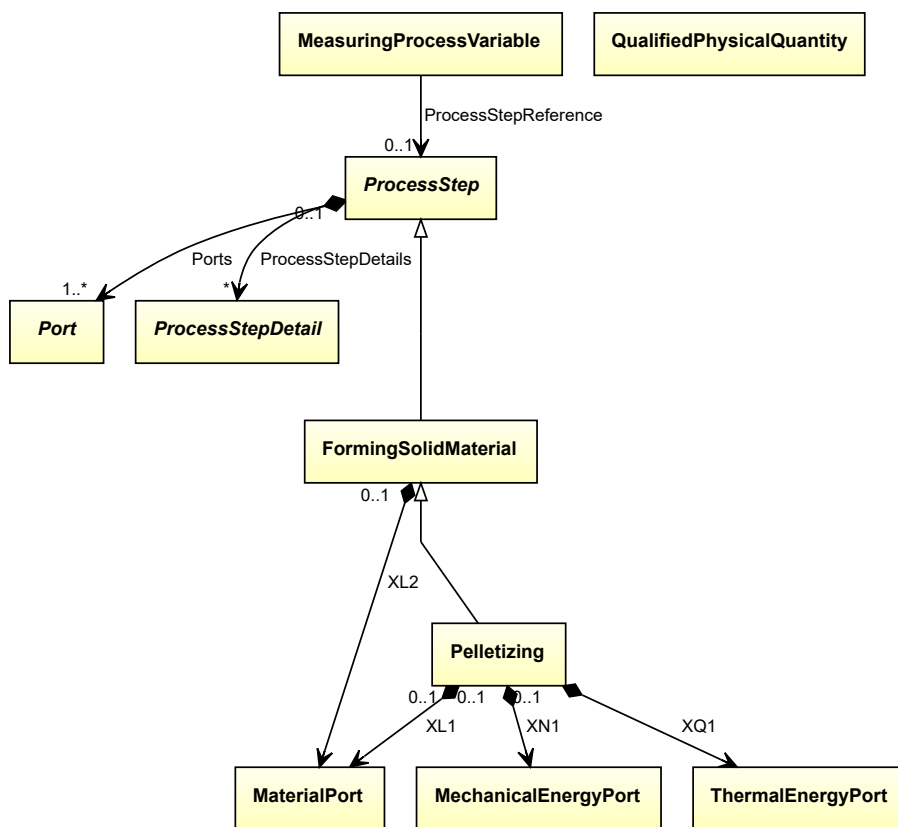
3.79.3 XL2

Attribute (composition)

3.80 Pelletizing

3.80.1 Overview

Class



Supertypes

- *FormingSolidMaterial*

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XN1</i>	1	<i>MechanicalEnergyPort</i>
<i>XQ1</i>	1	<i>ThermalEnergyPort</i>

3.80.2 XL1

Attribute (composition)

3.80.3 XN1

Attribute (composition)

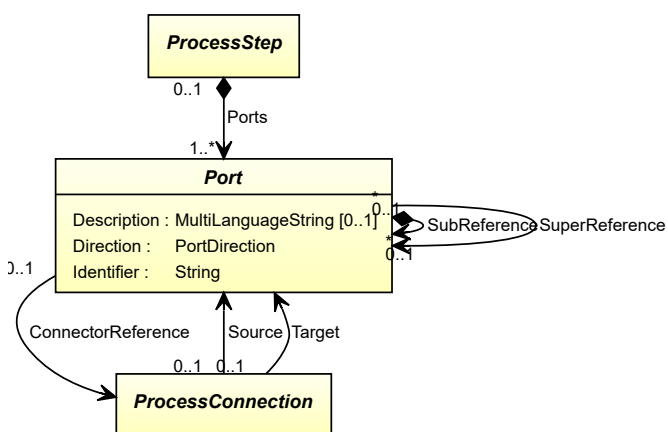
3.80.4 XQ1

Attribute (composition)

3.81 Port

3.81.1 Overview

Abstract class



Subtypes

- *EnergyPort*
- *InformationPort*
- *MaterialPort*

Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	0..1	<i>MultiLanguageString</i>
<i>Direction</i>	1	<i>PortDirection</i>
<i>Identifier</i>	1	<i>String</i>

Attributes (composition)

Name	Multiplicity	Type
<i>SubReference</i>	*	<i>Port</i>

Attributes (reference)

Name	Multiplicity	Type
<i>ConnectorReference</i>	1	<i>ProcessConnection</i>
<i>SuperReference</i>	0..1	<i>Port</i>

3.81.2 ConnectorReference**Attribute (reference)****3.81.3 Description****Attribute (data)****3.81.4 Direction****Attribute (data)****3.81.5 Identifier****Attribute (data)****3.81.6 SubReference**

Attribute (composition)

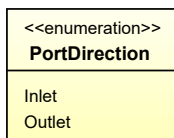
3.81.7 SuperReference

Attribute (reference)

3.82 PortDirection

3.82.1 Overview

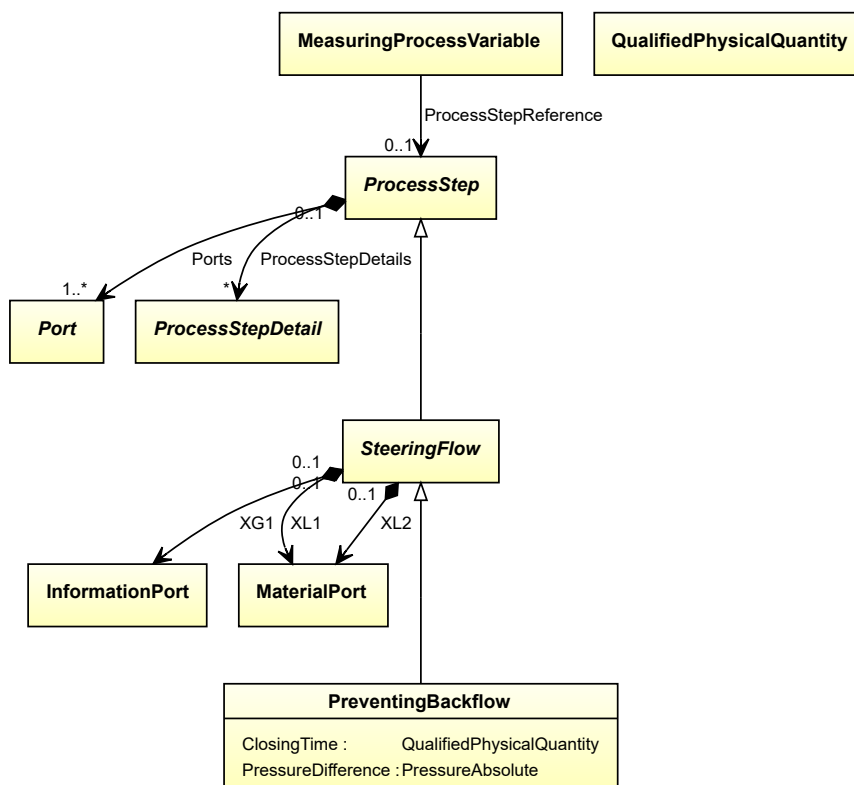
Enumeration



3.83 PreventingBackflow

3.83.1 Overview

Class



Supertypes

- *SteeringFlow*

Attributes (data)

Name	Multiplicity	Type
<i>PressureDifference</i>	1	<i>PressureAbsolute</i>

Attributes (composition)

Name	Multiplicity	Type
<i>ClosingTime</i>	1	<i>QualifiedPhysicalQuantity</i>

3.83.2 ClosingTime

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTimeInterval`.

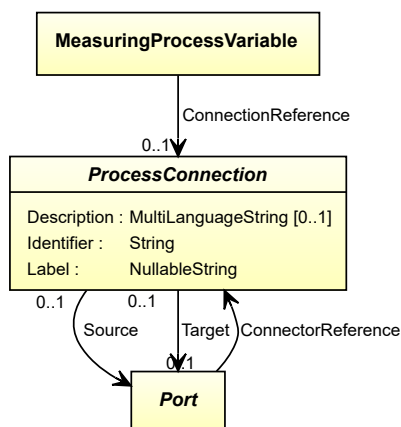
3.83.3 PressureDifference

Attribute (data)

3.84 ProcessConnection

3.84.1 Overview

Abstract class



Subtypes

- *EnergyFlow*
- *InformationFlow*
- *Stream*

Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	0..1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>NullableString</i>

Attributes (reference)

Name	Multiplicity	Type
<i>Source</i>	1	<i>Port</i>
<i>Target</i>	1	<i>Port</i>

3.84.2 Description

Attribute (data)

3.84.3 Identifier

Attribute (data)

3.84.4 Label

Attribute (data)

3.84.5 Source

Attribute (reference)

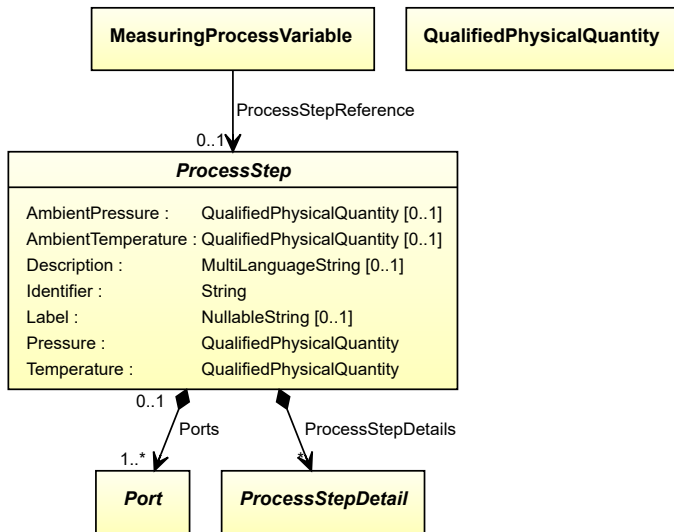
3.84.6 Target

Attribute (reference)

3.85 ProcessStep

3.85.1 Overview

Abstract class



Subtypes

- *Emitting*
- *ExchangingThermalEnergy*
- *Flaring*
- *FormingSolidMaterial*
- *GeneratingFlow*
- *IncreasingParticleSize*
- *Mixing*
- *Packaging*
- *ReactingChemicals*
- *ReducingParticleSize*
- *RemovingThermalEnergy*
- *Separating*
- *Sink*
- *Source*
- *Splitting*
- *SteeringFlow*
- *Storing*
- *StoringElectricalEnergy*
- *SupplyFluids*
- *SupplyingElectricalEnergy*
- *SupplyingMechanicalEnergy*
- *SupplyingSolids*
- *SupplyingThermalEnergy*
- *TransportingElectricalEnergy*
- *TransportingFluids*

- *TransportingSolids*

Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	0..1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	0..1	<i>NullableString</i>

Attributes (composition)

Name	Multiplicity	Type
<i>AmbientPressure</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>AmbientTemperature</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>Ports</i>	1..*	<i>Port</i>
<i>Pressure</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ProcessStepDetails</i>	*	<i>ProcessStepDetail</i>
<i>Temperature</i>	1	<i>QualifiedPhysicalQuantity</i>

3.85.2 AmbientPressure**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.85.3 AmbientTemperature**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

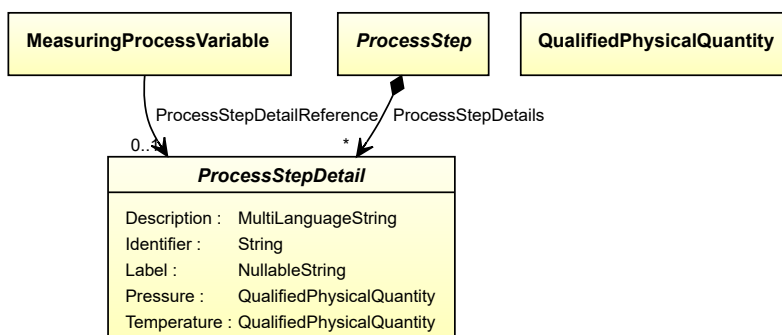
3.85.4 Description**Attribute (data)****3.85.5 Identifier****Attribute (data)****3.85.6 Label**

Attribute (data)**3.85.7 Ports****Attribute (composition)****3.85.8 Pressure****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.85.9 ProcessStepDetails**Attribute (composition)****3.85.10 Temperature****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.86 ProcessStepDetail**3.86.1 Overview****Abstract class****Subtypes**

- *Agitating*
- *ContactingInPacking*
- *ContactingOnTray*
- *SupplyingThermalEnergyWithBurner*

Attributes (data)

Name	Multiplicity	Type
<i>Description</i>	1	<i>MultiLanguageString</i>
<i>Identifier</i>	1	<i>String</i>
<i>Label</i>	1	<i>NullableString</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Pressure</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Temperature</i>	1	<i>QualifiedPhysicalQuantity</i>

3.86.2 Description**Attribute (data)****3.86.3 Identifier****Attribute (data)****3.86.4 Label****Attribute (data)****3.86.5 Pressure****Attribute (composition)**

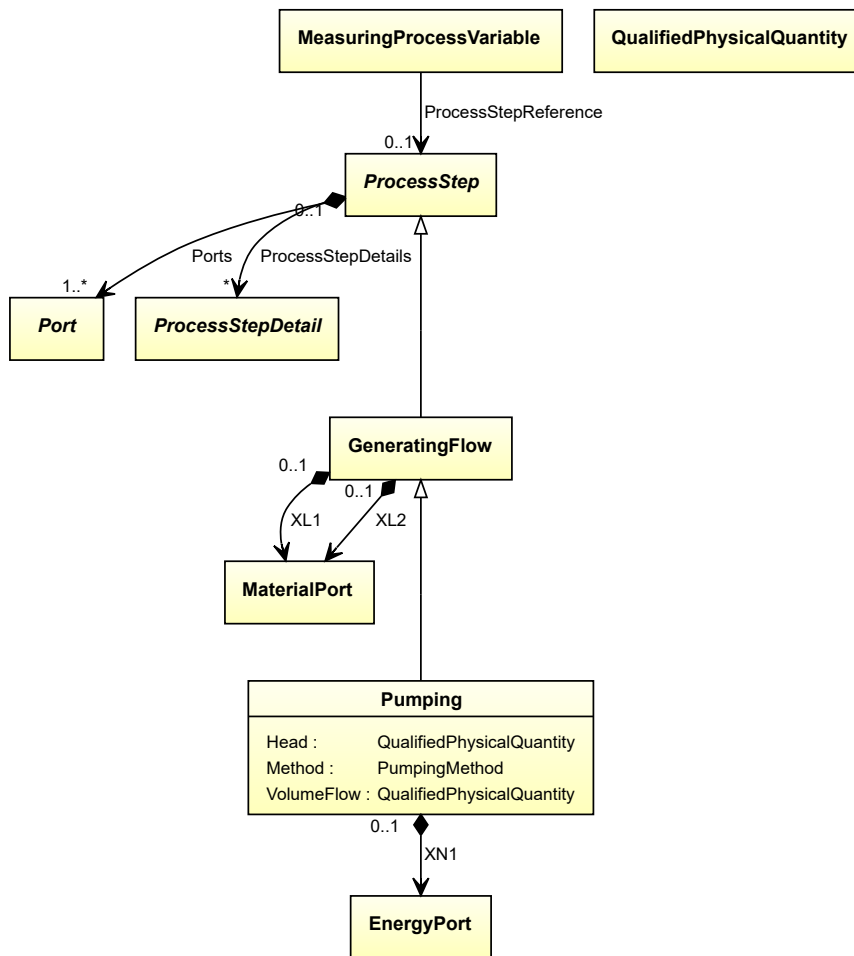
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.86.6 Temperature**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.87 Pumping**3.87.1 Overview**

Class



Supertypes

- *GeneratingFlow*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>PumpingMethod</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Head</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>VolumeFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XN1</i>	1	<i>EnergyPort</i>

3.87.2 Head

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableLength.

3.87.3 Method

Attribute (data)

3.87.4 VolumeFlow

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableVolumeFlowRate.

3.87.5 XN1

Attribute (composition)

3.88 PumpingMethod

3.88.1 Overview

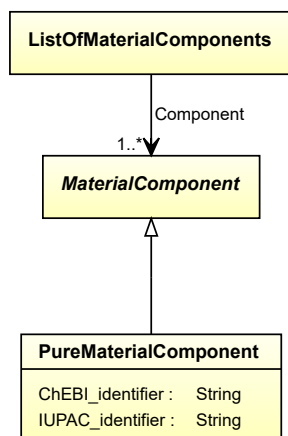
Enumeration

<<enumeration>> PumpingMethod
CentrifugalMotion PositiveDisplacement Eductor RotaryMotion CustomMethod Unspecified

3.89 PureMaterialComponent

3.89.1 Overview

Class



Supertypes

- *MaterialComponent*

Attributes (data)

Name	Multiplicity	Type
<i>ChEBI_identifier</i>	1	<i>String</i>
<i>IUPAC_identifier</i>	1	<i>String</i>

3.89.2 ChEBI_identifier

Attribute (data)

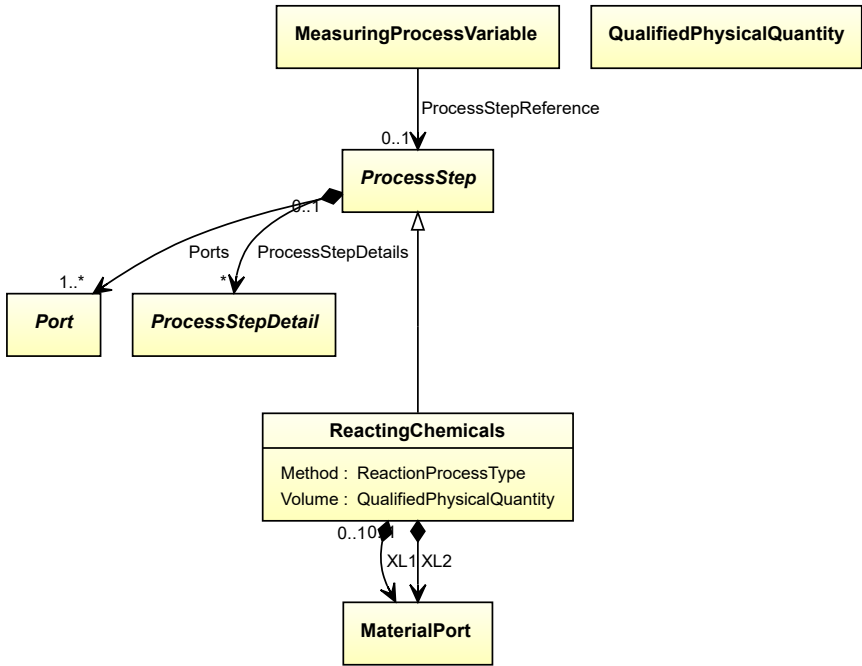
3.89.3 IUPAC_identifier

Attribute (data)

3.90 ReactingChemicals

3.90.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>ReactionProcessType</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Volume</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.90.2 Method

Attribute (data)

3.90.3 Volume

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolume`.

3.90.4 XL1

Attribute (composition)

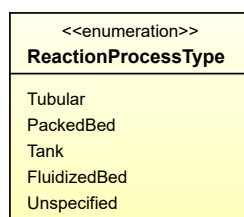
3.90.5 XL2

Attribute (composition)

3.91 ReactionProcessType

3.91.1 Overview

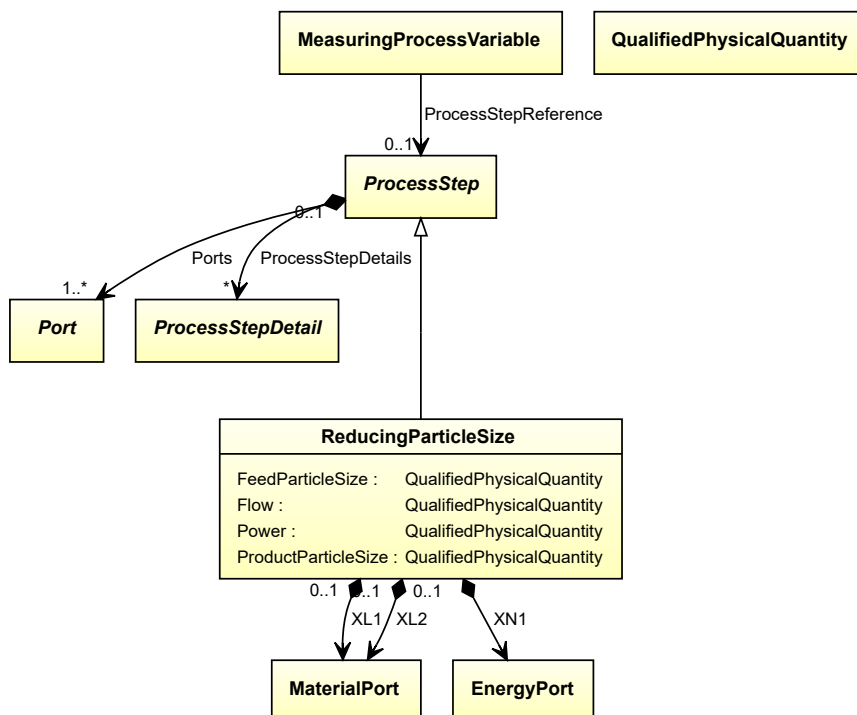
Enumeration



3.92 ReducingParticleSize

3.92.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *Crushing*
- *CustomMilling*
- *Cutting*
- *Grinding*
- *Milling*

Attributes (composition)

Name	Multiplicity	Type
<i>FeedParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ProductParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XN1</i>	1	<i>EnergyPort</i>

3.92.2 FeedParticleSize**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.92.3 Flow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.92.4 Power**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.92.5 ProductParticleSize

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableParticleSize.

3.92.6 XL1

Attribute (composition)

3.92.7 XL2

Attribute (composition)

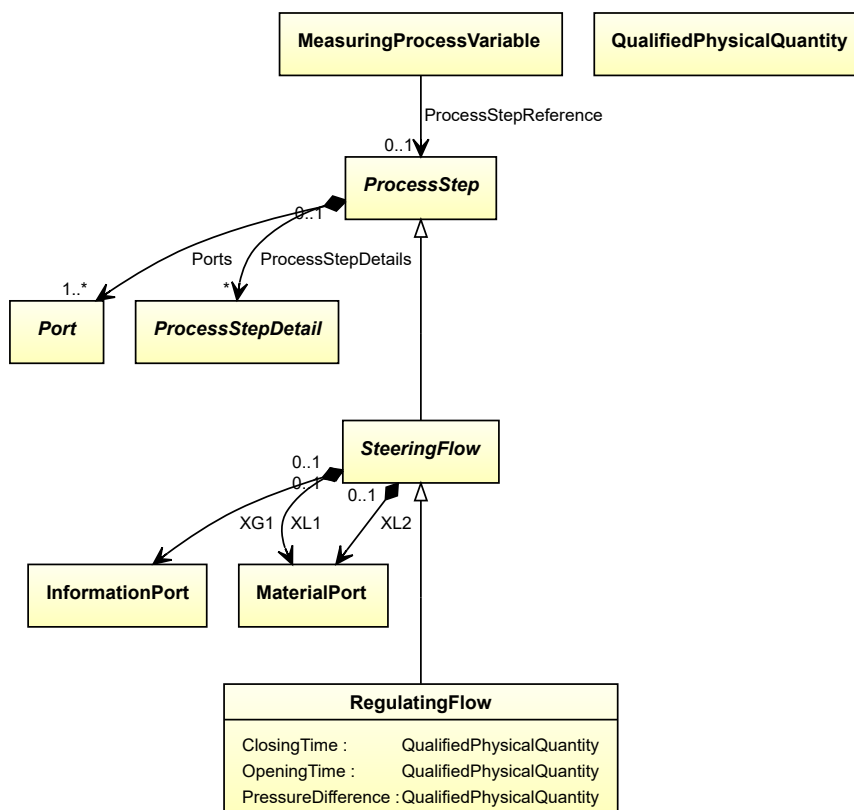
3.92.8 XN1

Attribute (composition)

3.93 RegulatingFlow

3.93.1 Overview

Class



Supertypes

- *SteeringFlow*

Attributes (composition)

Name	Multiplicity	Type
<i>ClosingTime</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>OpeningTime</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>

3.93.2 ClosingTime**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTimeInterval`.

3.93.3 OpeningTime**Attribute (composition)**

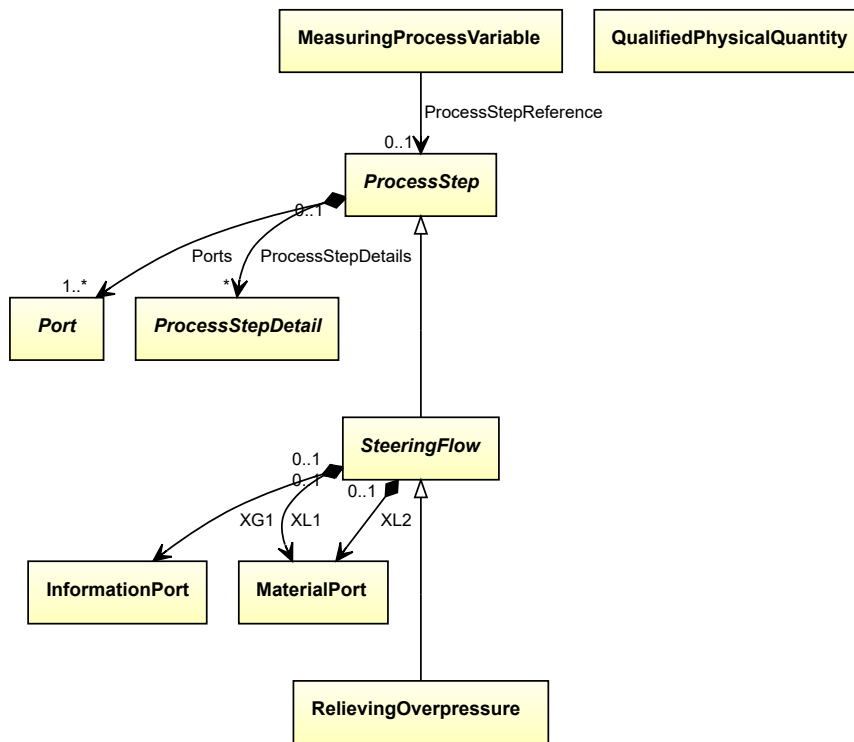
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTimeInterval`.

3.93.4 PressureDifference**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.94 RelievingOverpressure**3.94.1 Overview**

Class



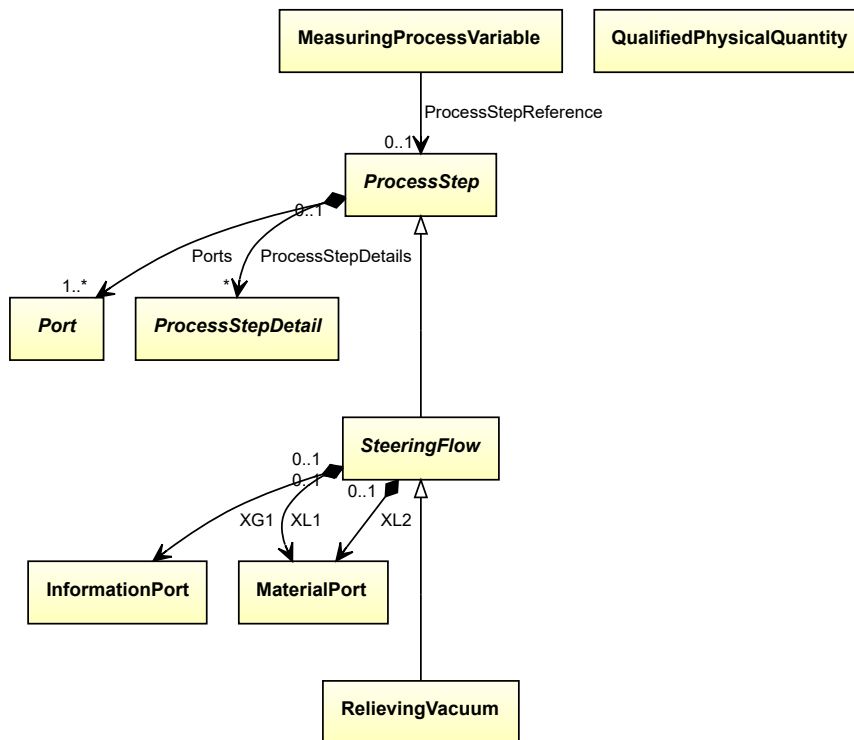
Supertypes

- *SteeringFlow*

3.95 RelievingVacuum

3.95.1 Overview

Class



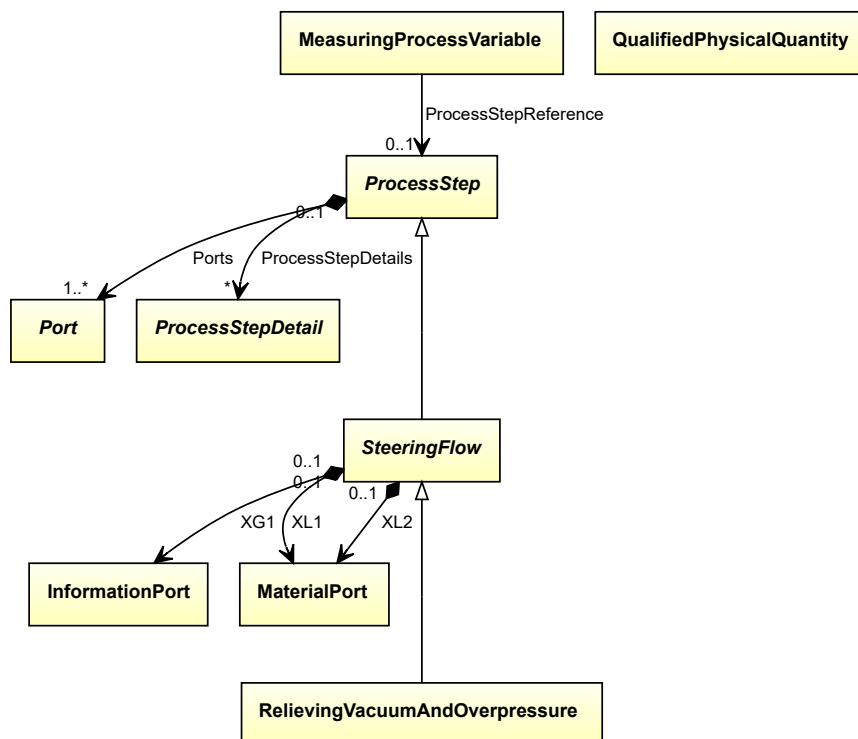
Supertypes

- *SteeringFlow*

3.96 RelievingVacuumAndOverpressure

3.96.1 Overview

Class



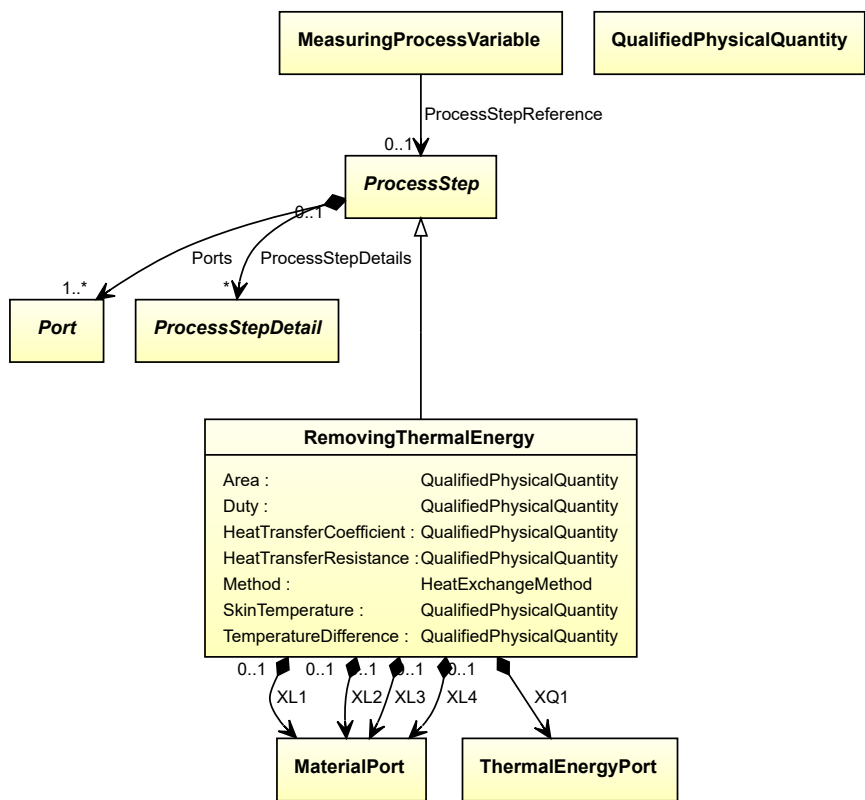
Supertypes

- *SteeringFlow*

3.97 RemovingThermalEnergy

3.97.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *Cooling*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>HeatExchangeMethod</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Area</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HeatTransferCoefficient</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HeatTransferResistance</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SkinTemperature</i>	1	<i>QualifiedPhysicalQuantity</i>

(continued on next page)

Name	Multiplicity	Type
<i>TemperatureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>
<i>XL4</i>	1	<i>MaterialPort</i>
<i>XQ1</i>	1	<i>ThermalEnergyPort</i>

3.97.2 Area

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableArea`.

3.97.3 Duty

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.97.4 HeatTransferCoefficient

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableHeatTransferCoefficient`.

3.97.5 HeatTransferResistance

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableHeatTransferResistance`.

3.97.6 Method

Attribute (data)

3.97.7 SkinTemperature

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.97.8 TemperatureDifference

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableTemperature.

3.97.9 XL1

Attribute (composition)

3.97.10 XL2

Attribute (composition)

3.97.11 XL3

Attribute (composition)

3.97.12 XL4

Attribute (composition)

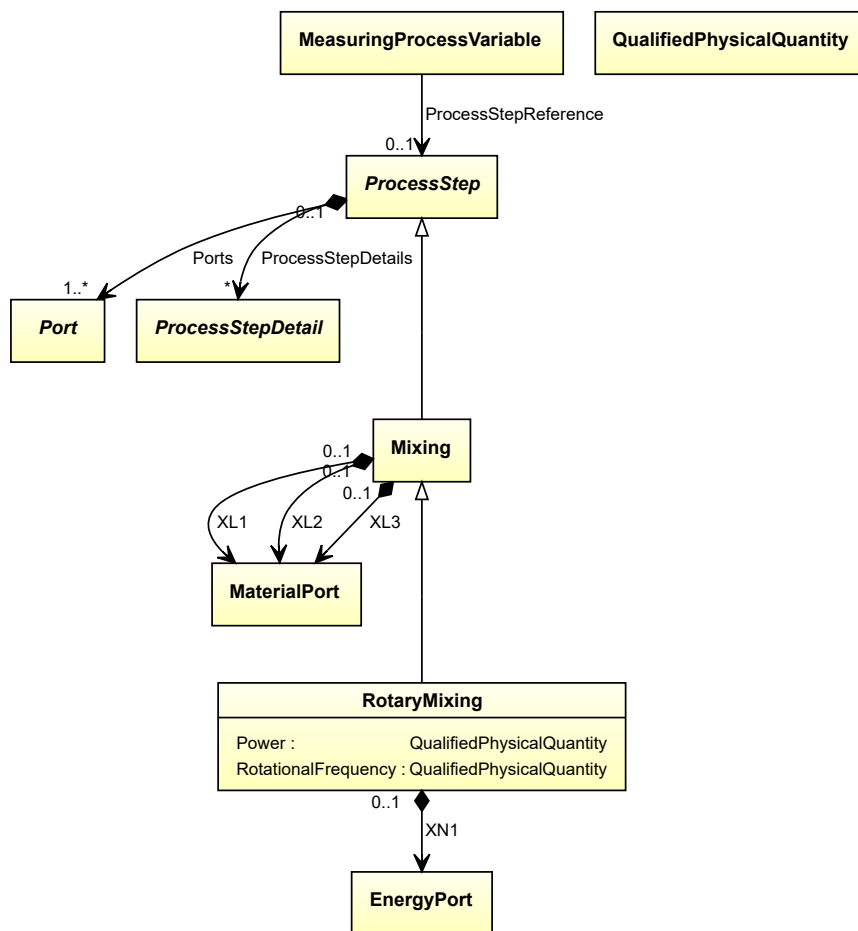
3.97.13 XQ1

Attribute (composition)

3.98 RotaryMixing

3.98.1 Overview

Class



Supertypes

- *Mixing*

Attributes (composition)

Name	Multiplicity	Type
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XN1</i>	1	<i>EnergyPort</i>

3.98.2 Power

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.98.3 RotationalFrequency

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

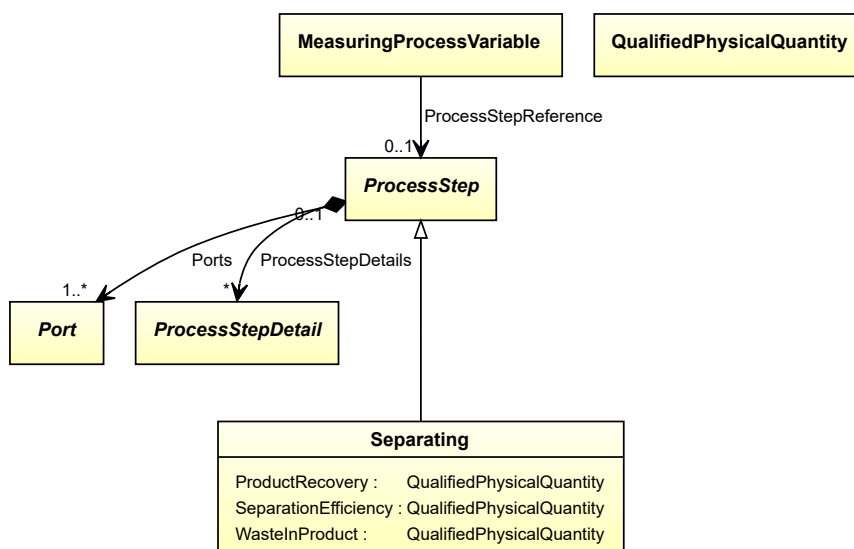
3.98.4 XN1

Attribute (composition)

3.99 Separating

3.99.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *SeparatingByElectromagneticForce*
- *SeparatingByFlash*
- *SeparatingByPhaseSeparation*
- *SeparatingByPhysicalProcess*
- *SeparatingByThermalProcess*
- *SeparatingMechanically*

Attributes (composition)

Name	Multiplicity	Type
<i>ProductRecovery</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SeparationEfficiency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>WasteInProduct</i>	1	<i>QualifiedPhysicalQuantity</i>

3.99.2 ProductRecovery**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.99.3 SeparationEfficiency**Attribute (composition)**

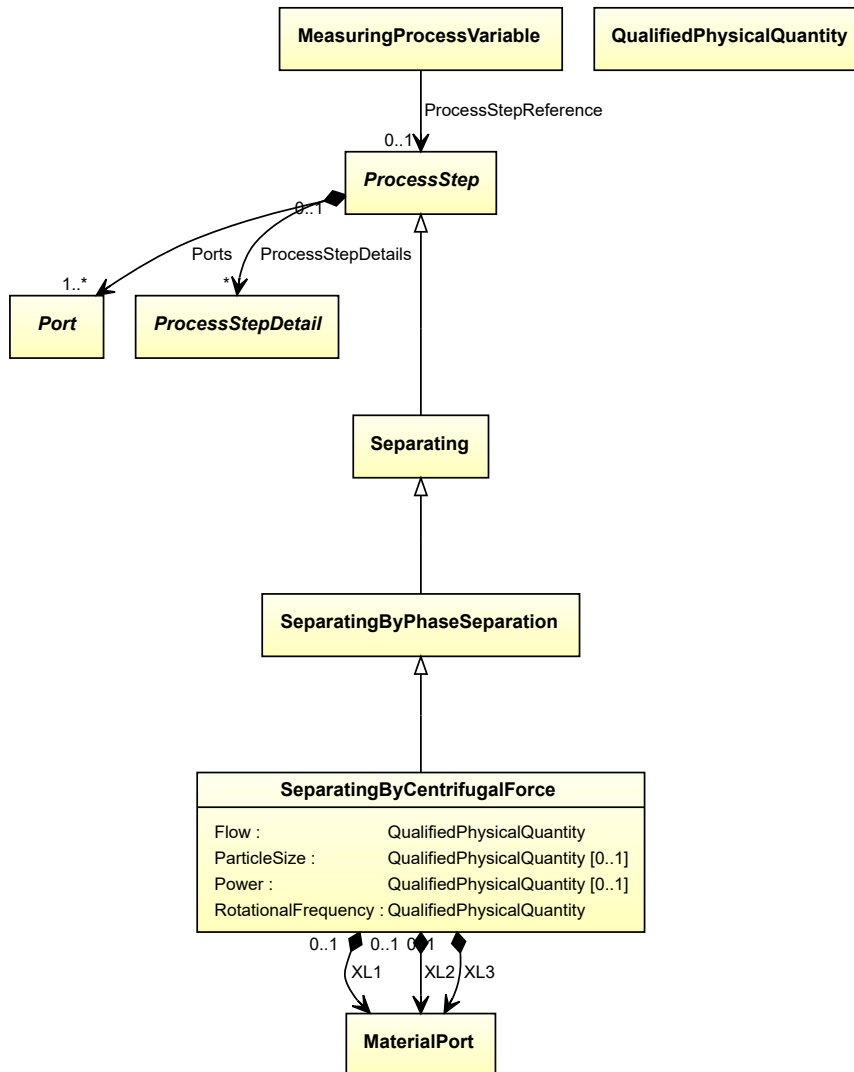
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.99.4 WasteInProduct**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.100 SeparatingByCentrifugalForce**3.100.1 Overview**

Class



Supertypes

- *SeparatingByPhaseSeparation*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ParticleSize</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>

3.100.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.100.3 ParticleSize

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.100.4 Power

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.100.5 RotationalFrequency

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

3.100.6 XL1

Attribute (composition)

3.100.7 XL2

Attribute (composition)

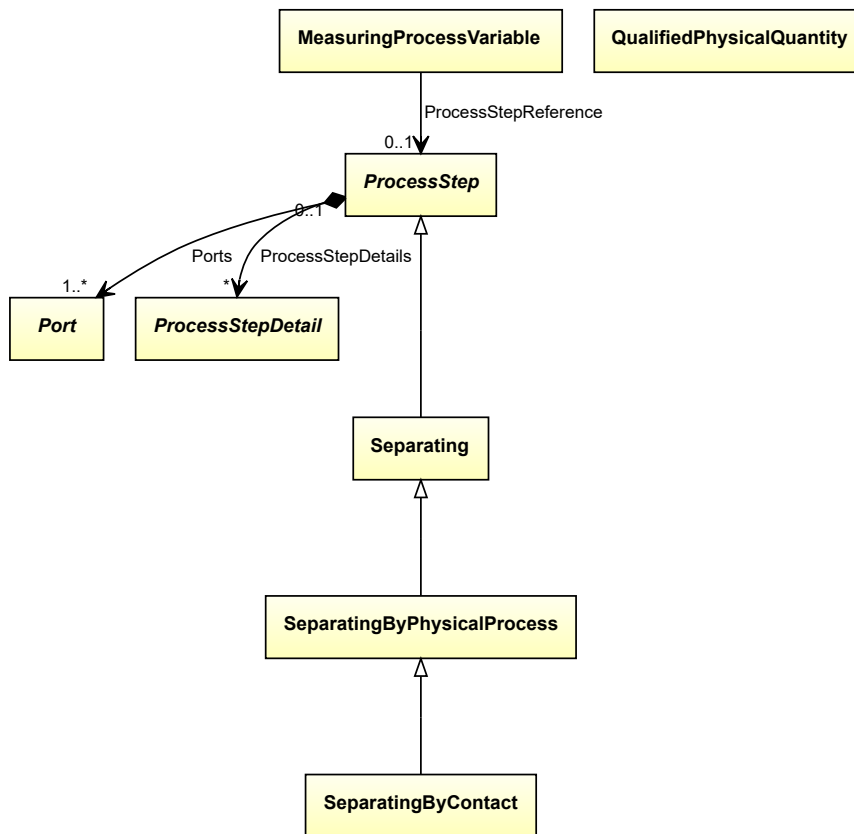
3.100.8 XL3

Attribute (composition)

3.101 SeparatingByContact

3.101.1 Overview

Class



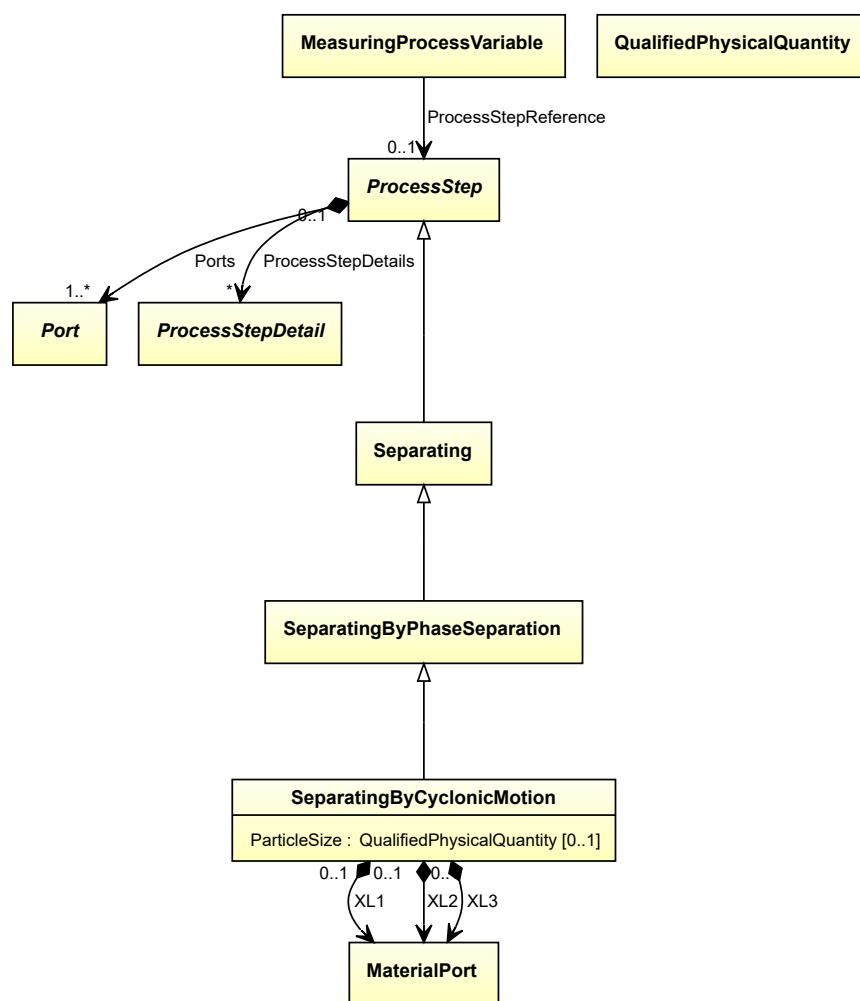
Supertypes

- *SeparatingByPhysicalProcess*

3.102 SeparatingByCyclonicMotion

3.102.1 Overview

Class



Supertypes

- *SeparatingByPhaseSeparation*

Attributes (composition)

Name	Multiplicity	Type
<i>ParticleSize</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>

3.102.2 ParticleSize

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.102.3 XL1

Attribute (composition)

3.102.4 XL2

Attribute (composition)

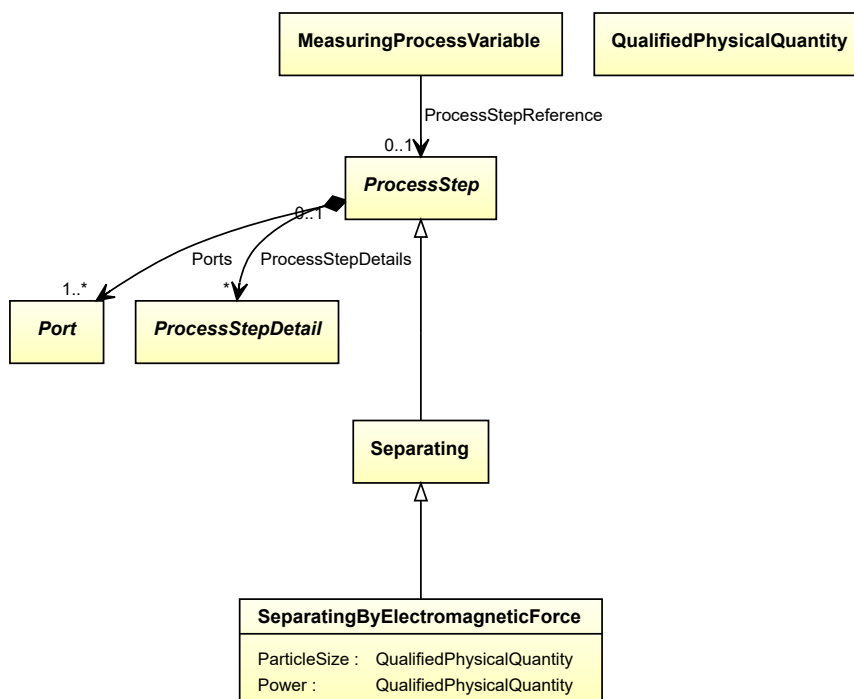
3.102.5 XL3

Attribute (composition)

3.103 SeparatingByElectromagneticForce

3.103.1 Overview

Class



Supertypes

- *Separating*

Subtypes

- *SeparatingByElectrostaticForce*
- *SeparatingByMagneticForce*

Attributes (composition)

Name	Multiplicity	Type
<i>ParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>

3.103.2 ParticleSize**Attribute (composition)**

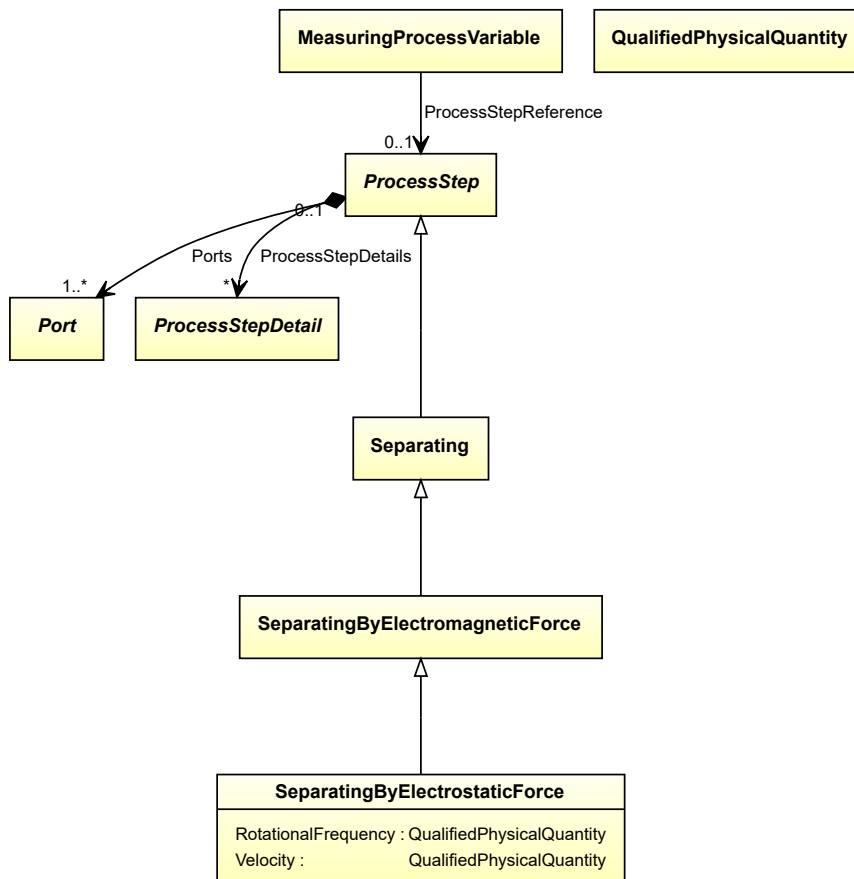
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.103.3 Power**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.104 SeparatingByElectrostaticForce**3.104.1 Overview**

Class



Supertypes

- *SeparatingByElectromagneticForce*

Attributes (composition)

Name	Multiplicity	Type
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Velocity</i>	1	<i>QualifiedPhysicalQuantity</i>

3.104.2 RotationalFrequency

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableRotationalFrequency`.

3.104.3 Velocity

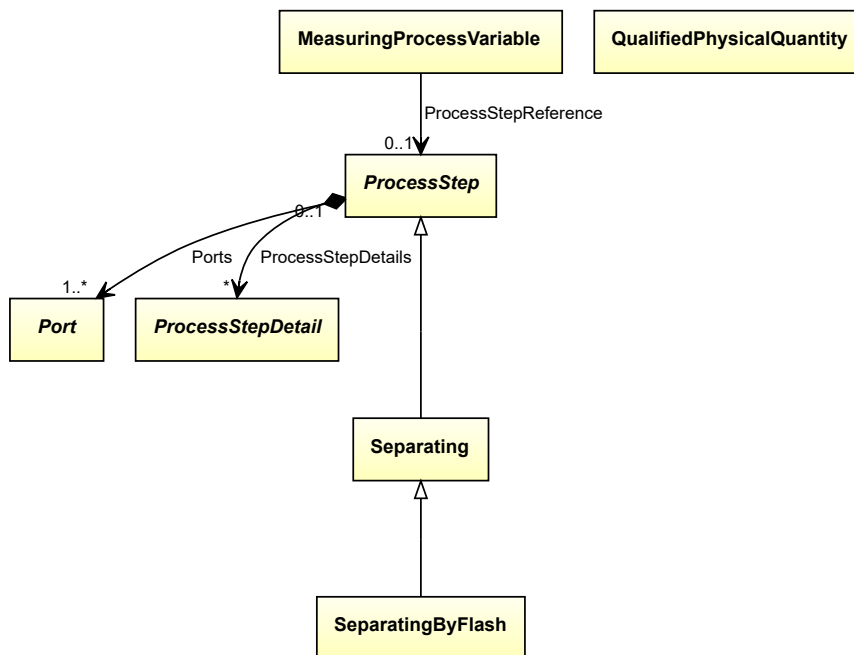
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVelocity`.

3.105 SeparatingByFlash

3.105.1 Overview

Class



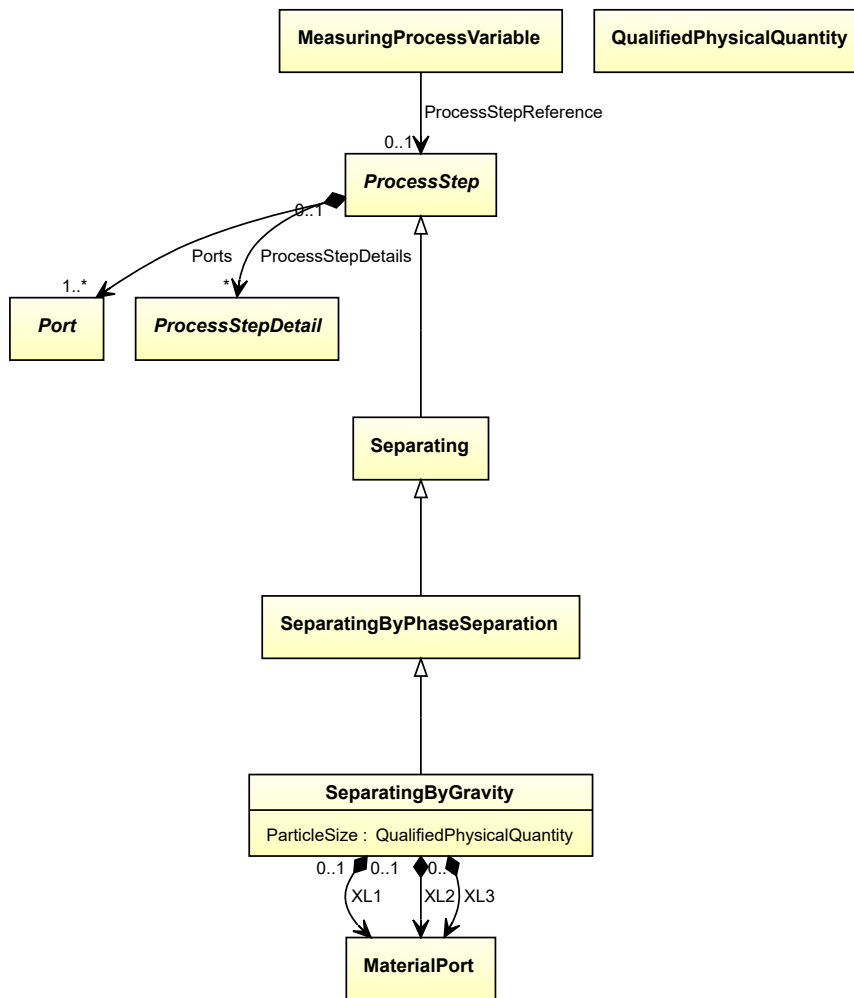
Supertypes

- *Separating*

3.106 SeparatingByGravity

3.106.1 Overview

Class



Supertypes

- *SeparatingByPhaseSeparation*

Attributes (composition)

Name	Multiplicity	Type
<i>ParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>

3.106.2 ParticleSize

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.106.3 XL1

Attribute (composition)

3.106.4 XL2

Attribute (composition)

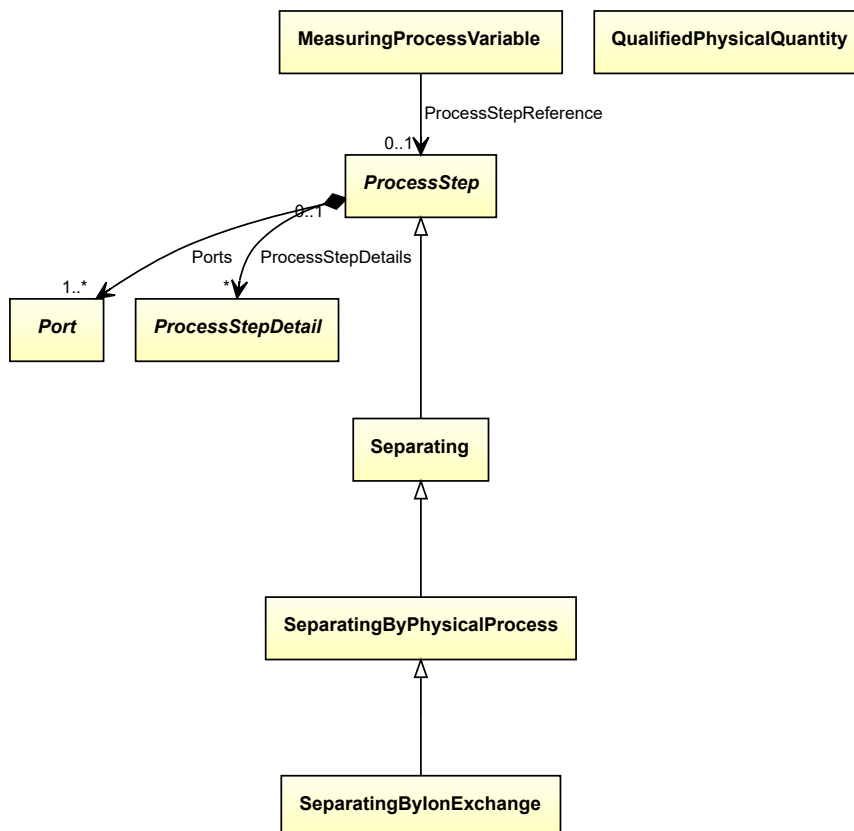
3.106.5 XL3

Attribute (composition)

3.107 SeparatingByIonExchange

3.107.1 Overview

Class



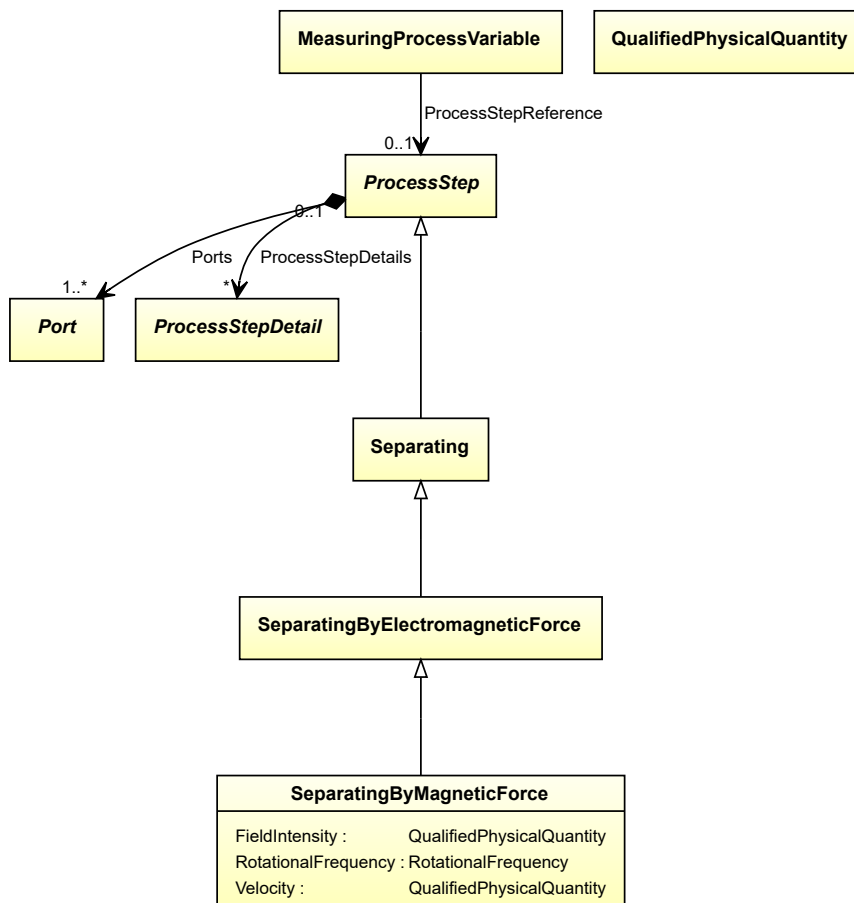
Supertypes

- *SeparatingByPhysicalProcess*

3.108 SeparatingByMagneticForce

3.108.1 Overview

Class



Supertypes

- *SeparatingByElectromagneticForce*

Attributes (data)

Name	Multiplicity	Type
<i>RotationalFrequency</i>	1	<i>RotationalFrequency</i>

Attributes (composition)

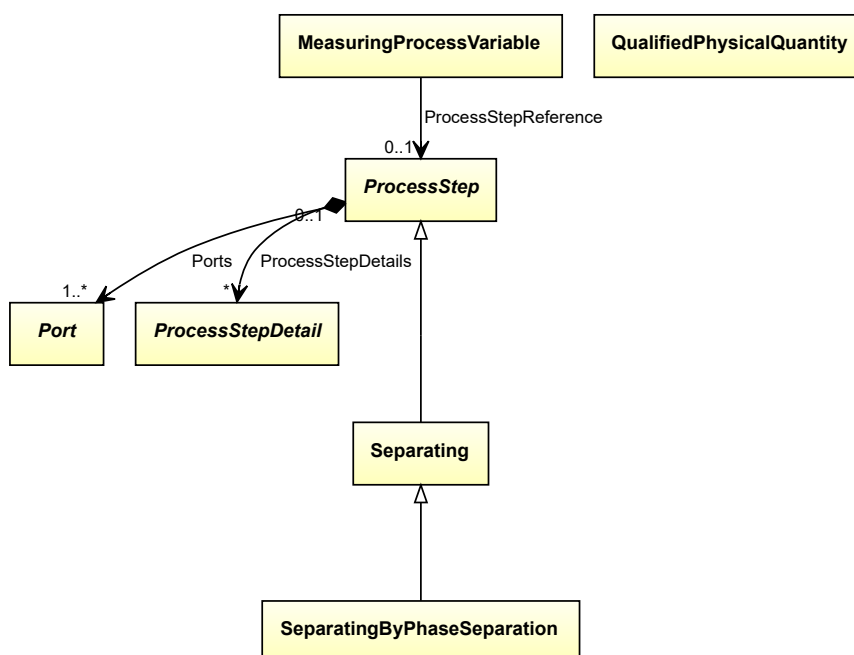
Name	Multiplicity	Type
<i>FieldIntensity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Velocity</i>	1	<i>QualifiedPhysicalQuantity</i>

3.108.2 FieldIntensity**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMagneticFieldIntensity`.

3.108.3 RotationalFrequency**Attribute (data)****3.108.4 Velocity****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVelocity`.

3.109 SeparatingByPhaseSeparation**3.109.1 Overview****Class**

Supertypes

- *Separating*

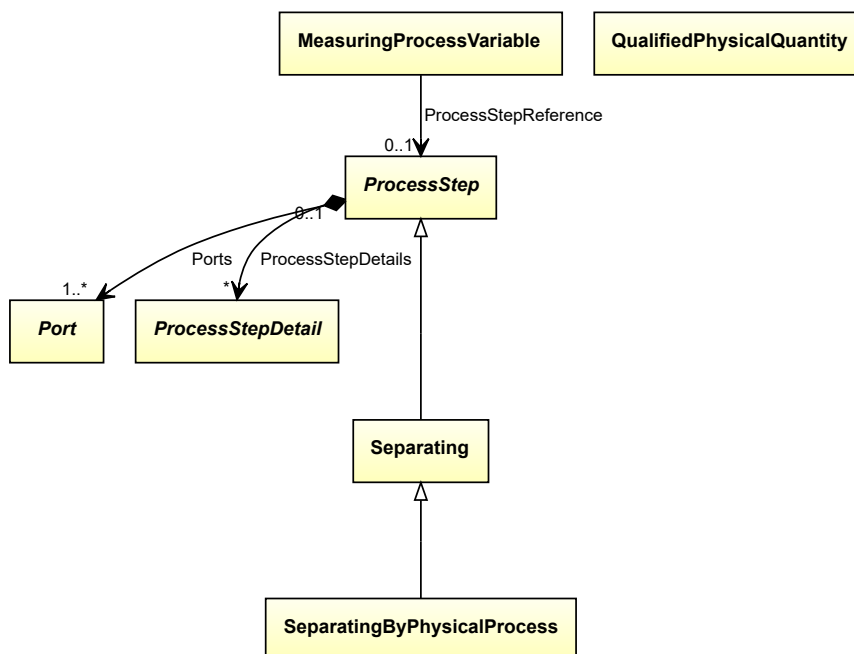
Subtypes

- *SeparatingByCentrifugalForce*
- *SeparatingByCyclonicMotion*
- *SeparatingByGravity*

3.110 SeparatingByPhysicalProcess

3.110.1 Overview

Class



Supertypes

- *Separating*

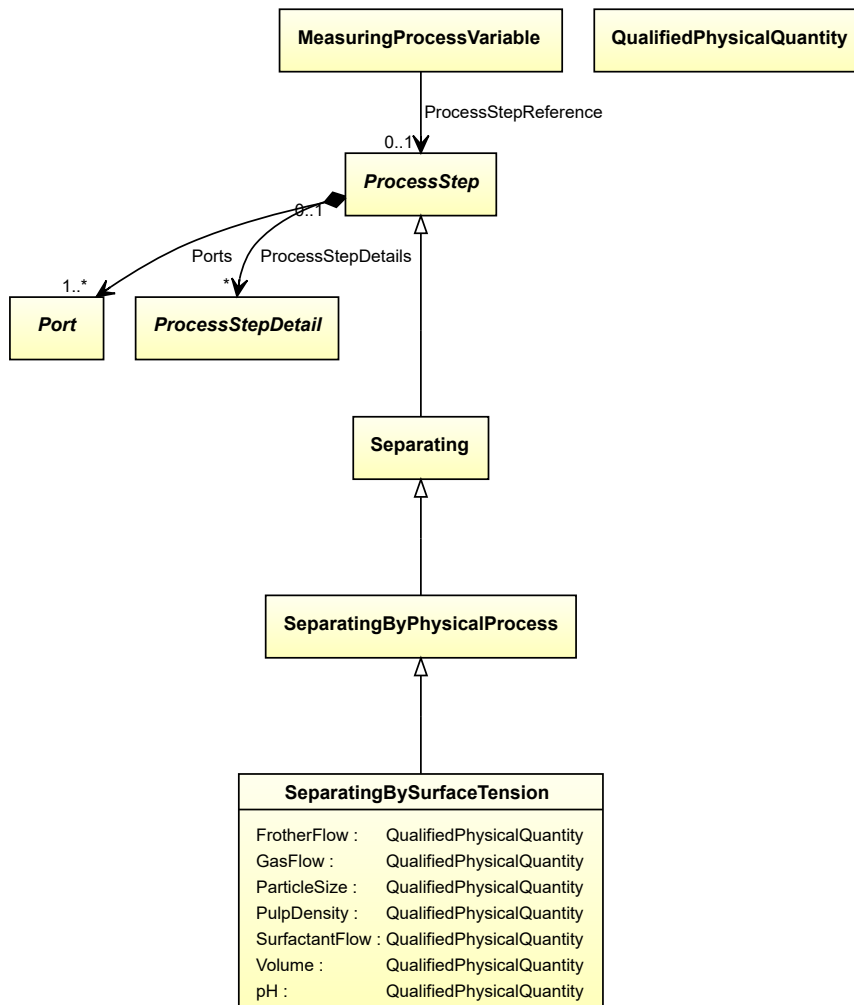
Subtypes

- *Absorbing*
- *Adsorbing*
- *SeparatingByContact*
- *SeparatingByIonExchange*
- *SeparatingBySurfaceTension*

3.111 SeparatingBySurfaceTension

3.111.1 Overview

Class



Supertypes

- *SeparatingByPhysicalProcess*

Attributes (composition)

Name	Multiplicity	Type
<i>FrotherFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>GasFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PulpDensity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SurfactantFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Volume</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>pH</i>	1	<i>QualifiedPhysicalQuantity</i>

3.111.2 FrotherFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.111.3 GasFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.111.4 ParticleSize

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.111.5 PulpDensity

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.111.6 SurfactantFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.111.7 Volume

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolume`.

3.111.8 pH

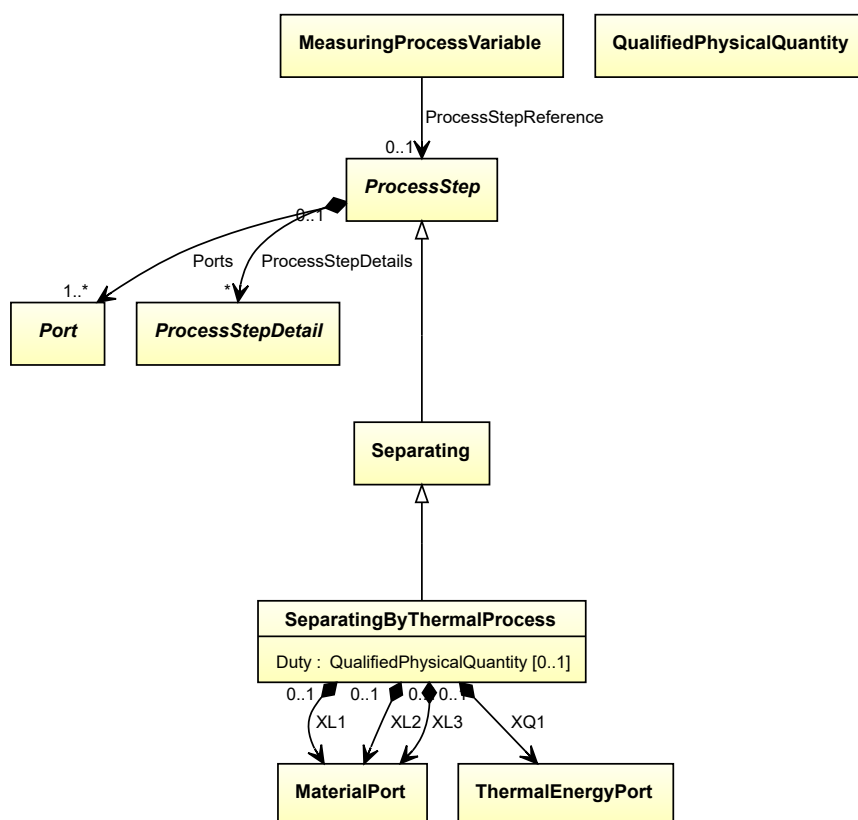
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablepH`.

3.112 SeparatingByThermalProcess

3.112.1 Overview

Class



Supertypes

- *Separating*

Subtypes

- *Distilling*
- *Drying*
- *Evaporating*

Attributes (composition)

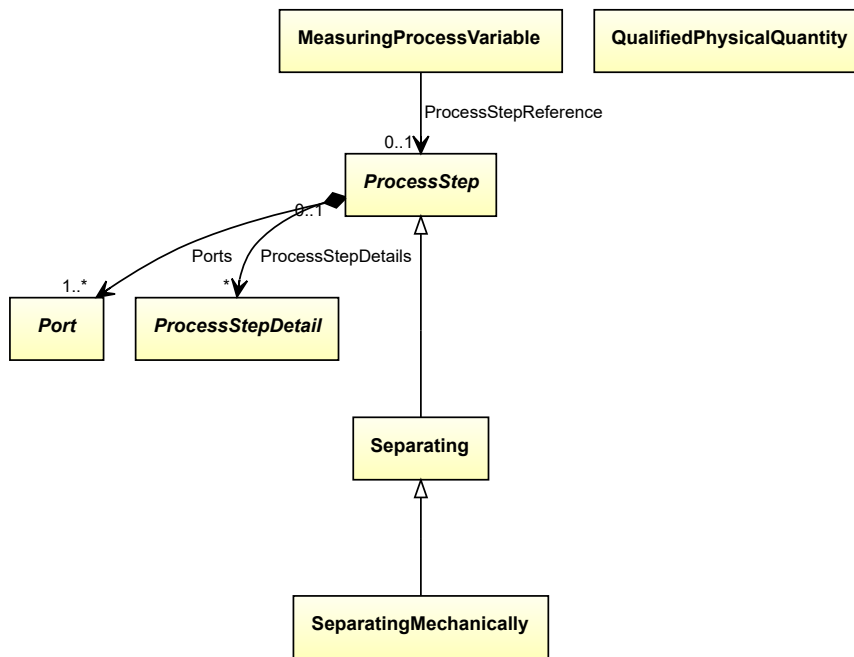
Name	Multiplicity	Type
<i>Duty</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>
<i>XQ1</i>	1	<i>ThermalEnergyPort</i>

3.112.2 Duty**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.112.3 XL1**Attribute (composition)****3.112.4 XL2****Attribute (composition)****3.112.5 XL3****Attribute (composition)****3.112.6 XQ1****Attribute (composition)****3.113 SeparatingMechanically****3.113.1 Overview**

Class



Supertypes

- *Separating*

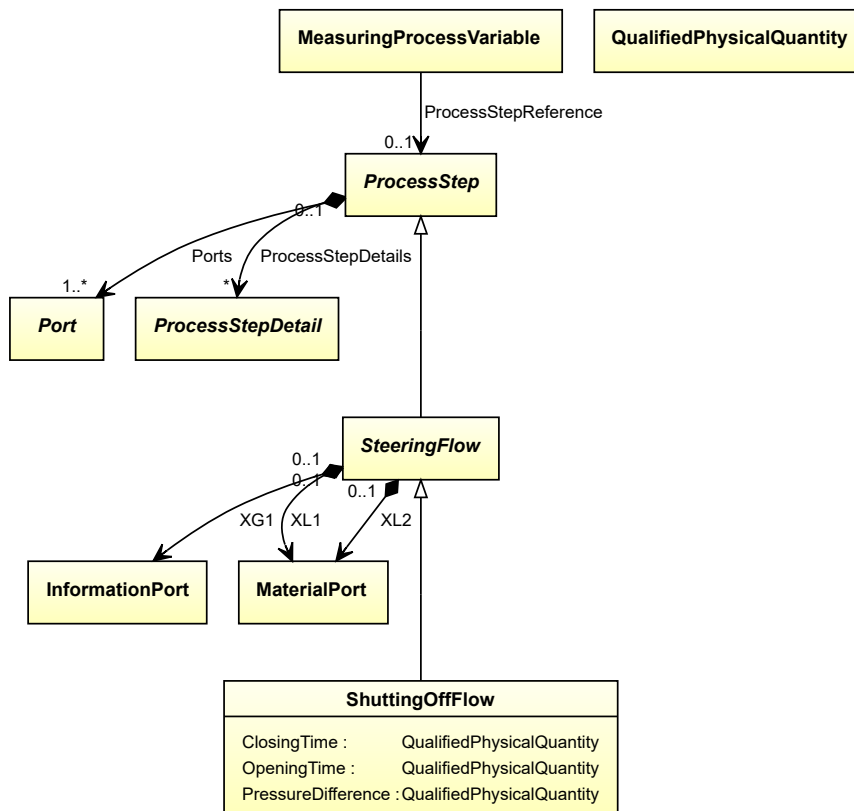
Subtypes

- *Filtering*
- *Sieving*
- *Skimming*

3.114 ShuttingOffFlow

3.114.1 Overview

Class



Supertypes

- *SteeringFlow*

Attributes (composition)

Name	Multiplicity	Type
<i>ClosingTime</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>OpeningTime</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>

3.114.2 ClosingTime

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTimeInterval`.

3.114.3 OpeningTime

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTimeInterval`.

3.114.4 PressureDifference

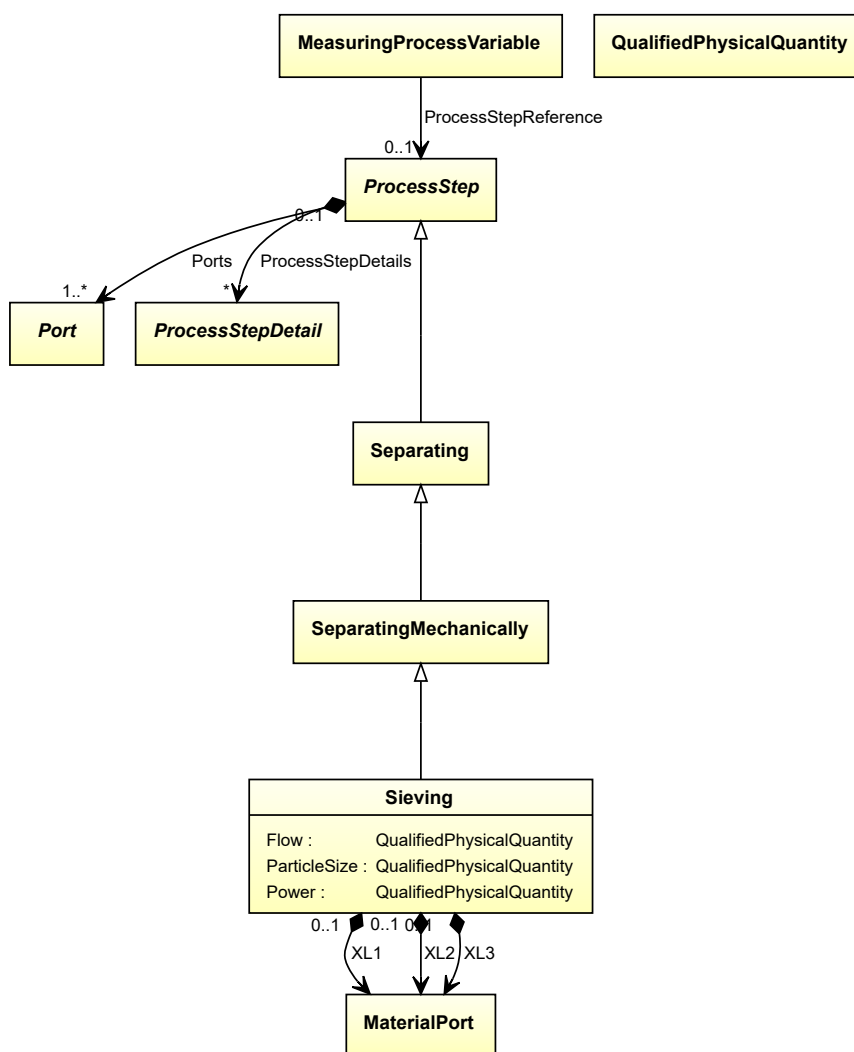
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.115 Sieving

3.115.1 Overview

Class



Supertypes

- *SeparatingMechanically*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ParticleSize</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>

3.115.2 Flow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.115.3 ParticleSize**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableParticleSize`.

3.115.4 Power**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

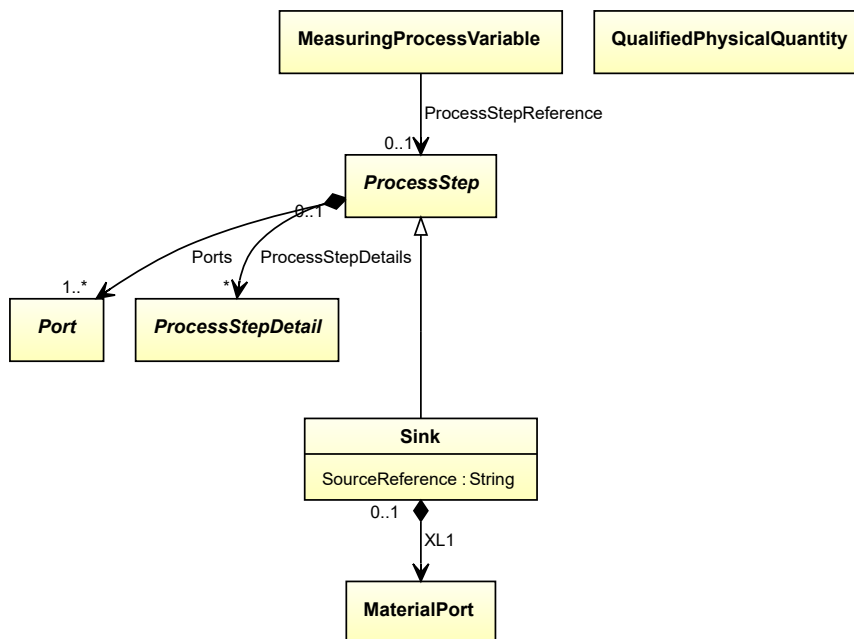
3.115.5 XL1**Attribute (composition)****3.115.6 XL2****Attribute (composition)****3.115.7 XL3**

Attribute (composition)

3.116 Sink

3.116.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (data)

Name	Multiplicity	Type
<i>SourceReference</i>	1	<i>String</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>

3.116.2 SourceReference

Attribute (data)

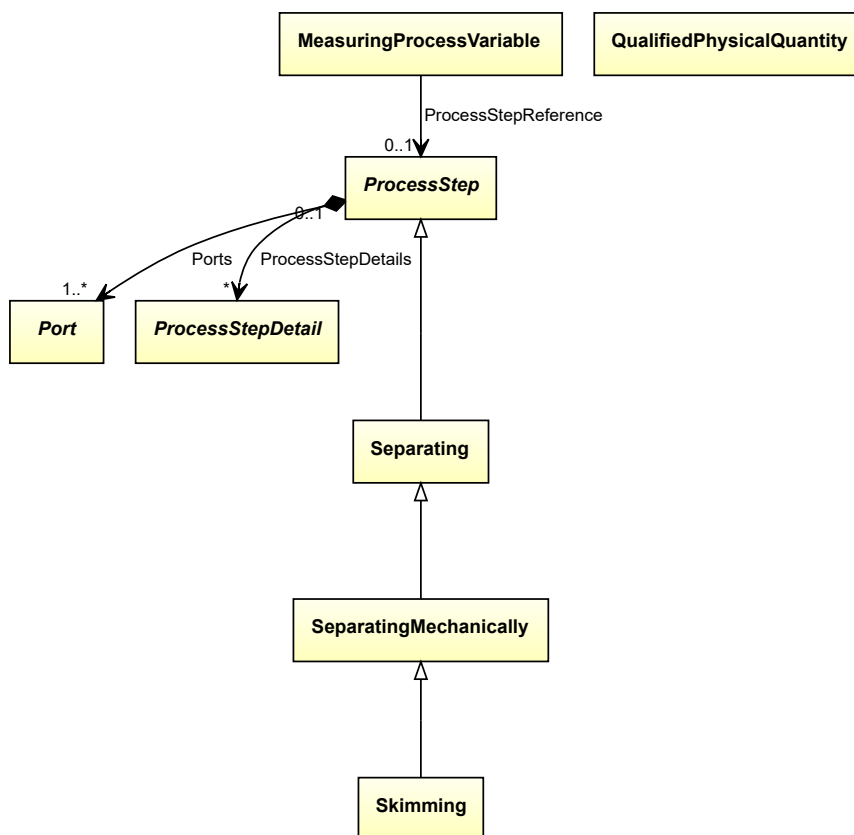
3.116.3 XL1

Attribute (composition)

3.117 Skimming

3.117.1 Overview

Class



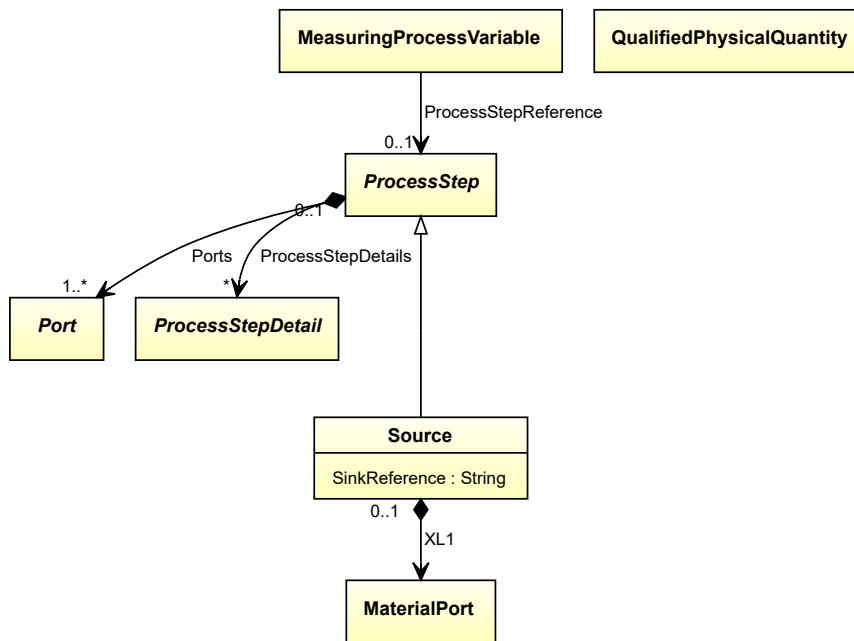
Supertypes

- *SeparatingMechanically*

3.118 Source

3.118.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (data)

Name	Multiplicity	Type
<i>SinkReference</i>	1	<i>String</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XL1</i>	1	<i>MaterialPort</i>

3.118.2 SinkReference

Attribute (data)

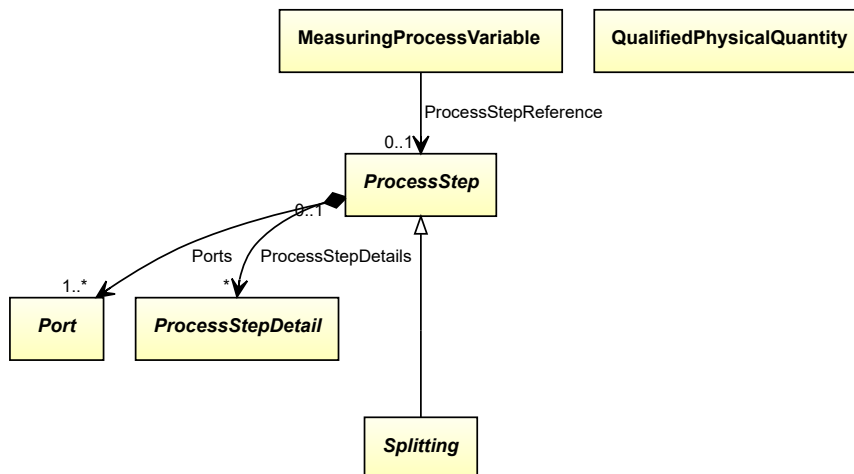
3.118.3 XL1

Attribute (composition)

3.119 Splitting

3.119.1 Overview

Abstract class



Supertypes

- *ProcessStep*

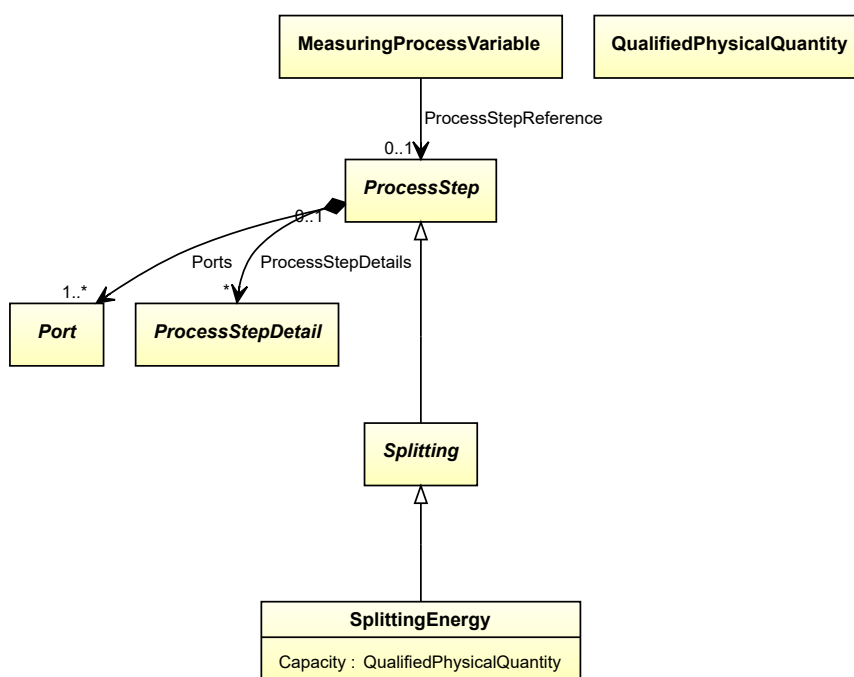
Subtypes

- *SplittingEnergy*
- *SplittingMaterial*

3.120 SplittingEnergy

3.120.1 Overview

Class



Supertypes

- *Splitting*

Attributes (composition)

Name	Multiplicity	Type
<i>Capacity</i>	1	<i>QualifiedPhysicalQuantity</i>

3.120.2 Capacity

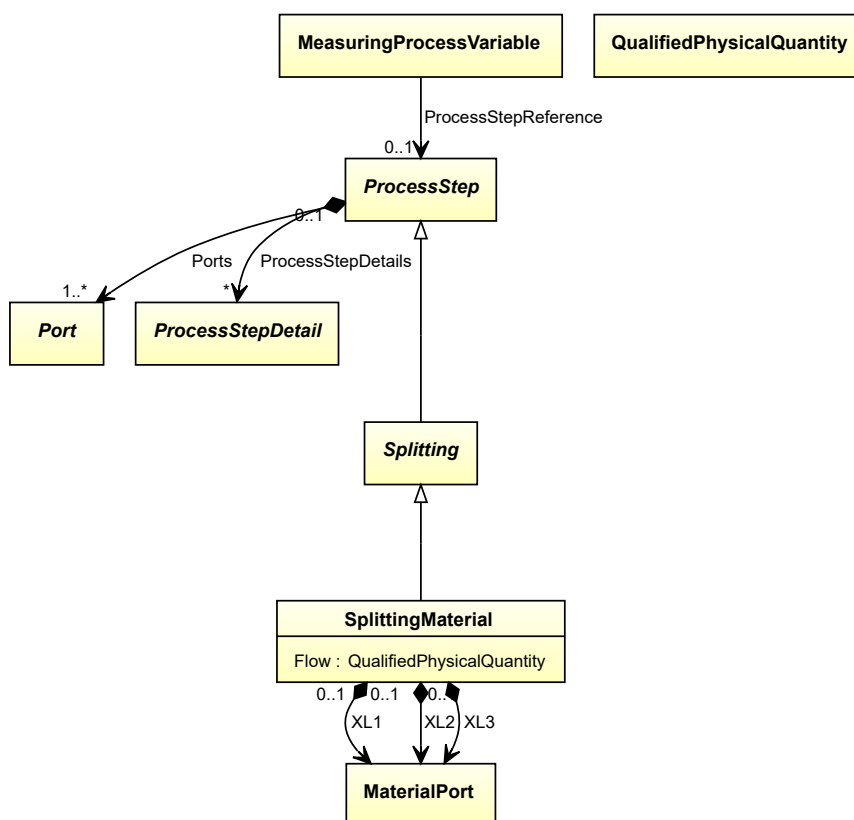
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.121 SplittingMaterial

3.121.1 Overview

Class



Supertypes

- *Splitting*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XL3</i>	1	<i>MaterialPort</i>

3.121.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.121.3 XL1

Attribute (composition)

3.121.4 XL2

Attribute (composition)

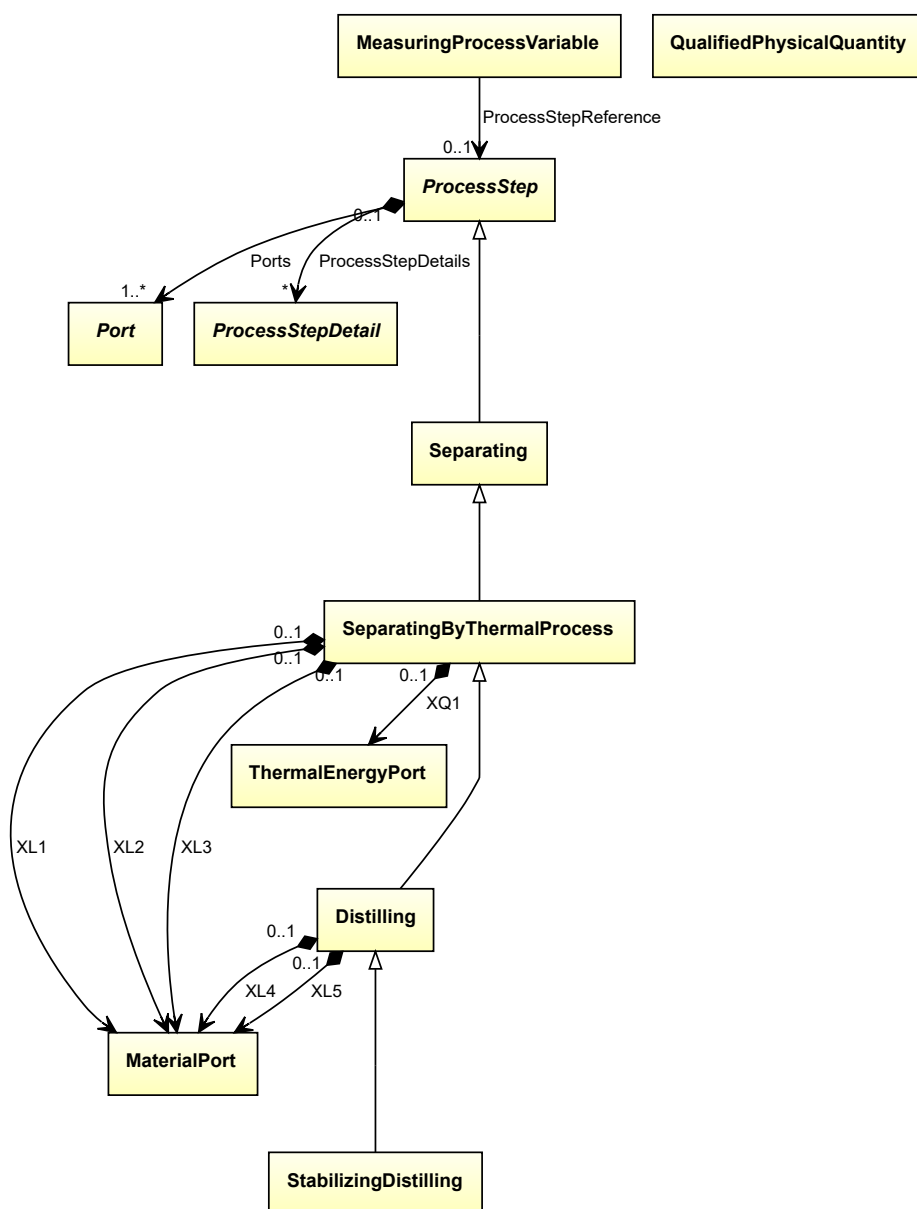
3.121.5 XL3

Attribute (composition)

3.122 StabilizingDistilling

3.122.1 Overview

Class



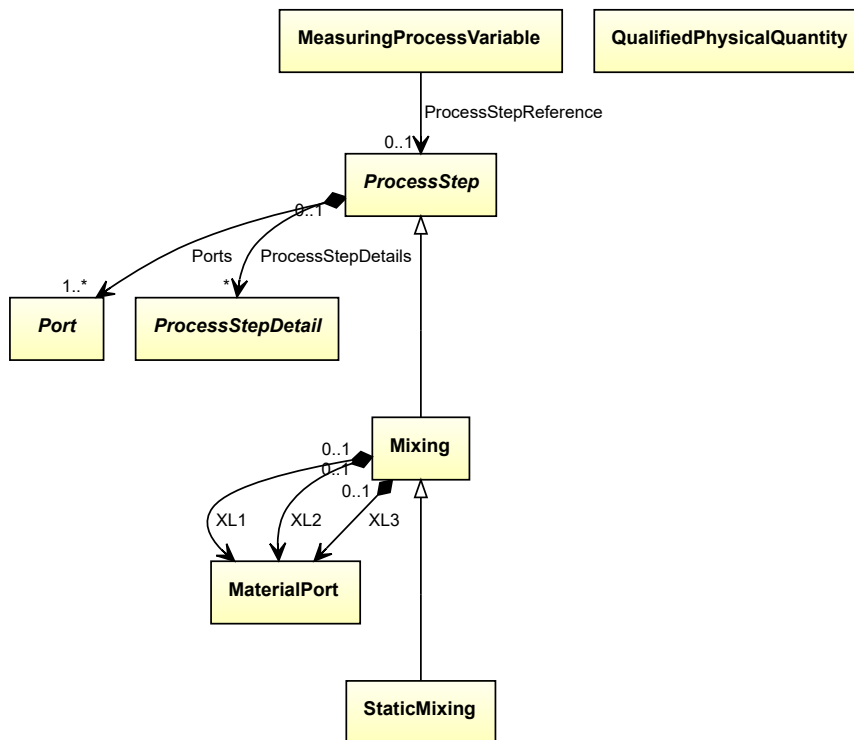
Supertypes

- *Distilling*

3.123 StaticMixing

3.123.1 Overview

Class



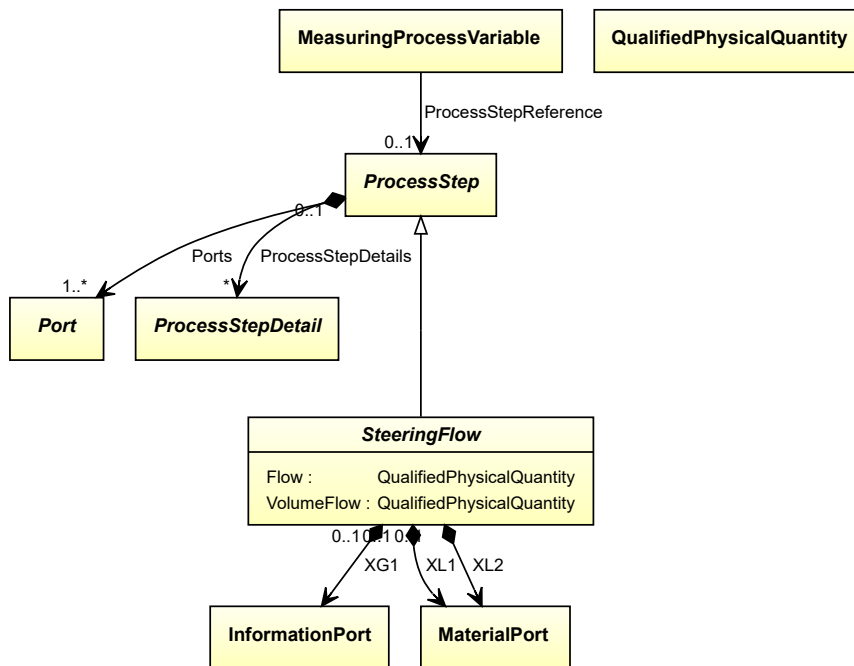
Supertypes

- *Mixing*

3.124 SteeringFlow

3.124.1 Overview

Abstract class



Supertypes

- *ProcessStep*

Subtypes

- *BlowingDown*
- *Draining*
- *FeedingMaterial*
- *LimitingFlow*
- *PreventingBackflow*
- *RegulatingFlow*
- *RelievingOverpressure*
- *RelievingVacuum*
- *RelievingVacuumAndOverpressure*
- *ShuttingOffFlow*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>VolumeFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XG1</i>	1	<i>InformationPort</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.124.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.124.3 VolumeFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolumeFlowRate`.

3.124.4 XG1

Attribute (composition)

3.124.5 XL1

Attribute (composition)

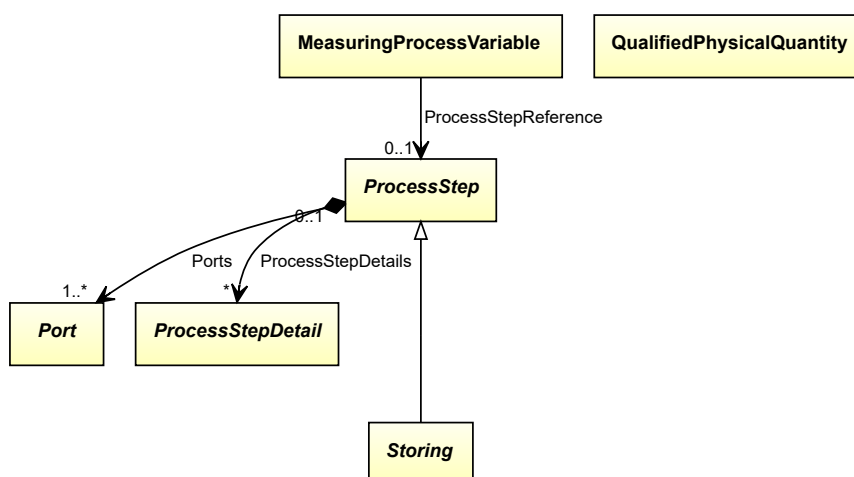
3.124.6 XL2

Attribute (composition)

3.125 Storing

3.125.1 Overview

Abstract class



Supertypes

- *ProcessStep*

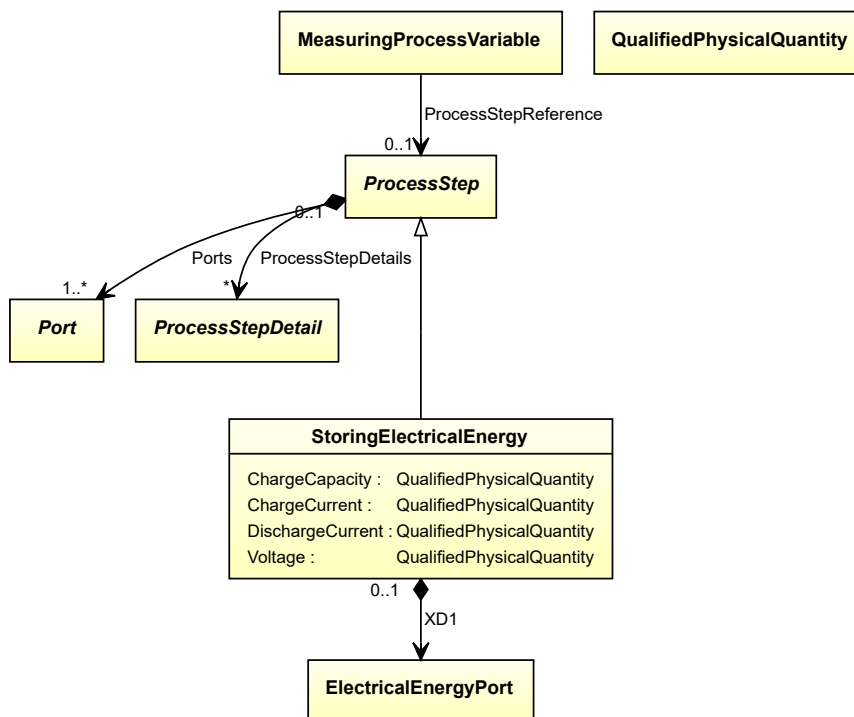
Subtypes

- *StoringFluids*
- *StoringSolids*

3.126 StoringElectricalEnergy

3.126.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *StoringInBattery*

Attributes (composition)

Name	Multiplicity	Type
<i>ChargeCapacity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ChargeCurrent</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>DischargeCurrent</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Voltage</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XD1</i>	1	<i>ElectricalEnergyPort</i>

3.126.2 ChargeCapacity**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableEnergy`.

3.126.3 ChargeCurrent**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableElectricCurrent`.

3.126.4 DischargeCurrent**Attribute (composition)**

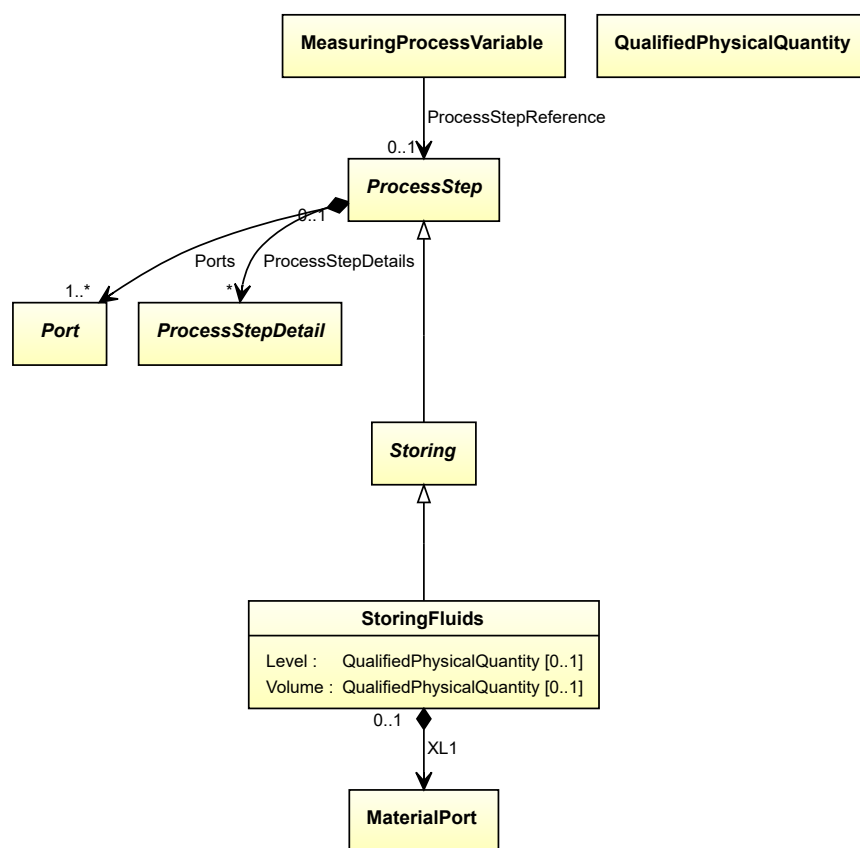
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableElectricCurrent`.

3.126.5 Voltage**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVoltage`.

3.126.6 XD1**Attribute (composition)****3.127 StoringFluids****3.127.1 Overview**

Class



Supertypes

- *Storing*

Subtypes

- *StoringInPressureVessel*
- *StoringInTank*

Attributes (composition)

Name	Multiplicity	Type
<i>Level</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>Volume</i>	0..1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>

3.127.2 Level

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.127.3 Volume

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolume`.

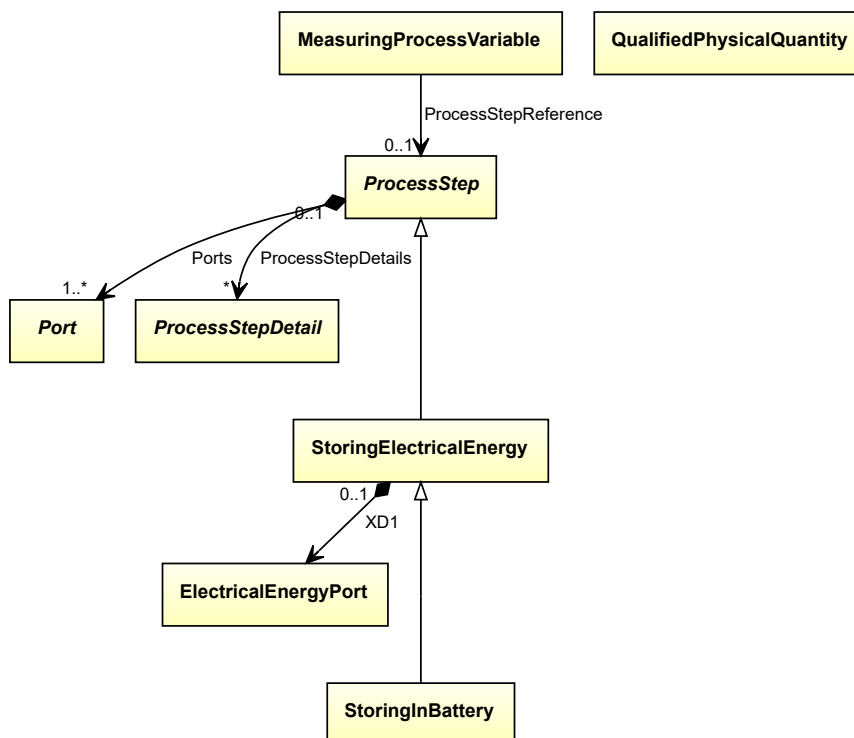
3.127.4 XL1

Attribute (composition)

3.128 StoringInBattery

3.128.1 Overview

Class



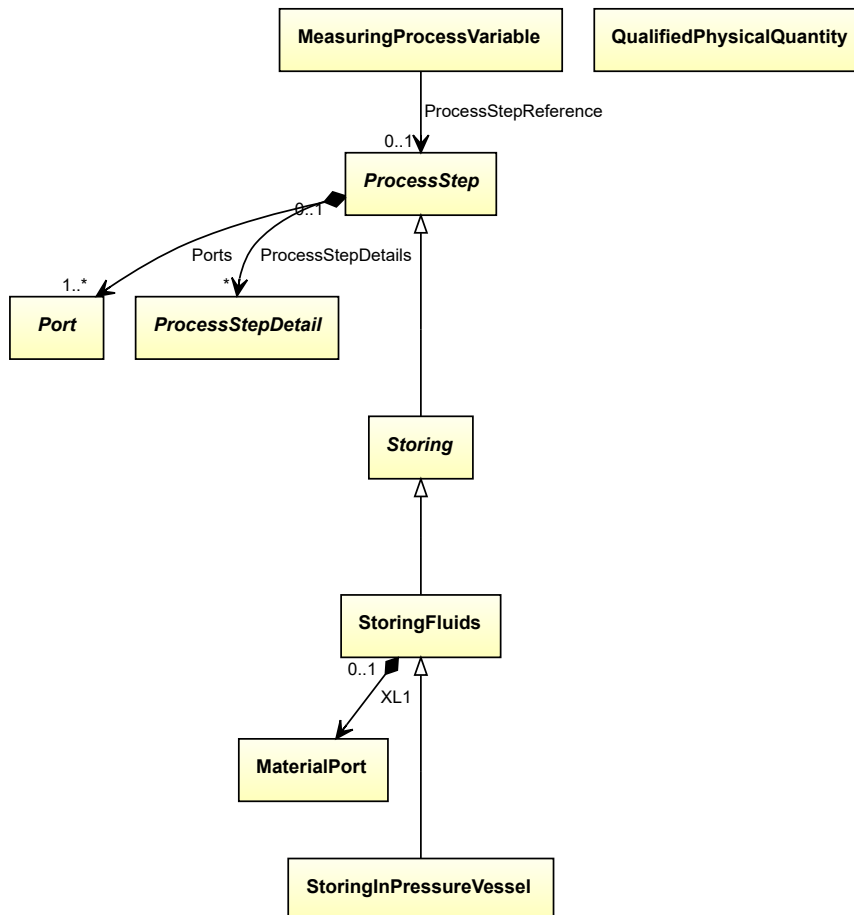
Supertypes

- *StoringElectricalEnergy*

3.129 StoringInPressureVessel

3.129.1 Overview

Class



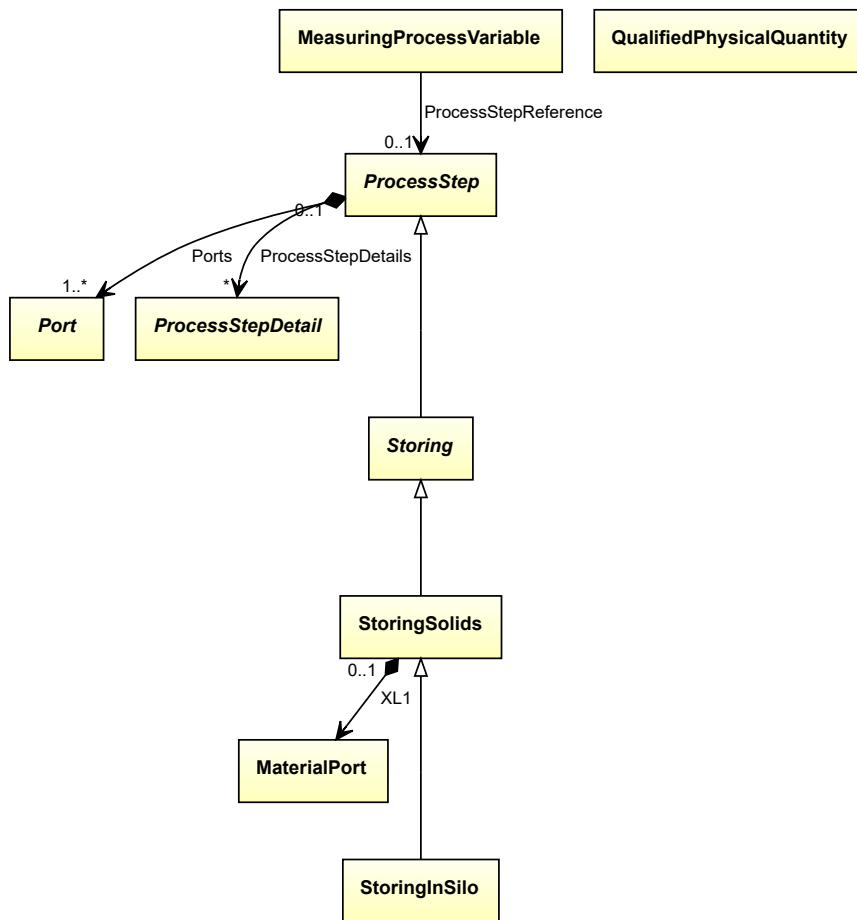
Supertypes

- *StoringFluids*

3.130 StoringInSilo

3.130.1 Overview

Class



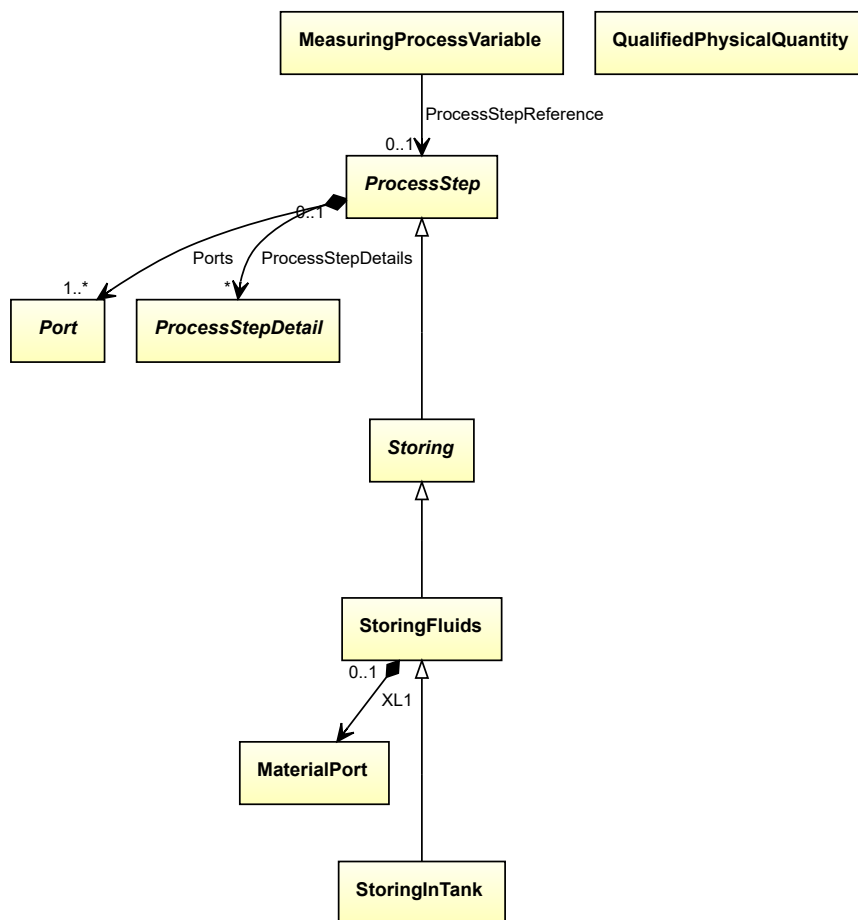
Supertypes

- *StoringSolids*

3.131 StoringInTank

3.131.1 Overview

Class



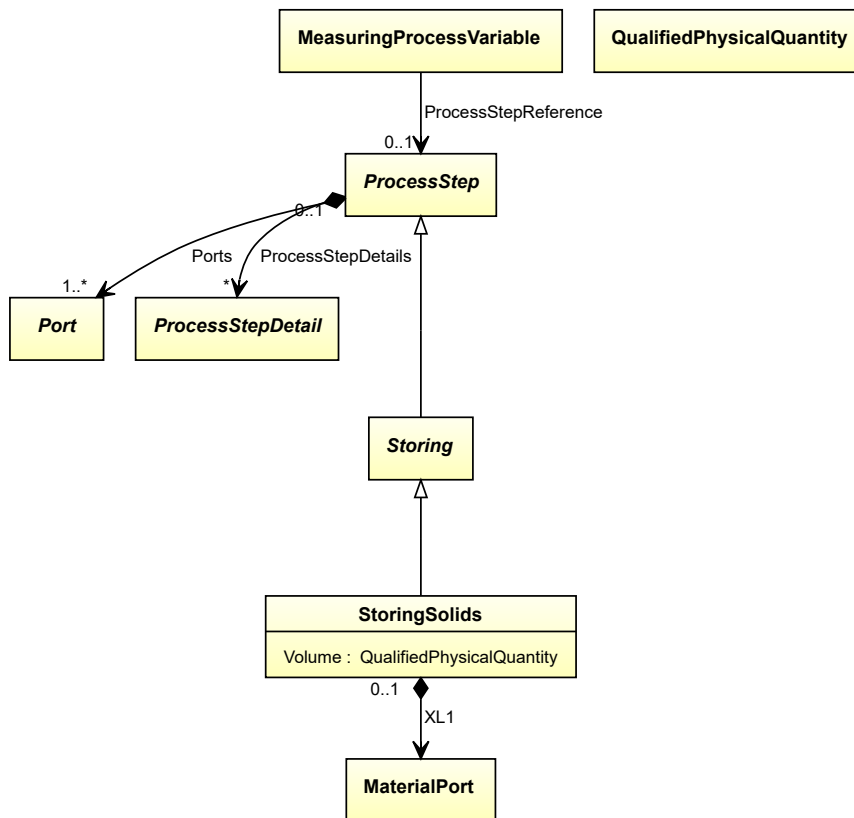
Supertypes

- *StoringFluids*

3.132 StoringSolids

3.132.1 Overview

Class



Supertypes

- *Storing*

Subtypes

- *StoringInSilo*

Attributes (composition)

Name	Multiplicity	Type
<i>Volume</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>

3.132.2 Volume

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolume`.

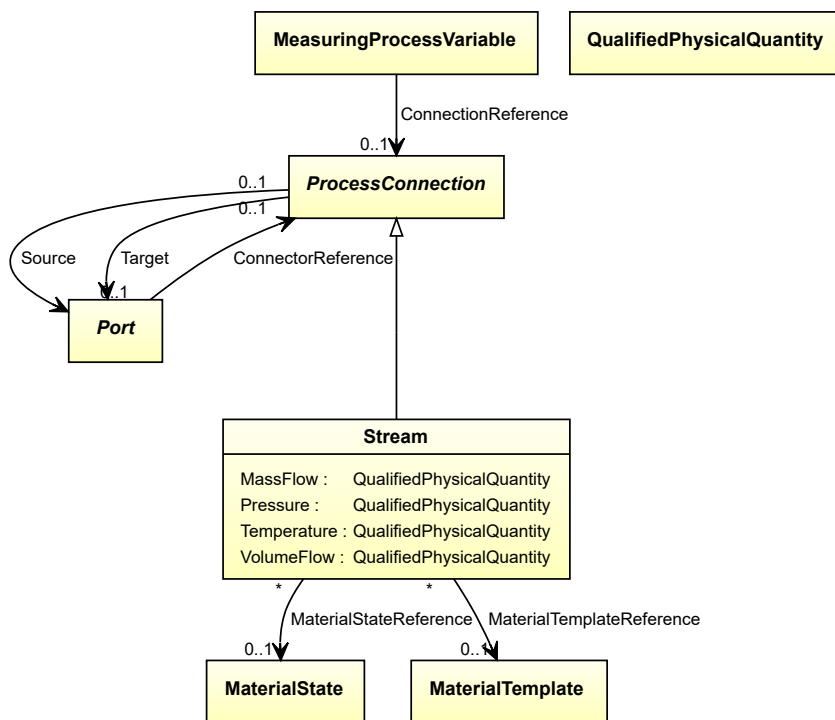
3.132.3 XL1

Attribute (composition)

3.133 Stream

3.133.1 Overview

Class



Supertypes

- *ProcessConnection*

Attributes (composition)

Name	Multiplicity	Type
<i>MassFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Pressure</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Temperature</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>VolumeFlow</i>	1	<i>QualifiedPhysicalQuantity</i>

Attributes (reference)

Name	Multiplicity	Type
<i>MaterialStateReference</i>	0..1	<i>MaterialState</i>
<i>MaterialTemplateReference</i>	0..1	<i>MaterialTemplate</i>

3.133.2 MassFlow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.133.3 MaterialStateReference**Attribute (reference)****3.133.4 MaterialTemplateReference****Attribute (reference)****3.133.5 Pressure****Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.133.6 Temperature**Attribute (composition)**

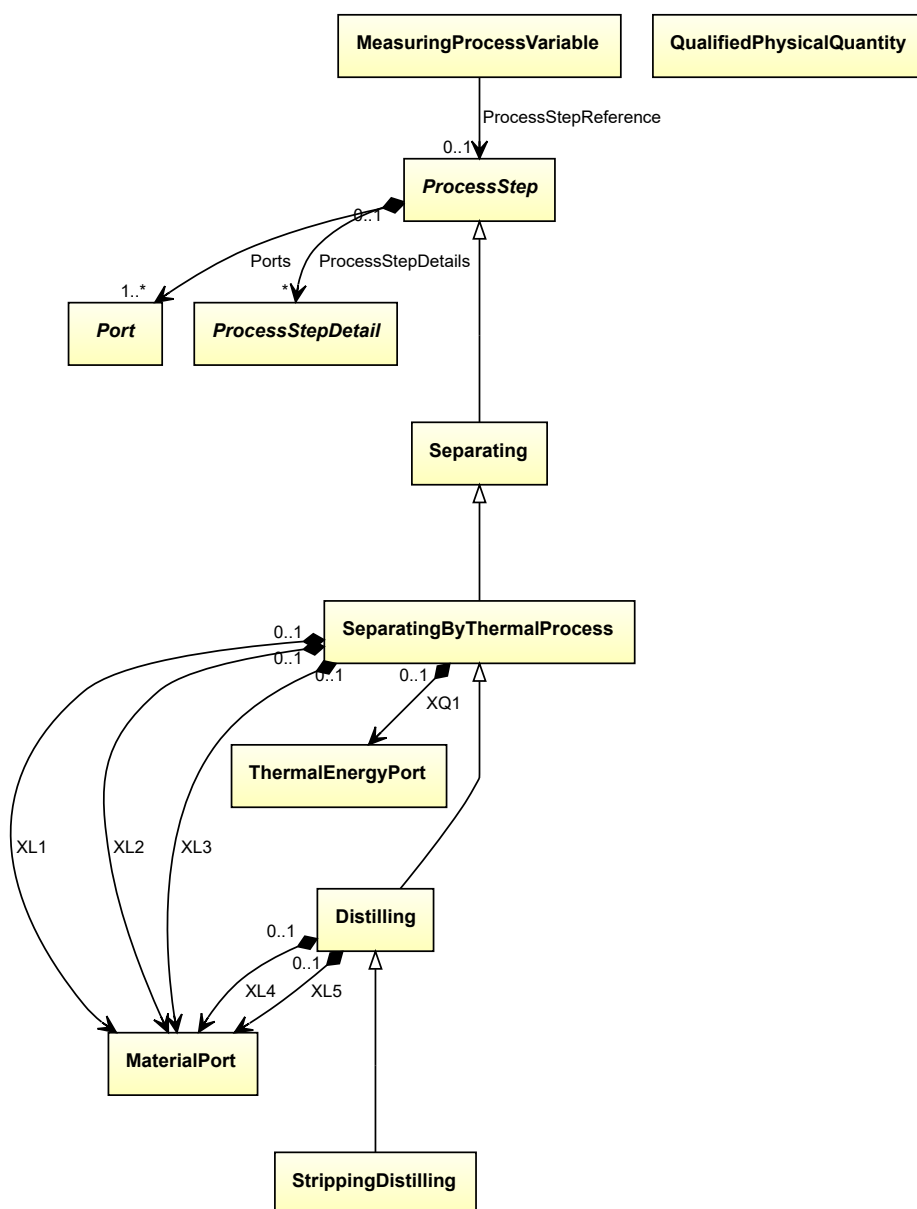
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableTemperature`.

3.133.7 VolumeFlow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolumeFlowRate`.

3.134 StrippingDistilling**3.134.1 Overview**

Class



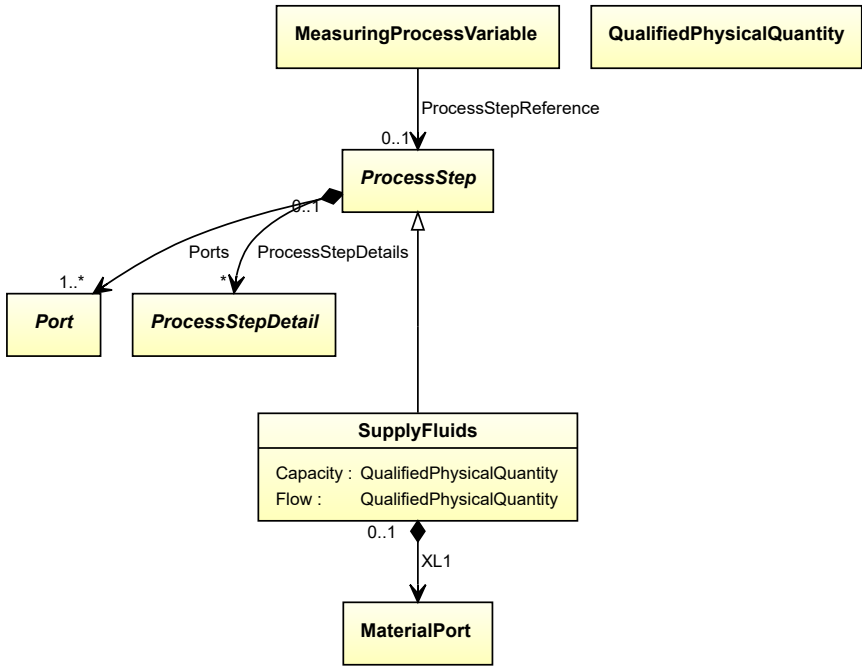
Supertypes

- *Distilling*

3.135 SupplyFluids

3.135.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (composition)

Name	Multiplicity	Type
<i>Capacity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>

3.135.2 Capacity

Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableMass*.

3.135.3 Flow

Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableMassFlowRate*.

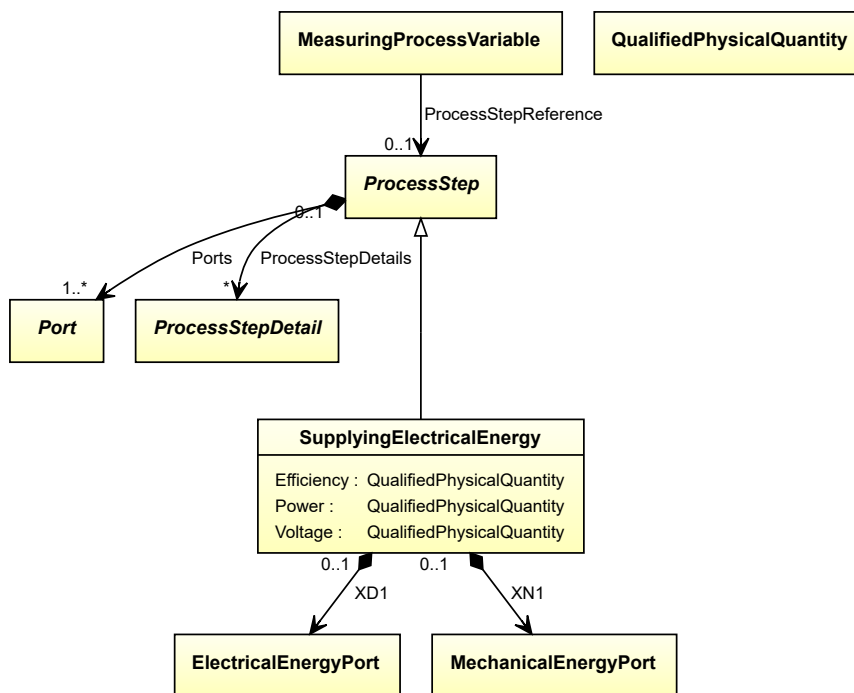
3.135.4 XL1

Attribute (composition)

3.136 SupplyingElectricalEnergy

3.136.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *GeneratingACPower*
- *GeneratingCustom*
- *GeneratingDCPower*
- *GeneratingInFuelCell*

Attributes (composition)

Name	Multiplicity	Type
<i>Efficiency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Voltage</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XD1</i>	1	<i>ElectricalEnergyPort</i>
<i>XN1</i>	1	<i>MechanicalEnergyPort</i>

3.136.2 Efficiency**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePercentage`.

3.136.3 Power**Attribute (composition)**

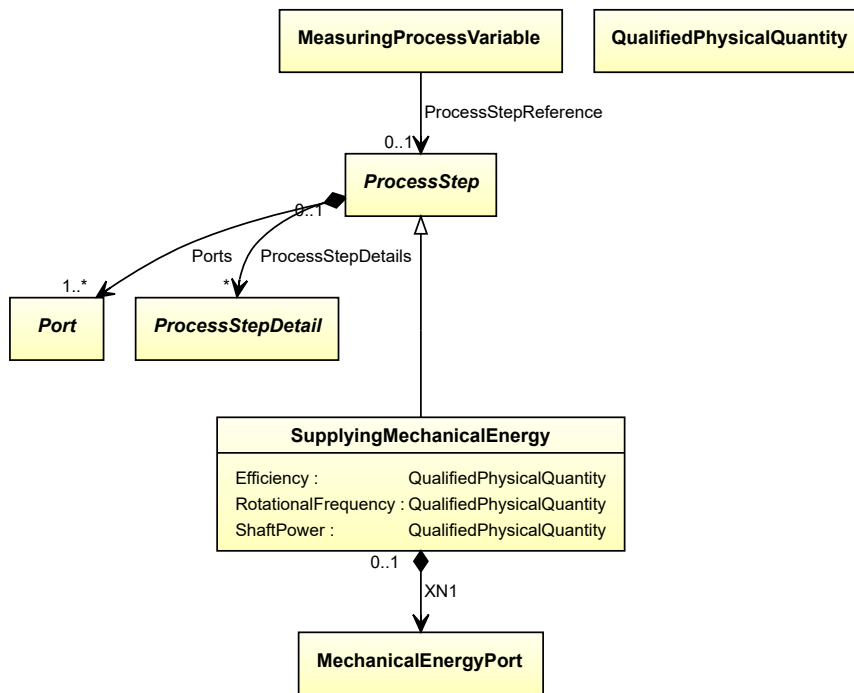
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.136.4 Voltage**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVoltage`.

3.136.5 XD1**Attribute (composition)****3.136.6 XN1****Attribute (composition)****3.137 SupplyingMechanicalEnergy****3.137.1 Overview**

Class



Supertypes

- *ProcessStep*

Subtypes

- *DrivingByEngine*
- *DrivingByMotor*
- *DrivingByTurbine*

Attributes (composition)

Name	Multiplicity	Type
<i>Efficiency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>RotationalFrequency</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>ShaftPower</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XN1</i>	1	<i>MechanicalEnergyPort</i>

3.137.2 Efficiency

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullablePercentage.

3.137.3 RotationalFrequency

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableRotationalFrequency.

3.137.4 ShaftPower

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullablePower.

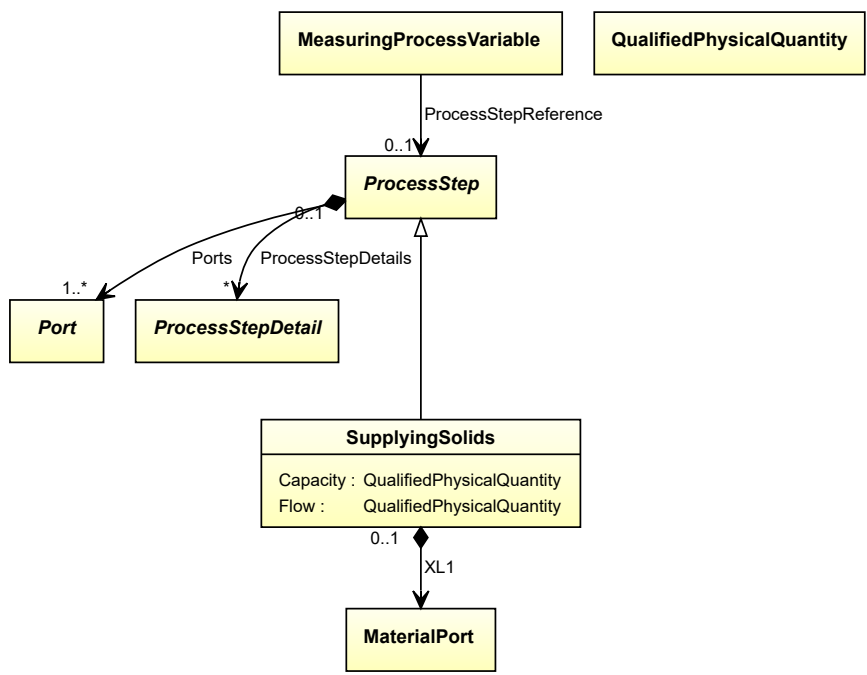
3.137.5 XN1

Attribute (composition)

3.138 SupplyingSolids

3.138.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (composition)

Name	Multiplicity	Type
<i>Capacity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>

3.138.2 Capacity**Attribute (composition)**

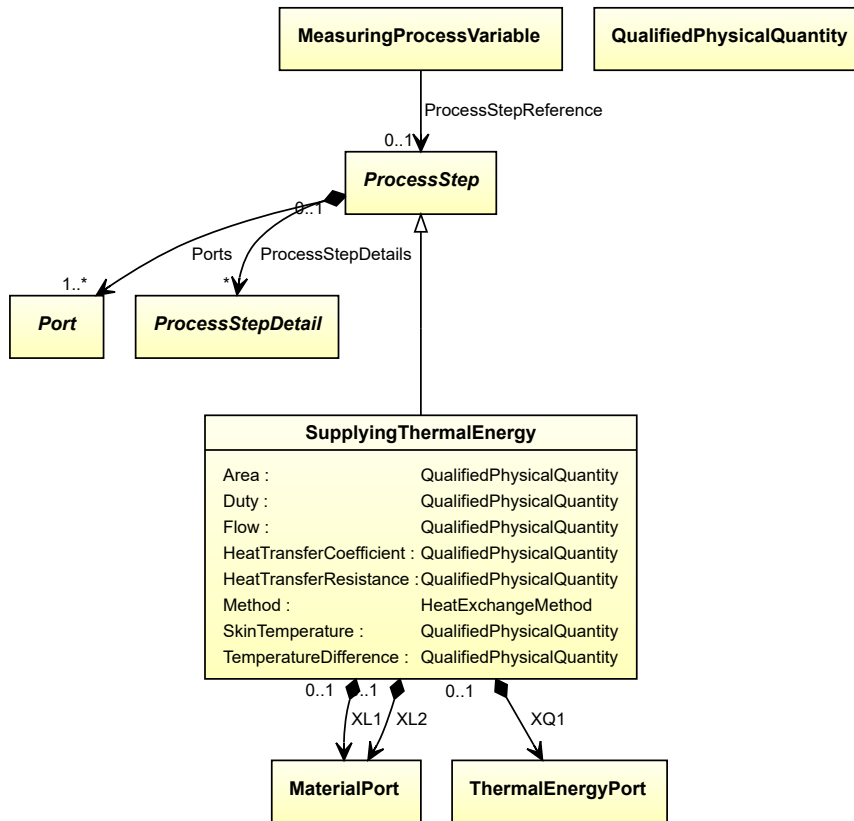
If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMass`.

3.138.3 Flow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.138.4 XL1**Attribute (composition)****3.139 SupplyingThermalEnergy****3.139.1 Overview**

Class



Supertypes

- *ProcessStep*

Subtypes

- *Boiling*
- *GeneratingSteam*
- *HeatingElectrical*
- *HeatingInFurnace*

Attributes (data)

Name	Multiplicity	Type
<i>Method</i>	1	<i>HeatExchangeMethod</i>

Attributes (composition)

Name	Multiplicity	Type
<i>Area</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HeatTransferCoefficient</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>HeatTransferResistance</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>SkinTemperature</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>TemperatureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>
<i>XQ1</i>	1	<i>ThermalEnergyPort</i>

3.139.2 Area**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableArea*.

3.139.3 Duty**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullablePower*.

3.139.4 Flow**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableMassFlowRate*.

3.139.5 HeatTransferCoefficient**Attribute (composition)**

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullableHeatTransferCoefficient*.

3.139.6 HeatTransferResistance

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableHeatTransferResistance.

3.139.7 Method

Attribute (data)

3.139.8 SkinTemperature

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableTemperature.

3.139.9 TemperatureDifference

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableTemperature.

3.139.10 XL1

Attribute (composition)

3.139.11 XL2

Attribute (composition)

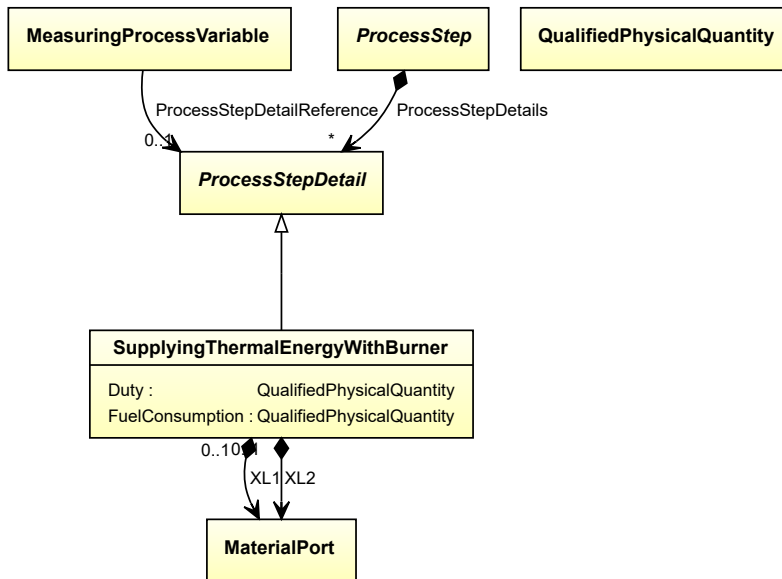
3.139.12 XQ1

Attribute (composition)

3.140 SupplyingThermalEnergyWithBurner

3.140.1 Overview

Class



Supertypes

- *ProcessStepDetail*

Attributes (composition)

Name	Multiplicity	Type
<i>Duty</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>FuelConsumption</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.140.2 Duty

Attribute (composition)

If a value for this property is given, then the **QualifiedPhysicalQuantity::PhysicalQuantity** of this value must be of type **NullablePower**.

3.140.3 FuelConsumption

Attribute (composition)

If a value for this property is given, then the **QualifiedPhysicalQuantity::PhysicalQuantity** of this value must be of type **NullableMassFlowRate**.

3.140.4 XL1

Attribute (composition)

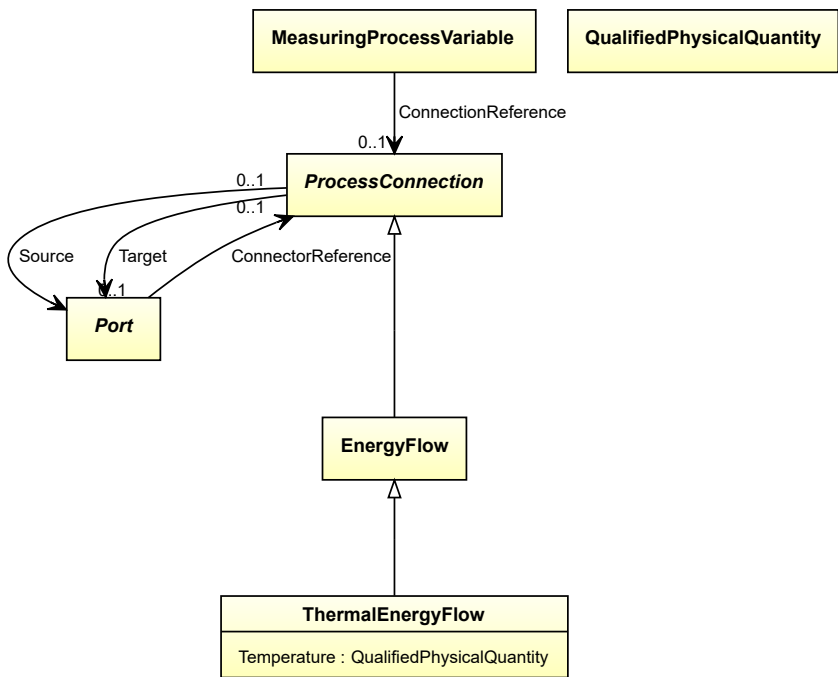
3.140.5 XL2

Attribute (composition)

3.141 ThermalEnergyFlow

3.141.1 Overview

Class



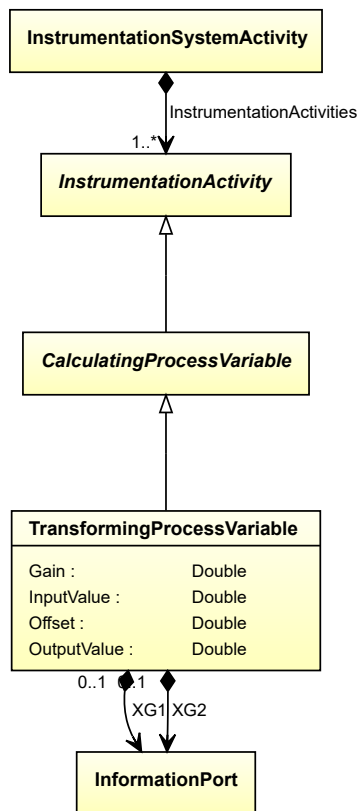
Supertypes

- *EnergyFlow*

Attributes (composition)

Name	Multiplicity	Type
Temperature	1	QualifiedPhysicalQuantity

Class



Supertypes

- *CalculatingProcessVariable*

Attributes (data)

Name	Multiplicity	Type
<i>Gain</i>	1	<i>Double</i>
<i>Input Value</i>	1	<i>Double</i>
<i>Offset</i>	1	<i>Double</i>
<i>Output Value</i>	1	<i>Double</i>

Attributes (composition)

Name	Multiplicity	Type
<i>XG1</i>	1	<i>InformationPort</i>
<i>XG2</i>	1	<i>InformationPort</i>

3.143.2 Gain

Attribute (data)

3.143.3 InputValue

Attribute (data)

3.143.4 Offset

Attribute (data)

3.143.5 OutputValue

Attribute (data)

3.143.6 XG1

Attribute (composition)

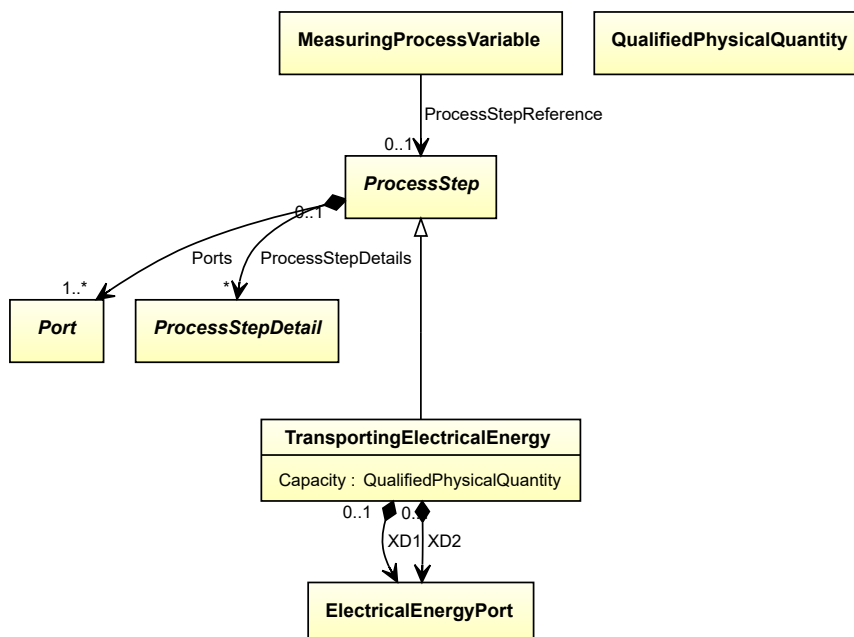
3.143.7 XG2

Attribute (composition)

3.144 TransportingElectricalEnergy

3.144.1 Overview

Class



Supertypes

- *ProcessStep*

Attributes (composition)

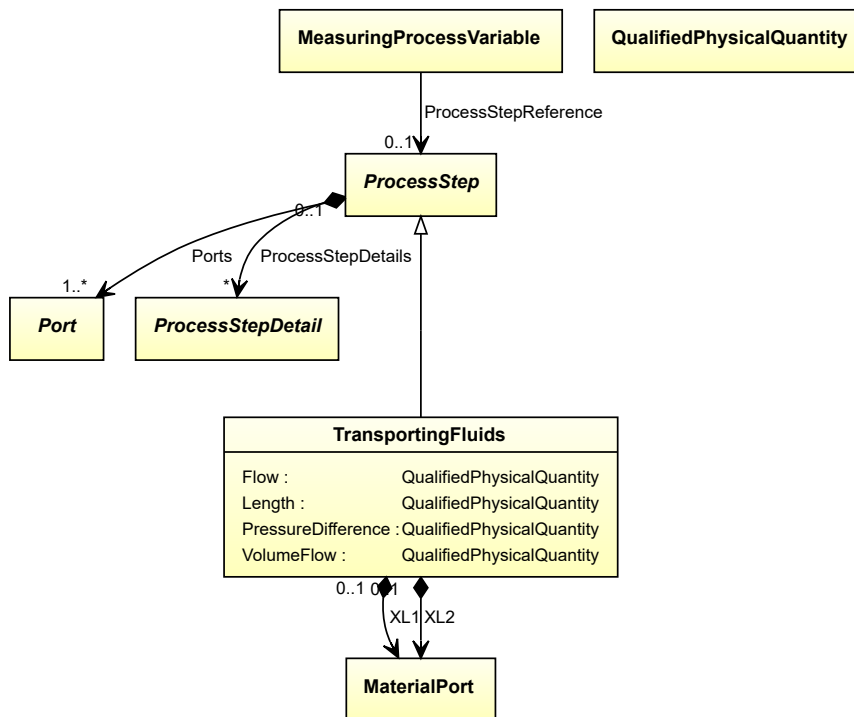
Name	Multiplicity	Type
<i>Capacity</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XD1</i>	1	<i>ElectricalEnergyPort</i>
<i>XD2</i>	1	<i>ElectricalEnergyPort</i>

3.144.2 Capacity**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePower`.

3.144.3 XD1**Attribute (composition)****3.144.4 XD2****Attribute (composition)****3.145 TransportingFluids****3.145.1 Overview**

Class



Supertypes

- *ProcessStep*

Subtypes

- *TransportingFluidsInChannel*
- *TransportingFluidsInHose*
- *TransportingFluidsInPipe*

Attributes (composition)

Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Length</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>PressureDifference</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>VolumeFlow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.145.2 Flow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.145.3 Length

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.145.4 PressureDifference

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullablePressureAbsolute`.

3.145.5 VolumeFlow

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVolumeFlowRate`.

3.145.6 XL1

Attribute (composition)

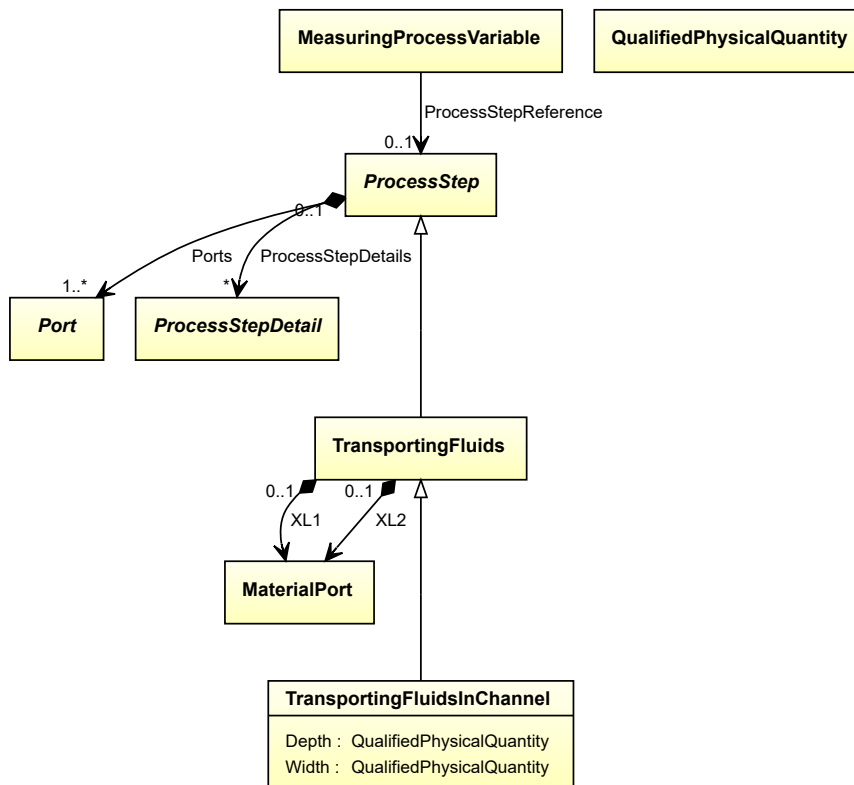
3.145.7 XL2

Attribute (composition)

3.146 TransportingFluidsInChannel

3.146.1 Overview

Class



Supertypes

- *TransportingFluids*

Attributes (composition)

Name	Multiplicity	Type
<i>Depth</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Width</i>	1	<i>QualifiedPhysicalQuantity</i>

3.146.2 Depth

Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.146.3 Width

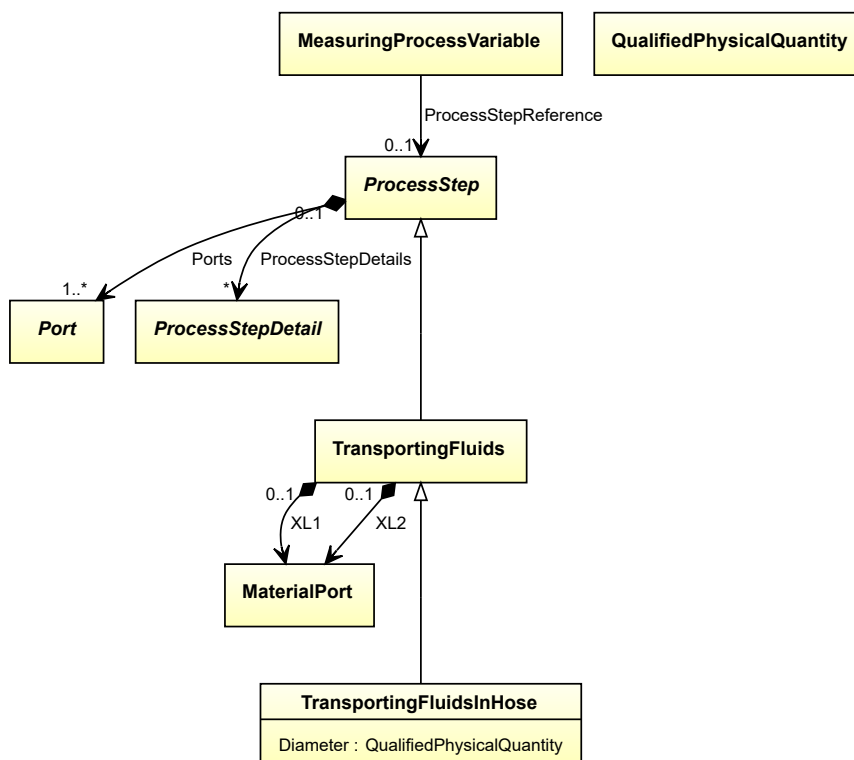
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.147 TransportingFluidsInHose

3.147.1 Overview

Class



Supertypes

- *TransportingFluids*

Attributes (composition)

Name	Multiplicity	Type
<i>Diameter</i>	1	<i>QualifiedPhysicalQuantity</i>

3.147.2 Diameter

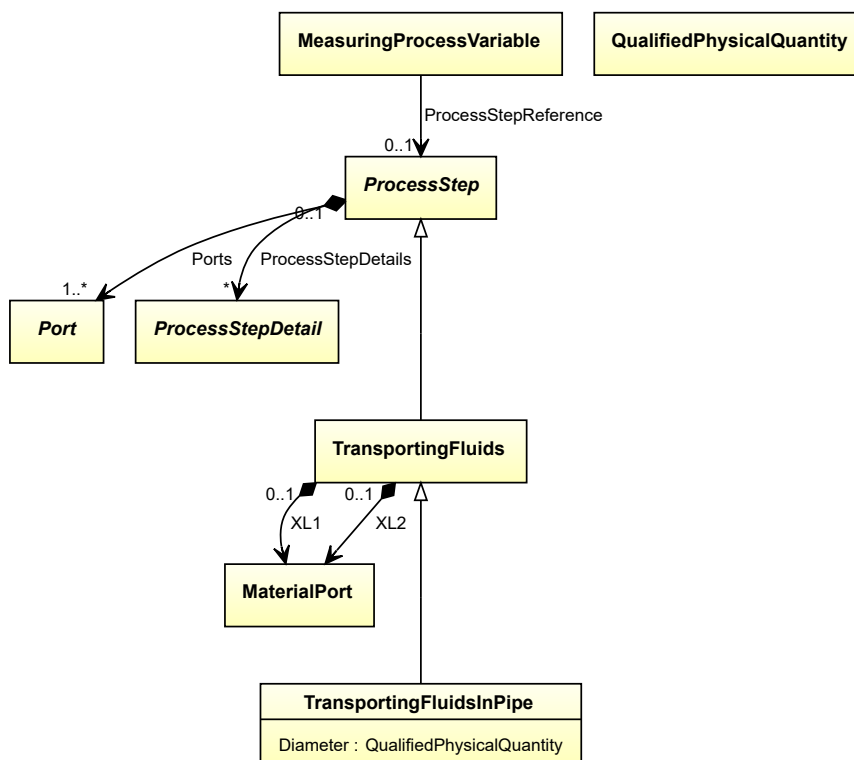
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.148 TransportingFluidsInPipe

3.148.1 Overview

Class



Supertypes

- *TransportingFluids*

Attributes (composition)

Name	Multiplicity	Type
<i>Diameter</i>	1	<i>QualifiedPhysicalQuantity</i>

3.148.2 Diameter

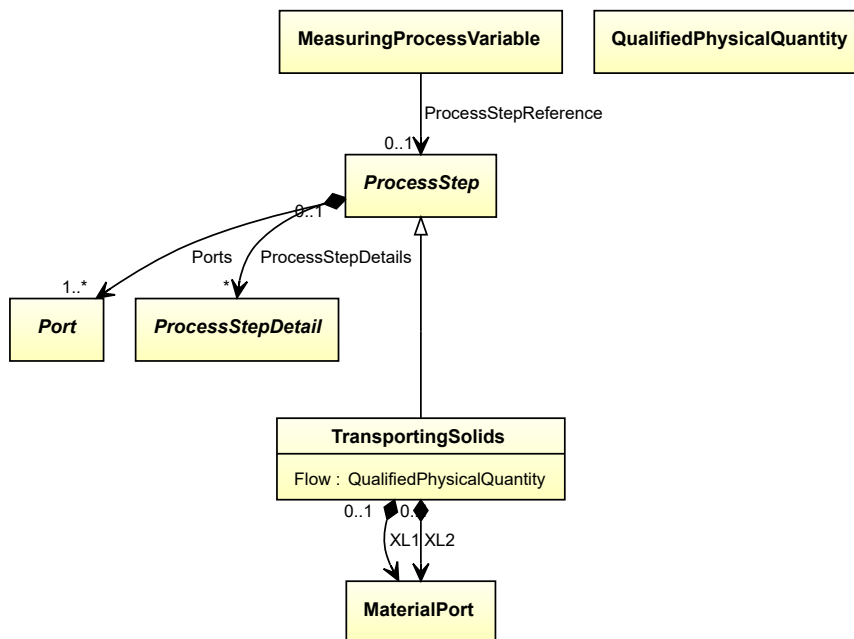
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableLength`.

3.149 TransportingSolids

3.149.1 Overview

Class



Supertypes

- *ProcessStep*

Subtypes

- *TransportingSolidsContinuously*
- *TransportingSolidsDiscontinuously*

Attributes (composition)

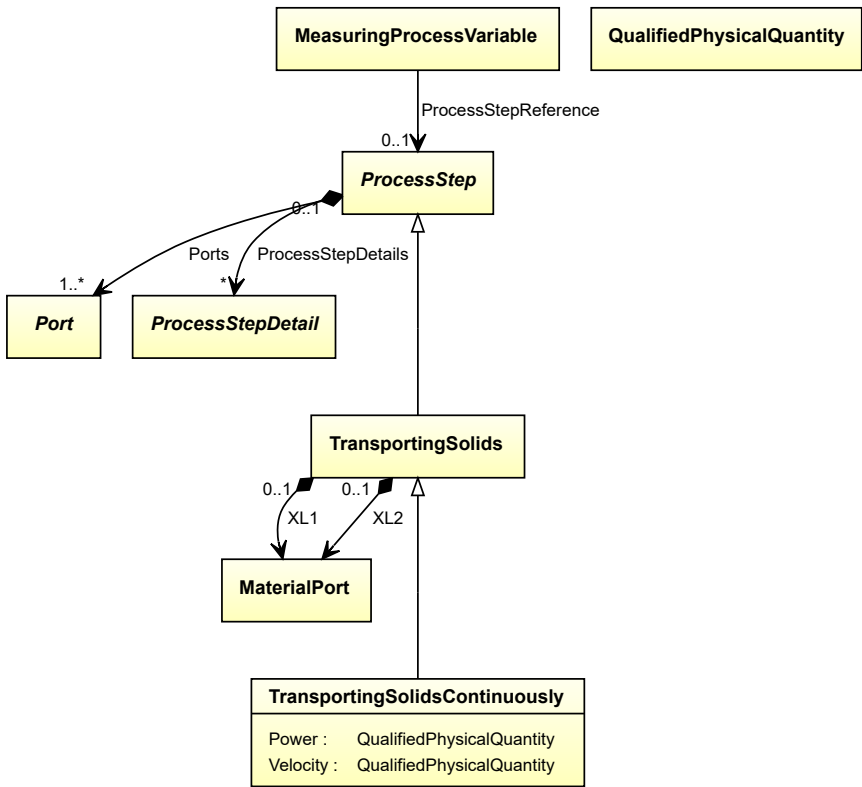
Name	Multiplicity	Type
<i>Flow</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>XL1</i>	1	<i>MaterialPort</i>
<i>XL2</i>	1	<i>MaterialPort</i>

3.149.2 Flow**Attribute (composition)**

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableMassFlowRate`.

3.149.3 XL1**Attribute (composition)****3.149.4 XL2****Attribute (composition)****3.150 TransportingSolidsContinuously****3.150.1 Overview**

Class



Supertypes

- *TransportingSolids*

Attributes (composition)

Name	Multiplicity	Type
<i>Power</i>	1	<i>QualifiedPhysicalQuantity</i>
<i>Velocity</i>	1	<i>QualifiedPhysicalQuantity</i>

3.150.2 Power

Attribute (composition)

If a value for this property is given, then the *QualifiedPhysicalQuantity::PhysicalQuantity* of this value must be of type *NullablePower*.

3.150.3 Velocity

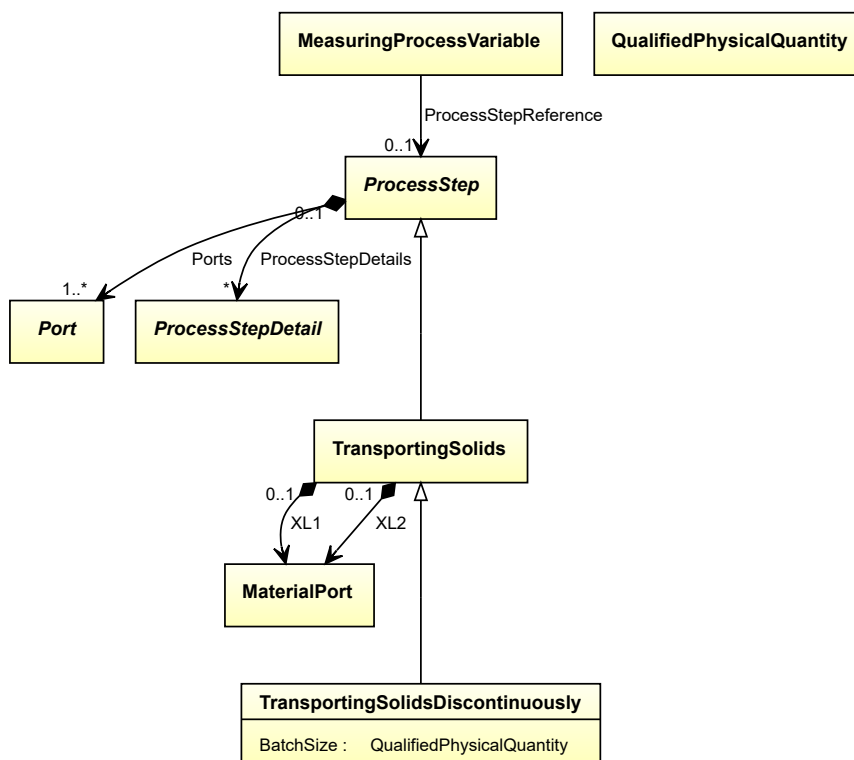
Attribute (composition)

If a value for this property is given, then the `QualifiedPhysicalQuantity::PhysicalQuantity` of this value must be of type `NullableVelocity`.

3.151 TransportingSolidsDiscontinuously

3.151.1 Overview

Class



Supertypes

- *TransportingSolids*

Attributes (composition)

Name	Multiplicity	Type
<i>BatchSize</i>	1	<i>QualifiedPhysicalQuantity</i>

3.151.2 BatchSize

Attribute (composition)

If a value for this property is given, then the QualifiedPhysicalQuantity::PhysicalQuantity of this value must be of type NullableMass.

3.152 TrayRole

3.152.1 Overview

Enumeration

<<enumeration>> TrayRole
Bottom Top Feed Monitored

3.153 TurbineDriveMethod

3.153.1 Overview

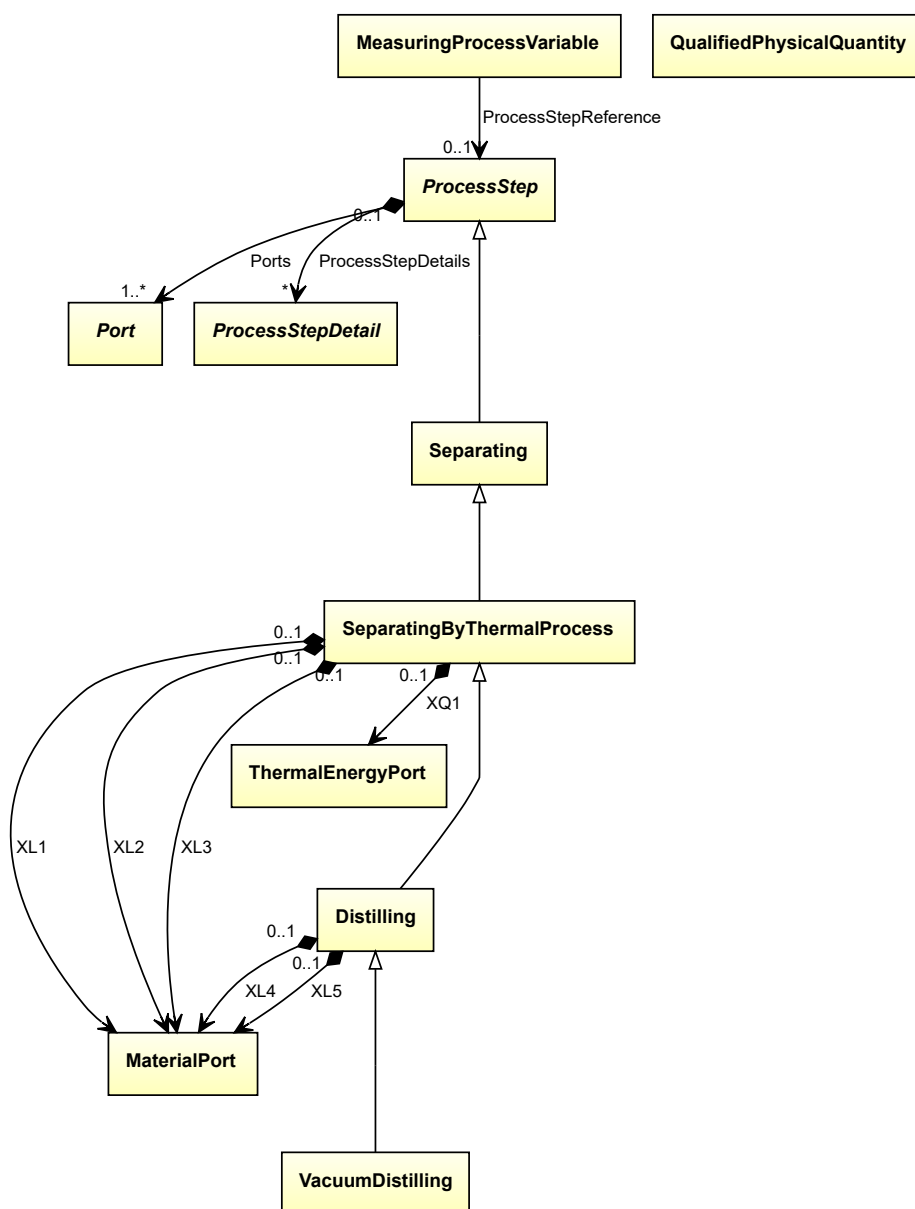
Enumeration

<<enumeration>> TurbineDriveMethod
Unspecified WindTurbine WaterTurbine Expander

3.154 VacuumDistilling

3.154.1 Overview

Class



Supertypes

- *Distilling*