

Schema documentation for inputData.xsd

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Namespace: "http://gaslib.zib.de/Gas"

Schema(s)

Main schema inputData.xsd

Namespace	http://gaslib.zib.de/Gas
Annotations	This XML-Schema has the single purpose to include all other XML-Schemas which constitute a specification of the validation of a nomination on a gas network. For the specification of XML-files defining a gas network together with its compressor stations have a look into the specification of Gas_xsd.html Gas.xsd and into CompressorStations_xsd.html CompressorStations.xsd. The file format for the definition of a nomination is given in Scenario_xsd.html Scenario.xsd. To learn how combined decisions are passed to a solver please read the specification of CombinedDecisions_xsd.html CombinedDecisions.xsd.
Properties	attribute form default: unqualified
	element form default: qualified

Included schema Scenario.xsd

Namespace	http://gaslib.zib.de/Gas
Annotations	Within this XML Schema, so called scenario XML files are specified. The purpose of a scenario file is to define a nomination. The basic elements of a scenario are nodes with pressure and/or flow bounds, pipes with their soil temperature and compressor stations with their ambient temperature. Only elements with scenario specific data should be stated. Additional information to identify the scenario can be given. Basic types used within this schema are defined in PhysicalValues_xsd.html PhysicalValues.xsd. The tag boundaryValue must be the root element of each XML document conforming to this schema.
Properties	attribute form default: unqualified
	element form default: qualified

Imported schema Gas.xsd

Namespace	http://gaslib.zib.de/Gas
Annotations	This file constitutes a specification for XML files defining a gas network. Basic properties of generic network elements are inherited from the XML-Schema Framework_xsd.html Framework.xsd. Other basic types used within this schema are defined in Topology_xsd.html Topology.xsd. The tag network must be the root element of each XML document conforming to this schema.
Properties	attribute form default: unqualified
	element form default: qualified

Element(s)

Element gas:boundaryValue

Namespace	http://gaslib.zib.de/Gas
Annotations	Root element of any XML document conforming to this schema.
Diagram	<pre> classDiagram class boundaryValue class scenario boundaryValue "1..*" -- "1..*" scenario </pre> <p>The diagram shows a UML class diagram with two classes: 'boundaryValue' and 'scenario'. An association line connects them with multiplicity '1..*' on both ends. A yellow circle with a plus sign is placed on the line between the two classes, indicating they are connected via inheritance or composition.</p>
Properties	content: complex
Model	gas:scenario

Children	gas:scenario
Instance	<pre><gas:boundaryValue xmlns:gas="http://gaslib.zib.de/Gas"> <gas:scenario defaultPowerAndFlowZero="0" id="scenario">{1,1}</gas:scenario> </gas:boundaryValue></pre>
Source	<pre><xsd:element name="boundaryValue"> <xsd:annotation> <xsd:documentation>Root element of any XML document conforming to this schema.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="scenario"> <xsd:annotation> <xsd:documentation>A scenario, specified by its ID, can contain information about its probability, minimal and maximal temperature, the contract date, its own date, whether or not interruptible capacities and municipal utilities are considered; nodes, pipes and compressor stations in arbitrary quantity. This order must be obeyed, although information can simply be left out.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="meta" minOccurs="0" maxOccurs="1" type="xsd:string"/> <xsd:element name="scenarioProbability" minOccurs="0" maxOccurs="1" type="gas:scenarioProbabilityType"> <xsd:annotation> <xsd:documentation>States the probability for the occurrence of the scenario</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="scenarioTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="temperatureMin" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the lower bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="temperatureMax" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the upper bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="contractDate" minOccurs="0" maxOccurs="1" type="gas:contractDateType"> <xsd:annotation> <xsd:documentation>States the date of a possibly underlying contract.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="soilTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="ambientTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="dataDate" minOccurs="0" maxOccurs="1" type="gas:dataDateType"> <xsd:annotation> <xsd:documentation>States the date when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="usesInterruptibleCap" minOccurs="0" maxOccurs="1" type="gas:usesInterruptibleCapType"> <xsd:annotation> <xsd:documentation>States if interruptible capacities are used or not.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element></pre>

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        <xsd:element name="reducedMunicipalUtility" minOccurs="0" maxOccurs="1"
type="gas:reducedMunicipalUtilityType">
            <xsd:annotation>
                <xsd:documentation>States whether the statistical flow values in nodes belonging to
municipal utilities are cut off at certain fixed FZK contract bounds ('true'), or not ('false').</
xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="node" minOccurs="0" maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>A node of the network, identified by type and ID, with optional
information about up to two pressure and either flow or power bounds, type of the contract, type of
the point, applied contract.</xsd:documentation>
            </xsd:annotation>
            <xsd:complexType>
                <xsd:sequence>
                    <xsd:element name="pressure" type="gas:pressure_type" minOccurs="0" maxOccurs="2">
                        <xsd:annotation>
                            <xsd:documentation>States a pressure bound at a node, corresponding to a
fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value
must be greater than or equal to 0 barg. This pressure is used for the propagation of pressure
bounds(TÄ#V-Rule).</xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:element name="contractPressureMin" type="framework:pressureType"
minOccurs="0" maxOccurs="1">
                        <xsd:annotation>
                            <xsd:documentation>States a non-technical lower pressure bound on a node</
xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:element name="contractPressureMax" type="framework:pressureType"
minOccurs="0" maxOccurs="1">
                        <xsd:annotation>
                            <xsd:documentation>States a non-technical upper pressure bound on a node.
Since it is a non-technical bound, this implies, that it is not considered in methods for enforcing
the TÄ#V-Rule on flow-connected components.</xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:choice>
                        <xsd:sequence>
                            <xsd:element name="flow" type="gas:flow_type" minOccurs="0" maxOccurs="2">
                                <xsd:annotation>
                                    <xsd:documentation>States a flow bound at a node, corresponding to a fixed
nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                        </xsd:sequence>
                        <xsd:sequence>
                            <xsd:element name="power" type="gas:power_type" minOccurs="0" maxOccurs="2">
                                <xsd:annotation>
                                    <xsd:documentation>States a power bound at a node, corresponding to a
fixed nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                        </xsd:sequence>
                    </xsd:choice>
                    <xsd:sequence minOccurs="0">
                        <xsd:element minOccurs="0" name="gasTemperature"
type="framework:temperatureType">
                            <xsd:annotation>
                                <xsd:documentation>gasTemperature is the gas temperature of the entering gas
at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element minOccurs="0" name="calorificValue"
type="framework:calorificValueType">
                            <xsd:annotation>
                                <xsd:documentation>calorificValue is the calorific Value of the entering gas
at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element minOccurs="0" name="normDensity" type="framework:densityType">
                            <xsd:annotation>
                                <xsd:documentation>normDensity is the norm density of the entering gas at
the source node in the gas network. Unit is specified by type.</xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element minOccurs="0" name="coefficient-A-heatCapacity"
type="framework:noType">
                            <xsd:annotation>

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        <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat
capacity of the entering gas at the source node in the gas network. Unit is specified by type.</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element minOccurs="0" name="coefficient-B-heatCapacity"
type="framework:noType">
        <xsd:annotation>
            <xsd:documentation>coefficient-B-heatCapacity is one coefficient of the heat
capacity of the entering gas at the source node in the gas network. Unit is specified by type.</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element minOccurs="0" name="coefficient-C-heatCapacity"
type="framework:noType">
        <xsd:annotation>
            <xsd:documentation>coefficient-C-heatCapacity is one coefficient of the heat
capacity of the entering gas at the source node in the gas network. Unit is specified by type.</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element minOccurs="0" name="molarMass" type="framework:molarMassType">
        <xsd:annotation>
            <xsd:documentation>molarMass is the molar mass of the entering gas at the
source node in the gas network. Unit is specified by type.</xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element minOccurs="0" name="pseudocriticalPressure"
type="framework:pressureType">
        <xsd:annotation>
            <xsd:documentation>pseudocriticalPressure is the pseudocritical pressure
of the entering gas at the source node in the gas network. Unit is specified by type.</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element minOccurs="0" name="pseudocriticalTemperature"
type="framework:temperatureType">
        <xsd:annotation>
            <xsd:documentation>pseudocriticalTemperature is the pseudocritical
temperature of the entering gas at the source node in the gas network. Unit is specified by type.</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        </xsd:sequence>
        <xsd:element name="activeContract" type="gas:activeContractType" minOccurs="0"
maxOccurs="unbounded">
        <xsd:annotation>
            <xsd:documentation>States the contracts selected in this nomination and their
flows or powers at this node.</xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        </xsd:sequence>
<xsd:attribute name="type" type="gas:nodetype" use="required">
        <xsd:annotation>
            <xsd:documentation>The type of the node.</xsd:documentation>
        </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="id" type="xsd:string" use="required">
        <xsd:annotation>
            <xsd:documentation>The ID of the node.</xsd:documentation>
        </xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>
<xsd:element name="innode" minOccurs="0" maxOccurs="unbounded">
        <xsd:annotation>
            <xsd:documentation>This is an evil hack to overwrite the technical pressure bounds
from the network, identified by ID.</xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="pressure" type="gas:pressure_type" minOccurs="1" maxOccurs="2">
            <xsd:annotation>
                <xsd:documentation>States a pressure bound at a node, corresponding to a fixed
nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must
be greater than or equal to 0 barg.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the node.</xsd:documentation>
            </xsd:annotation>

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        </xsd:attribute>
    </xsd:complexType>
</xsd:element>
<xsd:element name="pipe" minOccurs="0" maxOccurs="unbounded">
    <xsd:annotation>
        <xsd:documentation>A pipe of the network, identified by ID, with the soil
temperature.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="contractPressureMax" type="framework:pressureType"
minOccurs="0" maxOccurs="1"/>
                <xsd:element name="physicalPressureMax" type="framework:pressureType"
minOccurs="0" maxOccurs="1"/>
                    <xsd:element name="soilTemperature" type="framework:temperatureType" minOccurs="0"
maxOccurs="1">
                        <xsd:annotation>
                            <xsd:documentation>States the soil temperature of the pipe, corresponding to a
nomination. Per default in Kelvin.</xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
            <xsd:attribute name="id" type="xsd:string" use="required">
                <xsd:annotation>
                    <xsd:documentation>The ID of the pipe.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
        </xsd:complexType>
    </xsd:element>
<xsd:element name="controlValve" minOccurs="0" maxOccurs="unbounded">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="pressureSet" type="framework:pressureType">
                <xsd:annotation>
                    <xsd:documentation>pressureSet is used for non-remote pressure regulator to
specify the desired output pressure. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element name="increasedOutputTemperature" minOccurs="0"
type="framework:temperatureType">
                <xsd:annotation>
                    <xsd:documentation>increasedOutputTemperature is the temperature of the gas at
the outflow of the regulator, if a gas preheater exists. This element is optional; it should only
be used if the attribute gasPreheaterExisting is 1. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the pipe.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="gasPreheaterExisting" default="0" type="xsd:boolean">
            <xsd:annotation>
                <xsd:documentation>gasPreheaterExisting is a boolean (0/1) flag to specify
if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then
the increasedOutputTemperature should also be specified. Per default, it is set to 0.</
xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>
</xsd:element>
<xsd:element name="compressorStation" minOccurs="0" maxOccurs="unbounded">
    <xsd:annotation>
        <xsd:documentation>A compressor station of the network, identified by ID, with the
ambient temperature.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="ambientTemperature" type="framework:temperatureType">
                <xsd:annotation>
                    <xsd:documentation>States the ambient temperature of the compressor station,
corresponding to a nomination. Per default in Kelvin.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element name="cooledOutputTemperature" minOccurs="0"
type="framework:temperatureType">
                <xsd:annotation>
                    <xsd:documentation>cooledOutputTemperature is the temperature of the gas at
the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be
used if the attribute gasCoolerExisting is 1. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

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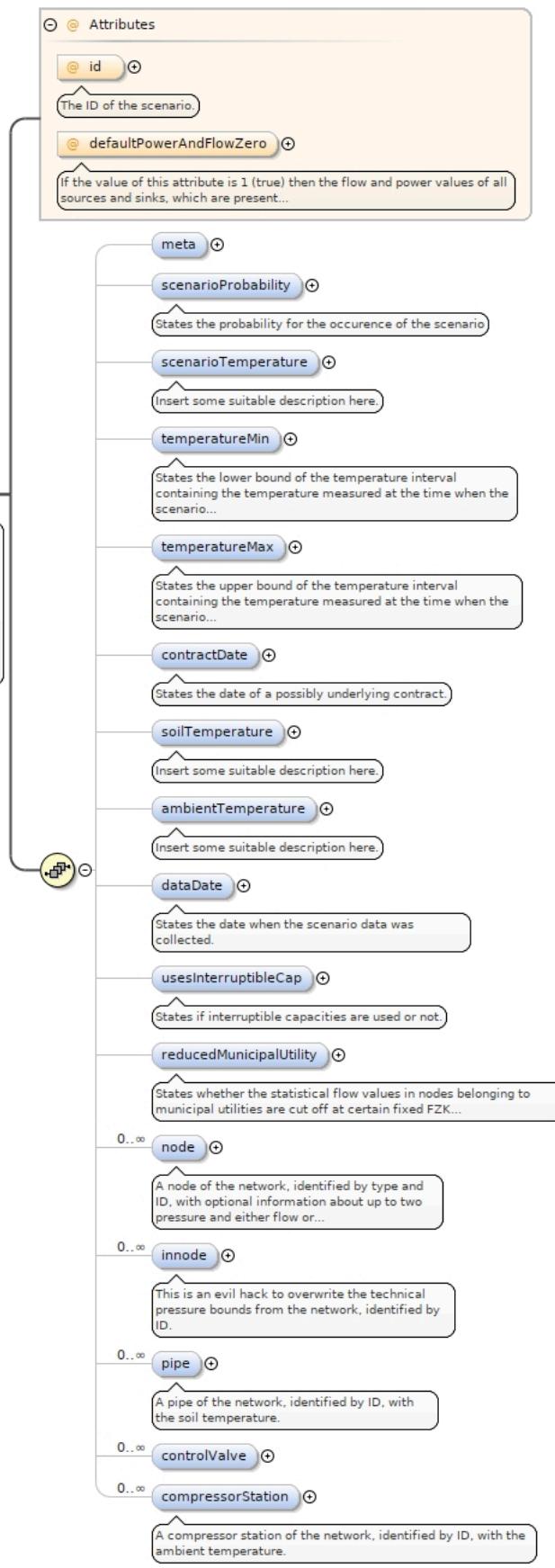
</xsd:sequence>
<xsd:attribute name="id" type="xsd:string" use="required">
    <xsd:annotation>
        <xsd:documentation>The ID of the compressor station.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="gasCoolerExisting" default="0" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>gasCoolerExisting is a boolean (0/1) flag to specify if a
gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then
the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</
xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="saveBypass" default="0" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>is valve separating uncontrolled areas in network</
xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
<xsd:attribute name="id" type="xsd:string" default="scenario">
    <xsd:annotation>
        <xsd:documentation>The ID of the scenario.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="defaultPowerAndFlowZero" type="framework:boolean" default="0">
    <xsd:annotation>
        <xsd:documentation>If the value of this attribute is 1 (true) then the flow and power
values of all sources and sinks, which are present in the network but not specified in the scenario
are set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in
the scenario are set to the values given in the net file. This attribute is optional with default
value 0 (false).</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>

```

Element **gas:boundaryValue / gas:scenario**

Namespace	http://gaslib.zib.de/Gas
Annotations	A scenario, specified by its ID, can contain information about its probability, minimal and maximal temperature, the contract date, its own date, whether or not interruptible capacities and municipal utilities are considered; nodes, pipes and compressor stations in arbitrary quantity. This order must be obeyed, although information can simply be left out.

Diagram



Properties

content: complex

Model	gas:meta{0,1} , gas:scenarioProbability{0,1} , gas:scenarioTemperature{0,1} , gas:temperatureMin{0,1} , gas:temperatureMax{0,1} , gas:contractDate{0,1} , gas:soilTemperature{0,1} , gas:ambientTemperature{0,1} , gas:dataDate{0,1} , gas:usesInterruptibleCap{0,1} , gas:reducedMunicipalUtility{0,1} , gas:node* , gas:innode* , gas:pipe* , gas:controlValve* , gas:compressorStation*																								
Children	gas:ambientTemperature, gas:compressorStation, gas:contractDate, gas:controlValve, gas:dataDate, gas:innode, gas:meta, gas:node, gas:pipe, gas:reducedMunicipalUtility, gas:scenarioProbability, gas:scenarioTemperature, gas:soilTemperature, gas:temperatureMax, gas:temperatureMin, gas:usesInterruptibleCap																								
Instance	<pre> <gas:scenario defaultPowerAndFlowZero="0" id="scenario" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:meta>{0,1}</gas:meta> <gas:scenarioProbability value="">{0,1}</gas:scenarioProbability> <gas:scenarioTemperature unit="K" value="">{0,1}</gas:scenarioTemperature> <gas:temperatureMin unit="K" value="">{0,1}</gas:temperatureMin> <gas:temperatureMax unit="K" value="">{0,1}</gas:temperatureMax> <gas:contractDate value="">{0,1}</gas:contractDate> <gas:soilTemperature unit="K" value="">{0,1}</gas:soilTemperature> <gas:ambientTemperature unit="K" value="">{0,1}</gas:ambientTemperature> <gas:dataDate value="">{0,1}</gas:dataDate> <gas:usesInterruptibleCap value="">{0,1}</gas:usesInterruptibleCap> <gas:reducedMunicipalUtility value="">{0,1}</gas:reducedMunicipalUtility> <gas:node id="" types="">{0,unbounded}</gas:node> <gas:innode id="">{0,unbounded}</gas:innode> <gas:pipe id="">{0,unbounded}</gas:pipe> <gas:controlValve gasPreheaterExisting="0" id="">{0,unbounded}</gas:controlValve> <gas:compressorStation gasCoolerExisting="0" id="" saveBypass="0">{0,unbounded}</gas:compressorStation> </gas:scenario></pre>																								
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>defaultPowerAndFlowZero</td> <td>boolean</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>If the value of this attribute is 1 (true) then the flow and power values of all sources and sinks, which are present in the network but not specified in the scenario are set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in the scenario are set to the values given in the net file. This attribute is optional with default value 0 (false).</td> <td></td> </tr> <tr> <td>id</td> <td>xsd:string</td> <td>scenario</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>The ID of the scenario.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use		defaultPowerAndFlowZero	boolean	0	optional				If the value of this attribute is 1 (true) then the flow and power values of all sources and sinks, which are present in the network but not specified in the scenario are set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in the scenario are set to the values given in the net file. This attribute is optional with default value 0 (false).		id	xsd:string	scenario	optional				The ID of the scenario.		
QName	Type	Default	Use																						
defaultPowerAndFlowZero	boolean	0	optional																						
		If the value of this attribute is 1 (true) then the flow and power values of all sources and sinks, which are present in the network but not specified in the scenario are set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in the scenario are set to the values given in the net file. This attribute is optional with default value 0 (false).																							
id	xsd:string	scenario	optional																						
		The ID of the scenario.																							
Source	<pre> <xsd:element name="scenario"> <xsd:annotation> <xsd:documentation>A scenario, specified by its ID, can contain information about its probability, minimal and maximal temperature, the contract date, its own date, whether or not interruptible capacities and municipal utilities are considered; nodes, pipes and compressor stations in arbitrary quantity. This order must be obeyed, although information can simply be left out.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="meta" minOccurs="0" maxOccurs="1" type="xsd:string"/> <xsd:element name="scenarioProbability" minOccurs="0" maxOccurs="1" type="gas:scenarioProbabilityType"> <xsd:annotation> <xsd:documentation>States the probability for the occurrence of the scenario</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="scenarioTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="temperatureMin" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the lower bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="temperatureMax" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the upper bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="contractDate" minOccurs="0" maxOccurs="1" type="gas:contractDateType"> <xsd:annotation> </pre>																								

```

        <xsd:documentation>States the date of a possibly underlying contract.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="soilTemperature" minOccurs="0" maxOccurs="1"
type="framework:temperatureType">
    <xsd:annotation>
        <xsd:documentation>Insert some suitable description here.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="ambientTemperature" minOccurs="0" maxOccurs="1"
type="framework:temperatureType">
    <xsd:annotation>
        <xsd:documentation>Insert some suitable description here.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="dataDate" minOccurs="0" maxOccurs="1" type="gas:dataDateType">
    <xsd:annotation>
        <xsd:documentation>States the date when the scenario data was collected.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="usesInterruptibleCap" minOccurs="0" maxOccurs="1"
type="gas:usesInterruptibleCapType">
    <xsd:annotation>
        <xsd:documentation>States if interruptible capacities are used or not.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="reducedMunicipalUtility" minOccurs="0" maxOccurs="1"
type="gas:reducedMunicipalUtilityType">
    <xsd:annotation>
        <xsd:documentation>States whether the statistical flow values in nodes belonging to
municipal utilities are cut off at certain fixed FZK contract bounds ('true'), or not ('false').</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="node" minOccurs="0" maxOccurs="unbounded">
    <xsd:annotation>
        <xsd:documentation>A node of the network, identified by type and ID, with optional
information about up to two pressure and either flow or power bounds, type of the contract, type of
the point, applied contract.</xsd:documentation>
    </xsd:annotation>
<xsd:complexType>
    <xsd:sequence>
        <xsd:element name="pressure" type="gas:pressure_type" minOccurs="0" maxOccurs="2">
            <xsd:annotation>
                <xsd:documentation>States a pressure bound at a node, corresponding to a fixed
nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value
must be greater than or equal to 0 barg. This pressure is used for the propagation of pressure
bounds(TÄ#V-Rule).</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="contractPressureMin" type="framework:pressureType" minOccurs="0"
maxOccurs="1">
            <xsd:annotation>
                <xsd:documentation>States a non-technical lower pressure bound on a node</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="contractPressureMax" type="framework:pressureType" minOccurs="0"
maxOccurs="1">
            <xsd:annotation>
                <xsd:documentation>States a non-technical upper pressure bound on a node. Since it
is a non-technical bound, this implies,that it is not considered in methods for enforcing the TÄ#V-
Rule on flow-connected components.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:choice>
            <xsd:sequence>
                <xsd:element name="flow" type="gas:flow_type" minOccurs="0" maxOccurs="2">
                    <xsd:annotation>
                        <xsd:documentation>States a flow bound at a node, corresponding to a fixed
nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation>
                    </xsd:annotation>
                </xsd:element>
            </xsd:sequence>
            <xsd:sequence>
                <xsd:element name="power" type="gas:power_type" minOccurs="0" maxOccurs="2">
                    <xsd:annotation>
                        <xsd:documentation>States a power bound at a node, corresponding to a fixed
nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation>
                    </xsd:annotation>
                </xsd:element>
            </xsd:sequence>
        </xsd:choice>
    </xsd:sequence>
</xsd:complexType>

```

```

        </xsd:choice>
        <xsd:sequence minOccurs="0">
            <xsd:element minOccurs="0" name="gasTemperature" type="framework:temperatureType">
                <xsd:annotation>
                    <xsd:documentation>gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="calorificValue" type="framework:calorificValueType">
                <xsd:annotation>
                    <xsd:documentation>calorificValue is the calorific Value of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="normDensity" type="framework:densityType">
                <xsd:annotation>
                    <xsd:documentation>normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="coefficient-A-heatCapacity" type="framework:noType">
                <xsd:annotation>
                    <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="coefficient-B-heatCapacity" type="framework:noType">
                <xsd:annotation>
                    <xsd:documentation>coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="coefficient-C-heatCapacity" type="framework:noType">
                <xsd:annotation>
                    <xsd:documentation>coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="molarMass" type="framework:molarMassType">
                <xsd:annotation>
                    <xsd:documentation>molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="pseudocriticalPressure" type="framework:pressureType">
                <xsd:annotation>
                    <xsd:documentation>pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element minOccurs="0" name="pseudocriticalTemperature" type="framework:temperatureType">
                <xsd:annotation>
                    <xsd:documentation>pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:element name="activeContract" type="gas:activeContractType" minOccurs="0" maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>States the contracts selected in this nomination and their flows or powers at this node.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="type" type="gas:nodetype" use="required">
            <xsd:annotation>
                <xsd:documentation>The type of the node.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the node.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>
</xsd:element>

```

```

<xsd:element name="innode" minOccurs="0" maxOccurs="unbounded">
    <xsd:annotation>
        <xsd:documentation>This is an evil hack to overwrite the technical pressure bounds from the network, identified by ID.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="pressure" type="gas:pressure_type" minOccurs="1" maxOccurs="2">
                <xsd:annotation>
                    <xsd:documentation>States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the node.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>
</xsd:element>
<xsd:element name="pipe" minOccurs="0" maxOccurs="unbounded">
    <xsd:annotation>
        <xsd:documentation>A pipe of the network, identified by ID, with the soil temperature.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="contractPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"/>
            <xsd:element name="physicalPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"/>
            <xsd:element name="soilTemperature" type="framework:temperatureType" minOccurs="0" maxOccurs="1">
                <xsd:annotation>
                    <xsd:documentation>States the soil temperature of the pipe, corresponding to a nomination. Per default in Kelvin.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the pipe.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>
</xsd:element>
<xsd:element name="controlValve" minOccurs="0" maxOccurs="unbounded">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="pressureSet" type="framework:pressureType">
                <xsd:annotation>
                    <xsd:documentation>pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element name="increasedOutputTemperature" minOccurs="0" type="framework:temperatureType">
                <xsd:annotation>
                    <xsd:documentation>increasedOutputTemperature is the temperature of the gas at the outflow of the regulator, if a gas preheater exists. This element is optional; it should only be used if the attribute gasPreheaterExisting is 1. Unit is specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the pipe.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="gasPreheaterExisting" default="0" type="xsd:boolean">
            <xsd:annotation>
                <xsd:documentation>gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>
</xsd:element>
<xsd:element name="compressorStation" minOccurs="0" maxOccurs="unbounded">
    <xsd:annotation>

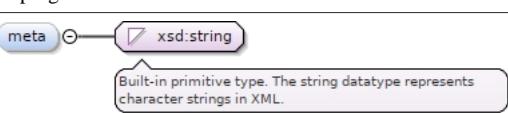
```

```

<xsd:documentation>A compressor station of the network, identified by ID, with the ambient
temperature.</xsd:documentation>
</xsd:annotation>
<xsd:complexType>
<xsd:sequence>
<xsd:element name="ambientTemperature" type="framework:temperatureType">
<xsd:annotation>
<xsd:documentation>States the ambient temperature of the compressor station,
corresponding to a nomination. Per default in Kelvin.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="cooledOutputTemperature" minOccurs="0"
type="framework:temperatureType">
<xsd:annotation>
<xsd:documentation>cooledOutputTemperature is the temperature of the gas at the
outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used
if the attribute gasCoolerExisting is 1. Unit is specified by type.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
<xsd:attribute name="id" type="xsd:string" use="required">
<xsd:annotation>
<xsd:documentation>The ID of the compressor station.</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="gasCoolerExisting" default="0" type="xsd:boolean">
<xsd:annotation>
<xsd:documentation>gasCoolerExisting is a boolean (0/1) flag to specify if a gas
cooler exists after the gas compression. This attribute is optional; if it is set to 1, then
the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</
xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="saveBypass" default="0" type="xsd:boolean">
<xsd:annotation>
<xsd:documentation>is valve separating uncontrolled areas in network</
xsd:documentation>
</xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
<xsd:attribute name="id" type="xsd:string" default="scenario">
<xsd:annotation>
<xsd:documentation>The ID of the scenario.</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="defaultPowerAndFlowZero" type="framework:boolean" default="0">
<xsd:annotation>
<xsd:documentation>If the value of this attribute is 1 (true) then the flow and power values
of all sources and sinks, which are present in the network but not specified in the scenario are
set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in the
scenario are set to the values given in the net file. This attribute is optional with default value
0 (false).</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>

```

Element gas:boundaryValue / gas:scenario / gas:meta

Namespace	http://gaslib.zib.de/Gas
Diagram	 <p>Built-in primitive type. The string datatype represents character strings in XML.</p>
Type	xsd:string
Properties	content: simple minOccurs: 0 maxOccurs: 1
Source	<xsd:element name="meta" minOccurs="0" maxOccurs="1" type="xsd:string"/>

Element gas:boundaryValue / gas:scenario / gas:scenarioProbability

Namespace	http://gaslib.zib.de/Gas
-----------	--------------------------

Annotations	States the probability for the occurrence of the scenario									
Diagram	<pre> classDiagram class gas:scenarioProbabilityType { @ value } note over gas:scenarioProbabilityType: The probability of the scenario given as value in [0,1] note over @ value: States the probability for the occurrence of the scenario </pre>									
Type	gas:scenarioProbabilityType									
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1			
content:	complex									
minOccurs:	0									
maxOccurs:	1									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>gas:probability</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>The probability of the scenario given as value in [0,1]</td> </tr> </tbody> </table>	QName	Type	Use	value	gas:probability	required			The probability of the scenario given as value in [0,1]
QName	Type	Use								
value	gas:probability	required								
		The probability of the scenario given as value in [0,1]								
Source	<pre> <xsd:element name="scenarioProbability" minOccurs="0" maxOccurs="1" type="gas:scenarioProbabilityType"> <xsd:annotation> <xsd:documentation>States the probability for the occurrence of the scenario</xsd:documentation> </xsd:annotation> </xsd:element> </pre>									

Element gas:boundaryValue / gas:scenario / gas:scenarioTemperature

Namespace	http://gaslib.zib.de/Gas																				
Annotations	Insert some suitable description here.																				
Diagram	<pre> classDiagram class framework:temperatureType { < -- framework:unitType @ unit @ value } note over framework:temperatureType: Insert some suitable description here. note over @ value: A temperature unit (default = Kelvin) </pre>																				
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • temperatureType 																				
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1														
content:	complex																				
minOccurs:	0																				
maxOccurs:	1																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Temperature value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
		A temperature unit (default = Kelvin).																			
value	xsd:double		required																		
		Temperature value.																			
Source	<pre> <xsd:element name="scenarioTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

<pre></xsd:element></pre>

Element gas:boundaryValue / gas:scenario / gas:temperatureMin

Namespace	http://gaslib.zib.de/Gas																							
Annotations	States the lower bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.																							
Diagram	<p>The diagram illustrates the UML class structure for the <code>temperatureMin</code> element. It shows <code>temperatureMin</code> extending from <code>framework:temperatureType</code>, which in turn extends from <code>framework:unitType</code>. The <code>framework:unitType</code> base class has an attribute <code>@unit</code> with a description 'A temperature unit (default = Kelvin)'. The <code>temperatureMin</code> class also has an attribute <code>@value</code> with a description 'Temperature value.'</p>																							
Type	temperatureType																							
Type hierarchy	<ul style="list-style-type: none"> unitType temperatureType 																							
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> <td></td> <td></td> </tr> <tr> <td>minOccurs:</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> <td></td> <td></td> </tr> </table>				content:	complex			minOccurs:	0			maxOccurs:	1										
content:	complex																							
minOccurs:	0																							
maxOccurs:	1																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Temperature value.</td> <td></td> </tr> </tbody> </table>				QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																					
unit	temperatureUnit	K	optional																					
		A temperature unit (default = Kelvin).																						
value	xsd:double		required																					
		Temperature value.																						
Source	<pre><xsd:element name="temperatureMin" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the lower bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																							

Element gas:boundaryValue / gas:scenario / gas:temperatureMax

Namespace	http://gaslib.zib.de/Gas			
Annotations	States the upper bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.			
Diagram	<p>The diagram illustrates the UML class structure for the <code>temperatureMax</code> element. It shows <code>temperatureMax</code> extending from <code>framework:temperatureType</code>, which in extends from <code>framework:unitType</code>. The <code>framework:unitType</code> base class has an attribute <code>@unit</code> with a description 'A temperature unit (default = Kelvin)'. The <code>temperatureMax</code> class also has an attribute <code>@value</code> with a description 'Temperature value.'</p>			
Type	temperatureType			
Type hierarchy	<ul style="list-style-type: none"> unitType temperatureType 			

Properties	content:	complex		
	minOccurs:	0		
	maxOccurs:	1		
Attributes	QName	Type	Default	Use
	unit	temperatureUnit	K	optional
		A temperature unit (default = Kelvin).		
Source	value	xsd:double		required
		Temperature value.		
	<pre><xsd:element name="temperatureMax" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the upper bound of the temperature interval containing the temperature measured at the time when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element></pre>			

Element gas:boundaryValue / gas:scenario / gas:contractDate

Namespace	http://gaslib.zib.de/Gas		
Annotations	States the date of a possibly underlying contract.		
Diagram	<pre> classDiagram class gas:contractDateType { @value } class Attributes { @value } class DateOfUnderlyingContract { Type for a contract date. } gas:contractDateType "1" --> Attributes Attributes "*" --> DateOfUnderlyingContract </pre>		
Type	gas:contractDateType		
Properties	content:	complex	
	minOccurs:	0	
	maxOccurs:	1	
Attributes	QName	Type	Use
	value	xsd:date	required
		Date of the underlying contract	
Source	<pre><xsd:element name="contractDate" minOccurs="0" maxOccurs="1" type="gas:contractDateType"> <xsd:annotation> <xsd:documentation>States the date of a possibly underlying contract.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element gas:boundaryValue / gas:scenario / gas:soilTemperature

Namespace	http://gaslib.zib.de/Gas		
Annotations	Insert some suitable description here.		
Diagram	<pre> classDiagram class framework:temperatureType { framework:unitType "extension base" @unit @value } class Attributes { @unit @value } class TemperatureType { Temperature type. } framework:temperatureType "*" --> Attributes Attributes "*" --> TemperatureType </pre>		
	content:	complex	
	minOccurs:	0	
	maxOccurs:	1	
Properties	content:	complex	
	minOccurs:	0	
	maxOccurs:	1	
Attributes	QName	Type	Use
	value	xsd:double	required
		Temperature value.	
Source	<pre><xsd:element name="soilTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Type	temperatureType																									
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • temperatureType 																									
Properties	<p>content: complex</p> <hr/> <p>minOccurs: 0</p> <hr/> <p>maxOccurs: 1</p>																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A temperature unit (default = Kelvin).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Temperature value.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).				value	xsd:double		required			Temperature value.			
QName	Type	Default	Use																							
unit	temperatureUnit	K	optional																							
	A temperature unit (default = Kelvin).																									
value	xsd:double		required																							
	Temperature value.																									
Source	<pre><xsd:element name="soilTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																									

Element `gas:boundaryValue` / `gas:scenario` / `gas:ambientTemperature`

Namespace	http://gaslib.zib.de/Gas																				
Annotations	Insert some suitable description here.																				
Diagram	<pre> classDiagram framework:temperatureType < -- framework:unitType framework:temperatureType "1..> ambientTemperature framework:temperatureType "1..> Attributes framework:temperatureType "1..> @unit framework:temperatureType "1..> @value class Note { string text } Note "1..> ambientTemperature Note "1..> Attributes Note "1..> @unit Note "1..> @value </pre> <p>Temperature type.</p>																				
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • temperatureType 																				
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1														
content:	complex																				
minOccurs:	0																				
maxOccurs:	1																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td>Temperature value.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional		A temperature unit (default = Kelvin).			value	xsd:double		required		Temperature value.		
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
	A temperature unit (default = Kelvin).																				
value	xsd:double		required																		
	Temperature value.																				
Source	<pre> <xsd:element name="ambientTemperature" minOccurs="0" maxOccurs="1" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>Insert some suitable description here.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element qas:boundaryValue / qas:scenario / qas:dataDate

Namespace	http://gaslib.zib.de/Gas
Annotations	States the date when the scenario data was collected.

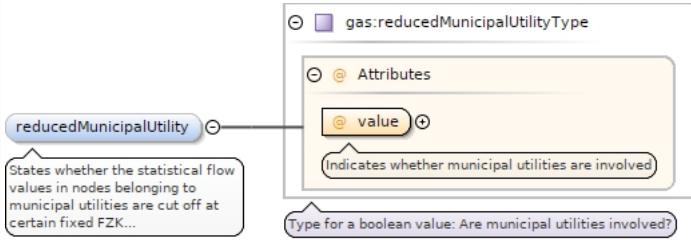
Diagram										
Type	gas:dataDateType									
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 1</p>									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:date</td> <td>required</td> </tr> <tr> <td></td> <td>Date of scenario data</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:date	required		Date of scenario data	
QName	Type	Use								
value	xsd:date	required								
	Date of scenario data									
Source	<pre><xsd:element name="dataDate" minOccurs="0" maxOccurs="1" type="gas:dataDateType"> <xsd:annotation> <xsd:documentation>States the date when the scenario data was collected.</xsd:documentation> </xsd:annotation> </xsd:element></pre>									

Element gas:boundaryValue / gas:scenario / gas:usesInterruptibleCap

Namespace	http://gaslib.zib.de/Gas									
Annotations	States if interruptible capacities are used or not.									
Diagram										
Type	gas:usesInterruptibleCapType									
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 1</p>									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:boolean</td> <td>required</td> </tr> <tr> <td></td> <td>Indicates whether interruptible capacities are used</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:boolean	required		Indicates whether interruptible capacities are used	
QName	Type	Use								
value	xsd:boolean	required								
	Indicates whether interruptible capacities are used									
Source	<pre><xsd:element name="usesInterruptibleCap" minOccurs="0" maxOccurs="1" type="gas:usesInterruptibleCapType"> <xsd:annotation> <xsd:documentation>States if interruptible capacities are used or not.</xsd:documentation> </xsd:annotation> </xsd:element></pre>									

Element gas:boundaryValue / gas:scenario / gas:reducedMunicipalUtility

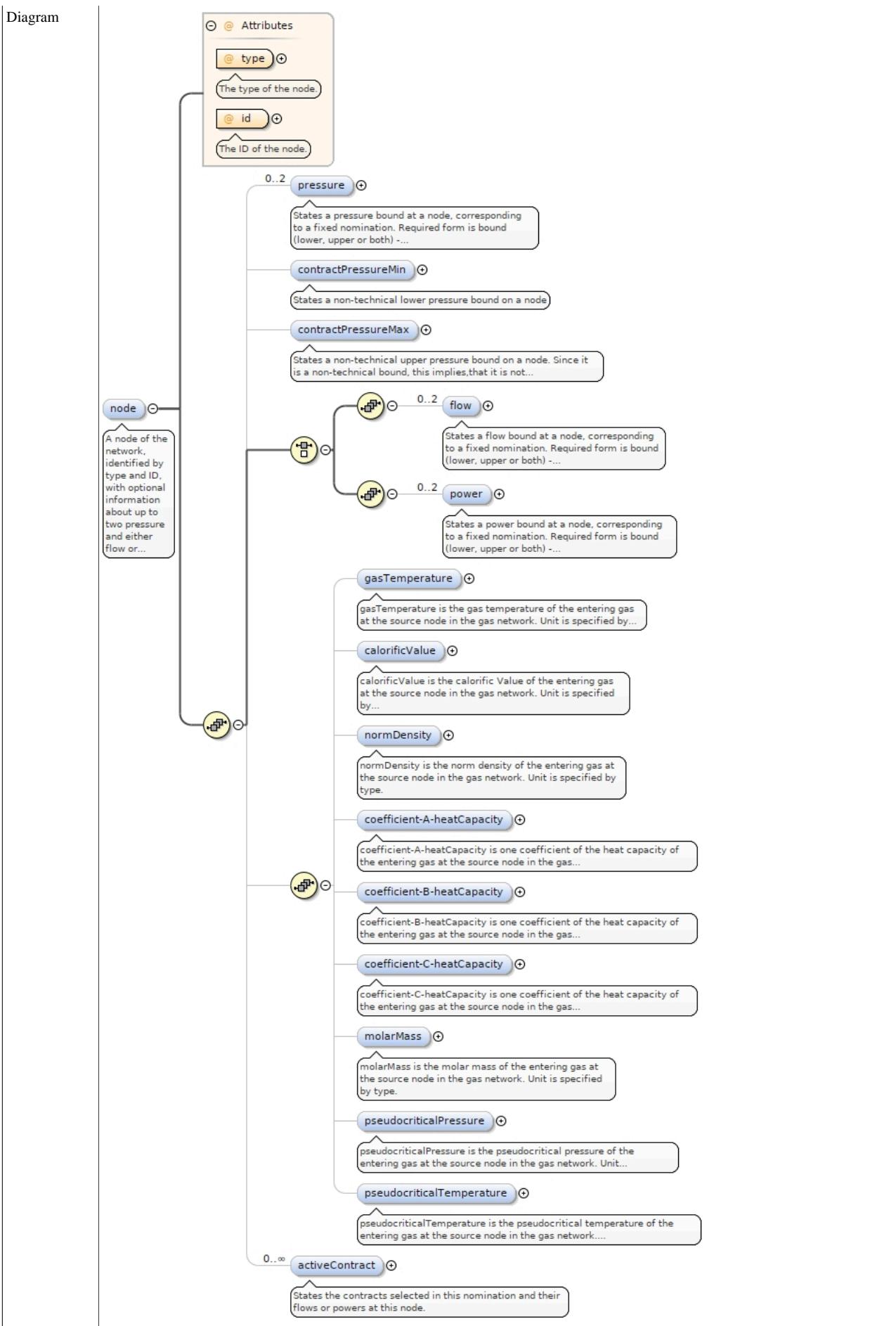
Namespace	http://gaslib.zib.de/Gas
Annotations	States whether the statistical flow values in nodes belonging to municipal utilities are cut off at certain fixed FZK contract bounds ('true'), or not ('false').

Diagram													
Type	gas:reducedMunicipalUtilityType												
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>0</td></tr> <tr> <td>maxOccurs:</td><td>1</td></tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1						
content:	complex												
minOccurs:	0												
maxOccurs:	1												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:boolean</td><td>required</td><td></td></tr> <tr> <td></td><td></td><td>Indicates whether municipal utilities are involved</td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:boolean	required				Indicates whether municipal utilities are involved	
QName	Type	Use											
value	xsd:boolean	required											
		Indicates whether municipal utilities are involved											
Source	<pre><xsd:element name="reducedMunicipalUtility" minOccurs="0" maxOccurs="1" type="gas:reducedMunicipalUtilityType"> <xsd:annotation> <xsd:documentation>States whether the statistical flow values in nodes belonging to municipal utilities are cut off at certain fixed FZK contract bounds ('true'), or not ('false').</ xsd:documentation> </xsd:annotation> </xsd:element></pre>												

Element **gas:boundaryValue / gas:scenario / gas:node**

Namespace	http://gaslib.zib.de/Gas
Annotations	A node of the network, identified by type and ID, with optional information about up to two pressure and either flow or power bounds, type of the contract, type of the point, applied contract.

Diagram



Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>																				
Model	gas:pressure{0,2} , gas:contractPressureMin{0,1} , gas:contractPressureMax{0,1} , ((gas:flow{0,2}) (gas:power{0,2})) , gas:gasTemperature{0,1} , gas:calorificValue{0,1} , gas:normDensity{0,1} , gas:coefficient-A-heatCapacity{0,1} , gas:coefficient-B-heatCapacity{0,1} , gas:coefficient-C-heatCapacity{0,1} , gas:molarMass{0,1} , gas:pseudocriticalPressure{0,1} , gas:pseudocriticalTemperature{0,1} , gas:activeContract*																				
Children	gas:activeContract, gas:calorificValue, gas:coefficient-A-heatCapacity, gas:coefficient-B-heatCapacity, gas:coefficient-C-heatCapacity, gas:contractPressureMax, gas:contractPressureMin, gas:flow, gas:gasTemperature, gas:molarMass, gas:normDensity, gas:power, gas:pressure, gas:pseudocriticalPressure, gas:pseudocriticalTemperature																				
Instance	<pre><gas:node id="" type="" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:pressure bound="" unit="barg" value="">{0,2}</gas:pressure> <gas:contractPressureMin unit="barg" value="">{0,1}</gas:contractPressureMin> <gas:contractPressureMax unit="barg" value="">{0,1}</gas:contractPressureMax> <gas:flow bound="" unit="m_cube_per_s" value="">{0,2}</gas:flow> <gas:power bound="" unit="kW" value="">{0,2}</gas:power> <gas:gasTemperature unit="K" value="">{0,1}</gas:gasTemperature> <gas:calorificValue unit="MJ_per_m_cube" value="">{0,1}</gas:calorificValue> <gas:normDensity unit="kg_per_m_cube" value="">{0,1}</gas:normDensity> <gas:coefficient-A-heatCapacity value="">{0,1}</gas:coefficient-A-heatCapacity> <gas:coefficient-B-heatCapacity value="">{0,1}</gas:coefficient-B-heatCapacity> <gas:coefficient-C-heatCapacity value="">{0,1}</gas:coefficient-C-heatCapacity> <gas:molarMass unit="kg_per_kmol" value="">{0,1}</gas:molarMass> <gas:pseudocriticalPressure unit="barg" value="">{0,1}</gas:pseudocriticalPressure> <gas:pseudocriticalTemperature unit="K" value="">{0,1}</gas:pseudocriticalTemperature> <gas:activeContract id="" type="">{0,unbounded}</gas:activeContract> </gas:node></pre>																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>The ID of the node.</td> <td></td> <td></td> </tr> <tr> <td>type</td> <td>gas:nodetype</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>The type of the node.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Use		id	xsd:string	required			The ID of the node.			type	gas:nodetype	required			The type of the node.		
QName	Type	Use																			
id	xsd:string	required																			
	The ID of the node.																				
type	gas:nodetype	required																			
	The type of the node.																				
Source	<pre><xsd:element name="node" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A node of the network, identified by type and ID, with optional information about up to two pressure and either flow or power bounds, type of the contract, type of the point, applied contract.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="pressure" type="gas:pressure_type" minOccurs="0" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg. This pressure is used for the propagation of pressure bounds(TÄ#V-Rule).</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="contractPressureMin" type="framework:pressureType" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>States a non-technical lower pressure bound on a node</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="contractPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>States a non-technical upper pressure bound on a node. Since it is a non-technical bound, this implies,that it is not considered in methods for enforcing the TÄ#V-Rule on flow-connected components.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:choice> <xsd:sequence> <xsd:element name="flow" type="gas:flow_type" minOccurs="0" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a flow bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:sequence> <xsd:element name="power" type="gas:power_type" minOccurs="0" maxOccurs="2"></pre>																				

```

        <xsd:annotation>
            <xsd:documentation>States a power bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        </xsd:sequence>
    </xsd:choice>
    <xsd:sequence minOccurs="0">
        <xsd:element minOccurs="0" name="gasTemperature" type="framework:temperatureType">
            <xsd:annotation>
                <xsd:documentation>gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="calorificValue" type="framework:calorificValueType">
            <xsd:annotation>
                <xsd:documentation>calorificValue is the calorific value of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="normDensity" type="framework:densityType">
            <xsd:annotation>
                <xsd:documentation>normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="coefficient-A-heatCapacity" type="framework:noType">
            <xsd:annotation>
                <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="coefficient-B-heatCapacity" type="framework:noType">
            <xsd:annotation>
                <xsd:documentation>coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="coefficient-C-heatCapacity" type="framework:noType">
            <xsd:annotation>
                <xsd:documentation>coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="molarMass" type="framework:molarMassType">
            <xsd:annotation>
                <xsd:documentation>molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="pseudocriticalPressure" type="framework:pressureType">
            <xsd:annotation>
                <xsd:documentation>pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        <xsd:element minOccurs="0" name="pseudocriticalTemperature" type="framework:temperatureType">
            <xsd:annotation>
                <xsd:documentation>pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:element name="activeContract" type="gas:activeContractType" minOccurs="0" maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>States the contracts selected in this nomination and their flows or powers at this node.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="type" type="gas:nodetype" use="required">
            <xsd:annotation>
                <xsd:documentation>The type of the node.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The ID of the node.</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:choice>
</xsd:sequence>

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</xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>

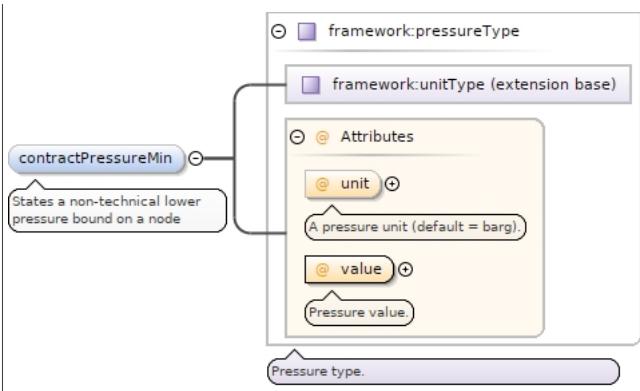
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Element gas:boundaryValue / gas:scenario / gas:node / gas:pressure

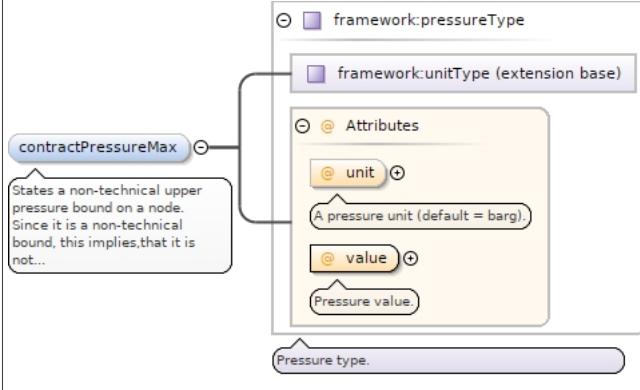
Namespace	http://gaslib.zib.de/Gas																												
Annotations	<p>States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg. This pressure is used for the propagation of pressure bounds(TÄ#V-Rule).</p>																												
Diagram																													
Type	gas:pressure_type																												
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>2</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	2																						
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Attributes	<table> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>bound</td> <td>gas:resbound</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Indicates what type of bound is given (lower, upper or both)</td> <td></td> </tr> <tr> <td>unit</td> <td>pressureUnit</td> <td>barg</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>Unit of the given pressure value</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Pressure value of the bound</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required			Indicates what type of bound is given (lower, upper or both)		unit	pressureUnit	barg	optional			Unit of the given pressure value		value	xsd:double		required			Pressure value of the bound	
QName	Type	Default	Use																										
bound	gas:resbound		required																										
		Indicates what type of bound is given (lower, upper or both)																											
unit	pressureUnit	barg	optional																										
		Unit of the given pressure value																											
value	xsd:double		required																										
		Pressure value of the bound																											
Source	<pre> <xsd:element name="pressure" type="gas:pressure_type" minOccurs="0" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg. This pressure is used for the propagation of pressure bounds(TÄ#V-Rule).</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																												

Element gas:boundaryValue / gas:scenario / gas:node / gas:contractPressureMin

Namespace	http://gaslib.zib.de/Gas
Annotations	States a non-technical lower pressure bound on a node

Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	<table> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>0</td></tr> <tr> <td>maxOccurs:</td><td>1</td></tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1														
content:	complex																				
minOccurs:	0																				
maxOccurs:	1																				
Attributes	<table> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre><xsd:element name="contractPressureMin" type="framework:pressureType" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>States a non-technical lower pressure bound on a node</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element gas:boundaryValue / gas:scenario / gas:node / gas:contractPressureMax

Namespace	http://gaslib.zib.de/Gas						
Annotations	States a non-technical upper pressure bound on a node. Since it is a non-technical bound, this implies,that it is not considered in methods for enforcing the TÄ#V-Rule on flow-connected components.						
Diagram							
Type	pressureType						
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 						
Properties	<table> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>0</td></tr> <tr> <td>maxOccurs:</td><td>1</td></tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1
content:	complex						
minOccurs:	0						
maxOccurs:	1						

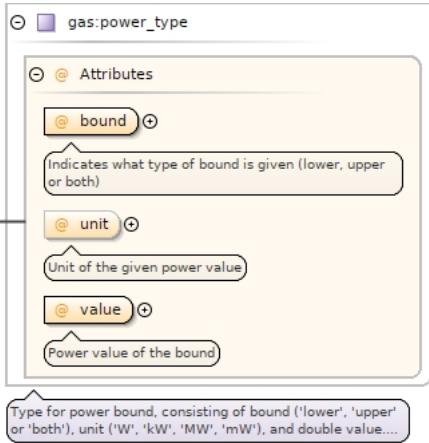
Attributes	QName	Type	Default	Use	
	unit	pressureUnit	barg	optional	
		A pressure unit (default = barg).			
	value	xsd:double		required	
		Pressure value.			
Source	<pre><xsd:element name="contractPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>States a non-technical upper pressure bound on a node. Since it is a non-technical bound, this implies, that it is not considered in methods for enforcing the T&#V-Rule on flow-connected components.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element gas:boundaryValue / gas:scenario / gas:node / gas:flow

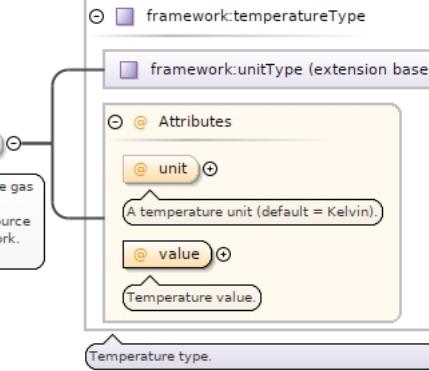
Namespace	http://gaslib.zib.de/Gas																																							
Annotations	States a flow bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value.																																							
Diagram	<p>The diagram illustrates the UML class 'gas:flow_type'. It features a class box labeled 'gas:flow_type' with three compartments. The first compartment contains an association named 'flow' pointing to the class. The second compartment contains an attribute 'bound' with the note 'Indicates what type of bound is given (lower, upper or both)'. The third compartment contains attributes 'unit' and 'value' with their respective notes 'Unit of the given flow value' and 'Flow value of the bound'.</p>																																							
Type	gas:flow_type																																							
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>2</td> </tr> </table>					content:	complex	minOccurs:	0	maxOccurs:	2																													
content:	complex																																							
minOccurs:	0																																							
maxOccurs:	2																																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>bound</td> <td>gas:resbound</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Indicates what type of bound is given (lower, upper or both)</td></tr> <tr> <td>unit</td> <td>flowUnit</td> <td>m_cube_per_s</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Unit of the given flow value</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Flow value of the bound</td></tr> </tbody> </table>					QName	Type	Default	Use		bound	gas:resbound		required			Indicates what type of bound is given (lower, upper or both)				unit	flowUnit	m_cube_per_s	optional			Unit of the given flow value				value	xsd:double		required			Flow value of the bound			
QName	Type	Default	Use																																					
bound	gas:resbound		required																																					
	Indicates what type of bound is given (lower, upper or both)																																							
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	Unit of the given flow value																																							
value	xsd:double		required																																					
	Flow value of the bound																																							
Source	<pre><xsd:element name="flow" type="gas:flow_type" minOccurs="0" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a flow bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																							

Element gas:boundaryValue / gas:scenario / gas:node / gas:power

Namespace	http://gaslib.zib.de/Gas				
Annotations	States a power bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value.				

Diagram																													
Type	gas:power_type																												
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 2</p>																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>bound</td> <td>gas:resbound</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Indicates what type of bound is given (lower, upper or both)</td> <td></td> </tr> <tr> <td>unit</td> <td>powerUnit</td> <td>kW</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>Unit of the given power value</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Power value of the bound</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required			Indicates what type of bound is given (lower, upper or both)		unit	powerUnit	kW	optional			Unit of the given power value		value	xsd:double		required			Power value of the bound	
QName	Type	Default	Use																										
bound	gas:resbound		required																										
		Indicates what type of bound is given (lower, upper or both)																											
unit	powerUnit	kW	optional																										
		Unit of the given power value																											
value	xsd:double		required																										
		Power value of the bound																											
Source	<pre><xsd:element name="power" type="gas:power_type" minOccurs="0" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a power bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																												

Element gas:boundaryValue / gas:scenario / gas:node / gas:gasTemperature

Namespace	http://gaslib.zib.de/Gas
Annotations	gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.
Diagram	
Type	temperatureType
Type hierarchy	<ul style="list-style-type: none"> • unitType • temperatureType
Properties	<p>content: complex</p> <p>minOccurs: 0</p>

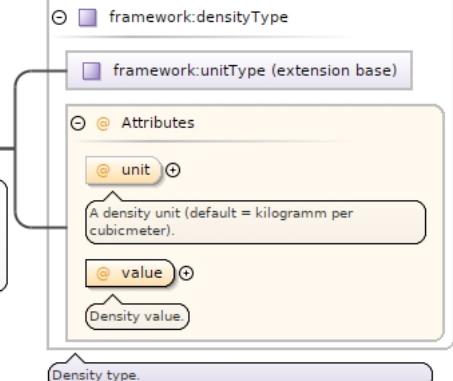
Attributes	QName	Type	Default	Use	
	unit	temperatureUnit	K	optional	
		A temperature unit (default = Kelvin).			
	value	xsd:double		required	
		Temperature value.			
Source	<pre><xsd:element minOccurs="0" name="gasTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element gas:boundaryValue / gas:scenario / gas:node / gas:calorificValue

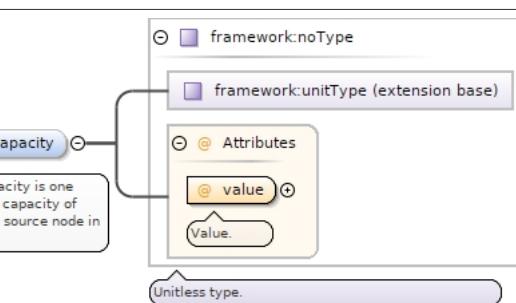
Namespace	http://gaslib.zib.de/Gas																									
Annotations	calorificValue is the calorific Value of the entering gas at the source node in the gas network. Unit is specified by type.																									
Diagram	<pre> classDiagram framework:calorificValueType < -- framework:unitType framework:calorificValueType { <<Attributes>> @unit : xsd:string @value : xsd:double } <<Operations>> calorificValueType defines the calorific value of the gas. </pre>																									
Type	calorificValueType																									
Type hierarchy	<ul style="list-style-type: none"> • unitType • calorificValueType 																									
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																					
content:	complex																									
minOccurs:	0																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>MJ_per_m_cubeUnit</td> <td>MJ_per_m_cube</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.</td></tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="4">value is the value of the calorific value of the gas. Unit is specified by type.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	MJ_per_m_cubeUnit	MJ_per_m_cube	optional			unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.				value	double		required			value is the value of the calorific value of the gas. Unit is specified by type.			
QName	Type	Default	Use																							
unit	MJ_per_m_cubeUnit	MJ_per_m_cube	optional																							
	unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.																									
value	double		required																							
	value is the value of the calorific value of the gas. Unit is specified by type.																									
Source	<pre><xsd:element minOccurs="0" name="calorificValue" type="framework:calorificValueType"> <xsd:annotation> <xsd:documentation>calorificValue is the calorific Value of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																									

Element gas:boundaryValue / gas:scenario / gas:node / gas:normDensity

Namespace	http://gaslib.zib.de/Gas
Annotations	normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.

Diagram																					
Type	densityType																				
Type hierarchy	<ul style="list-style-type: none"> unitType densityType 																				
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																
content:	complex																				
minOccurs:	0																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>densityUnit</td> <td>kg_per_m_cube</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A density unit (default = kilogramm per cubicmeter).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Density value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	densityUnit	kg_per_m_cube	optional			A density unit (default = kilogramm per cubicmeter).		value	xsd:double		required			Density value.	
QName	Type	Default	Use																		
unit	densityUnit	kg_per_m_cube	optional																		
		A density unit (default = kilogramm per cubicmeter).																			
value	xsd:double		required																		
		Density value.																			
Source	<pre><xsd:element minOccurs="0" name="normDensity" type="framework:densityType"> <xsd:annotation> <xsd:documentation>normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element `gas:boundaryValue / gas:scenario / gas:node / gas:coefficient-A-heatCapacity`

Namespace	http://gaslib.zib.de/Gas									
Annotations	coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.									
Diagram										
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> unitType noType 									
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0					
content:	complex									
minOccurs:	0									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Value.</td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required			Value.
QName	Type	Use								
value	xsd:double	required								
		Value.								
Source	<pre><xsd:element minOccurs="0" name="coefficient-A-heatCapacity" type="framework:noType"></pre>									

```

<xsd:annotation>
  <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat capacity of the
  entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
</xsd:annotation>
</xsd:element>

```

Element `gas:boundaryValue / gas:scenario / gas:node / gas:coefficient-B-heatCapacity`

Namespace	http://gaslib.zib.de/Gas											
Annotations	coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.											
Diagram	<p>The diagram illustrates the UML class structure for the element. It shows a class named "coefficient-B-heatCapacity" which is an extension of "framework:unitType (extension base)". This class contains two attributes: "value" (of type xsd:double) and "Value." (of type string). A note below the class states: "coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.".</p>											
Type	noType											
Type hierarchy	<ul style="list-style-type: none"> unitType noType 											
Properties	content: complex minOccurs: 0											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use										
value	xsd:double	required										
	Value.											
Source	<pre> <xsd:element minOccurs="0" name="coefficient-B-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>											

Element `gas:boundaryValue / gas:scenario / gas:node / gas:coefficient-C-heatCapacity`

Namespace	http://gaslib.zib.de/Gas		
Annotations	coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.		
Diagram	<p>The diagram illustrates the UML class structure for the element. It shows a class named "coefficient-C-heatCapacity" which is an extension of "framework:unitType (extension base)". This class contains two attributes: "value" (of type xsd:double) and "Value." (of type string). A note below the class states: "coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.".</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> unitType noType 		
Properties	content: complex		

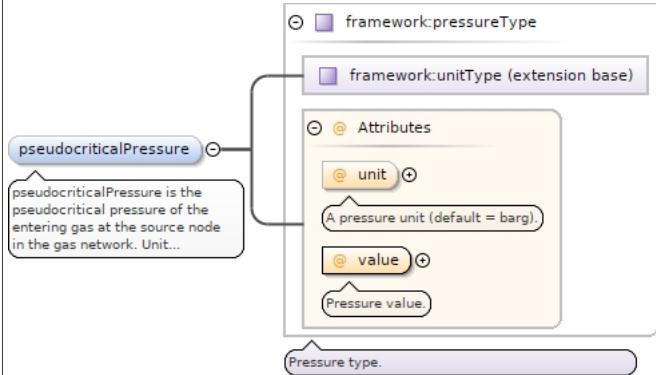
	minOccurs:	0		
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<pre><xsd:element minOccurs="0" name="coefficient-C-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>			

Element `gas:boundaryValue / gas:scenario / gas:node / gas:molarMass`

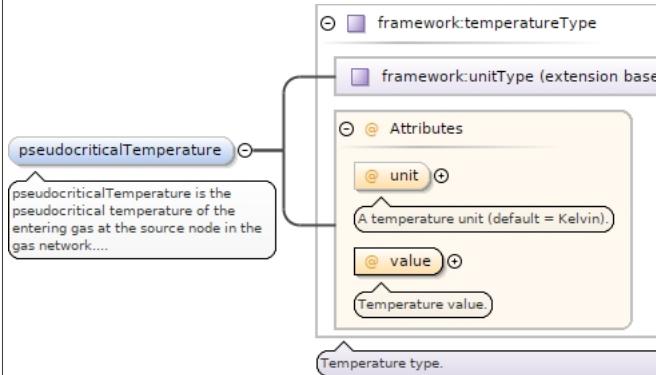
Namespace	http://gaslib.zib.de/Gas																				
Annotations	molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.																				
Diagram	<pre> classDiagram framework:molarMassType < -- unitType framework:molarMassType { @ Attributes @ unit @ value } molarMass <--> framework:molarMassType molarMass : "molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type." note over framework:molarMassType : "molarMassType defines the molar mass of the gas." </pre>																				
Type	molarMassType																				
Type hierarchy	<ul style="list-style-type: none"> unitType molarMassType 																				
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																
content:	complex																				
minOccurs:	0																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>kg_per_kmolUnit</td> <td>kg_per_kmol</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.</td></tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">value is the value of the molar mass of the gas. Unit is specified by type.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	kg_per_kmolUnit	kg_per_kmol	optional		unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.			value	double		required		value is the value of the molar mass of the gas. Unit is specified by type.		
QName	Type	Default	Use																		
unit	kg_per_kmolUnit	kg_per_kmol	optional																		
	unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.																				
value	double		required																		
	value is the value of the molar mass of the gas. Unit is specified by type.																				
Source	<pre><xsd:element minOccurs="0" name="molarMass" type="framework:molarMassType"> <xsd:annotation> <xsd:documentation>molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element `gas:boundaryValue / gas:scenario / gas:node / gas:pseudocriticalPressure`

Namespace	http://gaslib.zib.de/Gas
Annotations	pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.

Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • pressureType 																				
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																
content:	complex																				
minOccurs:	0																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureUnit</td> <td>barg</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A pressure unit (default = barg).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Pressure value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre><xsd:element minOccurs="0" name="pseudocriticalPressure" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element `gas:boundaryValue` / `gas:scenario` / `gas:node` / `gas:pseudocriticalTemperature`

Namespace	http://gaslib.zib.de/Gas								
Annotations	pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.								
Diagram									
Type	temperatureType								
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • temperatureType 								
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0				
content:	complex								
minOccurs:	0								
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional
QName	Type	Default	Use						
unit	temperatureUnit	K	optional						

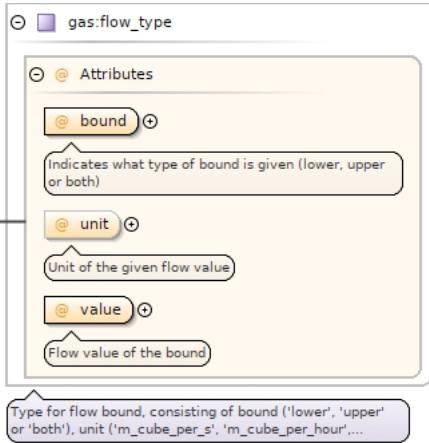
	QName	Type	Default	Use	
			A temperature unit (default = Kelvin).		
	value	xsd:double		required	
			Temperature value.		
Source	<pre><xsd:element minOccurs="0" name="pseudocriticalTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element **gas:boundaryValue / gas:scenario / gas:node / gas:activeContract**

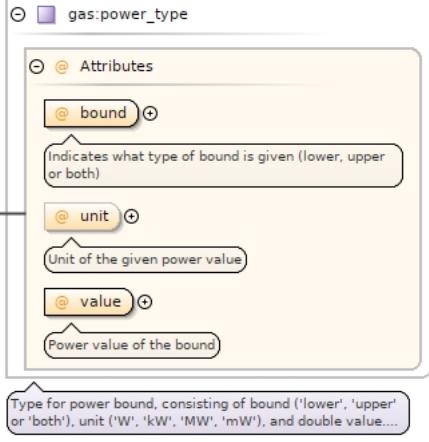
Namespace	http://gaslib.zib.de/Gas															
Annotations	States the contracts selected in this nomination and their flows or powers at this node.															
Diagram	<pre> classDiagram class gas:activeContractType { @id @type flow power } activeContract < -- gas:activeContractType activeContract "1..0" --> "1..1" flow activeContract "1..0" --> "1..1" power </pre> <p>States the contracts selected in this nomination and their flows or powers at this node.</p> <p>Type for active contracts, mandatory identified by ID and type, with either a flow or a power value.</p>															
Type	gas:activeContractType															
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	unbounded									
content:	complex															
minOccurs:	0															
maxOccurs:	unbounded															
Model	(gas:flow{0,1}) (gas:power{0,1})															
Children	gas:flow, gas:power															
Instance	<pre> <gas:activeContract id="" type="" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:flow bound="" unit="m_cube_per_s" value="">{0,1}</gas:flow> <gas:power bound="" unit="kW" value="">{0,1}</gas:power> </gas:activeContract> </pre>															
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>id</td> <td>ambiguousIdentifier</td> <td>required</td> </tr> <tr> <td></td> <td>Identifier of the contract</td> <td></td> </tr> <tr> <td>type</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td>Type of contract</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	id	ambiguousIdentifier	required		Identifier of the contract		type	xsd:string	required		Type of contract	
QName	Type	Use														
id	ambiguousIdentifier	required														
	Identifier of the contract															
type	xsd:string	required														
	Type of contract															
Source	<pre><xsd:element name="activeContract" type="gas:activeContractType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>States the contracts selected in this nomination and their flows or powers at this node.</xsd:documentation> </xsd:annotation> </xsd:element></pre>															

Element **gas:activeContractType / gas:flow**

Namespace	http://gaslib.zib.de/Gas
-----------	--------------------------

Diagram																													
Type	gas:flow_type																												
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 1</p>																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>bound</td><td>gas:resbound</td><td></td><td>required</td></tr> <tr> <td></td><td>Indicates what type of bound is given (lower, upper or both)</td><td></td><td></td></tr> <tr> <td>unit</td><td>flowUnit</td><td>m_cube_per_s</td><td>optional</td></tr> <tr> <td></td><td>Unit of the given flow value</td><td></td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td>Flow value of the bound</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required		Indicates what type of bound is given (lower, upper or both)			unit	flowUnit	m_cube_per_s	optional		Unit of the given flow value			value	xsd:double		required		Flow value of the bound		
QName	Type	Default	Use																										
bound	gas:resbound		required																										
	Indicates what type of bound is given (lower, upper or both)																												
unit	flowUnit	m_cube_per_s	optional																										
	Unit of the given flow value																												
value	xsd:double		required																										
	Flow value of the bound																												
Source	<xsd:element name="flow" type="gas:flow_type" minOccurs="0" maxOccurs="1"/>																												

Element gas:activeContractType / gas:power

Namespace	http://gaslib.zib.de/Gas																				
Diagram																					
Type	gas:power_type																				
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 1</p>																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>bound</td><td>gas:resbound</td><td></td><td>required</td></tr> <tr> <td></td><td>Indicates what type of bound is given (lower, upper or both)</td><td></td><td></td></tr> <tr> <td>unit</td><td>powerUnit</td><td>kW</td><td>optional</td></tr> <tr> <td></td><td>Unit of the given power value</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required		Indicates what type of bound is given (lower, upper or both)			unit	powerUnit	kW	optional		Unit of the given power value		
QName	Type	Default	Use																		
bound	gas:resbound		required																		
	Indicates what type of bound is given (lower, upper or both)																				
unit	powerUnit	kW	optional																		
	Unit of the given power value																				

	QName	Type	Default	Use	
	value	xsd:double		required	
	Power value of the bound				
Source	<xsd:element name="power" type="gas:power_type" minOccurs="0" maxOccurs="1"/>				

Element gas:boundaryValue / gas:scenario / gas:innode

Namespace	http://gaslib.zib.de/Gas				
Annotations	This is an evil hack to overwrite the technical pressure bounds from the network, identified by ID.				
Diagram	<pre> classDiagram class innode { @ Attributes @ id The ID of the node } class pressure { States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) -... } innode "1..2" -- "1" pressure </pre> <p>This is an evil hack to overwrite the technical pressure bounds from the network, identified by ID.</p>				
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>				
Model	gas:pressure{1,2}				
Children	gas:pressure				
Instance	<pre> <gas:innode id="" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:pressure bound="" unit="barg" value="">{1,2}</gas:pressure> </gas:innode> </pre>				
Attributes	QName	Type	Use		
	id	xsd:string	required		
	The ID of the node.				
Source	<pre> <xsd:element name="innode" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>This is an evil hack to overwrite the technical pressure bounds from the network, identified by ID.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="pressure" type="gas:pressure_type" minOccurs="1" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the node.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </pre>				

Element gas:boundaryValue / gas:scenario / gas:innode / gas:pressure

Namespace	http://gaslib.zib.de/Gas				
Annotations	States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg.				

Diagram	<p>The diagram shows the structure of the <code>gas:pressure_type</code> element. It has three attributes: <code>bound</code>, <code>unit</code>, and <code>value</code>. <code>bound</code> is described as indicating what type of bound is given (lower, upper or both). <code>unit</code> is the unit of the given pressure value (bar, barg, Pa). <code>value</code> is the pressure value of the bound.</p>																												
Type	<code>gas:pressure_type</code>																												
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>1</td></tr> <tr> <td>maxOccurs:</td><td>2</td></tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	2																						
content:	complex																												
minOccurs:	1																												
maxOccurs:	2																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>bound</td><td>gas:resbound</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Indicates what type of bound is given (lower, upper or both)</td><td></td></tr> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>Unit of the given pressure value</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value of the bound</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required			Indicates what type of bound is given (lower, upper or both)		unit	pressureUnit	barg	optional			Unit of the given pressure value		value	xsd:double		required			Pressure value of the bound	
QName	Type	Default	Use																										
bound	gas:resbound		required																										
		Indicates what type of bound is given (lower, upper or both)																											
unit	pressureUnit	barg	optional																										
		Unit of the given pressure value																											
value	xsd:double		required																										
		Pressure value of the bound																											
Source	<pre><xsd:element name="pressure" type="gas:pressure_type" minOccurs="1" maxOccurs="2"> <xsd:annotation> <xsd:documentation>States a pressure bound at a node, corresponding to a fixed nomination. Required form is bound (lower, upper or both) - unit - value. Any pressure value must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																												

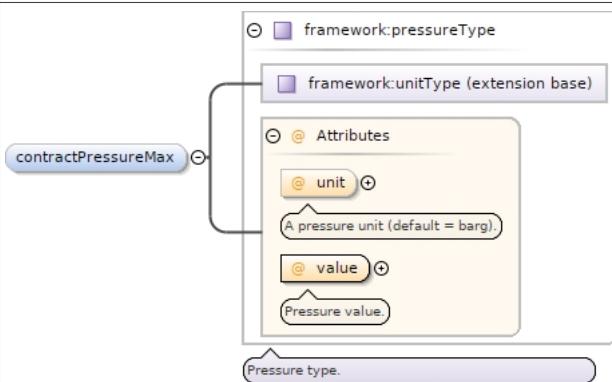
Element `gas:boundaryValue` / `gas:scenario` / `gas:pipe`

Namespace	http://gaslib.zib.de/Gas						
Annotations	A pipe of the network, identified by ID, with the soil temperature.						
Diagram	<p>The diagram shows the structure of the <code>gas:pipe</code> element. It has one attribute <code>id</code> (The ID of the pipe). It also has three child elements: <code>contractPressureMax</code>, <code>physicalPressureMax</code>, and <code>soilTemperature</code>. <code>soilTemperature</code> is described as stating the soil temperature of the pipe, corresponding to a nomination. Per default in Kelvin.</p>						
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>0</td></tr> <tr> <td>maxOccurs:</td><td>unbounded</td></tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	unbounded
content:	complex						
minOccurs:	0						
maxOccurs:	unbounded						
Model	<code>gas:contractPressureMax{0,1}</code> , <code>gas:physicalPressureMax{0,1}</code> , <code>gas:soilTemperature{0,1}</code>						
Children	<code>gas:contractPressureMax</code> , <code>gas:physicalPressureMax</code> , <code>gas:soilTemperature</code>						
Instance	<pre><gas:pipe id="" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:contractPressureMax unit="barg" value="">{0,1}</gas:contractPressureMax> <gas:physicalPressureMax unit="barg" value="">{0,1}</gas:physicalPressureMax></pre>						

	<gas:soilTemperature unit="K" value="">{0,1}</gas:soilTemperature> </gas:pipe>			
Attributes	QName	Type	Use	
	id	xsd:string	required	The ID of the pipe.

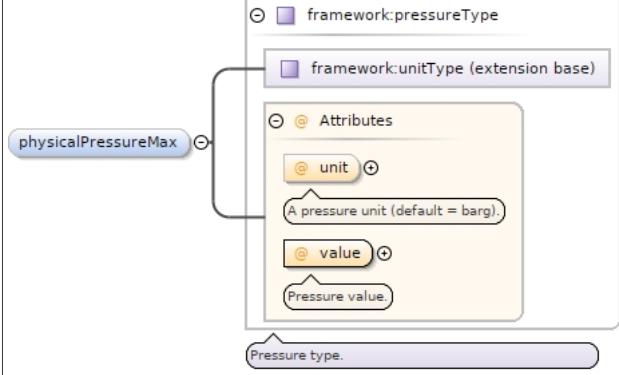
Source	<xsd:element name="pipe" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A pipe of the network, identified by ID, with the soil temperature.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="contractPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"/> <xsd:element name="physicalPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"/> <xsd:element name="soilTemperature" type="framework:temperatureType" minOccurs="0" maxOccurs="1"/> <xsd:annotation> <xsd:documentation>States the soil temperature of the pipe, corresponding to a nomination. Per default in Kelvin.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the pipe.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element>
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Element gas:boundaryValue / gas:scenario / gas:pipe / gas:contractPressureMax

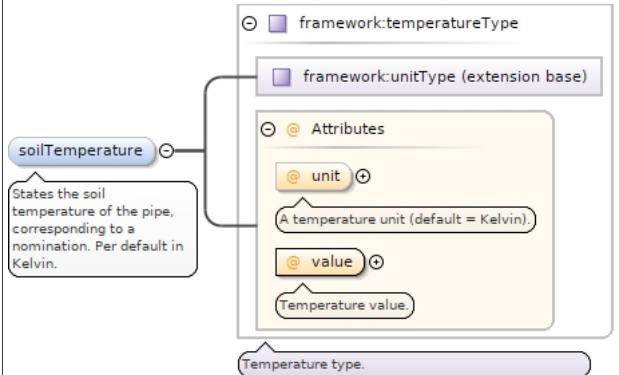
Namespace	http://gaslib.zib.de/Gas																				
Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> unitType pressureType 																				
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 1</p>																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureUnit</td> <td>barg</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A pressure unit (default = barg).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Pressure value.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional		A pressure unit (default = barg).			value	xsd:double		required		Pressure value.		
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
	A pressure unit (default = barg).																				
value	xsd:double		required																		
	Pressure value.																				
Source	<xsd:element name="contractPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1"/>																				

Element gas:boundaryValue / gas:scenario / gas:pipe / gas:physicalPressureMax

Namespace	http://gaslib.zib.de/Gas
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Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1														
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Attributes	<table> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureUnit</td> <td>barg</td> <td>optional</td> </tr> <tr> <td></td> <td>A pressure unit (default = barg).</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td>Pressure value.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional		A pressure unit (default = barg).			value	xsd:double		required		Pressure value.		
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
	A pressure unit (default = barg).																				
value	xsd:double		required																		
	Pressure value.																				
Source	<code><xsd:element name="physicalPressureMax" type="framework:pressureType" minOccurs="0" maxOccurs="1" /></code>																				

Element gas:boundaryValue / gas:scenario / gas:pipe / gas:soilTemperature

Namespace	http://gaslib.zib.de/Gas																			
Annotations	States the soil temperature of the pipe, corresponding to a nomination. Per default in Kelvin.																			
Diagram																				
Type	temperatureType																			
Type hierarchy	<ul style="list-style-type: none"> • unitType • temperatureType 																			
Properties	<table> <tr> <td>content:</td> <td>complex</td> <td></td> <td></td> </tr> <tr> <td>minOccurs:</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> <td></td> <td></td> </tr> </table>				content:	complex			minOccurs:	0			maxOccurs:	1						
content:	complex																			
minOccurs:	0																			
maxOccurs:	1																			
Attributes	<table> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> </tbody> </table>				QName	Type	Default	Use	unit	temperatureUnit	K	optional		A temperature unit (default = Kelvin).			value	xsd:double		required
QName	Type	Default	Use																	
unit	temperatureUnit	K	optional																	
	A temperature unit (default = Kelvin).																			
value	xsd:double		required																	

	QName	Type	Default	Use	
		Temperature value.			
Source		<pre><xsd:element name="soilTemperature" type="framework:temperatureType" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>States the soil temperature of the pipe, corresponding to a nomination. Per default in Kelvin.</xsd:documentation> </xsd:annotation> </xsd:element></pre>			

Element gas:boundaryValue / gas:scenario / gas:controlValve

Namespace	http://gaslib.zib.de/Gas				
Diagram	<p>The diagram illustrates the structure of the <code>controlValve</code> element. It has three attributes: <code>@ id</code> (The ID of the pipe), <code>@ gasPreheaterExisting</code> (gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0)...), and <code>controlValve</code> itself (which contains <code>pressureSet</code> and <code>increasedOutputTemperature</code>). The <code>pressureSet</code> element is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type. The <code>increasedOutputTemperature</code> element is the temperature of the gas at the outflow of the regulator, if a gas preheater exists....</p>				
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>				
Model	gas:pressureSet , gas:increasedOutputTemperature{0,1}				
Children	gas:increasedOutputTemperature, gas:pressureSet				
Instance	<pre><gas:controlValve gasPreheaterExisting="0" id="" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:pressureSet unit=" barg " value="">{1,1}</gas:pressureSet> <gas:increasedOutputTemperature unit="K" value="">{0,1}</gas:increasedOutputTemperature> </gas:controlValve></pre>				
Attributes	QName	Type	Default	Use	
	<code>gasPreheaterExisting</code>	xsd:boolean	0	optional	
		gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.			
	<code>id</code>	xsd:string		required	
		The ID of the pipe.			
Source	<pre><xsd:element name="controlValve" minOccurs="0" maxOccurs="unbounded"> <xsd:complexType> <xsd:sequence> <xsd:element name="pressureSet" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="increasedOutputTemperature" minOccurs="0" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>increasedOutputTemperature is the temperature of the gas at the outflow of the regulator, if a gas preheater exists. This element is optional; it should only be used if the attribute gasPreheaterExisting is 1. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the pipe.</xsd:documentation></pre>				

```

</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="gasPreheaterExisting" default="0" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>gasPreheaterExisting is a boolean (0/1) flag to specify if
the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then
the increasedOutputTemperature should also be specified. Per default, it is set to 0.</
xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>

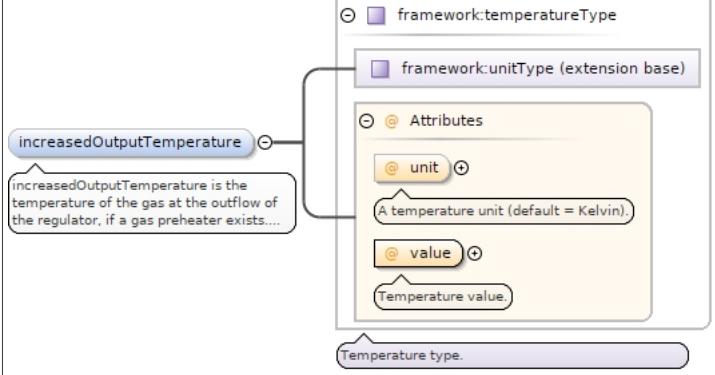
```

Element `gas:boundaryValue / gas:scenario / gas:controlValve / gas:pressureSet`

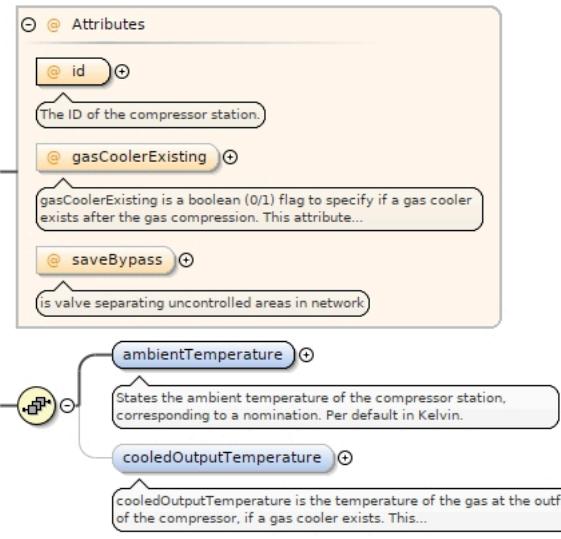
Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.																				
Diagram	<pre> classDiagram class pressureSet { <<pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.>> } class framework { class pressureType { <<framework:pressureType>> } class unitType { <<framework:unitType (extension base)>> } } pressureSet < -- framework:unitType framework:unitType < -- pressureType pressureType < -- Attributes Attributes < -- unit unit < -- value value < -- PressureUnit PressureUnit < -- barg PressureUnit < -- PressureValue PressureValue < -- Pressure </pre> <p>The diagram illustrates the UML class structure for the <code>pressureSet</code> element. It is defined as a complex type (<code>framework:unitType</code>) with attributes <code>unit</code> and <code>value</code>. The <code>unit</code> attribute is annotated with a note: "A pressure unit (default = barg)". The <code>value</code> attribute is annotated with a note: "Pressure value.". A separate note states: "pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type."</p>																				
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>unit</code></td> <td><code>pressureUnit</code></td> <td><code>barg</code></td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A pressure unit (default = barg).</td> <td></td> </tr> <tr> <td><code>value</code></td> <td><code>xsd:double</code></td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Pressure value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	<code>unit</code>	<code>pressureUnit</code>	<code>barg</code>	optional			A pressure unit (default = barg).		<code>value</code>	<code>xsd:double</code>		required			Pressure value.	
QName	Type	Default	Use																		
<code>unit</code>	<code>pressureUnit</code>	<code>barg</code>	optional																		
		A pressure unit (default = barg).																			
<code>value</code>	<code>xsd:double</code>		required																		
		Pressure value.																			
Source	<pre> <xsd:element name="pressureSet" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element `gas:boundaryValue / gas:scenario / gas:controlValve / gas:increasedOutputTemperature`

Namespace	http://gaslib.zib.de/Gas
Annotations	increasedOutputTemperature is the temperature of the gas at the outflow of the regulator, if a gas preheater exists. This element is optional; it should only be used if the attribute <code>gasPreheaterExisting</code> is 1. Unit is specified by type.

Diagram																										
Type	temperatureType																									
Type hierarchy	<ul style="list-style-type: none"> • unitType • temperatureType 																									
Properties	<p>content: complex</p> <p>minOccurs: 0</p>																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td><td></td></tr> <tr> <td></td><td></td><td>A temperature unit (default = Kelvin).</td><td></td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td><td></td></tr> <tr> <td></td><td></td><td>Temperature value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use		unit	temperatureUnit	K	optional				A temperature unit (default = Kelvin).			value	xsd:double		required				Temperature value.		
QName	Type	Default	Use																							
unit	temperatureUnit	K	optional																							
		A temperature unit (default = Kelvin).																								
value	xsd:double		required																							
		Temperature value.																								
Source	<pre><xsd:element name="increasedOutputTemperature" minOccurs="0" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>increasedOutputTemperature is the temperature of the gas at the outflow of the regulator, if a gas preheater exists. This element is optional; it should only be used if the attribute gasPreheaterExisting is 1. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																									

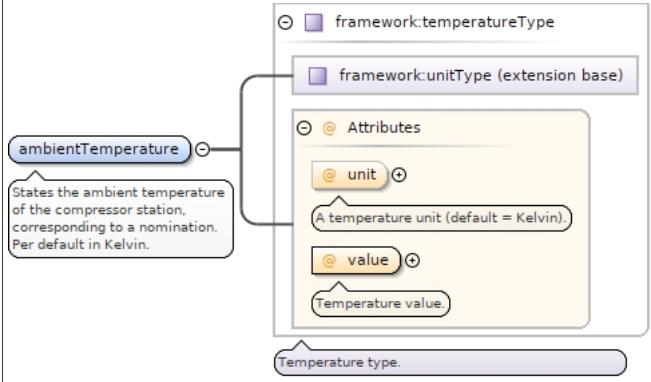
Element `gas:boundaryValue` / `gas:scenario` / `gas:compressorStation`

Namespace	http://gaslib.zib.de/Gas
Annotations	A compressor station of the network, identified by ID, with the ambient temperature.
Diagram	
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>
Model	gas:ambientTemperature , gas:cooledOutputTemperature{0,1}

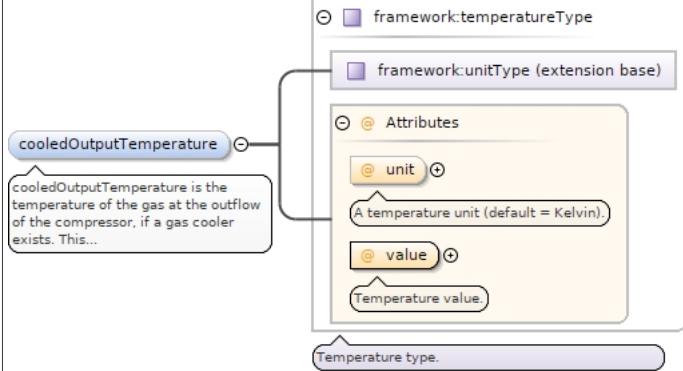
Children	gas:ambientTemperature, gas:cooledOutputTemperature																												
Instance	<pre><gas:compressorStation gasCoolerExisting="0" id="" saveBypass="0" xmlns:gas="http://gaslib.zib.de/Gas"> <gas:ambientTemperature unit="K" value="">{1,1}</gas:ambientTemperature> <gas:cooledOutputTemperature unit="K" value="">{0,1}</gas:cooledOutputTemperature> </gas:compressorStation></pre>																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>gasCoolerExisting</td> <td>xsd:boolean</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td>gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</td> <td></td> <td></td> </tr> <tr> <td>id</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td>The ID of the compressor station.</td> <td></td> <td></td> </tr> <tr> <td>saveBypass</td> <td>xsd:boolean</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td>is valve separating uncontrolled areas in network</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	gasCoolerExisting	xsd:boolean	0	optional		gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).			id	xsd:string		required		The ID of the compressor station.			saveBypass	xsd:boolean	0	optional		is valve separating uncontrolled areas in network		
QName	Type	Default	Use																										
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id	xsd:string		required																										
	The ID of the compressor station.																												
saveBypass	xsd:boolean	0	optional																										
	is valve separating uncontrolled areas in network																												
Source	<pre><xsd:element name="compressorStation" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A compressor station of the network, identified by ID, with the ambient temperature.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="ambientTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the ambient temperature of the compressor station, corresponding to a nomination. Per default in Kelvin.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="cooledOutputTemperature" minOccurs="0" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>cooledOutputTemperature is the temperature of the gas at the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used if the attribute gasCoolerExisting is 1. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the compressor station.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="gasCoolerExisting" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="saveBypass" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>is valve separating uncontrolled areas in network</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>																												

Element gas:boundaryValue / gas:scenario / gas:compressorStation / gas:ambientTemperature

Namespace	http://gaslib.zib.de/Gas
Annotations	States the ambient temperature of the compressor station, corresponding to a nomination. Per default in Kelvin.

Diagram																					
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • temperatureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td></tr> <tr> <td></td><td></td><td>A temperature unit (default = Kelvin).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Temperature value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
		A temperature unit (default = Kelvin).																			
value	xsd:double		required																		
		Temperature value.																			
Source	<pre><xsd:element name="ambientTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>States the ambient temperature of the compressor station, corresponding to a nomination. Per default in Kelvin.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element gas:boundaryValue / gas:scenario / gas:compressorStation / gas:cooledOutputTemperature

Namespace	http://gaslib.zib.de/Gas								
Annotations	cooledOutputTemperature is the temperature of the gas at the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used if the attribute gasCoolerExisting is 1. Unit is specified by type.								
Diagram									
Type	temperatureType								
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • temperatureType 								
Properties	<p>content: complex</p> <p>minOccurs: 0</p>								
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional
QName	Type	Default	Use						
unit	temperatureUnit	K	optional						

	QName	Type	Default	Use	
			A temperature unit (default = Kelvin).		
	value	xsd:double		required	
			Temperature value.		
Source	<pre><xsd:element name="cooledOutputTemperature" minOccurs="0" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>cooledOutputTemperature is the temperature of the gas at the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used if the attribute gasCoolerExisting is 1. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element network

Namespace	http://gaslib.zib.de/Gas
Annotations	network is a gas network. Its definition is given by type.
Diagram	
Type	networkType
Type hierarchy	<ul style="list-style-type: none"> • networkType • networkType
Properties	content: complex
Substitution Group Affiliation	• network
Model	information , nodes , connections , networkPipeSpeedLimit{0,1}
Children	connections, information, networkPipeSpeedLimit, nodes
Instance	<pre><network xmlns="http://gaslib.zib.de/Gas" xmlns:framework="http://gaslib.zib.de/Framework"> <framework:information>{1,1}</framework:information> <framework:nodes>{1,1}</framework:nodes> <framework:connections>{1,1}</framework:connections> <networkPipeSpeedLimit unit="m_per_s" value="">{0,1}</networkPipeSpeedLimit> </network></pre>
Source	<pre><xsd:element name="network" substitutionGroup="framework:network" type="gas:networkType"> <xsd:annotation> <xsd:documentation>network is a gas network. Its definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>

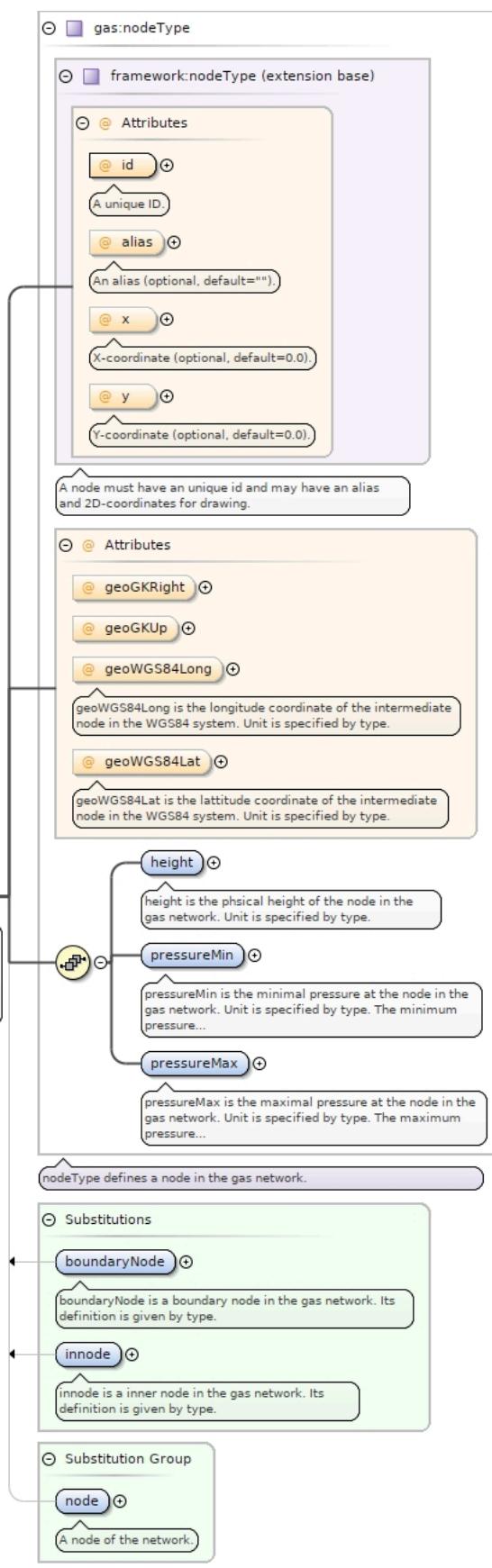
Element networkType / networkPipeSpeedLimit

Namespace	http://gaslib.zib.de/Gas																				
Diagram	<pre> classDiagram framework:velocityType < -- networkPipeSpeedLimit framework:velocityType < -- framework:unitType framework:unitType < -- Attributes Attributes < -- @unit Attributes < -- @value @unit < -- "A velocity unit (default = meter per second)." @value < -- "Velocity value." </pre> <p>Velocity type.</p>																				
Type	velocityType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • velocityType 																				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1														
content:	complex																				
minOccurs:	0																				
maxOccurs:	1																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>velocityUnit</td> <td>m_per_s</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A velocity unit (default = meter per second).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Velocity value.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	velocityUnit	m_per_s	optional		A velocity unit (default = meter per second).			value	xsd:double		required		Velocity value.		
QName	Type	Default	Use																		
unit	velocityUnit	m_per_s	optional																		
	A velocity unit (default = meter per second).																				
value	xsd:double		required																		
	Velocity value.																				
Source	<pre><xsd:element name="networkPipeSpeedLimit" type="framework:velocityType" minOccurs="0" maxOccurs="1" /></pre>																				

Element node

Namespace	http://gaslib.zib.de/Gas
Annotations	node is a node in the gas network. Its definition is given by type.

Diagram

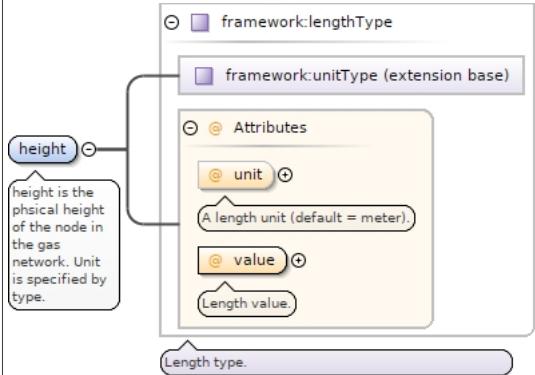


Type	<code>nodeType</code>
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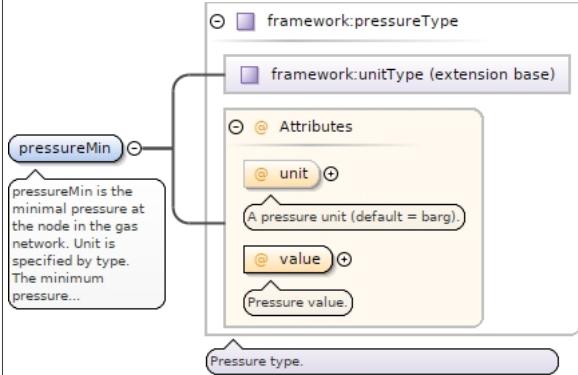
Type hierarchy	<ul style="list-style-type: none"> nodeType <ul style="list-style-type: none"> nodeType 																																																												
Properties	<p>content: complex</p> <p>abstract: true</p>																																																												
Substitution Group	<ul style="list-style-type: none"> boundaryNode source sink innode 																																																												
Substitution Group Affiliation	<ul style="list-style-type: none"> node 																																																												
Model	height , pressureMin , pressureMax																																																												
Children	height, pressureMax, pressureMin																																																												
Instance	<pre><node alias="" geoGKRight="0" geoGKUp="0" geoWGS84Lat="0" geoWGS84Long="0" id="" x="0" y="0" xmlns="http://gaslib.zib.de/Gas"> <height unit="m" value="">{1,1}</height> <pressureMin unit="barg" value="">{1,1}</pressureMin> <pressureMax unit="barg" value="">{1,1}</pressureMax> </node></pre>																																																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>geoGKRight</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td>geoGKUp</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td>geoWGS84Lat</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>geoWGS84Long</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>x</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">X-coordinate (optional, default=0.0).</td></tr> <tr> <td>y</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">Y-coordinate (optional, default=0.0).</td></tr> </tbody> </table>	QName	Type	Default	Use	alias	xsd:string		optional		An alias (optional, default="").			geoGKRight	xsd:decimal	0	optional	geoGKUp	xsd:decimal	0	optional	geoWGS84Lat	xsd:decimal	0	optional		geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			geoWGS84Long	xsd:decimal	0	optional		geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			id	identifier		required		A unique ID.			x	xsd:decimal	0	optional		X-coordinate (optional, default=0.0).			y	xsd:decimal	0	optional		Y-coordinate (optional, default=0.0).		
QName	Type	Default	Use																																																										
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y	xsd:decimal	0	optional																																																										
	Y-coordinate (optional, default=0.0).																																																												
Source	<pre><xsd:element abstract="true" name="node" substitutionGroup="framework:node" type="gas:nodeType"> <xsd:annotation> <xsd:documentation>node is a node in the gas network. Its definition is given by type.</ xsd:documentation> </xsd:annotation> </xsd:element></pre>																																																												

Element.nodeType / height

Namespace	http://gaslib.zib.de/Gas
Annotations	height is the physical height of the node in the gas network. Unit is specified by type.

Diagram																					
Type	lengthType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • lengthType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>lengthUnit</td><td>m</td><td>optional</td></tr> <tr> <td></td><td></td><td>A length unit (default = meter).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Length value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	lengthUnit	m	optional			A length unit (default = meter).		value	xsd:double		required			Length value.	
QName	Type	Default	Use																		
unit	lengthUnit	m	optional																		
		A length unit (default = meter).																			
value	xsd:double		required																		
		Length value.																			
Source	<pre><xsd:element name="height" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>height is the phsical height of the node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element.nodeType / pressureMin

Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureMin is the minimal pressure at the node in the gas network. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.																				
Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			

Source	<pre><xsd:element name="pressureMin" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureMin is the minimal pressure at the node in the gas network. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element></pre>
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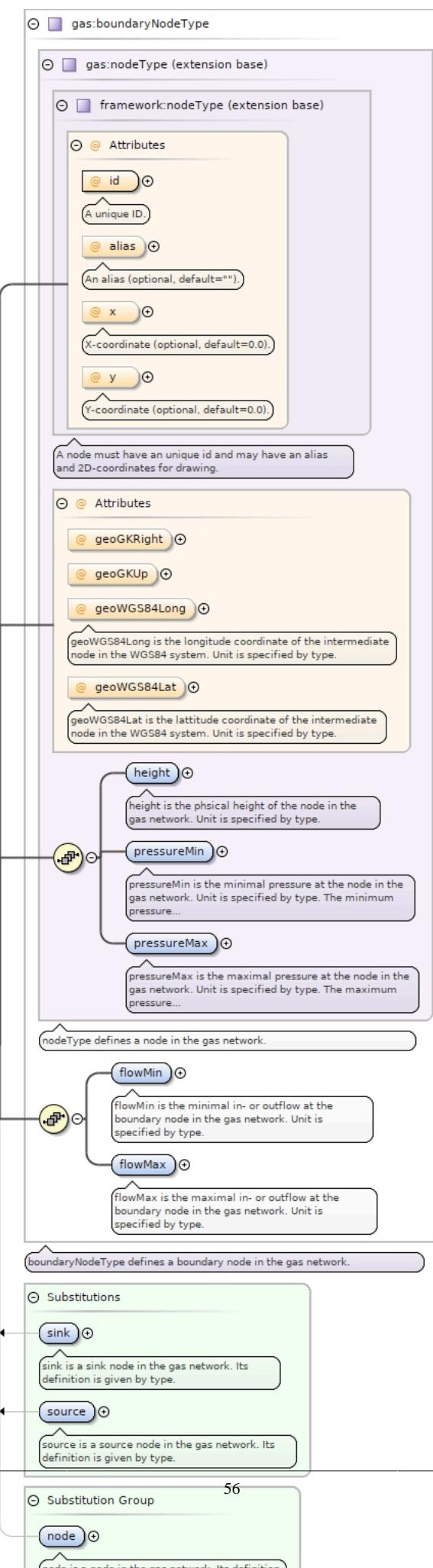
Element nodeType / pressureMax

Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureMax is the maximal pressure at the node in the gas network. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.																				
Diagram	<pre> classDiagram framework:pressureType < -- framework:unitType framework:unitType < -- pressureMax pressureMax { @unit : pressureUnit @value : double } pressureMax --> "1..1" Pressure value </pre>																				
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureUnit</td> <td>barg</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A pressure unit (default = barg).</td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Pressure value.</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional		A pressure unit (default = barg).			value	xsd:double		required		Pressure value.		
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
	A pressure unit (default = barg).																				
value	xsd:double		required																		
	Pressure value.																				
Source	<pre><xsd:element name="pressureMax" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureMax is the maximal pressure at the node in the gas network. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element boundaryNode

Namespace	http://gaslib.zib.de/Gas
Annotations	boundaryNode is a boundary node in the gas network. Its definition is given by type.

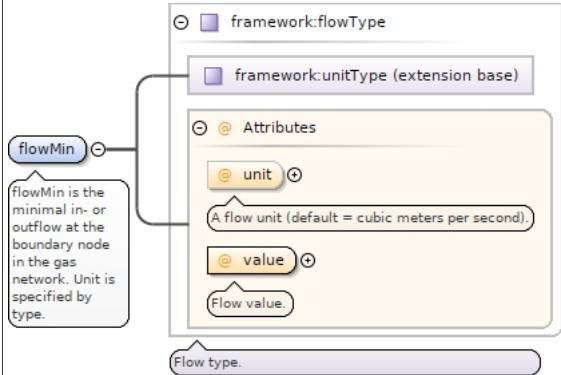
Diagram



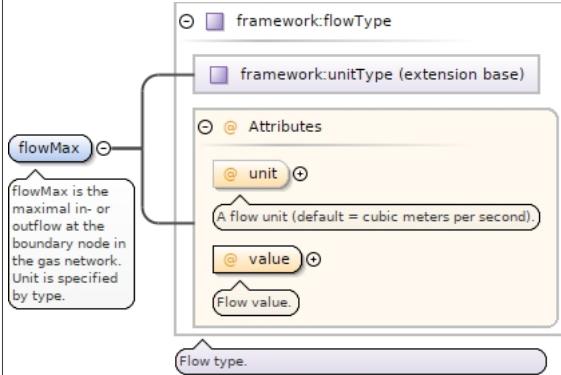
Type	boundaryNodeType																																																																
Type hierarchy	<ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • nodeType • boundaryNodeType 																																																																
Properties	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">content:</td> <td style="padding: 2px;">complex</td> </tr> <tr> <td style="padding: 2px;">abstract:</td> <td style="padding: 2px;">true</td> </tr> </table>					content:	complex	abstract:	true																																																								
content:	complex																																																																
abstract:	true																																																																
Substitution Group	<ul style="list-style-type: none"> • source • sink 																																																																
Substitution Group Affiliation	<ul style="list-style-type: none"> • node 																																																																
Model	height , pressureMin , pressureMax , flowMin , flowMax																																																																
Children	flowMax, flowMin, height, pressureMax, pressureMin																																																																
Instance	<pre><boundaryNode alias="" geoGKRight="0" geoGKUp="0" geoWGS84Lat="0" geoWGS84Long="0" id="" x="0" y="0" xmlns="http://gaslib.zib.de/Gas"> <height unit="m" value="">{1,1}</height> <pressureMin unit="barg" value="">{1,1}</pressureMin> <pressureMax unit="barg" value="">{1,1}</pressureMax> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> </boundaryNode></pre>																																																																
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">QName</th> <th style="width: 25%;">Type</th> <th style="width: 25%;">Default</th> <th style="width: 25%;">Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>geoGKRight</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td>geoGKUp</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td>geoWGS84Lat</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>geoWGS84Long</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>x</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">X-coordinate (optional, default=0.0).</td></tr> <tr> <td>y</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">Y-coordinate (optional, default=0.0).</td></tr> </tbody> </table>					QName	Type	Default	Use	alias	xsd:string		optional		An alias (optional, default="").			geoGKRight	xsd:decimal	0	optional	geoGKUp	xsd:decimal	0	optional	geoWGS84Lat	xsd:decimal	0	optional		geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			geoWGS84Long	xsd:decimal	0	optional		geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			id	identifier		required		A unique ID.			x	xsd:decimal	0	optional		X-coordinate (optional, default=0.0).			y	xsd:decimal	0	optional		Y-coordinate (optional, default=0.0).		
QName	Type	Default	Use																																																														
alias	xsd:string		optional																																																														
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Source	<pre><xsd:element abstract="true" name="boundaryNode" substitutionGroup="gas:node" type="gas:boundaryNodeType"> <xsd:annotation> <xsd:documentation>boundaryNode is a boundary node in the gas network. Its definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																																																

Element boundaryNodeType / flowMin

Namespace	http://gaslib.zib.de/Gas
Annotations	flowMin is the minimal in- or outflow at the boundary node in the gas network. Unit is specified by type.

Diagram																					
Type	flowType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • flowType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>flowUnit</td><td>1000m_cube_per_hour</td><td>optional</td></tr> <tr> <td></td><td></td><td>A flow unit (default = cubic meters per second).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Flow value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	flowUnit	1000m_cube_per_hour	optional			A flow unit (default = cubic meters per second).		value	xsd:double		required			Flow value.	
QName	Type	Default	Use																		
unit	flowUnit	1000m_cube_per_hour	optional																		
		A flow unit (default = cubic meters per second).																			
value	xsd:double		required																		
		Flow value.																			
Source	<pre><xsd:element name="flowMin" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMin is the minimal in- or outflow at the boundary node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element boundaryNodeType / flowMax

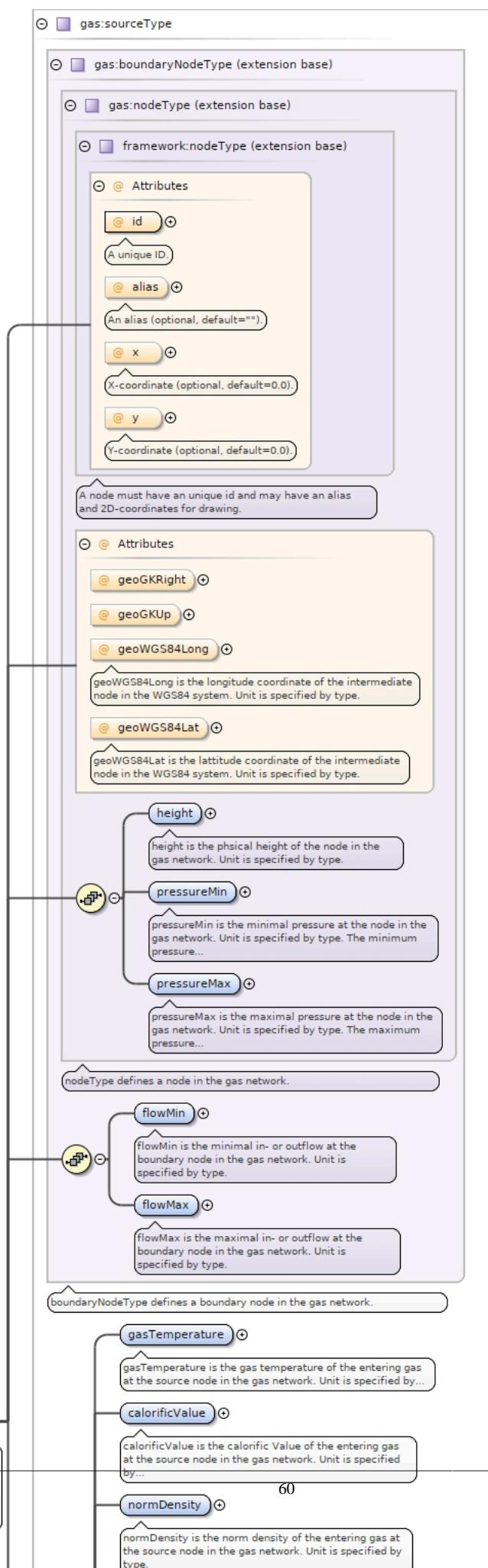
Namespace	http://gaslib.zib.de/Gas																				
Annotations	flowMax is the maximal in- or outflow at the boundary node in the gas network. Unit is specified by type.																				
Diagram																					
Type	flowType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • flowType 																				
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Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>flowUnit</td><td>1000m_cube_per_hour</td><td>optional</td></tr> <tr> <td></td><td></td><td>A flow unit (default = cubic meters per second).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Flow value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	flowUnit	1000m_cube_per_hour	optional			A flow unit (default = cubic meters per second).		value	xsd:double		required			Flow value.	
QName	Type	Default	Use																		
unit	flowUnit	1000m_cube_per_hour	optional																		
		A flow unit (default = cubic meters per second).																			
value	xsd:double		required																		
		Flow value.																			

Source	<pre><xsd:element name="flowMax" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMax is the maximal in- or outflow at the boundary node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>
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Element source

Namespace	http://gaslib.zib.de/Gas
Annotations	source is a source node in the gas network. Its definition is given by type.

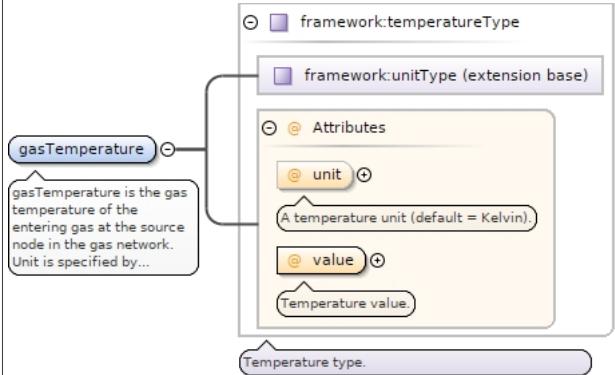
Diagram



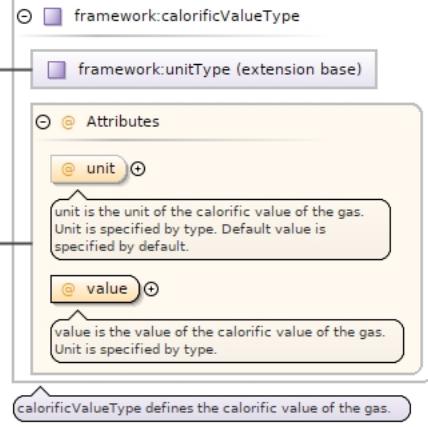
Type	sourceType																																																																											
Type hierarchy	<ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • boundaryNodeType • sourceType 																																																																											
Properties	content: complex																																																																											
Substitution Group Affiliation	• boundaryNode																																																																											
Model	height , pressureMin , pressureMax , flowMin , flowMax , gasTemperature , calorificValue , normDensity , coefficient-A-heatCapacity , coefficient-B-heatCapacity , coefficient-C-heatCapacity , molarMass , pseudocriticalPressure , pseudocriticalTemperature																																																																											
Children	calorificValue, coefficient-A-heatCapacity, coefficient-B-heatCapacity, coefficient-C-heatCapacity, flowMax, flowMin, gasTemperature, height, molarMass, normDensity, pressureMax, pressureMin, pseudocriticalPressure, pseudocriticalTemperature																																																																											
Instance	<pre><source alias="" geoGKRight="0" geoGKUp="0" geoWGS84Lat="0" geoWGS84Long="0" id="" x="0" y="0" xmlns="http://gaslib.zib.de/Gas"> <height unit="m" value="">{1,1}</height> <pressureMin unit="barg" value="">{1,1}</pressureMin> <pressureMax unit="barg" value="">{1,1}</pressureMax> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <gasTemperature unit="K" value="">{1,1}</gasTemperature> <calorificValue unit="MJ_per_m_cube" value="">{1,1}</calorificValue> <normDensity unit="kg_per_m_cube" value="">{1,1}</normDensity> <coefficient-A-heatCapacity value="">{1,1}</coefficient-A-heatCapacity> <coefficient-B-heatCapacity value="">{1,1}</coefficient-B-heatCapacity> <coefficient-C-heatCapacity value="">{1,1}</coefficient-C-heatCapacity> <molarMass unit="kg_per_kmol" value="">{1,1}</molarMass> <pseudocriticalPressure unit="barg" value="">{1,1}</pseudocriticalPressure> <pseudocriticalTemperature unit="K" value="">{1,1}</pseudocriticalTemperature> </source></pre>																																																																											
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">An alias (optional, default="").</td></tr> <tr> <td>geoGKRight</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td>geoGKUp</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td>geoWGS84Lat</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>geoWGS84Long</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A unique ID.</td></tr> <tr> <td>x</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">X-coordinate (optional, default=0.0).</td></tr> <tr> <td>y</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Y-coordinate (optional, default=0.0).</td></tr> </tbody> </table>	QName	Type	Default	Use		alias	xsd:string		optional			An alias (optional, default="").				geoGKRight	xsd:decimal	0	optional		geoGKUp	xsd:decimal	0	optional		geoWGS84Lat	xsd:decimal	0	optional			geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				geoWGS84Long	xsd:decimal	0	optional			geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				id	identifier		required			A unique ID.				x	xsd:decimal	0	optional			X-coordinate (optional, default=0.0).				y	xsd:decimal	0	optional			Y-coordinate (optional, default=0.0).			
QName	Type	Default	Use																																																																									
alias	xsd:string		optional																																																																									
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y	xsd:decimal	0	optional																																																																									
	Y-coordinate (optional, default=0.0).																																																																											
Source	<pre><xsd:element name="source" substitutionGroup="gas:boundaryNode" type="gas:sourceType"> <xsd:annotation> <xsd:documentation>source is a source node in the gas network. Its definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																																																											

Element sourceType / gasTemperature

Namespace	http://gaslib.zib.de/Gas
Annotations	gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.

Diagram																					
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • temperatureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td></tr> <tr> <td></td><td></td><td>A temperature unit (default = Kelvin).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Temperature value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
		A temperature unit (default = Kelvin).																			
value	xsd:double		required																		
		Temperature value.																			
Source	<pre><xsd:element name="gasTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element sourceType / calorificValue

Namespace	http://gaslib.zib.de/Gas																							
Annotations	calorificValue is the calorific Value of the entering gas at the source node in the gas network. Unit is specified by type.																							
Diagram																								
Type	calorificValueType																							
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • calorificValueType 																							
Properties	content: complex																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>MJ_per_m_cubeUnit</td><td>MJ_per_m_cube</td><td>optional</td></tr> <tr> <td></td><td></td><td>unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.</td><td></td></tr> <tr> <td>value</td><td>double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>value is the value of the calorific value of the gas. Unit is specified by type.</td><td></td></tr> </tbody> </table>				QName	Type	Default	Use	unit	MJ_per_m_cubeUnit	MJ_per_m_cube	optional			unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.		value	double		required			value is the value of the calorific value of the gas. Unit is specified by type.	
QName	Type	Default	Use																					
unit	MJ_per_m_cubeUnit	MJ_per_m_cube	optional																					
		unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.																						
value	double		required																					
		value is the value of the calorific value of the gas. Unit is specified by type.																						

	QName	Type	Default	Use	
		value is the value of the calorific value of the gas. Unit is specified by type.			
Source	<pre><xsd:element name="calorificValue" type="framework:calorificValueType"> <xsd:annotation> <xsd:documentation>calorificValue is the calorific Value of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element sourceType / normDensity

Namespace	http://gaslib.zib.de/Gas																									
Annotations	normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.																									
Diagram	<pre> classDiagram framework:densityType < -- framework:unitType {extension base} framework:unitType < -- normDensity normDensity { <<normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.>> <<A density unit (default = kilogramm per cubicmeter).>> <<Density value.>> } normDensity < -- Attributes <<@unit >> <<A density unit (default = kilogramm per cubicmeter).>> <<@value >> <<Density value.>> </pre>																									
Type	densityType																									
Type hierarchy	<ul style="list-style-type: none"> unitType densityType 																									
Properties	content: complex																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>densityUnit</td> <td>kg_per_m_cube</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>A density unit (default = kilogramm per cubicmeter).</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Density value.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use		unit	densityUnit	kg_per_m_cube	optional				A density unit (default = kilogramm per cubicmeter).			value	xsd:double		required				Density value.		
QName	Type	Default	Use																							
unit	densityUnit	kg_per_m_cube	optional																							
		A density unit (default = kilogramm per cubicmeter).																								
value	xsd:double		required																							
		Density value.																								
Source	<pre><xsd:element name="normDensity" type="framework:densityType"> <xsd:annotation> <xsd:documentation>normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																									

Element sourceType / coefficient-A-heatCapacity

Namespace	http://gaslib.zib.de/Gas
Annotations	coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.
Diagram	<pre> classDiagram framework:unitType < -- coefficient-A-heatCapacity coefficient-A-heatCapacity { <<coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas...>> <<Value.>> } coefficient-A-heatCapacity < -- Attributes <<@value >> <<Value.>> </pre> <p style="text-align: center;">Unitless type.</p>
Type	noType

Type hierarchy	<ul style="list-style-type: none"> unitType noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
Value.			
Source	<pre><xsd:element name="coefficient-A-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element sourceType / coefficient-A-heatCapacity

Namespace	http://gaslib.zib.de/Gas		
Annotations	coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.		
Diagram	<pre> classDiagram class coefficient_A_heatCapacity { <<coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas...>> } class framework_noType { <<Unitless type.>> } class framework_unitType { <<framework:unitType (extension base)>> attribute value : xsd:double } coefficient_A_heatCapacity --> framework_noType coefficient_A_heatCapacity --> framework_unitType framework_noType < -- framework_unitType </pre>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> unitType noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
Value.			
Source	<pre><xsd:element name="coefficient-A-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element sourceType / coefficient-B-heatCapacity

Namespace	http://gaslib.zib.de/Gas		
Annotations	coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.		
Diagram	<pre> classDiagram class coefficient_B_heatCapacity { <<coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas...>> } class framework_noType { <<Unitless type.>> } class framework_unitType { <<framework:unitType (extension base)>> attribute value : xsd:double } coefficient_B_heatCapacity --> framework_noType coefficient_B_heatCapacity --> framework_unitType framework_noType < -- framework_unitType </pre>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> unitType noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
Value.			
Source	<pre><xsd:element name="coefficient-B-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

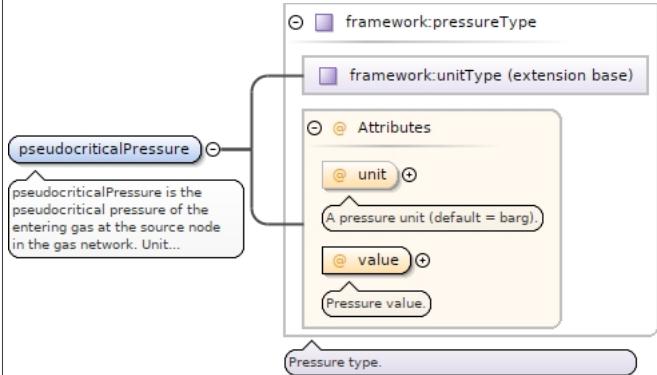
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> unitType noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<pre><xsd:element name="coefficient-C-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element sourceType / molarMass

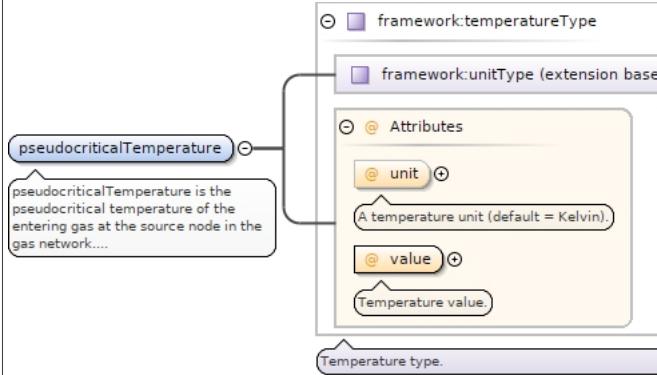
Namespace	http://gaslib.zib.de/Gas		
Annotations	molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.		
Diagram	<pre> classDiagram framework:molarMassType < -- unitType framework:molarMassType { <@> Attributes <@> unit <@> value } molarMass < -- framework:molarMassType molarMass { molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type. } framework:molarMassType { molarMassType defines the molar mass of the gas. } </pre>		
Type	molarMassType		
Type hierarchy	<ul style="list-style-type: none"> unitType molarMassType 		
Properties	content: complex		
Attributes	QName	Type	Default
	unit	kg_per_kmolUnit	kg_per_kmol
		unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.	
	value	double	
		value is the value of the molar mass of the gas. Unit is specified by type.	
Source	<pre><xsd:element name="molarMass" type="framework:molarMassType"> <xsd:annotation> <xsd:documentation>molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element sourceType / pseudocriticalPressure

Namespace	http://gaslib.zib.de/Gas		
Annotations	pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.		

Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre><xsd:element name="pseudocriticalPressure" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element sourceType / pseudocriticalTemperature

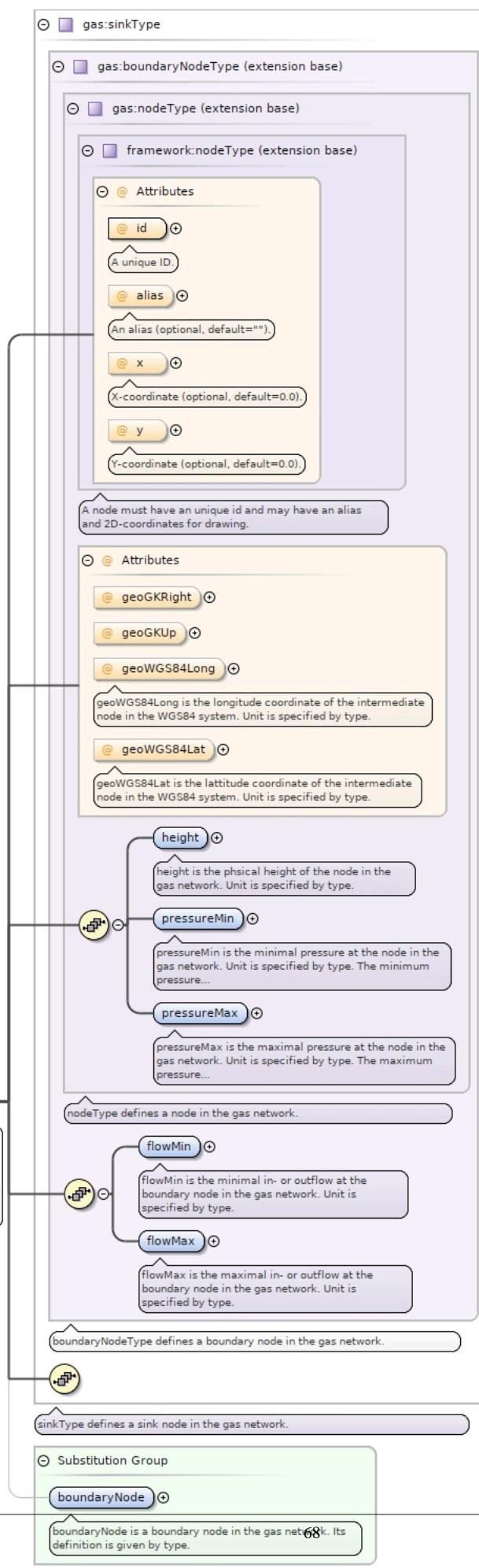
Namespace	http://gaslib.zib.de/Gas																							
Annotations	pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.																							
Diagram																								
Type	temperatureType																							
Type hierarchy	<ul style="list-style-type: none"> • unitType • temperatureType 																							
Properties	content: complex																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td></tr> <tr> <td></td><td></td><td>A temperature unit (default = Kelvin).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Temperature value.</td><td></td></tr> </tbody> </table>				QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																					
unit	temperatureUnit	K	optional																					
		A temperature unit (default = Kelvin).																						
value	xsd:double		required																					
		Temperature value.																						

Source	<pre><xsd:element name="pseudocriticalTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>
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Element sink

Namespace	http://gaslib.zib.de/Gas
Annotations	sink is a sink node in the gas network. Its definition is given by type.

Diagram

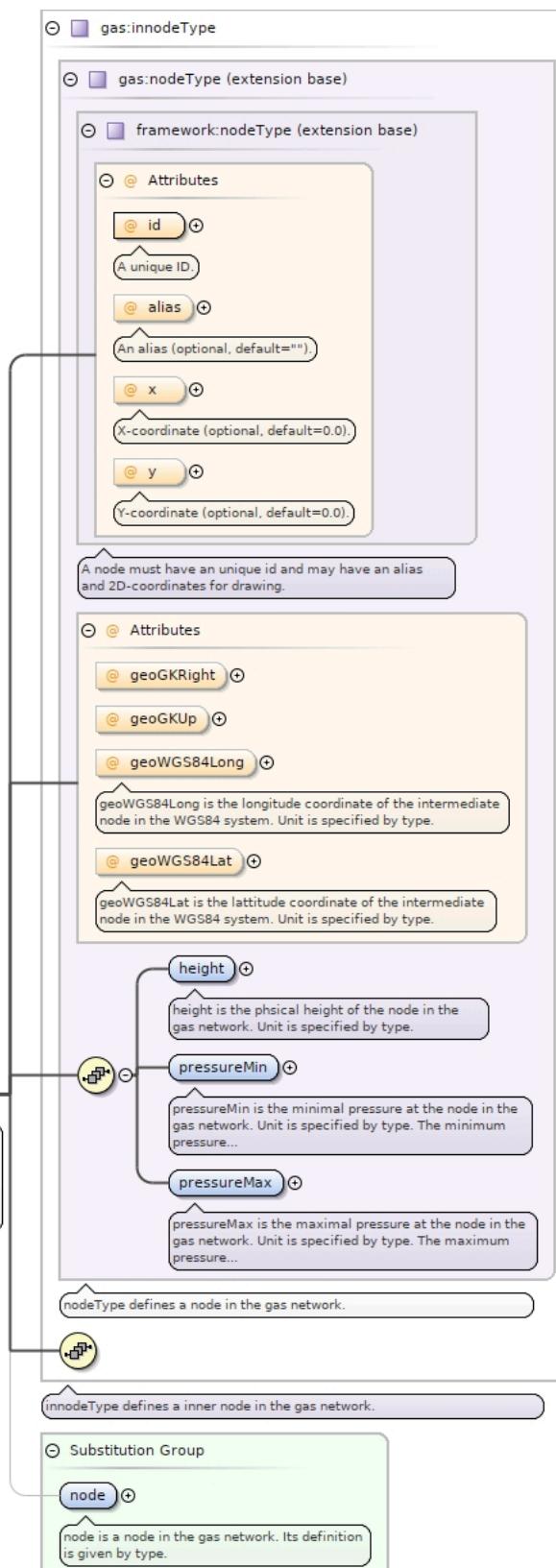


Type	sinkType																																																																											
Type hierarchy	<ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • boundaryNodeType • sinkType 																																																																											
Properties	content: complex																																																																											
Substitution Group Affiliation	• boundaryNode																																																																											
Model	height , pressureMin , pressureMax , flowMin , flowMax																																																																											
Children	flowMax, flowMin, height, pressureMax, pressureMin																																																																											
Instance	<pre><sink alias="" geoGKRight="0" geoGKUp="0" geoWGS84Lat="0" geoWGS84Long="0" id="" x="0" y="0" xmlns="http://gaslib.zib.de/Gas"> <height unit="m" value="">{1,1}</height> <pressureMin unit="bar" value="">{1,1}</pressureMin> <pressureMax unit="bar" value="">{1,1}</pressureMax> <flowMin unit="1000m_cubic_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cubic_per_hour" value="">{1,1}</flowMax> </sink></pre>																																																																											
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>An alias (optional, default="").</td> <td></td> <td></td> </tr> <tr> <td>geoGKRight</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td>geoGKUp</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td>geoWGS84Lat</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td> <td></td> <td></td> </tr> <tr> <td>geoWGS84Long</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td> <td></td> <td></td> </tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>A unique ID.</td> <td></td> <td></td> </tr> <tr> <td>x</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>X-coordinate (optional, default=0.0).</td> <td></td> <td></td> </tr> <tr> <td>y</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Y-coordinate (optional, default=0.0).</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use		alias	xsd:string		optional				An alias (optional, default="").			geoGKRight	xsd:decimal	0	optional		geoGKUp	xsd:decimal	0	optional		geoWGS84Lat	xsd:decimal	0	optional				geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			geoWGS84Long	xsd:decimal	0	optional				geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			id	identifier		required				A unique ID.			x	xsd:decimal	0	optional				X-coordinate (optional, default=0.0).			y	xsd:decimal	0	optional				Y-coordinate (optional, default=0.0).		
QName	Type	Default	Use																																																																									
alias	xsd:string		optional																																																																									
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geoWGS84Lat	xsd:decimal	0	optional																																																																									
		geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.																																																																										
geoWGS84Long	xsd:decimal	0	optional																																																																									
		geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.																																																																										
id	identifier		required																																																																									
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y	xsd:decimal	0	optional																																																																									
		Y-coordinate (optional, default=0.0).																																																																										
Source	<pre><xsd:element name="sink" substitutionGroup="gas:boundaryNode" type="gas:sinkType"> <xsd:annotation> <xsd:documentation>sink is a sink node in the gas network. Its definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																																																											

Element innode

Namespace	http://gaslib.zib.de/Gas
Annotations	innode is a inner node in the gas network. Its definition is given by type.

Diagram



Type	innodeType
------	------------

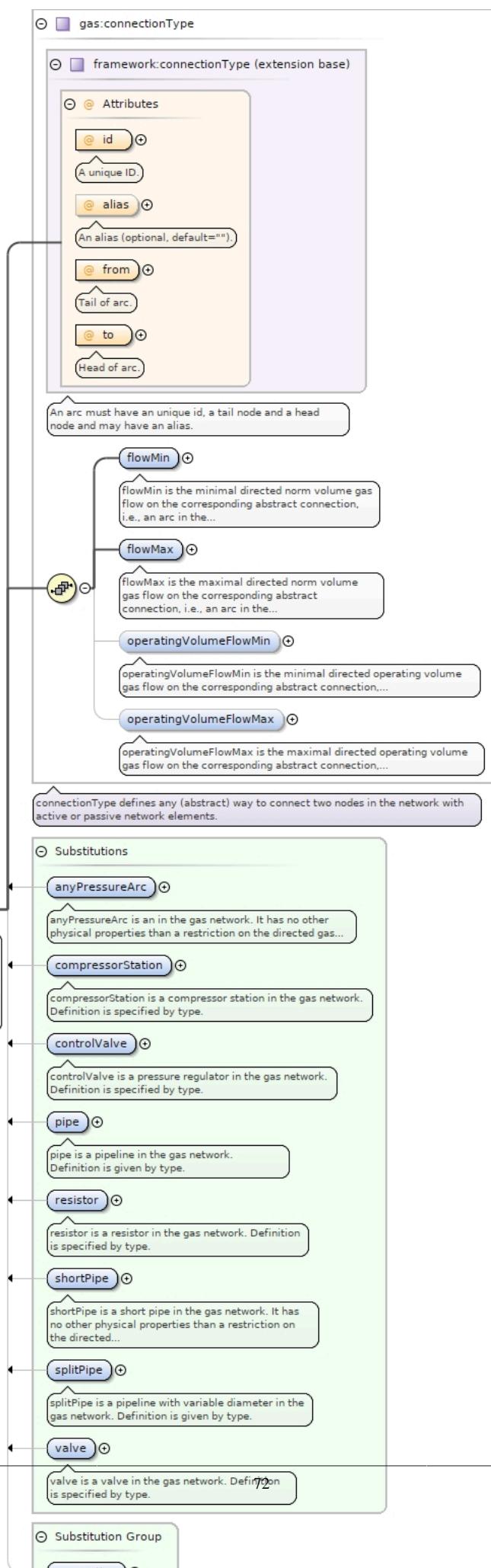
Type hierarchy	<ul style="list-style-type: none"> nodeType nodeType innodeType
----------------	--------------------------------------------------------------------------------------------------

Properties	content: complex				
Substitution Group Affiliation	• node				
Model	height , pressureMin , pressureMax				
Children	height, pressureMax, pressureMin				
Instance	<pre><innode alias="" geoGKRight="0" geoGKUp="0" geoWGS84Lat="0" geoWGS84Long="0" id="" x="0" y="0" xmlns="http://gaslib.zib.de/Gas"> <height unit="m" value="">{1,1}</height> <pressureMin unit="barg" value="">{1,1}</pressureMin> <pressureMax unit="barg" value="">{1,1}</pressureMax> </innode></pre>				
Attributes	QName	Type	Default	Use	
	alias	xsd:string		optional	
	An alias (optional, default="").				
	geoGKRight	xsd:decimal	0	optional	
	geoGKUp	xsd:decimal	0	optional	
	geoWGS84Lat	xsd:decimal	0	optional	
	geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
	geoWGS84Long	xsd:decimal	0	optional	
	geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
	id	identifier		required	
	A unique ID.				
	x	xsd:decimal	0	optional	
	X-coordinate (optional, default=0.0).				
	y	xsd:decimal	0	optional	
	Y-coordinate (optional, default=0.0).				
Source	<pre><xsd:element name="innode" substitutionGroup="gas:node" type="gas:innodeType"> <xsd:annotation> <xsd:documentation>innode is a inner node in the gas network. Its definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element connection

Namespace	http://gaslib.zib.de/Gas
Annotations	connection is any (abstract) connection between two nodes in the network with active or passive network elements.

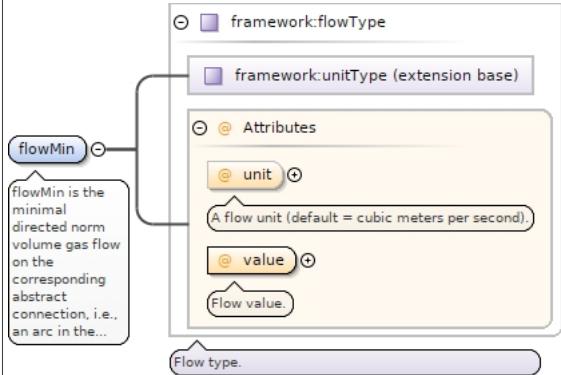
Diagram



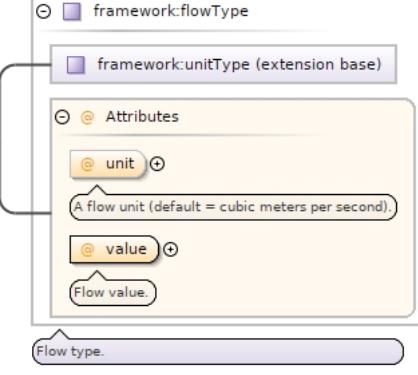
Type	connectionType																											
Type hierarchy	<ul style="list-style-type: none"> • connectionType <ul style="list-style-type: none"> • connectionType 																											
Properties	<p>content: complex</p> <p>abstract: true</p>																											
Substitution Group	<ul style="list-style-type: none"> • pipe • shortPipe • valve • controlValve • compressorStation • resistor • anyPressureArc • splitPipe 																											
Substitution Group Affiliation	<ul style="list-style-type: none"> • connection 																											
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1}																											
Children	flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin																											
Instance	<pre><connection alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> </connection></pre>																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="2">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">Tail of arc.</td></tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">A unique ID.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">Head of arc.</td></tr> </tbody> </table>	QName	Type	Use	alias	xsd:string	optional		An alias (optional, default="").		from	xsd:string	required		Tail of arc.		id	identifier	required		A unique ID.		to	xsd:string	required		Head of arc.	
QName	Type	Use																										
alias	xsd:string	optional																										
	An alias (optional, default="").																											
from	xsd:string	required																										
	Tail of arc.																											
id	identifier	required																										
	A unique ID.																											
to	xsd:string	required																										
	Head of arc.																											
Source	<pre><xsd:element abstract="true" name="connection" substitutionGroup="framework:connection" type="gas:connectionType"> <xsd:annotation> <xsd:documentation>connection is any (abstract) connection between two nodes in the network with active or passive network elements.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																											

Element connectionType / flowMin

Namespace	http://gaslib.zib.de/Gas
Annotations	<p>flowMin is the minimal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that norm volume flow does not depend on gas pressure or density. Its unit is specified by type.</p>

Diagram																					
Type	flowType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • flowType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>flowUnit</td><td>1000m_cube_per_hour</td><td>optional</td></tr> <tr> <td></td><td></td><td>A flow unit (default = cubic meters per second).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Flow value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	flowUnit	1000m_cube_per_hour	optional			A flow unit (default = cubic meters per second).		value	xsd:double		required			Flow value.	
QName	Type	Default	Use																		
unit	flowUnit	1000m_cube_per_hour	optional																		
		A flow unit (default = cubic meters per second).																			
value	xsd:double		required																		
		Flow value.																			
Source	<pre><xsd:element name="flowMin" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMin is the minimal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that norm volume flow does not depend on gas pressure or density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element connectionType / flowMax

Namespace	http://gaslib.zib.de/Gas
Annotations	flowMax is the maximal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that norm volume flow does not depend on gas pressure or density. Its unit is specified by type.
Diagram	
Type	flowType
Type hierarchy	<ul style="list-style-type: none"> • unitType • flowType
Properties	content: complex

Attributes	QName	Type	Default	Use	
	unit	flowUnit	1000m_cube_per_hour	optional	
	A flow unit (default = cubic meters per second).				
	value	xsd:double		required	
	Flow value.				
Source	<pre><xsd:element name="flowMax" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMax is the maximal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that norm volume flow does not depend on gas pressure or density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element connectionType / operatingVolumeFlowMin

Namespace	http://gaslib.zib.de/Gas																											
Annotations	operatingVolumeFlowMin is the minimal directed operating volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that operating volume flow depends on gas pressure and density. Its unit is specified by type.																											
Diagram	<p>The diagram illustrates the inheritance of the <code>framework:flowType</code> class. It shows a base class <code>framework:unitType</code> and an attribute class <code>Attributes</code>. The <code>Attributes</code> class contains two attributes: <code>@ unit</code> (with the note "A flow unit (default = cubic meters per second).") and <code>@ value</code> (with the note "Flow value."). A note on the left states: "operatingVolumeFlowMin is the minimal directed operating volume gas flow on the corresponding abstract connection...".</p>																											
Type	flowType																											
Type hierarchy	<ul style="list-style-type: none"> • unitType • flowType 																											
Properties	<p>content: complex</p> <p>minOccurs: 0</p>																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>flowUnit</td> <td>1000m_cube_per_hour</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="5">A flow unit (default = cubic meters per second).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="5">Flow value.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	flowUnit	1000m_cube_per_hour	optional			A flow unit (default = cubic meters per second).					value	xsd:double		required			Flow value.				
QName	Type	Default	Use																									
unit	flowUnit	1000m_cube_per_hour	optional																									
	A flow unit (default = cubic meters per second).																											
value	xsd:double		required																									
	Flow value.																											
Source	<pre><xsd:element name="operatingVolumeFlowMin" type="framework:flowType" minOccurs="0"> <xsd:annotation> <xsd:documentation>operatingVolumeFlowMin is the minimal directed operating volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that operating volume flow depends on gas pressure and density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																											

Element connectionType / operatingVolumeFlowMax

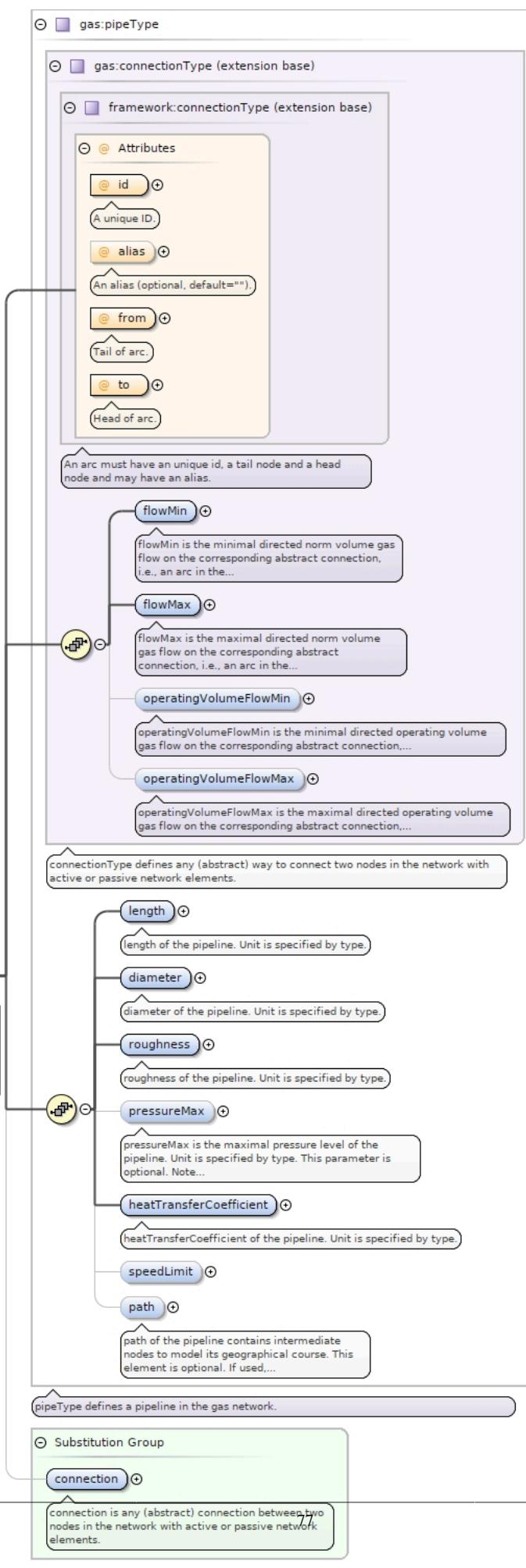
Namespace	http://gaslib.zib.de/Gas
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Annotations	operatingVolumeFlowMax is the maximal directed operating volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection. Note that operating volume flow depends on gas pressure and density. Its unit is specified by type.																				
Diagram	<pre> classDiagram class framework::flowType { <<operatingVolumeFlowMax is the maximal directed operating volume gas flow on the corresponding abstract connection,...>> @Attributes @unit @value } </pre>																				
Type	flowType																				
Type hierarchy	<ul style="list-style-type: none"> unitType flowType 																				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																
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minOccurs:	0																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>flowUnit</td> <td>1000m_cube_per_hour</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A flow unit (default = cubic meters per second).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Flow value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	flowUnit	1000m_cube_per_hour	optional			A flow unit (default = cubic meters per second).		value	xsd:double		required			Flow value.	
QName	Type	Default	Use																		
unit	flowUnit	1000m_cube_per_hour	optional																		
		A flow unit (default = cubic meters per second).																			
value	xsd:double		required																		
		Flow value.																			
Source	<pre> <xsd:element name="operatingVolumeFlowMax" type="framework:flowType" minOccurs="0"> <xsd:annotation> <xsd:documentation>operatingVolumeFlowMax is the maximal directed operating volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection. Note that operating volume flow depends on gas pressure and density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element pipe

Namespace	http://gaslib.zib.de/Gas
Annotations	pipe is a pipeline in the gas network. Definition is given by type.

Diagram



Type	pipeType																											
Type hierarchy	<ul style="list-style-type: none"> connectionType <ul style="list-style-type: none"> connectionType pipeType 																											
Properties	content: complex																											
Substitution Group Affiliation	<ul style="list-style-type: none"> connection 																											
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , length , diameter , roughness , pressureMax{0,1} , heatTransferCoefficient , speedLimit{0,1} , path{0,1}																											
Children	diameter, flowMax, flowMin, heatTransferCoefficient, length, operatingVolumeFlowMax, operatingVolumeFlowMin, path, pressureMax, roughness, speedLimit																											
Instance	<pre><pipe alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> <length unit="m" value="">{1,1}</length> <diameter unit="m" value="">{1,1}</diameter> <roughness unit="m" value="">{1,1}</roughness> <pressureMax unit="bar" value="">{0,1}</pressureMax> <heatTransferCoefficient unit="W_per_m_square_per_K" value="">{1,1}</heatTransferCoefficient> <speedLimit unit="m_per_s" value="">{0,1}</speedLimit> <path>{0,1}</path> </pipe></pre>																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>An alias (optional, default="").</td> </tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Tail of arc.</td> </tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>A unique ID.</td> </tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Head of arc.</td> </tr> </tbody> </table>	QName	Type	Use	alias	xsd:string	optional			An alias (optional, default="").	from	xsd:string	required			Tail of arc.	id	identifier	required			A unique ID.	to	xsd:string	required			Head of arc.
QName	Type	Use																										
alias	xsd:string	optional																										
		An alias (optional, default="").																										
from	xsd:string	required																										
		Tail of arc.																										
id	identifier	required																										
		A unique ID.																										
to	xsd:string	required																										
		Head of arc.																										
Source	<pre><xsd:element name="pipe" substitutionGroup="gas:connection" type="gas:pipeType"> <xsd:annotation> <xsd:documentation>pipe is a pipeline in the gas network. Definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																											

Element pipeType / length

Namespace	http://gaslib.zib.de/Gas
Annotations	length of the pipeline. Unit is specified by type.
Diagram	<pre> classDiagram class framework:lengthType class framework:unitType { <<Attributes>> @unit @value } length < -- framework:lengthType length < -- framework:unitType length --> note "length of the pipeline. Unit is specified by type." note "Length type." </pre>
Type	lengthType
Type hierarchy	<ul style="list-style-type: none"> unitType

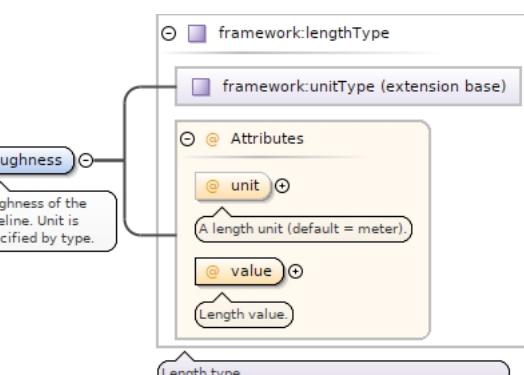
	<ul style="list-style-type: none"> lengthType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A length unit (default = meter).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Length value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	lengthUnit	m	optional			A length unit (default = meter).		value	xsd:double		required			Length value.	
QName	Type	Default	Use																		
unit	lengthUnit	m	optional																		
		A length unit (default = meter).																			
value	xsd:double		required																		
		Length value.																			
Source	<pre><xsd:element name="length" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>length of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element pipeType / diameter

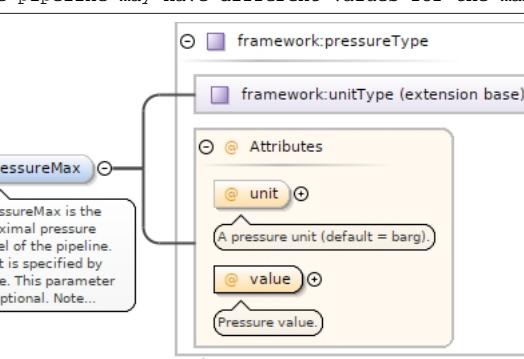
Namespace	http://gaslib.zib.de/Gas																				
Annotations	diameter of the pipeline. Unit is specified by type.																				
Diagram	<pre> classDiagram class framework:lengthType class framework:unitType { @ Attributes @unit lengthUnit @value xsd:double } diameter < -- framework:lengthType diameter --> framework:unitType note over diameter: diameter of the pipeline. Unit is specified by type. </pre>																				
Type	lengthType																				
Type hierarchy	<ul style="list-style-type: none"> unitType lengthType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A length unit (default = meter).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Length value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	lengthUnit	m	optional			A length unit (default = meter).		value	xsd:double		required			Length value.	
QName	Type	Default	Use																		
unit	lengthUnit	m	optional																		
		A length unit (default = meter).																			
value	xsd:double		required																		
		Length value.																			
Source	<pre><xsd:element name="diameter" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameter of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element pipeType / roughness

Namespace	http://gaslib.zib.de/Gas
Annotations	roughness of the pipeline. Unit is specified by type.

Diagram																					
Type	lengthType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • lengthType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>lengthUnit</td><td>m</td><td>optional</td></tr> <tr> <td></td><td></td><td>A length unit (default = meter).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Length value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	lengthUnit	m	optional			A length unit (default = meter).		value	xsd:double		required			Length value.	
QName	Type	Default	Use																		
unit	lengthUnit	m	optional																		
		A length unit (default = meter).																			
value	xsd:double		required																		
		Length value.																			
Source	<pre><xsd:element name="roughness" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>roughness of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element pipeType / pressureMax

Namespace	http://gaslib.zib.de/Gas																
Annotations	pressureMax is the maximal pressure level of the pipeline. Unit is specified by type. This parameter is optional. Note that the head and tail node of the pipeline may have different values for the maximal pressure.																
Diagram																	
Type	pressureType																
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																
Properties	content: complex minOccurs: 0																
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required
QName	Type	Default	Use														
unit	pressureUnit	barg	optional														
		A pressure unit (default = barg).															
value	xsd:double		required														

	QName	Type	Default	Use	
		Pressure value.			
Source		<pre><xsd:element name="pressureMax" type="framework:pressureType" minOccurs="0"> <xsd:annotation> <xsd:documentation>pressureMax is the maximal pressure level of the pipeline. Unit is specified by type. This parameter is optional. Note that the head and tail node of the pipeline may have different values for the maximal pressure.</xsd:documentation> </xsd:annotation> </xsd:element></pre>			

Element pipeType / heatTransferCoefficient

Namespace	http://gaslib.zib.de/Gas				
Annotations	heatTransferCoefficient of the pipeline. Unit is specified by type.				
Diagram	<pre> classDiagram framework:heatTransferType < -- heatTransferCoefficient framework:heatTransferType { <<Attributes>> @unit @value } @note @unit : A heat transfer unit (default = watt per square meters per Kelvin). @note @value : Heat transfer value. </pre>				
Type	heatTransferType				
Type hierarchy	<ul style="list-style-type: none"> unitType heatTransferType 				
Properties	content: complex				
Attributes	QName	Type	Default	Use	
	unit	heatTransferUnit	W_per_m_square_per_K	optional	
		A heat transfer unit (default = watt per square meters per Kelvin).			
	value	xsd:double		required	
		Heat transfer value.			
Source	<pre><xsd:element name="heatTransferCoefficient" type="framework:heatTransferType"> <xsd:annotation> <xsd:documentation>heatTransferCoefficient of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element pipeType / speedLimit

Namespace	http://gaslib.zib.de/Gas				
Diagram	<pre> classDiagram framework:velocityType < -- speedLimit framework:velocityType { <<Attributes>> @unit @value } @note @unit : A velocity unit (default = meter per second). @note @value : Velocity value. </pre>				

Type	velocityType																							
Type hierarchy	<ul style="list-style-type: none"> unitType velocityType 																							
Properties	content: complex minOccurs: 0 maxOccurs: 1																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>velocityUnit</td> <td>m_per_s</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A velocity unit (default = meter per second).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Velocity value.</td></tr> </tbody> </table>				QName	Type	Default	Use	unit	velocityUnit	m_per_s	optional		A velocity unit (default = meter per second).			value	xsd:double		required		Velocity value.		
QName	Type	Default	Use																					
unit	velocityUnit	m_per_s	optional																					
	A velocity unit (default = meter per second).																							
value	xsd:double		required																					
	Velocity value.																							
Source	<xsd:element name="speedLimit" type="framework:velocityType" minOccurs="0" maxOccurs="1"/>																							

Element pipeType / path

Namespace	http://gaslib.zib.de/Gas			
Annotations	path of the pipeline contains intermediate nodes to model its geographical course. This element is optional. If used, only intermediate nodes have to be specified, not the head and tail nodes of the pipeline. Note that the course is sensitive to the given sequence of the intermediate nodes. The first node is the closest to tail, the last node is closest to the head node of the pipeline.			
Diagram	<pre> classDiagram class path class node path "1..oo" -- "0..1" node note over path: path of the pipeline contains intermediate nodes to model its geographical course. This element is optional. note over node: node is an intermediate node to model the course of the pipeline. </pre>			
Properties	content: complex minOccurs: 0			
Model	node+			
Children	node			
Instance	<path xmlns="http://gaslib.zib.de/Gas"> <node geoGKRight="0" geoGKUp="0" geoWGS84Lat="0" geoWGS84Long="0">{1,unbounded}</node> </path>			
Source	<xsd:element name="path" minOccurs="0"> <xsd:annotation> <xsd:documentation>path of the pipeline contains intermediate nodes to model its geographical course. This element is optional. If used, only intermediate nodes have to be specified, not the head and tail nodes of the pipeline. Note that the course is sensitive to the given sequence of the intermediate nodes. The first node is the closest to tail, the last node is closest to the head node of the pipeline.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element maxOccurs="unbounded" name="node"> <xsd:annotation> <xsd:documentation>node is an intermediate node to model the course of the pipeline.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="0" name="geoGKRight" type="xsd:decimal"/> <xsd:attribute default="0" name="geoGKUp" type="xsd:decimal"/> <xsd:attribute default="0" name="geoWGS84Long" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="0" name="geoWGS84Lat" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element>			

```

        </xsd:annotation>
    </xsd:attribute>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>

```

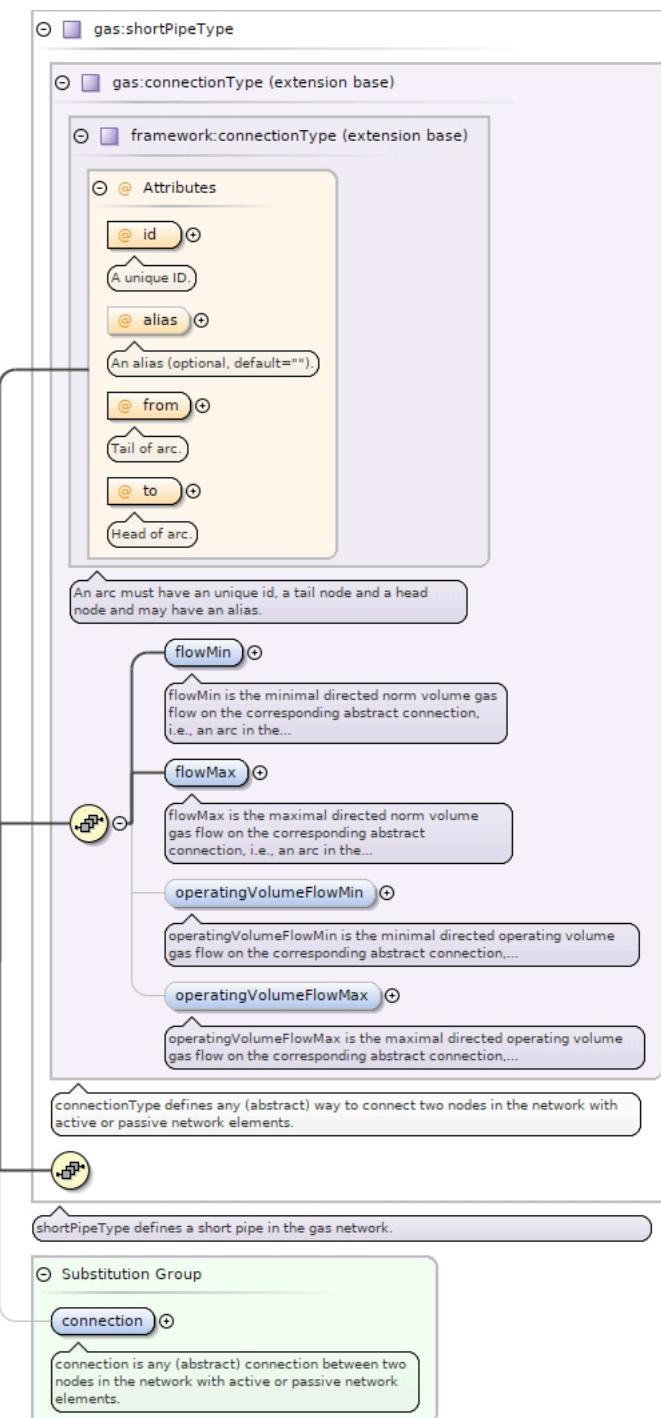
Element pipeType / path / node

Namespace	http://gaslib.zib.de/Gas																																							
Annotations	node is an intermediate node to model the course of the pipeline.																																							
Diagram																																								
Properties	<p>content: complex</p> <p>maxOccurs: unbounded</p>																																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>geoGKRight</td><td>xsd:decimal</td><td>0</td><td>optional</td><td></td></tr> <tr> <td>geoGKUp</td><td>xsd:decimal</td><td>0</td><td>optional</td><td></td></tr> <tr> <td>geoWGS84Lat</td><td>xsd:decimal</td><td>0</td><td>optional</td><td></td></tr> <tr> <td></td><td colspan="4">geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>geoWGS84Long</td><td>xsd:decimal</td><td>0</td><td>optional</td><td></td></tr> <tr> <td></td><td colspan="4">geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> </tbody> </table>					QName	Type	Default	Use		geoGKRight	xsd:decimal	0	optional		geoGKUp	xsd:decimal	0	optional		geoWGS84Lat	xsd:decimal	0	optional			geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				geoWGS84Long	xsd:decimal	0	optional			geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			
QName	Type	Default	Use																																					
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	geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.																																							
Source	<pre> <xsd:element maxOccurs="unbounded" name="node"> <xsd:annotation> <xsd:documentation>node is an intermediate node to model the course of the pipeline.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="0" name="geoGKRight" type="xsd:decimal"/> <xsd:attribute default="0" name="geoGKUp" type="xsd:decimal"/> <xsd:attribute default="0" name="geoWGS84Long" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="0" name="geoWGS84Lat" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </pre>																																							

Element shortPipe

Namespace	http://gaslib.zib.de/Gas	
Annotations	shortPipe is a short pipe in the gas network. It has no other physical properties than a restriction on the directed gas flow. Definition is specified by type.	

Diagram



Type	<code>shortPipeType</code>
Type hierarchy	<ul style="list-style-type: none"> <code>connectionType</code> <ul style="list-style-type: none"> <code>connectionType</code> <code>shortPipeType</code>
Properties	content: complex
Substitution Group Affiliation	<ul style="list-style-type: none"> <code>connection</code>
Model	<code>flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1}</code>
Children	<code>flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin</code>
Instance	<code><shortPipe alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"></code>

```

<flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin>
<flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax>
<operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin>
<operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax>
</shortPipe>

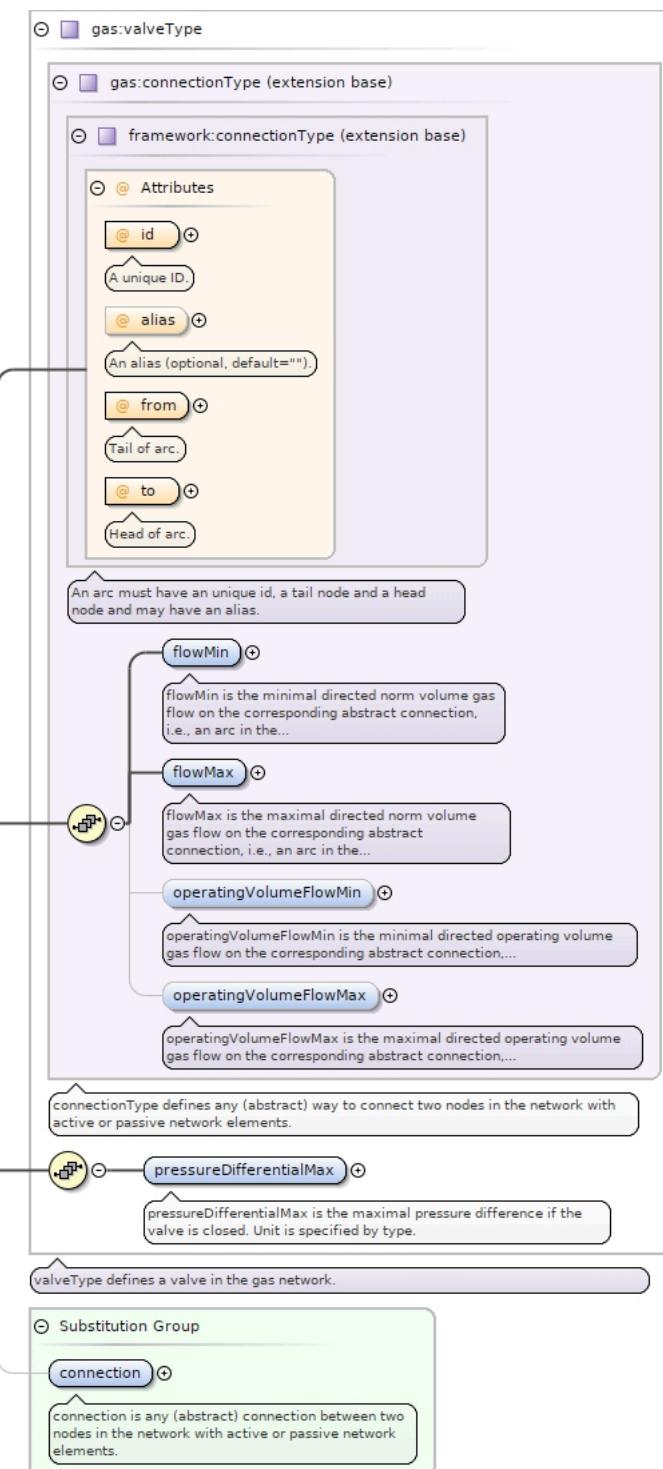
```

	QName	Type	Use	
Attributes	alias	xsd:string	optional	
	An alias (optional, default="").			
	from	xsd:string	required	
	Tail of arc.			
	id	identifier	required	
	A unique ID.			
	to	xsd:string	required	
	Head of arc.			
Source	<xsd:element name="shortPipe" substitutionGroup="gas:connection" type="gas:shortPipeType"> <xsd:annotation> <xsd:documentation>shortPipe is a short pipe in the gas network. It has no other physical properties than a restriction on the directed gas flow. Definition is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element>			

Element valve

Namespace	http://gaslib.zib.de/Gas
Annotations	valve is a valve in the gas network. Definition is specified by type.

Diagram



Type	<code>valveType</code>
Type hierarchy	<ul style="list-style-type: none"> • <code>connectionType</code> <ul style="list-style-type: none"> • <code>connectionType</code> • <code>valveType</code>
Properties	content: complex
Substitution Group Affiliation	• <code>connection</code>
Model	<code>flowMin</code> , <code>flowMax</code> , <code>operatingVolumeFlowMin{0,1}</code> , <code>operatingVolumeFlowMax{0,1}</code> , <code>pressureDifferentialMax</code>

Children	flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureDifferentialMax																											
Instance	<pre><valve alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> <pressureDifferentialMax unit="bar" value="">{1,1}</pressureDifferentialMax> </valve></pre>																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> </tr> <tr> <td></td> <td>An alias (optional, default="").</td> <td></td> </tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td>Tail of arc.</td> <td></td> </tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> </tr> <tr> <td></td> <td>A unique ID.</td> <td></td> </tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td>Head of arc.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	alias	xsd:string	optional		An alias (optional, default="").		from	xsd:string	required		Tail of arc.		id	identifier	required		A unique ID.		to	xsd:string	required		Head of arc.	
QName	Type	Use																										
alias	xsd:string	optional																										
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	Tail of arc.																											
id	identifier	required																										
	A unique ID.																											
to	xsd:string	required																										
	Head of arc.																											
Source	<pre><xsd:element name="valve" substitutionGroup="gas:connection" type="gas:valveType"> <xsd:annotation> <xsd:documentation>valve is a valve in the gas network. Definition is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																											

Element valveType / pressureDifferentialMax

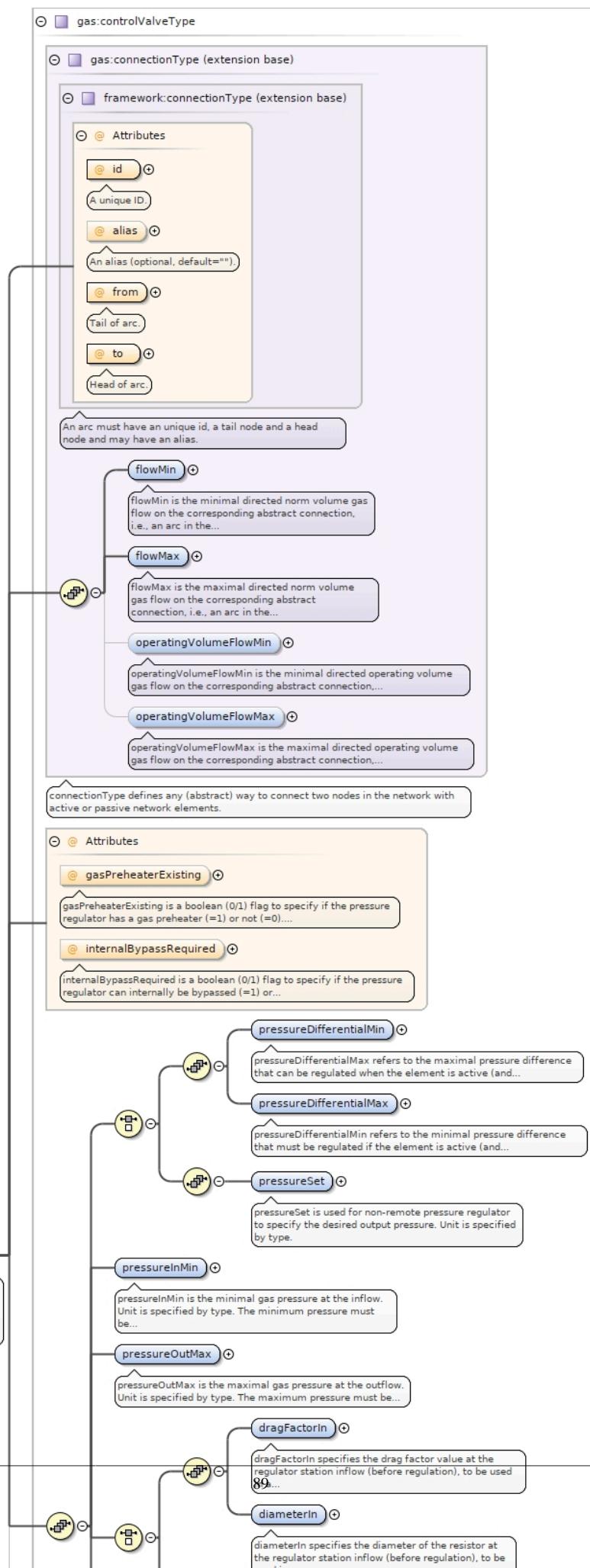
Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureDifferentialMax is the maximal pressure difference if the valve is closed. Unit is specified by type.																				
Diagram	<pre> classDiagram pressureDifferenceType "1" -- "2" pressureDifferentialMax pressureDifferentialMax "1" -- "2" unitType unitType "1" -- "2" Attributes Attributes "1" -- "2" unit Attributes "1" -- "2" value class pressureDifferenceType { <<framework:pressureDifferenceType>> } class pressureDifferentialMax { <<pressureDifferentialMax>> } class unitType { <<framework:unitType (extension base)>> } class Attributes { <<@ Attributes>> } class unit { <<@ unit>> } class value { <<@ value>> } pressureDifferenceType "1" -- "2" pressureDifferentialMax pressureDifferentialMax "1" -- "2" unitType unitType "1" -- "2" Attributes Attributes "1" -- "2" unit Attributes "1" -- "2" value </pre> <p>pressureDifferentialMax is the maximal pressure difference if the valve is closed. Unit is specified by type.</p>																				
Type	pressureDifferenceType																				
Type hierarchy	<ul style="list-style-type: none"> unitType pressureDifferenceType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> </tr> <tr> <td></td> <td>A pressure difference unit (default = bar).</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td>Pressure value.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureDifferenceUnit	bar	optional		A pressure difference unit (default = bar).			value	xsd:double		required		Pressure value.		
QName	Type	Default	Use																		
unit	pressureDifferenceUnit	bar	optional																		
	A pressure difference unit (default = bar).																				
value	xsd:double		required																		
	Pressure value.																				
Source	<pre><xsd:element name="pressureDifferentialMax" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureDifferentialMax is the maximal pressure difference if the valve is closed. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element controlValve

Namespace	http://gaslib.zib.de/Gas
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Annotations	controlValve is a pressure regulator in the gas network. Definition is specified by type.
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Diagram



Type	controlValveType																																																							
Type hierarchy	<ul style="list-style-type: none"> connectionType <ul style="list-style-type: none"> connectionType controlValveType 																																																							
Properties	content: complex																																																							
Substitution Group Affiliation	<ul style="list-style-type: none"> connection 																																																							
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , ((pressureDifferentialMin , pressureDifferentialMax) (pressureSet)) , pressureInMin , pressureOutMax , ((dragFactorIn , diameterIn) (pressureLossIn)) , ((dragFactorOut , diameterOut) (pressureLossOut)) , increasedOutputTemperature{0,1}																																																							
Children	diameterIn, diameterOut, dragFactorIn, dragFactorOut, flowMax, flowMin, increasedOutputTemperature, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureDifferentialMax, pressureDifferentialMin, pressureInMin, pressureLossIn, pressureLossOut, pressureOutMax, pressureSet																																																							
Instance	<pre><controlValve alias="" from="" gasPreheaterExisting="0" id="" internalBypassRequired="1" to="" xmlns="http://gaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> <pressureDifferentialMin unit="bar" value="">{1,1}</pressureDifferentialMin> <pressureDifferentialMax unit="bar" value="">{1,1}</pressureDifferentialMax> <pressureSet unit="barg" value="">{1,1}</pressureSet> <pressureInMin unit="barg" value="">{1,1}</pressureInMin> <pressureOutMax unit="barg" value="">{1,1}</pressureOutMax> <dragFactorIn value="">{1,1}</dragFactorIn> <diameterIn unit="m" value="">{1,1}</diameterIn> <pressureLossIn unit="bar" value="">{1,1}</pressureLossIn> <dragFactorOut value="">{1,1}</dragFactorOut> <diameterOut unit="m" value="">{1,1}</diameterOut> <pressureLossOut unit="bar" value="">{1,1}</pressureLossOut> <increasedOutputTemperature unit="K" value="">{0,1}</increasedOutputTemperature> </controlValve></pre>																																																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>gasPreheaterExisting</td> <td>xsd:boolean</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>internalBypassRequired</td> <td>xsd:boolean</td> <td>1</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">internalBypassRequired is a boolean (0/1) flag to specify if the pressure regulator can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>				QName	Type	Default	Use	alias	xsd:string		optional		An alias (optional, default="").			from	xsd:string		required		Tail of arc.			gasPreheaterExisting	xsd:boolean	0	optional		gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.			id	identifier		required		A unique ID.			internalBypassRequired	xsd:boolean	1	optional		internalBypassRequired is a boolean (0/1) flag to specify if the pressure regulator can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.			to	xsd:string		required		Head of arc.		
QName	Type	Default	Use																																																					
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to	xsd:string		required																																																					
	Head of arc.																																																							
Source	<pre><xsd:element name="controlValve" substitutionGroup="gas:connection" type="gas:controlValveType"> <xsd:annotation> <xsd:documentation>controlValve is a pressure regulator in the gas network. Definition is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																																							

Element controlValveType / pressureDifferentialMin

Namespace	http://gaslib.zib.de/Gas
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Annotations	pressureDifferentialMax refers to the maximal pressure difference that can be regulated when the element is active (and not closed or in bypass). Unit is specified by type.																				
Diagram	<pre> classDiagram framework:pressureDifferenceType < -- framework:unitType framework:pressureDifferenceType { <> Attributes @unit @value } note over pressureDifferentialMin: pressureDifferentialMax refers to the maximal pressure difference that can be regulated when the element is active (and not closed or in bypass). Unit is specified by type. </pre>																				
Type	pressureDifferenceType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureDifferenceType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A pressure difference unit (default = bar).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Pressure value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureDifferenceUnit	bar	optional			A pressure difference unit (default = bar).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureDifferenceUnit	bar	optional																		
		A pressure difference unit (default = bar).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre> <xsd:element name="pressureDifferentialMin" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureDifferentialMax refers to the maximal pressure difference that can be regulated when the element is active (and not closed or in bypass). Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element controlValveType / pressureDifferentialMax

Namespace	http://gaslib.zib.de/Gas								
Annotations	pressureDifferentialMin refers to the minimal pressure difference that must be regulated if the element is active (and not closed or in bypass). Unit is specified by type.								
Diagram	<pre> classDiagram framework:pressureDifferenceType < -- framework:unitType framework:pressureDifferenceType { <> Attributes @unit @value } note over pressureDifferentialMax: pressureDifferentialMin refers to the minimal pressure difference that must be regulated if the element is active (and not closed or in bypass). Unit is specified by type. </pre>								
Type	pressureDifferenceType								
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureDifferenceType 								
Properties	content: complex								
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureDifferenceUnit	bar	optional
QName	Type	Default	Use						
unit	pressureDifferenceUnit	bar	optional						

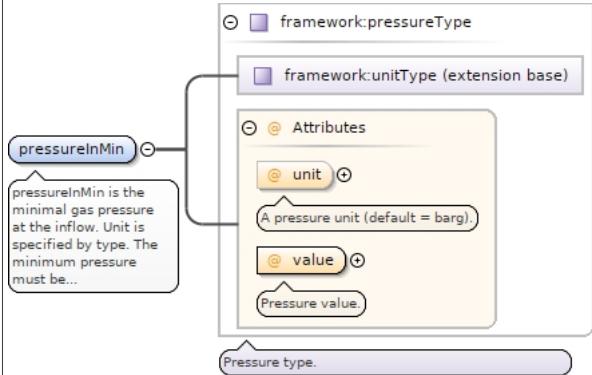
	QName	Type	Default	Use	
		A pressure difference unit (default = bar).			
	value	xsd:double		required	
		Pressure value.			
Source	<pre><xsd:element name="pressureDifferentialMax" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureDifferentialMin refers to the minimal pressure difference that must be regulated if the element is active (and not closed or in bypass). Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element controlValveType / pressureSet

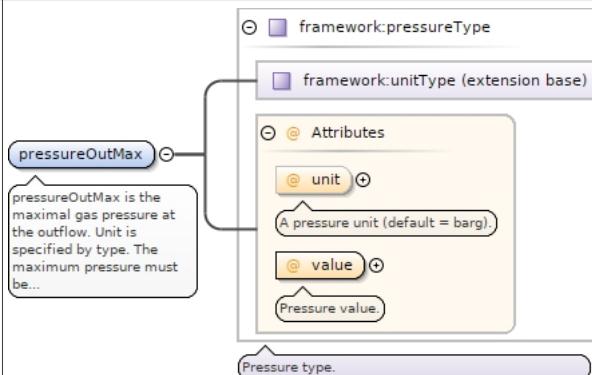
Namespace	http://gaslib.zib.de/Gas																									
Annotations	pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.																									
Diagram	<pre> classDiagram framework:unitType "extension base" framework:pressureType framework:pressureType < -- pressureSet pressureSet "pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type." pressureSet < -- Attributes Attributes < -- unit : xsd:string Attributes < -- value : xsd:double unit --> "A pressure unit (default = barg)." value --> "Pressure value." </pre>																									
Type	pressureType																									
Type hierarchy	<ul style="list-style-type: none"> unitType pressureType 																									
Properties	content: complex																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureUnit</td> <td>barg</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A pressure unit (default = barg).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="4">Pressure value.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	pressureUnit	barg	optional			A pressure unit (default = barg).				value	xsd:double		required			Pressure value.			
QName	Type	Default	Use																							
unit	pressureUnit	barg	optional																							
	A pressure unit (default = barg).																									
value	xsd:double		required																							
	Pressure value.																									
Source	<pre><xsd:element name="pressureSet" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																									

Element controlValveType / pressureInMin

Namespace	http://gaslib.zib.de/Gas
Annotations	pressureInMin is the minimal gas pressure at the inflow. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.

Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre><xsd:element name="pressureInMin" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureInMin is the minimal gas pressure at the inflow. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element controlValveType / pressureOutMax

Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureOutMax is the maximal gas pressure at the outflow. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.																				
Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre><xsd:element name="pressureOutMax" type="framework:pressureType"></pre>																				

```

<xsd:annotation>
  <xsd:documentation>pressureOutMax is the maximal gas pressure at the outflow. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.</xsd:documentation>
</xsd:annotation>
</xsd:element>

```

Element controlValveType / dragFactorIn

Namespace	http://gaslib.zib.de/Gas														
Annotations	dragFactorIn specifies the drag factor value at the regulator station inflow (before regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.														
Diagram	<p>dragFactorIn specifies the drag factor value at the regulator station inflow (before regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</p>														
Type	noType														
Type hierarchy	<ul style="list-style-type: none"> unitType noType 														
Properties	content: complex														
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td></td><td>Value.</td><td></td></tr> </tbody> </table>			QName	Type	Use		value	xsd:double	required				Value.	
QName	Type	Use													
value	xsd:double	required													
		Value.													
Source	<pre> <xsd:element name="dragFactorIn" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactorIn specifies the drag factor value at the regulator station inflow (before regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>														

Element controlValveType / diameterIn

Namespace	http://gaslib.zib.de/Gas		
Annotations	diameterIn specifies the diameter of the resistor at the regulator station inflow (before regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.		
Diagram	<p>diameterIn specifies the diameter of the resistor at the regulator station inflow (before regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</p>		
Type	lengthType		

Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> lengthType 				
Properties	content: complex				
Attributes	QName	Type	Default	Use	
	unit	lengthUnit	m	optional	
		A length unit (default = meter).			
Source	value	xsd:double		required	
		Length value.			

Element controlValveType / pressureLossIn

Namespace	http://gaslib.zib.de/Gas				
Annotations	pressureLossIn specifies a certain value for the loss of pressure of the gas flow over the resistor at the regulator station inflow (before regulation). This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.				
Diagram	<pre> classDiagram class framework:pressureDifferenceType { <<@unit: lengthUnit>> <<@value: xsd:double>> } framework:unitType "1" -- "1" framework:pressureDifferenceType : @unit </pre> <p>The diagram illustrates the structure of the <code>framework:pressureDifferenceType</code> element. It is an extension of the <code>framework:unitType</code> base type. The class has two attributes: <code>@unit</code> (of type <code>lengthUnit</code>) and <code>@value</code> (of type <code>xsd:double</code>). A note indicates that <code>pressureLossIn</code> specifies a certain value for the loss of pressure of the gas flow over the resistor at the regulator station inflow (before regulation). This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</p>				
Type	pressureDifferenceType				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> pressureDifferenceType 				
Properties	content: complex				
Attributes	QName	Type	Default	Use	
	unit	pressureDifferenceUnit	bar	optional	
		A pressure difference unit (default = bar).			
Source	value	xsd:double		required	
		Pressure value.			

Element controlValveType / dragFactorOut

Namespace	http://gaslib.zib.de/Gas				
Annotations	dragFactorOut specifies the drag factor value at the regulator station inflow (after regulation), to be used in a resistor formular to compute				

	<p>the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</p>									
Diagram	<pre> classDiagram class dragFactorOut { <<dragFactorOut specifies the drag factor value at the regulator station inflow (after regulation), to be used in a...>> <<Unitless type.>> } dragFactorOut < -- noType noType < -- unitType unitType < -- frameworkUnitType frameworkUnitType < -- frameworkNoType frameworkNoType < -- frameworkLengthType frameworkLengthType < -- frameworkUnitType frameworkUnitType < -- Attributes Attributes < -- @value @value < -- xsdDouble xsdDouble < -- Value </pre>									
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> unitType noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use								
value	xsd:double	required								
	Value.									
Source	<pre> <xsd:element name="dragFactorOut" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactorOut specifies the drag factor value at the regulator station inflow (after regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</ <xsd:documentation> </xsd:annotation> </xsd:element> </pre>									

Element controlValveType / diameterOut

Namespace	http://gaslib.zib.de/Gas																			
Annotations	<p>diameterOut specifies the diameter of the resistor at the regulator station inflow (after regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</p>																			
Diagram	<pre> classDiagram class diameterOut { <<diameterOut specifies the diameter of the resistor at the regulator station inflow (after regulation), to be used in a...>> <<Length type.>> } diameterOut < -- lengthType lengthType < -- frameworkLengthType frameworkLengthType < -- frameworkUnitType frameworkUnitType < -- Attributes Attributes < -- @unit @unit < -- lengthUnit lengthUnit < -- meter Attributes < -- @value @value < -- xsdDouble xsdDouble < -- LengthValue </pre>																			
Type	lengthType																			
Type hierarchy	<ul style="list-style-type: none"> unitType lengthType 																			
Properties	content: complex																			
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> </tr> <tr> <td></td> <td>A length unit (default = meter).</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> </tbody> </table>				QName	Type	Default	Use	unit	lengthUnit	m	optional		A length unit (default = meter).			value	xsd:double		required
QName	Type	Default	Use																	
unit	lengthUnit	m	optional																	
	A length unit (default = meter).																			
value	xsd:double		required																	

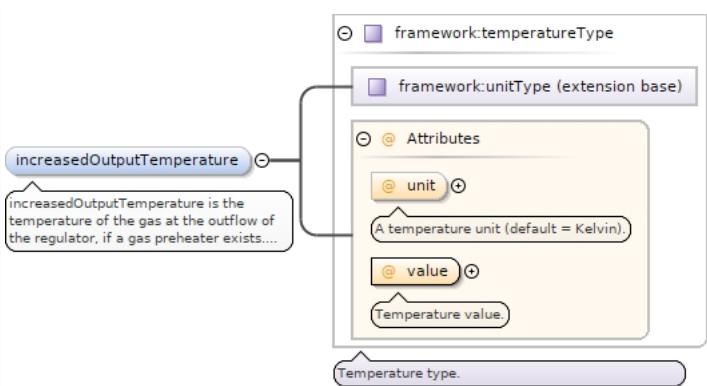
	QName	Type	Default	Use	
	Length value.				
Source		<pre><xsd:element name="diameterOut" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameterOut specifies the diameter of the resistor at the regulator station inflow (after regulation), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</ xsd:documentation> </xsd:annotation> </xsd:element></pre>			

Element controlValveType / pressureLossOut

Namespace	http://gaslib.zib.de/Gas																									
Annotations	pressureLossOut specifies a certain value for the loss of pressure of the gas flow over the resistor at the regulator station inflow (after regulation). This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.																									
Diagram	<pre> classDiagram class framework:pressureDifferenceType { <<framework:unitType (extension base)>> @Attributes @unit A pressure difference unit (default = bar.) @value Pressure value. } pressureLossOut < -- framework:pressureDifferenceType note over pressureLossOut: pressureLossOut specifies a certain value for the loss of pressure of the gas flow over the resistor at the regulator... </pre> <p>The diagram illustrates the UML class <code>framework:pressureDifferenceType</code>. It has an associated extension base <code>framework:unitType</code>. The class contains attributes <code>unit</code> (with a note explaining it's a pressure difference unit with a default value of bar) and <code>value</code>. A note also specifies that <code>pressureLossOut</code> is a certain value for the loss of pressure of the gas flow over the resistor at the regulator station inflow (after regulation), and that this reduction is not applied if the regulator station is in bypass. The unit is specified by type.</p>																									
Type	pressureDifferenceType																									
Type hierarchy	<ul style="list-style-type: none"> unitType pressureDifferenceType 																									
Properties	content: complex																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td>A pressure difference unit (default = bar).</td> <td></td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Pressure value.</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use		unit	pressureDifferenceUnit	bar	optional			A pressure difference unit (default = bar).				value	xsd:double		required			Pressure value.			
QName	Type	Default	Use																							
unit	pressureDifferenceUnit	bar	optional																							
	A pressure difference unit (default = bar).																									
value	xsd:double		required																							
	Pressure value.																									
Source	<pre> <xsd:element name="pressureLossOut" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureLossOut specifies a certain value for the loss of pressure of the gas flow over the resistor at the regulator station inflow (after regulation). This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																									

Element controlValveType / increasedOutputTemperature

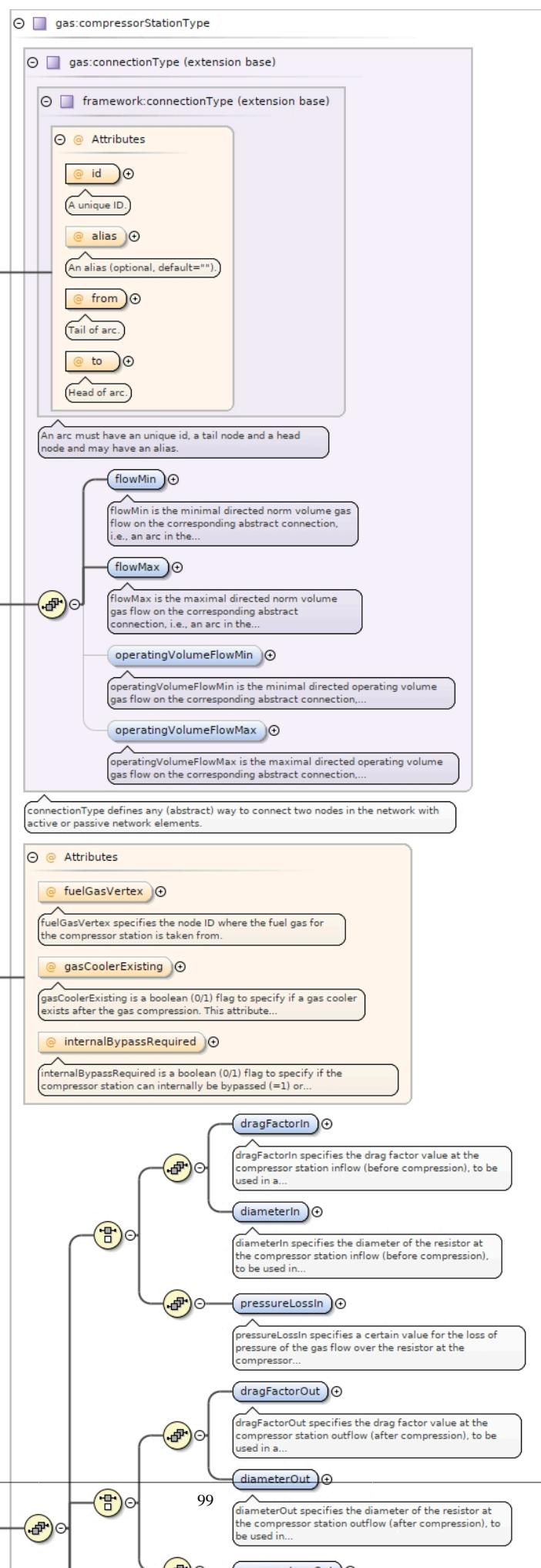
Namespace	http://gaslib.zib.de/Gas
Annotations	increasedOutputTemperature is the temperature of the gas at the outflow of the regulator, if a gas preheater exists. This element is optional; it should only be used if the attribute gasPreheaterExisting is 1. Unit is specified by type.

Diagram																					
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • temperatureType 																				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																
content:	complex																				
minOccurs:	0																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Temperature value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
		A temperature unit (default = Kelvin).																			
value	xsd:double		required																		
		Temperature value.																			
Source	<pre> <xsd:element name="increasedOutputTemperature" minOccurs="0" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>increasedOutputTemperature is the temperature of the gas at the outflow of the regulator, if a gas preheater exists. This element is optional; it should only be used if the attribute gasPreheaterExisting is 1. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element compressorStation

Namespace	http://gaslib.zib.de/Gas
Annotations	compressorStation is a compressor station in the gas network. Definition is specified by type.

Diagram



Type	compressorStationType																																																												
Type hierarchy	<ul style="list-style-type: none"> connectionType <ul style="list-style-type: none"> connectionType compressorStationType 																																																												
Properties	content: complex																																																												
Substitution Group Affiliation	<ul style="list-style-type: none"> connection 																																																												
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , ((dragFactorIn , diameterIn) (pressureLossIn)) , ((dragFactorOut , diameterOut) (pressureLossOut)) , pressureInMin , pressureOutMax , cooledOutputTemperature{0,1}																																																												
Children	cooledOutputTemperature, diameterIn, diameterOut, dragFactorIn, dragFactorOut, flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureInMin, pressureLossIn, pressureLossOut, pressureOutMax																																																												
Instance	<pre><compressorStation alias="" from="" fuelGasVertex="" gasCoolerExisting="0" id="" internalBypassRequired="1" to="" toGaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> <dragFactorIn value="">{1,1}</dragFactorIn> <diameterIn unit="m" value="">{1,1}</diameterIn> <pressureLossIn unit="bar" value="">{1,1}</pressureLossIn> <dragFactorOut value="">{1,1}</dragFactorOut> <diameterOut unit="m" value="">{1,1}</diameterOut> <pressureLossOut unit="bar" value="">{1,1}</pressureLossOut> <pressureInMin unit="barg" value="">{1,1}</pressureInMin> <pressureOutMax unit="barg" value="">{1,1}</pressureOutMax> <cooledOutputTemperature unit="K" value="">{0,1}</cooledOutputTemperature> </compressorStation></pre>																																																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>fuelGasVertex</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.</td></tr> <tr> <td>gasCoolerExisting</td> <td>xsd:boolean</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>internalBypassRequired</td> <td>xsd:boolean</td> <td>1</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>	QName	Type	Default	Use	alias	xsd:string		optional		An alias (optional, default="").			from	xsd:string		required		Tail of arc.			fuelGasVertex	xsd:string		optional		fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.			gasCoolerExisting	xsd:boolean	0	optional		gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).			id	identifier		required		A unique ID.			internalBypassRequired	xsd:boolean	1	optional		internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.			to	xsd:string		required		Head of arc.		
QName	Type	Default	Use																																																										
alias	xsd:string		optional																																																										
	An alias (optional, default="").																																																												
from	xsd:string		required																																																										
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id	identifier		required																																																										
	A unique ID.																																																												
internalBypassRequired	xsd:boolean	1	optional																																																										
	internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.																																																												
to	xsd:string		required																																																										
	Head of arc.																																																												
Source	<pre><xsd:element name="compressorStation" substitutionGroup="gas:connection" type="gas:compressorStationType"> <xsd:annotation> <xsd:documentation>compressorStation is a compressor station in the gas network. Definition is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																																												

Element compressorStationType / dragFactorIn

Namespace	http://gaslib.zib.de/Gas														
Annotations	dragFactorIn specifies the drag factor value at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.														
Diagram	<p>The diagram illustrates the UML class hierarchy for the <code>dragFactorIn</code> element. It shows <code>dragFactorIn</code> inheriting from <code>framework:unitType</code>, which in turn inherits from <code>framework:noType</code>. The <code>dragFactorIn</code> class has an attribute <code>@value</code> with a note "Value." below it. A callout box provides a detailed description: "dragFactorIn specifies the drag factor value at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type." A note at the bottom states "Unitless type."</p>														
Type	noType														
Type hierarchy	<ul style="list-style-type: none"> unitType noType 														
Properties	content: complex														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Value.</td> <td></td> <td></td> </tr> </tbody> </table>			QName	Type	Use		<code>value</code>	xsd:double	required			Value.		
QName	Type	Use													
<code>value</code>	xsd:double	required													
	Value.														
Source	<pre><xsd:element name="dragFactorIn" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactorIn specifies the drag factor value at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>														

Element compressorStationType / diameterIn

Namespace	http://gaslib.zib.de/Gas		
Annotations	diameterIn specifies the diameter of the resistor at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.		
Diagram	<p>The diagram illustrates the UML class hierarchy for the <code>diameterIn</code> element. It shows <code>diameterIn</code> inheriting from <code>framework:unitType</code>, which in turn inherits from <code>framework:lengthType</code>. The <code>diameterIn</code> class has attributes <code>@unit</code> and <code>@value</code>, with notes "A length unit (default = meter)." and "Length value" respectively. A callout box provides a detailed description: "diameterIn specifies the diameter of the resistor at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type." A note at the bottom states "Length type."</p>		
Type	lengthType		
Type hierarchy	<ul style="list-style-type: none"> unitType lengthType 		
Properties	content: complex		

Attributes	QName	Type	Default	Use	
	unit	lengthUnit	m	optional	
		A length unit (default = meter).			
	value	xsd:double		required	
		Length value.			
Source	<pre><xsd:element name="diameterIn" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameterIn specifies the diameter of the resistor at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</ xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element compressorStationType / pressureLossIn

Namespace	http://gaslib.zib.de/Gas				
Annotations	pressureLossIn specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor station inflow (before compression). This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.				
Diagram	<pre> classDiagram framework:pressureDifferenceType "0..1" -- "1..1" pressureLossIn framework:unitType "0..1" -- "1..1" framework:pressureDifferenceType framework:pressureDifferenceType "0..1" -- "1..1" Attributes Attributes "0..1" -- "1..1" unit Attributes "0..1" -- "1..1" value note over pressureLossIn : pressureLossIn specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor... note over Pressure difference type : Pressure difference type. </pre>				
Type	pressureDifferenceType				
Type hierarchy	<ul style="list-style-type: none"> unitType pressureDifferenceType 				
Properties	content: complex				
Attributes	QName	Type	Default	Use	
	unit	pressureDifferenceUnit	bar	optional	
		A pressure difference unit (default = bar).			
	value	xsd:double		required	
		Pressure value.			
Source	<pre><xsd:element name="pressureLossIn" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureLossIn specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor station inflow (before compression). This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</ xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element compressorStationType / dragFactorOut

Namespace	http://gaslib.zib.de/Gas
Annotations	dragFactorOut specifies the drag factor value at the compressor station outflow (after compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.

Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<pre><xsd:element name="dragFactorOut" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactorOut specifies the drag factor value at the compressor station outflow (after compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</ <xsd:documentation> </xsd:annotation> </xsd:element></pre>												

Element compressorStationType / diameterOut

Namespace	http://gaslib.zib.de/Gas																									
Annotations	diameterOut specifies the diameter of the resistor at the compressor station outflow (after compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.																									
Diagram																										
Type	lengthType																									
Type hierarchy	<ul style="list-style-type: none"> • unitType • lengthType 																									
Properties	content: complex																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>unit</td><td>lengthUnit</td><td>m</td><td>optional</td><td></td></tr> <tr> <td></td><td>A length unit (default = meter).</td><td></td><td></td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td><td></td></tr> <tr> <td></td><td>Length value.</td><td></td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use		unit	lengthUnit	m	optional			A length unit (default = meter).				value	xsd:double		required			Length value.			
QName	Type	Default	Use																							
unit	lengthUnit	m	optional																							
	A length unit (default = meter).																									
value	xsd:double		required																							
	Length value.																									
Source	<pre><xsd:element name="diameterOut" type="framework:lengthType"></pre>																									

```

<xsd:annotation>
  <xsd:documentation>diameterOut specifies the diameter of the resistor at the compressor station outflow (after compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation>
</xsd:annotation>
</xsd:element>

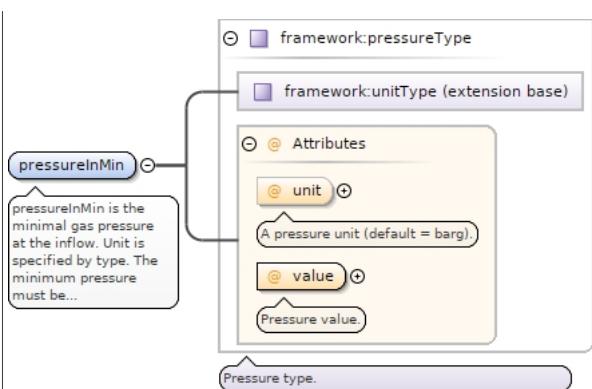
```

Element compressorStationType / pressureLossOut

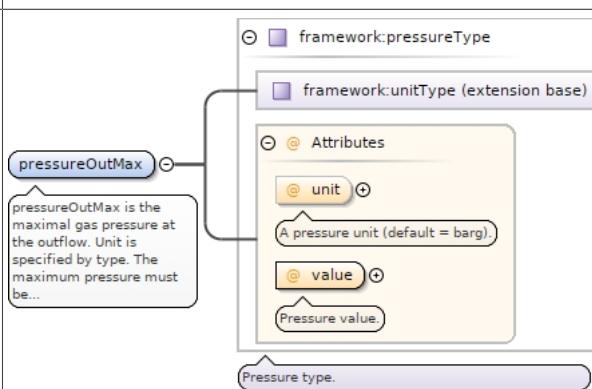
Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureLossOut specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor station outflow (after compression). This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.																				
Diagram	<pre> classDiagram pressureLossOut "1" -- "1" pressureDifferenceType pressureDifferenceType "1" -- "1" unitType unitType "1" -- "1" Attributes Attributes "1" -- "1" unit Attributes "1" -- "1" value unit "1" -- "1" "A pressure difference unit (default = bar)." value "1" -- "1" "Pressure value." </pre> <p>The diagram illustrates the UML class structure for the <code>pressureLossOut</code> element. It is an attribute of the <code>pressureDifferenceType</code> class. The <code>pressureDifferenceType</code> class has an association with the <code>unitType</code> class, labeled as an extension base. The <code>unitType</code> class contains attributes <code>unit</code> and <code>value</code>. The <code>unit</code> attribute is annotated with a note: "A pressure difference unit (default = bar)". The <code>value</code> attribute is also annotated with a note: "Pressure value".</p>																				
Type	pressureDifferenceType																				
Type hierarchy	<ul style="list-style-type: none"> unitType pressureDifferenceType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A pressure difference unit (default = bar).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Pressure value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureDifferenceUnit	bar	optional			A pressure difference unit (default = bar).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureDifferenceUnit	bar	optional																		
		A pressure difference unit (default = bar).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre> <xsd:element name="pressureLossOut" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureLossOut specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor station outflow (after compression). This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element compressorStationType / pressureInMin

Namespace	http://gaslib.zib.de/Gas
Annotations	pressureInMin is the minimal gas pressure at the inflow. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.

Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			
Source	<pre><xsd:element name="pressureInMin" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureInMin is the minimal gas pressure at the inflow. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element compressorStationType / pressureOutMax

Namespace	http://gaslib.zib.de/Gas																				
Annotations	pressureOutMax is the maximal gas pressure at the outflow. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.																				
Diagram																					
Type	pressureType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • pressureType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>pressureUnit</td><td>barg</td><td>optional</td></tr> <tr> <td></td><td></td><td>A pressure unit (default = barg).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Pressure value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureUnit	barg	optional			A pressure unit (default = barg).		value	xsd:double		required			Pressure value.	
QName	Type	Default	Use																		
unit	pressureUnit	barg	optional																		
		A pressure unit (default = barg).																			
value	xsd:double		required																		
		Pressure value.																			

Source	<pre><xsd:element name="pressureOutMax" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureOutMax is the maximal gas pressure at the outflow. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element></pre>
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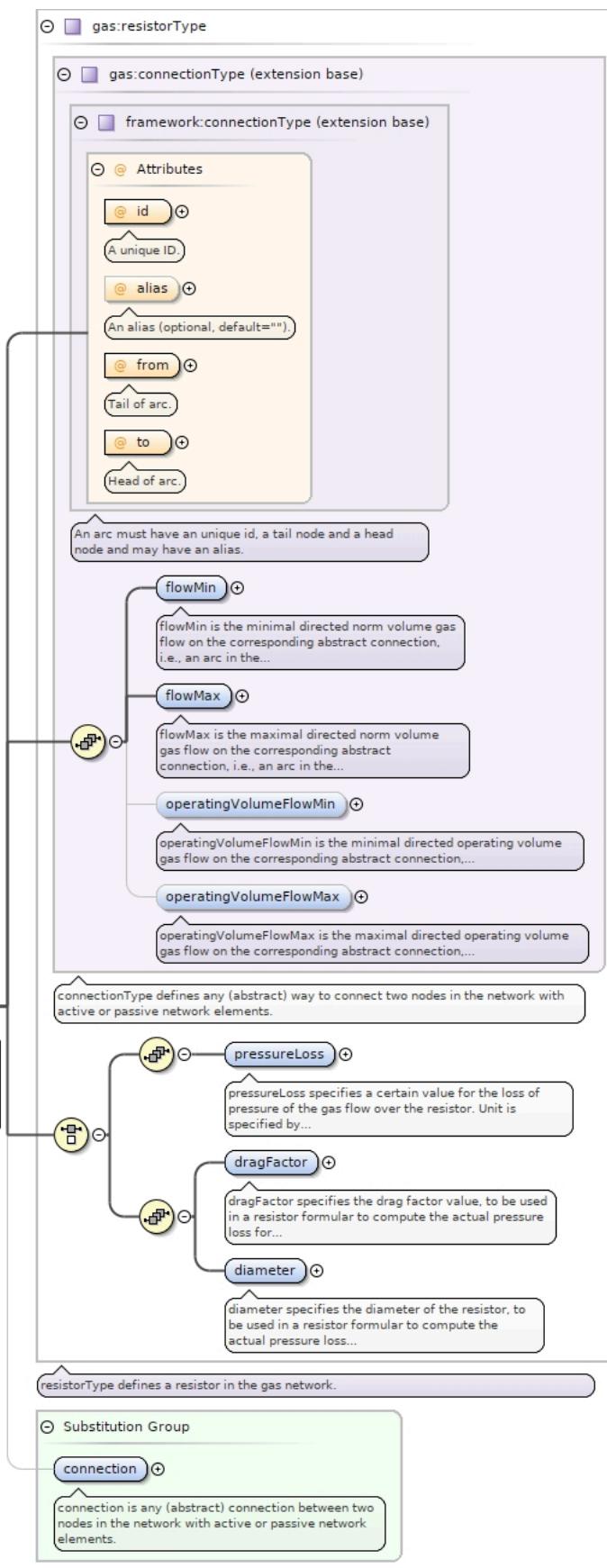
Element compressorStationType / cooledOutputTemperature

Namespace	http://gaslib.zib.de/Gas																				
Annotations	cooledOutputTemperature is the temperature of the gas at the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used if the attribute gasCoolerExisting is 1. Unit is specified by type.																				
Diagram	<pre> classDiagram class framework:temperatureType { <<Attributes>> @unit @value } class framework:unitType { <<extension base>> } framework:temperatureType < -- framework:unitType </pre> <p>The diagram illustrates the UML class structure for <code>framework:temperatureType</code>. It is an extension of <code>framework:unitType</code>. The class has two attributes: <code>@unit</code> (with a note "A temperature unit (default = Kelvin)") and <code>@value</code> (with a note "Temperature value").</p>																				
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> unitType temperatureType 																				
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0																
content:	complex																				
minOccurs:	0																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Temperature value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
		A temperature unit (default = Kelvin).																			
value	xsd:double		required																		
		Temperature value.																			
Source	<pre><xsd:element name="cooledOutputTemperature" minOccurs="0" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>cooledOutputTemperature is the temperature of the gas at the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used if the attribute gasCoolerExisting is 1. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element resistor

Namespace	http://gaslib.zib.de/Gas
Annotations	resistor is a resistor in the gas network. Definition is specified by type.

Diagram



Type	resistorType
------	--------------

Type hierarchy	<ul style="list-style-type: none"> connectionType <ul style="list-style-type: none"> connectionType resistorType 																											
Properties	content: complex																											
Substitution Group Affiliation	• connection																											
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , ((pressureLoss) (dragFactor , diameter))																											
Children	diameter, dragFactor, flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureLoss																											
Instance	<pre><resistor alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> <pressureLoss unit="bar" value="">{1,1}</pressureLoss> <dragFactor value="">{1,1}</dragFactor> <diameter unit="m" value="">{1,1}</diameter> </resistor></pre>																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>An alias (optional, default="").</td> </tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Tail of arc.</td> </tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>A unique ID.</td> </tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Head of arc.</td> </tr> </tbody> </table>	QName	Type	Use	alias	xsd:string	optional			An alias (optional, default="").	from	xsd:string	required			Tail of arc.	id	identifier	required			A unique ID.	to	xsd:string	required			Head of arc.
QName	Type	Use																										
alias	xsd:string	optional																										
		An alias (optional, default="").																										
from	xsd:string	required																										
		Tail of arc.																										
id	identifier	required																										
		A unique ID.																										
to	xsd:string	required																										
		Head of arc.																										
Source	<pre><xsd:element name="resistor" substitutionGroup="gas:connection" type="gas:resistorType"> <xsd:annotation> <xsd:documentation>resistor is a resistor in the gas network. Definition is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																											

Element resistorType / pressureLoss

Namespace	http://gaslib.zib.de/Gas								
Annotations	pressureLoss specifies a certain value for the loss of pressure of the gas flow over the resistor. Unit is specified by type.								
Diagram	<p>The diagram illustrates the structure of the pressureLoss element. It is an attribute of the framework:unitType extension base. The pressureLoss attribute has a note: "pressureLoss specifies a certain value for the loss of pressure of the gas flow over the resistor. Unit is specified by...". The framework:unitType extension base has attributes unit (with note: "A pressure difference unit (default = bar).") and value (with note: "Pressure value.").</p>								
Type	pressureDifferenceType								
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> pressureDifferenceType 								
Properties	content: complex								
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	pressureDifferenceUnit	bar	optional
QName	Type	Default	Use						
unit	pressureDifferenceUnit	bar	optional						

	QName	Type	Default	Use	
				A pressure difference unit (default = bar).	
	value	xsd:double		required	
			Pressure value.		
Source	<pre><xsd:element name="pressureLoss" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureLoss specifies a certain value for the loss of pressure of the gas flow over the resistor. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element resistorType / dragFactor

Namespace	http://gaslib.zib.de/Gas				
Annotations	dragFactor specifies the drag factor value, to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. Unit is specified by type.				
Diagram	<pre> classDiagram framework:noType "1..>" framework:unitType framework:unitType "1..>" Attributes Attributes "1..>" Value Value "1..>" UnitlessType </pre> <p>The diagram illustrates the type hierarchy for the <code>dragFactor</code> element. It begins with the <code>framework:noType</code> class, which has a dependency relationship (indicated by a line with an open circle at the end) to the <code>framework:unitType</code> class. The <code>framework:unitType</code> class is labeled as an "extension base". Inside the <code>framework:unitType</code> class, there is an association labeled <code>@ Attributes</code>, which connects to a <code>@ value</code> attribute. This attribute has another dependency relationship (indicated by a line with an open circle at the end) to a <code>Value</code> class. A note below the diagram states "Unitless type."</p>				
Type	noType				
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 				
Properties	content: complex				
Attributes	QName	Type	Use		
	value	xsd:double	required		
			Value.		
Source	<pre><xsd:element name="dragFactor" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactor specifies the drag factor value, to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element resistorType / diameter

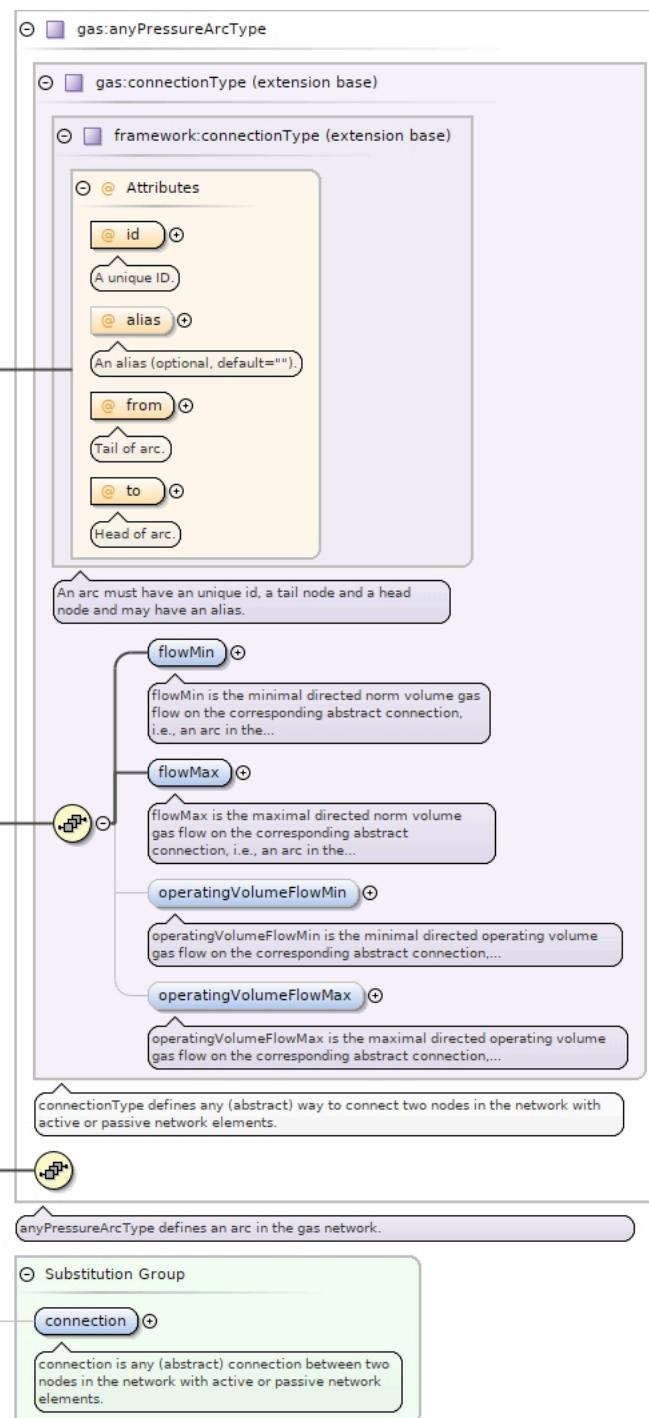
Namespace	http://gaslib.zib.de/Gas				
Annotations	diameter specifies the diameter of the resistor, to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. Unit is specified by type.				

Diagram	<pre> classDiagram framework:lengthType < -- framework:unitType framework:unitType < -- diameter diameter { <--> "diameter specifies the diameter of the resistor, to be used in a resistor formular to compute the actual pressure loss..." } diameter { @unit : A length unit (default = meter). @value : Length value. } </pre> <p>diameter</p> <p>diameter specifies the diameter of the resistor, to be used in a resistor formular to compute the actual pressure loss...</p> <p>Attributes</p> <ul style="list-style-type: none"> @unit : A length unit (default = meter). @value : Length value. <p>Length type.</p>																									
Type	lengthType																									
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • lengthType 																									
Properties	content: complex																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>unit</td><td>lengthUnit</td><td>m</td><td>optional</td><td></td></tr> <tr> <td></td><td></td><td>A length unit (default = meter).</td><td></td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td><td></td></tr> <tr> <td></td><td></td><td>Length value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use		unit	lengthUnit	m	optional				A length unit (default = meter).			value	xsd:double		required				Length value.		
QName	Type	Default	Use																							
unit	lengthUnit	m	optional																							
		A length unit (default = meter).																								
value	xsd:double		required																							
		Length value.																								
Source	<pre> <xsd:element name="diameter" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameter specifies the diameter of the resistor, to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																									

Element anyPressureArc

Namespace	http://gaslib.zib.de/Gas
Annotations	anyPressureArc is an in the gas network. It has no other physical properties than a restriction on the directed gas flow. The pressure on the incident vertices is decoupled.

Diagram



Type	anyPressureArcType
Type hierarchy	<ul style="list-style-type: none"> • <code>connectionType</code> • <code>connectionType</code> • <code>anyPressureArcType</code>
Properties	content: complex
Substitution Group Affiliation	• <code>connection</code>
Model	<code>flowMin</code> , <code>flowMax</code> , <code>operatingVolumeFlowMin{0,1}</code> , <code>operatingVolumeFlowMax{0,1}</code>
Children	<code>flowMax</code> , <code>flowMin</code> , <code>operatingVolumeFlowMax</code> , <code>operatingVolumeFlowMin</code>
Instance	<code><anyPressureArc alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"></code>

```

<flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin>
<flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax>
<operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin>
<operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax>
</anyPressureArc>

```

	Attributes	QName	Type	Use	
		alias	xsd:string	optional	
		An alias (optional, default = "").			
		from	xsd:string	required	
		Tail of arc.			
		id	identifier	required	
		A unique ID.			
		to	xsd:string	required	
		Head of arc.			
Source		<xsd:element name="anyPressureArc" substitutionGroup="gas:connection" type="gas:anyPressureArcType"> <xsd:annotation> <xsd:documentation>anyPressureArc is an in the gas network. It has no other physical properties than a restriction on the directed gas flow. The pressure on the incident vertices is decoupled.</xsd:documentation> </xsd:annotation> </xsd:element>			

Element partialPipeType / diameter

Namespace	http://gaslib.zib.de/Gas																									
Annotations	Diameter of the partial pipeline.																									
Diagram	<pre> classDiagram class framework:lengthType class framework:unitType { <<extension base>> } class Attributes { @unit @value } framework:lengthType "1" -- "1" framework:unitType framework:unitType "1" -- "1" Attributes Attributes "1" -- "1" @unit Attributes "1" -- "1" @value @unit "1" -- "1" lengthUnit @value "1" -- "1" lengthValue lengthUnit "1" -- "1" lengthValue </pre>																									
Type	lengthType																									
Type hierarchy	<ul style="list-style-type: none"> unitType lengthType 																									
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>1</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	1																			
content:	complex																									
minOccurs:	1																									
maxOccurs:	1																									
Attributes	<table> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A length unit (default = meter).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Length value.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	lengthUnit	m	optional			A length unit (default = meter).				value	xsd:double		required			Length value.			
QName	Type	Default	Use																							
unit	lengthUnit	m	optional																							
	A length unit (default = meter).																									
value	xsd:double		required																							
	Length value.																									
Source	<xsd:element name="diameter" type="framework:lengthType" minOccurs="1" maxOccurs="1"> <xsd:annotation> <xsd:documentation>Diameter of the partial pipeline.</xsd:documentation> </xsd:annotation> </xsd:element>																									

Element partialPipeType / costCoefficient

Namespace	http://gaslib.zib.de/Gas
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Annotations	Cost factor for relative length of partial pipe.																				
Diagram	<pre> classDiagram framework:costType "1" -- "1" framework:unitType framework:costType "1" -- "1" costCoefficient framework:unitType "1" -- "1" Attributes Attributes "1" -- "1" unit Attributes "1" -- "1" value </pre> <p>Building cost type.</p>																				
Type	costType																				
Type hierarchy	<ul style="list-style-type: none"> unitType costType 																				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>1</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	1														
content:	complex																				
minOccurs:	1																				
maxOccurs:	1																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>costUnit</td> <td>MEUR</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>Cost unit in currency: EUR.</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Cost value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	costUnit	MEUR	optional			Cost unit in currency: EUR.		value	xsd:double		required			Cost value.	
QName	Type	Default	Use																		
unit	costUnit	MEUR	optional																		
		Cost unit in currency: EUR.																			
value	xsd:double		required																		
		Cost value.																			
Source	<pre> <xsd:element name="costCoefficient" type="framework:costType" minOccurs="1" maxOccurs="1"> <xsd:annotation> <xsd:documentation>Cost factor for relative length of partial pipe.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

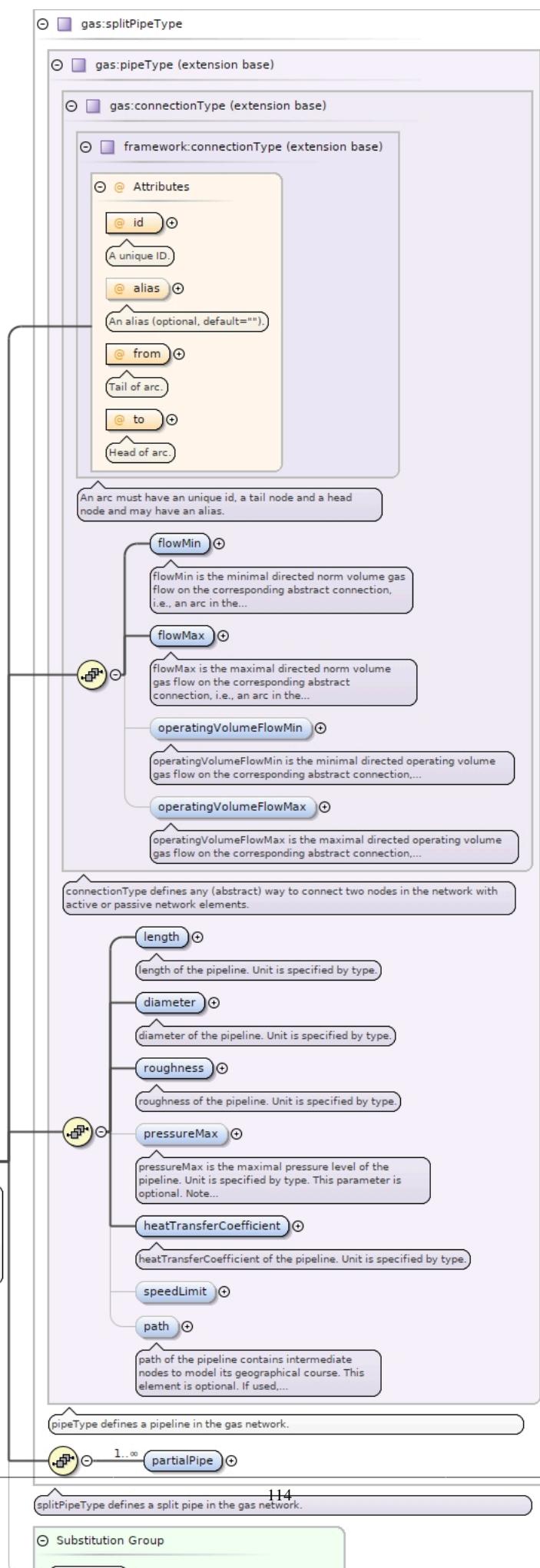
Element partialPipeType / comment

Namespace	http://gaslib.zib.de/Gas						
Annotations	Optional comment						
Diagram	<pre> comment --> xsd:string </pre> <p>Optional comment</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>						
Type	xsd:string						
Properties	<table> <tr> <td>content:</td> <td>simple</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	simple	minOccurs:	0	maxOccurs:	1
content:	simple						
minOccurs:	0						
maxOccurs:	1						
Source	<pre> <xsd:element name="comment" type="xsd:string" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>Optional comment</xsd:documentation> </xsd:annotation> </xsd:element> </pre>						

Element splitPipe

Namespace	http://gaslib.zib.de/Gas
Annotations	splitPipe is a pipeline with variable diameter in the gas network. Definition is given by type.

Diagram



Type	splitPipeType																																						
Type hierarchy	<ul style="list-style-type: none"> • connectionType <ul style="list-style-type: none"> • connectionType • pipeType • splitPipeType 																																						
Properties	content: complex																																						
Substitution Group Affiliation	<ul style="list-style-type: none"> • connection 																																						
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , length , diameter , roughness , pressureMax{0,1} , heatTransferCoefficient , speedLimit{0,1} , path{0,1} , partialPipe+																																						
Children	diameter, flowMax, flowMin, heatTransferCoefficient, length, operatingVolumeFlowMax, operatingVolumeFlowMin, partialPipe, path, pressureMax, roughness, speedLimit																																						
Instance	<pre><splitPipe alias="" from="" id="" to="" xmlns="http://gaslib.zib.de/Gas"> <flowMin unit="1000m_cube_per_hour" value="">{1,1}</flowMin> <flowMax unit="1000m_cube_per_hour" value="">{1,1}</flowMax> <operatingVolumeFlowMin unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMin> <operatingVolumeFlowMax unit="1000m_cube_per_hour" value="">{0,1}</operatingVolumeFlowMax> <length unit="m" value="">{1,1}</length> <diameter unit="m" value="">{1,1}</diameter> <roughness unit="m" value="">{1,1}</roughness> <pressureMax unit="bar" value="">{0,1}</pressureMax> <heatTransferCoefficient unit="W_per_m_square_per_K" value="">{1,1}</heatTransferCoefficient> <speedLimit unit="m_per_s" value="">{0,1}</speedLimit> <path>{0,1}</path> <partialPipe>{1,unbounded}</partialPipe> </splitPipe></pre>																																						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>			QName	Type	Use		alias	xsd:string	optional			An alias (optional, default="").			from	xsd:string	required			Tail of arc.			id	identifier	required			A unique ID.			to	xsd:string	required			Head of arc.		
QName	Type	Use																																					
alias	xsd:string	optional																																					
	An alias (optional, default="").																																						
from	xsd:string	required																																					
	Tail of arc.																																						
id	identifier	required																																					
	A unique ID.																																						
to	xsd:string	required																																					
	Head of arc.																																						
Source	<pre><xsd:element name="splitPipe" substitutionGroup="gas:connection" type="gas:splitPipeType"> <xsd:annotation> <xsd:documentation>splitPipe is a pipeline with variable diameter in the gas network. Definition is given by type.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																																						

Element splitPipeType / partialPipe

Namespace	http://gaslib.zib.de/Gas
Diagram	<pre> classDiagram class partialPipeType { diameter costCoefficient comment } partialPipe --> partialPipeType note over partialPipeType: Parameters for a partial length of a pipeline. </pre>
Type	partialPipeType
Properties	content: complex

	minOccurs:	1
	maxOccurs:	unbounded
Model	diameter , costCoefficient , comment{0,1}	
Children	comment, costCoefficient, diameter	
Instance	<partialPipe xmlns="http://gaslib.zib.de/Gas"> <diameter unit="m" value="">{1,1}</diameter> <costCoefficient unit="MEUR" value="">{1,1}</costCoefficient> <comment>{0,1}</comment> </partialPipe>	
Source	<xsd:element name="partialPipe" type="gas:partialPipeType" minOccurs="1" maxOccurs="unbounded"/>	

Complex Type(s)

Complex Type gas:scenarioProbabilityType

Namespace	http://gaslib.zib.de/Gas											
Annotations	Type for the probability of a scenario.											
Diagram	<p>The diagram shows a class named 'scenarioProbabilityType' with an attribute labeled '@value'. A note below the class says 'Type for the probability of a scenario.'</p> <p>Attributes:</p> <ul style="list-style-type: none"> scenarioProbabilityType @value <p>Description:</p> <p>Type for the probability of a scenario.</p>											
Used by	Element gas:boundaryValue/gas:scenario/gas:scenarioProbability											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>gas:probability</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>The probability of the scenario given as value in [0,1]</td> </tr> </tbody> </table>	QName	Type	Use	value	gas:probability	required			The probability of the scenario given as value in [0,1]		
QName	Type	Use										
value	gas:probability	required										
		The probability of the scenario given as value in [0,1]										
Source	<pre><xsd:complexType name="scenarioProbabilityType"> <xsd:annotation> <xsd:documentation>Type for the probability of a scenario.</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="gas:probability" use="required"> <xsd:annotation> <xsd:documentation>The probability of the scenario given as value in [0,1]</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType></pre>											

Complex Type gas:contractDateType

Namespace	http://gaslib.zib.de/Gas											
Annotations	Type for a contract date.											
Diagram	<p>The diagram shows a class named 'contractDateType' with an attribute labeled '@value'. A note below the class says 'Type for a contract date.'</p> <p>Attributes:</p> <ul style="list-style-type: none"> contractDateType @value <p>Description:</p> <p>Type for a contract date.</p>											
Used by	Element gas:boundaryValue/gas:scenario/gas:contractDate											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:date</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Date of the underlying contract</td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:date	required			Date of the underlying contract		
QName	Type	Use										
value	xsd:date	required										
		Date of the underlying contract										
Source	<pre><xsd:complexType name="contractDateType"> <xsd:annotation> <xsd:documentation>Type for a contract date.</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="xsd:date" use="required"> <xsd:annotation> <xsd:documentation>Date of the underlying contract</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType></pre>											

Complex Type gas:dataDateType

Namespace	http://gaslib.zib.de/Gas														
Annotations	Type for a data date.														
Diagram	<pre> classDiagram class dataDateType { @ value : xsd:date } dataDateType < -- Attributes Attributes < -- value value --> "xsd:date" </pre>														
Used by	Element gas:boundaryValue/gas:scenario/gas:dataDate														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:date</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Date of scenario data</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Use		value	xsd:date	required			Date of scenario data				
QName	Type	Use													
value	xsd:date	required													
	Date of scenario data														
Source	<pre> <xsd:complexType name="dataDateType"> <xsd:annotation> <xsd:documentation>Type for a data date.</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="xsd:date" use="required"> <xsd:annotation> <xsd:documentation>Date of scenario data</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>														

Complex Type gas:usesInterruptibleCapType

Namespace	http://gaslib.zib.de/Gas														
Annotations	Type for a boolean value: Are interruptible capacities used?														
Diagram	<pre> classDiagram class usesInterruptibleCapType { @ value : xsd:boolean } usesInterruptibleCapType < -- Attributes Attributes < -- value value --> "xsd:boolean" </pre>														
Used by	Element gas:boundaryValue/gas:scenario/gas:usesInterruptibleCap														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:boolean</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Indicates whether interruptible capacities are used</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Use		value	xsd:boolean	required			Indicates whether interruptible capacities are used				
QName	Type	Use													
value	xsd:boolean	required													
	Indicates whether interruptible capacities are used														
Source	<pre> <xsd:complexType name="usesInterruptibleCapType"> <xsd:annotation> <xsd:documentation>Type for a boolean value: Are interruptible capacities used?</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="xsd:boolean" use="required"> <xsd:annotation> <xsd:documentation>Indicates whether interruptible capacities are used</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>														

Complex Type gas:reducedMunicipalUtilityType

Namespace	http://gaslib.zib.de/Gas										
Annotations	Type for a boolean value: Are municipal utilities involved?										
Diagram	<pre> classDiagram class reducedMunicipalUtilityType { @ value : xsd:boolean } reducedMunicipalUtilityType < -- Attributes Attributes < -- value value --> "xsd:boolean" </pre>										
Used by	Element gas:boundaryValue/gas:scenario/gas:reducedMunicipalUtility										
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:boolean</td> <td>required</td> <td></td> </tr> </tbody> </table>	QName	Type	Use		value	xsd:boolean	required			
QName	Type	Use									
value	xsd:boolean	required									

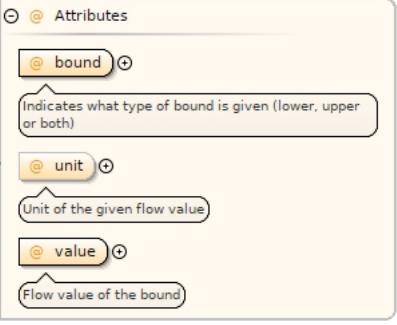
	QName	Type	Use	
		Indicates whether municipal utilities are involved		
Source		<pre><xsd:complexType name="reducedMunicipalUtilityType"> <xsd:annotation> <xsd:documentation>Type for a boolean value: Are municipal utilities involved?</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="xsd:boolean" use="required"> <xsd:annotation> <xsd:documentation>Indicates whether municipal utilities are involved</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType></pre>		

Complex Type gas:pressure_type

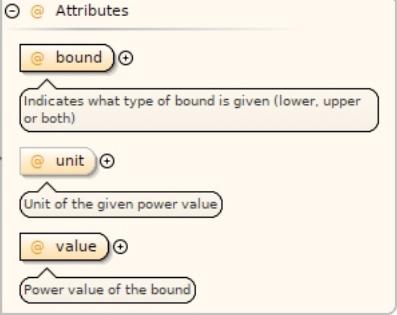
Namespace	http://gaslib.zib.de/Gas			
Annotations	Type for pressure bounds, consisting of bound ('lower', 'upper' or 'both'), unit ('bar', 'barg', 'Pa'), and double value. Default unit is barg.			
Diagram	<p>The diagram illustrates the structure of the <code>gas:pressure_type</code> complex type. It consists of a main element <code>pressure_type</code> which contains three attributes: <code>bound</code>, <code>unit</code>, and <code>value</code>. Each attribute is represented by a box with a plus sign (+) indicating it can be expanded. The <code>bound</code> box contains the definition: "Indicates what type of bound is given (lower, upper or both)". The <code>unit</code> box contains: "Unit of the given pressure value". The <code>value</code> box contains: "Pressure value of the bound".</p>			
Used by	Elements	gas:boundaryValue/gas:scenario/gas:innode/gas:pressure, gas:boundaryValue/gas:scenario/gas:nоде/gas:pressure		
Attributes	QName	Type	Default	Use
	bound	gas:resbound		required
		Indicates what type of bound is given (lower, upper or both)		
	unit	pressureUnit	barg	optional
		Unit of the given pressure value		
	value	xsd:double		required
		Pressure value of the bound		
Source	<pre><xsd:complexType name="pressure_type"> <xsd:annotation> <xsd:documentation>Type for pressure bounds, consisting of bound ('lower', 'upper' or 'both'), unit ('bar', 'barg', 'Pa'), and double value. Default unit is barg.</xsd:documentation> </xsd:annotation> <xsd:attribute name="bound" type="gas:resbound" use="required"> <xsd:annotation> <xsd:documentation>Indicates what type of bound is given (lower, upper or both)</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="unit" type="framework:pressureUnit" default="barg"> <xsd:annotation> <xsd:documentation>Unit of the given pressure value</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Pressure value of the bound</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType></pre>			

Complex Type gas:flow_type

Namespace	http://gaslib.zib.de/Gas		
Annotations	Type for flow bound, consisting of bound ('lower', 'upper' or 'both'), unit ('m_cube_per_s', 'm_cube_per_hour', '1000m_cube_per_hour'), and double value. Default unit is <code>m_cube_per_s</code> .		

Diagram																													
Used by	Elements gas:activeContractType/gas:flow, gas:boundaryValue/gas:scenario/gas:node/gas:flow																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>bound</td> <td>gas:resbound</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Indicates what type of bound is given (lower, upper or both)</td></tr> <tr> <td>unit</td> <td>flowUnit</td> <td>m_cube_per_s</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">Unit of the given flow value</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Flow value of the bound</td></tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required		Indicates what type of bound is given (lower, upper or both)			unit	flowUnit	m_cube_per_s	optional		Unit of the given flow value			value	xsd:double		required		Flow value of the bound		
QName	Type	Default	Use																										
bound	gas:resbound		required																										
	Indicates what type of bound is given (lower, upper or both)																												
unit	flowUnit	m_cube_per_s	optional																										
	Unit of the given flow value																												
value	xsd:double		required																										
	Flow value of the bound																												
Source	<pre> <xsd:complexType name="flow_type"> <xsd:annotation> <xsd:documentation>Type for flow bound, consisting of bound ('lower', 'upper' or 'both'), unit ('m_cube_per_s', 'm_cube_per_hour', '1000m_cube_per_hour'), and double value. Default unit is m_cube_per_s.</xsd:documentation> </xsd:annotation> <xsd:attribute name="bound" type="gas:resbound" use="required"> <xsd:annotation> <xsd:documentation>Indicates what type of bound is given (lower, upper or both)</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="unit" type="framework:flowUnit" default="m_cube_per_s"> <xsd:annotation> <xsd:documentation>Unit of the given flow value</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Flow value of the bound</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>																												

Complex Type gas:power_type

Namespace	http://gaslib.zib.de/Gas												
Annotations	Type for power bound, consisting of bound ('lower', 'upper' or 'both'), unit ('W', 'kW', 'MW', 'mW'), and double value. Default unit is kW.												
Diagram													
Used by	Elements gas:activeContractType/gas:power, gas:boundaryValue/gas:scenario/gas:node/gas:power												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>bound</td> <td>gas:resbound</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Indicates what type of bound is given (lower, upper or both)</td></tr> </tbody> </table>	QName	Type	Default	Use	bound	gas:resbound		required		Indicates what type of bound is given (lower, upper or both)		
QName	Type	Default	Use										
bound	gas:resbound		required										
	Indicates what type of bound is given (lower, upper or both)												

	QName	Type	Default	Use	
	unit	powerUnit	kW	optional	
		Unit of the given power value			
	value	xsd:double		required	
		Power value of the bound			
Source	<pre><xsd:complexType name="power_type"> <xsd:annotation> <xsd:documentation>Type for power bound, consisting of bound ('lower', 'upper' or 'both'), unit ('W', 'kW', 'MW', 'mW'), and double value. Default unit is kW.</xsd:documentation> </xsd:annotation> <xsd:attribute name="bound" type="gas:resbound" use="required"> <xsd:annotation> <xsd:documentation>Indicates what type of bound is given (lower, upper or both)</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="unit" type="framework:powerUnit" default="kW"> <xsd:annotation> <xsd:documentation>Unit of the given power value</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Power value of the bound</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType></pre>				

Complex Type gas:activeContractType

Namespace	http://gaslib.zib.de/Gas																				
Annotations	Type for active contracts, mandatory identified by ID and type, with either a flow or a power value.																				
Diagram	<pre> classDiagram class activeContractType { @id : xsd:string @type : xsd:string } activeContractType "1" -- "0..1" flow activeContractType "1" -- "0..1" power </pre>																				
Used by	Element gas:boundaryValue/gas:scenario/gas:node/gas:activeContract																				
Model	(gas:flow{0,1}) (gas:power{0,1})																				
Children	gas:flow, gas:power																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>id</td> <td>ambiguousIdentifier</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Identifier of the contract</td></tr> <tr> <td>type</td> <td>xsd:string</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">Type of contract</td></tr> </tbody> </table>	QName	Type	Use		id	ambiguousIdentifier	required			Identifier of the contract			type	xsd:string	required			Type of contract		
QName	Type	Use																			
id	ambiguousIdentifier	required																			
	Identifier of the contract																				
type	xsd:string	required																			
	Type of contract																				
Source	<pre><xsd:complexType name="activeContractType"> <xsd:annotation> <xsd:documentation>Type for active contracts, mandatory identified by ID and type, with either a flow or a power value.</xsd:documentation> </xsd:annotation> <xsd:choice> <xsd:sequence> <xsd:element name="flow" type="gas:flow_type" minOccurs="0" maxOccurs="1"/> </xsd:sequence> <xsd:sequence> <xsd:element name="power" type="gas:power_type" minOccurs="0" maxOccurs="1"/> </xsd:sequence> </xsd:choice> <xsd:attribute name="id" use="required" type="framework:ambiguousIdentifier"> <xsd:annotation></pre>																				

```

<xsd:documentation>Identifier of the contract</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="type" use="required" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation>Type of contract</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
</xsd:complexType>

```

Complex Type networkType

Namespace	http://gaslib.zib.de/Gas
Annotations	networkType defines the gas network.
Diagram	<p>The diagram illustrates the extension of the <code>framework:networkType</code> complex type. It shows the base type <code>framework:networkType</code> with three attributes: <code>information</code>, <code>nodes</code>, and <code>connections</code>. A new attribute <code>networkPipeSpeedLimit</code> is added at the bottom. Annotations provide descriptions for each attribute and the overall structure.</p>
Type	extension of <code>networkType</code>
Type hierarchy	<ul style="list-style-type: none"> • <code>networkType</code> • <code>networkType</code>
Used by	Element network
Model	information , nodes , connections , <code>networkPipeSpeedLimit{0,1}</code>
Children	connections, information, <code>networkPipeSpeedLimit</code> , nodes
Source	<pre> <xsd:complexType name="networkType"> <xsd:annotation> <xsd:documentation>networkType defines the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:networkType"> <xsd:sequence> <xsd:element name="networkPipeSpeedLimit" type="framework:velocityType" minOccurs="0" maxOccurs="1"/> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>

Complex Type speedType

Namespace	http://gaslib.zib.de/Gas
Annotations	speedType defines the speed of the gas flow.
Diagram	<p>The diagram illustrates the extension of the <code>framework:unitType</code> complex type. It shows the base type <code>framework:unitType</code> with two attributes: <code>@ unit</code> and <code>@ value</code>. Annotations provide descriptions for each attribute.</p>

Type	extension of unitType			
Type hierarchy	<ul style="list-style-type: none"> unitType speedType 			
Attributes	QName	Type	Default	Use
	unit	per_minUnit	per_min	optional
		unit is the unit of the speed of the gas flow. Unit is specified by type. Default value is specified by default.		
	value	double		required
		value is the value of the speed of the gas flow. Unit is specified by type.		
Source	<pre><xsd:complexType name="speedType"> <xsd:annotation> <xsd:documentation>speedType defines the speed of the gas flow.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:unitType"> <xsd:attribute default="per_min" name="unit" type="per_minUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the speed of the gas flow. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>value is the value of the speed of the gas flow. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>			

Complex Type specificFuelConsumptionType

Namespace	http://gaslib.zib.de/Gas				
Annotations	specificFuelConsumptionType defines the specific fuel consumption of a compressor.				
Diagram	<p>The diagram shows a UML class named 'specificFuelConsumptionType' which extends 'framework:unitType'. It has two attributes: 'unit' of type 'per_minUnit' and 'value' of type 'double'. A note states: 'specificFuelConsumptionType defines the specific fuel consumption of a compressor.'</p>				
Type	extension of unitType	extension of unitType			
Type hierarchy		<ul style="list-style-type: none"> unitType specificFuelConsumptionType 			
Attributes		QName	Type	Default	
		unit	MJ_per_kWhUnit	MJ_per_kWh	
			unit is the unit of the specific fuel consumption of a compressor. Unit is specified by type. Default value is specified by default.		
		value	double		
			value is the value of the specific fuel consumption of a compressor. Unit is specified by type.		
Source	<pre><xsd:complexType name="specificFuelConsumptionType"> <xsd:annotation> <xsd:documentation>specificFuelConsumptionType defines the specific fuel consumption of a compressor.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:unitType"></pre>				

```

<xsd:extension base="framework:unitType">
  <xsd:attribute default="MJ_per_kWh" name="unit" type="MJ_per_kWhUnit">
    <xsd:annotation>
      <xsd:documentation>unit is the unit of the specific fuel consumption of a compressor. Unit is specified by type. Default value is specified by default.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute name="value" type="framework:double" use="required">
    <xsd:annotation>
      <xsd:documentation>value is the value of the specific fuel consumption of a compressor. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

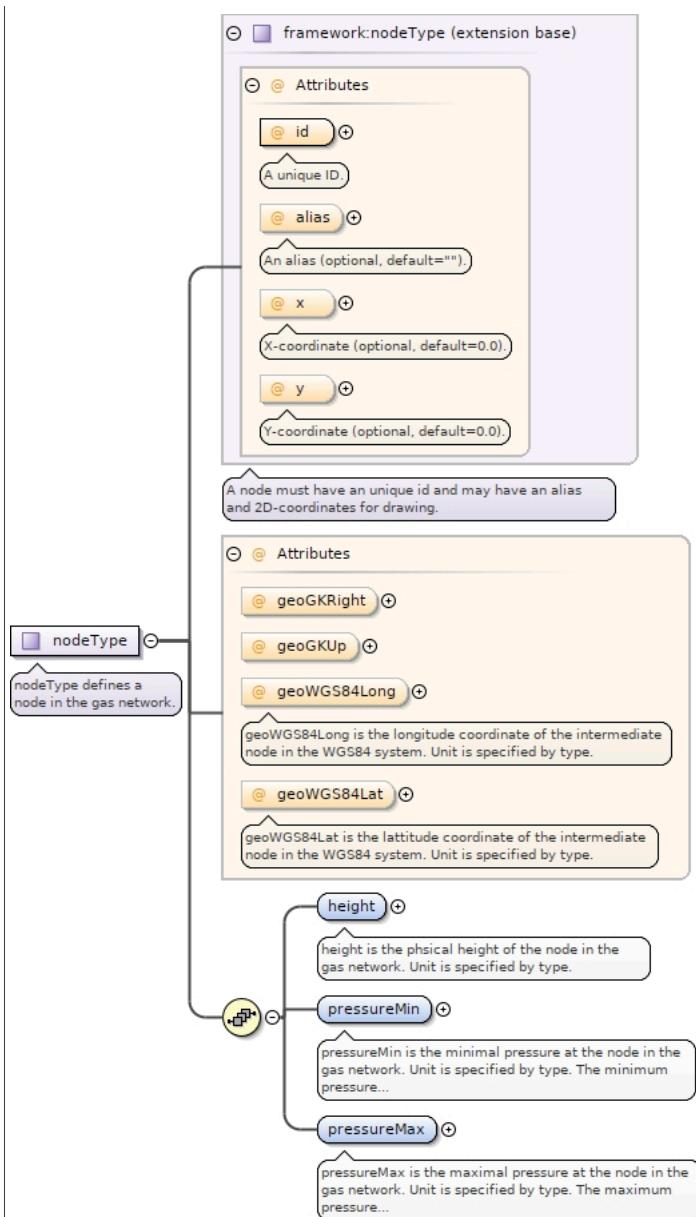
Complex Type efficiencyType

Namespace	http://gaslib.zib.de/Gas																	
Annotations	efficiencyType defines the efficiency of a compressor.																	
Diagram	<pre> classDiagram framework:unitType "extension base" efficiencyType "efficiencyType" efficiencyType --> framework:unitType efficiencyType "efficiencyType defines the efficiency of a compressor." efficiencyType "Attributes" efficiencyType "unit" efficiencyType "value" efficiencyType "unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default." efficiencyType "value is the value of the efficiency of a compressor. Unit is specified by type." </pre>																	
Type	extension of unitType																	
Type hierarchy	<ul style="list-style-type: none"> unitType efficiencyType 																	
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>noUnit</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="2">unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default.</td></tr> <tr> <td>value</td> <td>double</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">value is the value of the efficiency of a compressor. Unit is specified by type.</td></tr> </tbody> </table>			QName	Type	Use	unit	noUnit	optional		unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default.		value	double	required		value is the value of the efficiency of a compressor. Unit is specified by type.	
QName	Type	Use																
unit	noUnit	optional																
	unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default.																	
value	double	required																
	value is the value of the efficiency of a compressor. Unit is specified by type.																	
Source	<pre> <xsd:complexType name="efficiencyType"> <xsd:annotation> <xsd:documentation>efficiencyType defines the efficiency of a compressor.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:unitType"> <xsd:attribute name="unit" type="noUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>value is the value of the efficiency of a compressor. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																	

Complex Type nodeType

Namespace	http://gaslib.zib.de/Gas	
Annotations	nodeType defines a node in the gas network.	

Diagram



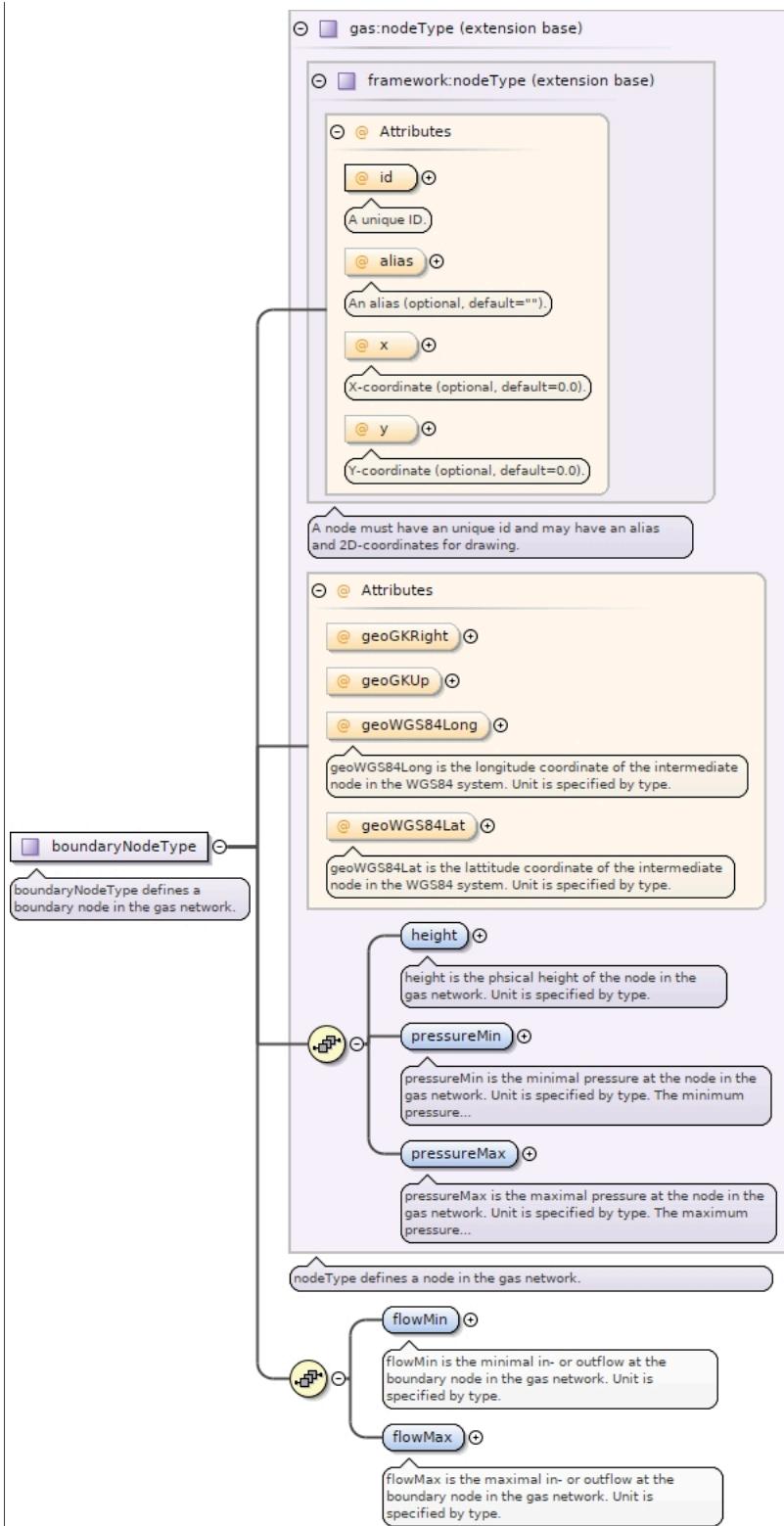
Type	extension of nodetype																																			
Type hierarchy	<ul style="list-style-type: none"> • nodetype • nodetype 																																			
Used by	Element node Complex Types boundaryNodeType , innodeType																																			
Model	<code>height</code> , <code>pressureMin</code> , <code>pressureMax</code>																																			
Children	<code>height</code> , <code>pressureMax</code> , <code>pressureMin</code>																																			
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td><code>alias</code></td><td>xsd:string</td><td></td><td>optional</td></tr> <tr> <td></td><td colspan="3">An alias (optional, default="").</td></tr> <tr> <td><code>geoGKRight</code></td><td>xsd:decimal</td><td>0</td><td>optional</td></tr> <tr> <td><code>geoGKUp</code></td><td>xsd:decimal</td><td>0</td><td>optional</td></tr> <tr> <td><code>geoWGS84Lat</code></td><td>xsd:decimal</td><td>0</td><td>optional</td></tr> <tr> <td></td><td colspan="3">geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td><code>geoWGS84Long</code></td><td>xsd:decimal</td><td>0</td><td>optional</td></tr> </tbody> </table>				QName	Type	Default	Use	<code>alias</code>	xsd:string		optional		An alias (optional, default="").			<code>geoGKRight</code>	xsd:decimal	0	optional	<code>geoGKUp</code>	xsd:decimal	0	optional	<code>geoWGS84Lat</code>	xsd:decimal	0	optional		geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.			<code>geoWGS84Long</code>	xsd:decimal	0	optional
QName	Type	Default	Use																																	
<code>alias</code>	xsd:string		optional																																	
	An alias (optional, default="").																																			
<code>geoGKRight</code>	xsd:decimal	0	optional																																	
<code>geoGKUp</code>	xsd:decimal	0	optional																																	
<code>geoWGS84Lat</code>	xsd:decimal	0	optional																																	
	geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.																																			
<code>geoWGS84Long</code>	xsd:decimal	0	optional																																	

QName	Type	Default	Use	
geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
id	identifier		required	
	A unique ID.			
x	xsd:decimal	0	optional	
	X-coordinate (optional, default=0.0).			
y	xsd:decimal	0	optional	
	Y-coordinate (optional, default=0.0).			
Source	<pre> <xsd:complexType name="nodeType"> <xsd:annotation> <xsd:documentation>nodeType defines a node in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:nodeType"> <xsd:sequence> <xsd:element name="height" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>height is the phsical height of the node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="pressureMin" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureMin is the minimal pressure at the node in the gas network. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="pressureMax" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureMax is the maximal pressure at the node in the gas network. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute default="0" name="geoGKRight" type="xsd:decimal"/> <xsd:attribute default="0" name="geoGKUp" type="xsd:decimal"/> <xsd:attribute default="0" name="geoWGS84Long" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="0" name="geoWGS84Lat" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Lat is the lattitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>			

Complex Type boundaryNodeType

Namespace	http://gaslib.zib.de/Gas
Annotations	boundaryNodeType defines a boundary node in the gas network.

Diagram



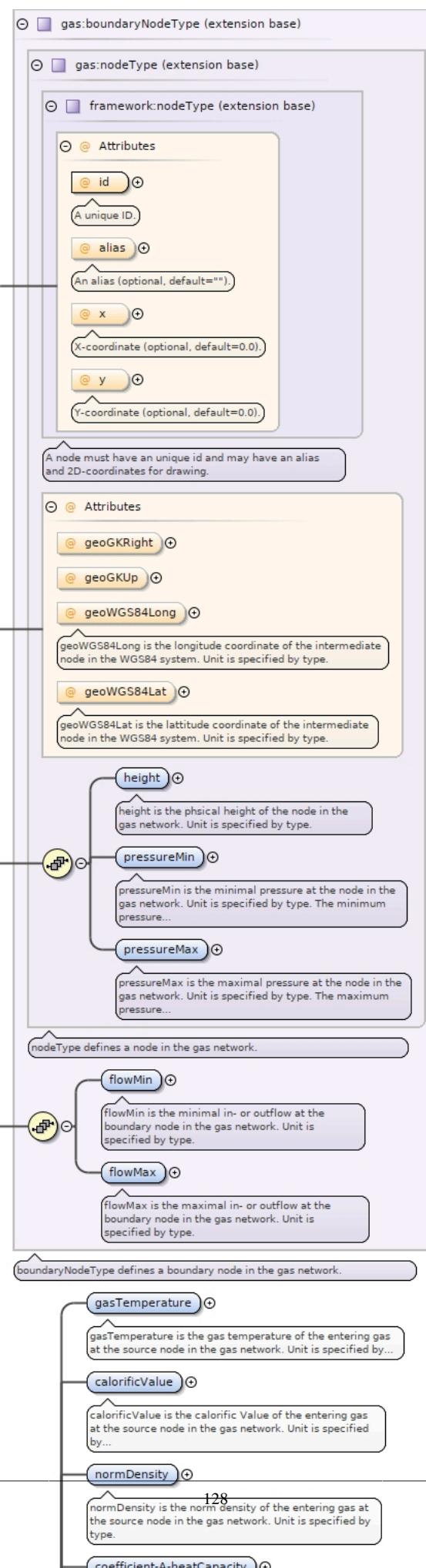
Type	extension of nodeType				
Type hierarchy	<ul style="list-style-type: none"> nodeType <ul style="list-style-type: none"> nodeType boundaryNodeType 				
Used by	<table border="1"> <tr> <td>Element</td> <td>boundaryNode</td> </tr> <tr> <td>Complex Types</td> <td>sinkType, sourceType</td> </tr> </table>	Element	boundaryNode	Complex Types	sinkType, sourceType
Element	boundaryNode				
Complex Types	sinkType, sourceType				

Model	height , pressureMin , pressureMax , flowMin , flowMax				
Children	flowMax, flowMin, height, pressureMax, pressureMin				
Attributes	QName	Type	Default	Use	
	alias	xsd:string		optional	
	An alias (optional, default="").				
	geoGKRight	xsd:decimal	0	optional	
	geoGKUp	xsd:decimal	0	optional	
	geoWGS84Lat	xsd:decimal	0	optional	
	geoWGS84Lat is the lattitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
	geoWGS84Long	xsd:decimal	0	optional	
	geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
	id	identifier		required	
	A unique ID.				
	x	xsd:decimal	0	optional	
	X-coordinate (optional, default=0.0).				
	y	xsd:decimal	0	optional	
	Y-coordinate (optional, default=0.0).				
Source	<pre> <xsd:complexType name="boundaryNodeType"> <xsd:annotation> <xsd:documentation>boundaryNodeType defines a boundary node in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:nodeType"> <xsd:sequence> <xsd:element name="flowMin" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMin is the minimal in- or outflow at the boundary node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="flowMax" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMax is the maximal in- or outflow at the boundary node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

Complex Type sourceType

Namespace	http://gaslib.zib.de/Gas
Annotations	sourceType defines a source node in the gas network.

Diagram



Type	extension of boundaryNodeType																																																																														
Type hierarchy	<ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • nodeType • boundaryNodeType • sourceType 																																																																														
Used by	Element source																																																																														
Model	height , pressureMin , pressureMax , flowMin , flowMax , gasTemperature , calorificValue , normDensity , coefficient-A-heatCapacity , coefficient-B-heatCapacity , coefficient-C-heatCapacity , molarMass , pseudocriticalPressure , pseudocriticalTemperature																																																																														
Children	calorificValue, coefficient-A-heatCapacity, coefficient-B-heatCapacity, coefficient-C-heatCapacity, flowMax, flowMin, gasTemperature, height, molarMass, normDensity, pressureMax, pressureMin, pseudocriticalPressure, pseudocriticalTemperature																																																																														
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">An alias (optional, default="").</td></tr> <tr> <td>geoGKRight</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td>geoGKUp</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td>geoWGS84Lat</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">geoWGS84Lat is the lattitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>geoWGS84Long</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A unique ID.</td></tr> <tr> <td>x</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">X-coordinate (optional, default=0.0).</td></tr> <tr> <td>y</td> <td>xsd:decimal</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Y-coordinate (optional, default=0.0).</td></tr> </tbody> </table>				QName	Type	Default	Use		alias	xsd:string		optional			An alias (optional, default="").				geoGKRight	xsd:decimal	0	optional		geoGKUp	xsd:decimal	0	optional		geoWGS84Lat	xsd:decimal	0	optional			geoWGS84Lat is the lattitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				geoWGS84Long	xsd:decimal	0	optional			geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				id	identifier		required			A unique ID.				x	xsd:decimal	0	optional			X-coordinate (optional, default=0.0).				y	xsd:decimal	0	optional			Y-coordinate (optional, default=0.0).			
QName	Type	Default	Use																																																																												
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	Y-coordinate (optional, default=0.0).																																																																														
Source	<pre> <xsd:complexType name="sourceType"> <xsd:annotation> <xsd:documentation>sourceType defines a source node in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:boundaryNodeType"> <xsd:sequence> <xsd:element name="gasTemperature" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>gasTemperature is the gas temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="calorificValue" type="framework:calorificValueType"> <xsd:annotation> <xsd:documentation>calorificValue is the calorific Value of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="normDensity" type="framework:densityType"> <xsd:annotation> <xsd:documentation>normDensity is the norm density of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="coefficient-A-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-A-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="coefficient-B-heatCapacity" type="framework:noType"> <xsd:annotation> <xsd:documentation>coefficient-B-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																																																																														

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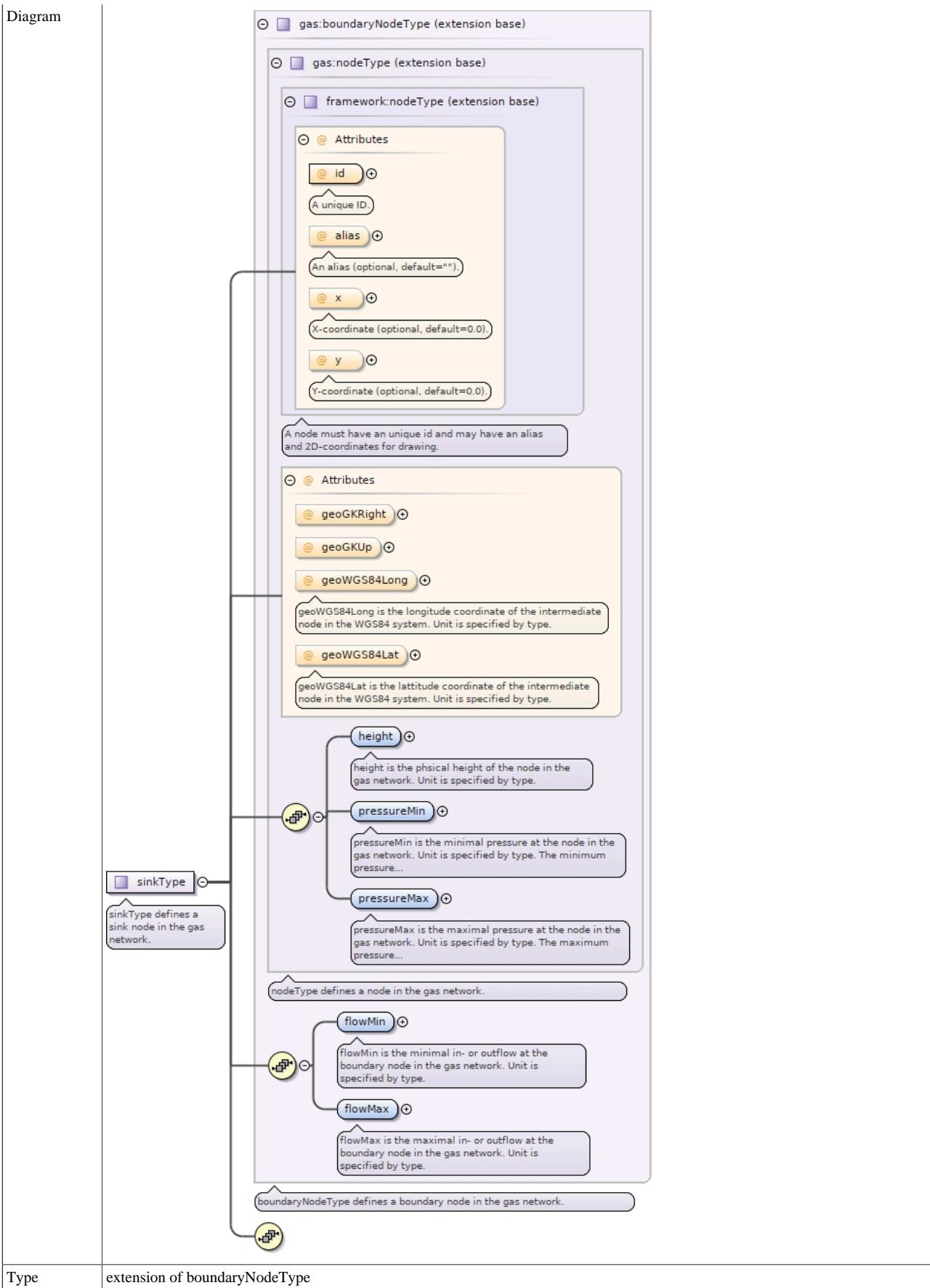
</xsd:element>
<xsd:element name="coefficient-C-heatCapacity" type="framework:noType">
    <xsd:annotation>
        <xsd:documentation>coefficient-C-heatCapacity is one coefficient of the heat capacity of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="molarMass" type="framework:molarMassType">
    <xsd:annotation>
        <xsd:documentation>molarMass is the molar mass of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="pseudocriticalPressure" type="framework:pressureType">
    <xsd:annotation>
        <xsd:documentation>pseudocriticalPressure is the pseudocritical pressure of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="pseudocriticalTemperature" type="framework:temperatureType">
    <xsd:annotation>
        <xsd:documentation>pseudocriticalTemperature is the pseudocritical temperature of the entering gas at the source node in the gas network. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

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Complex Type sinkType

Namespace	http://gaslib.zib.de/Gas
Annotations	sinkType defines a sink node in the gas network.

Diagram

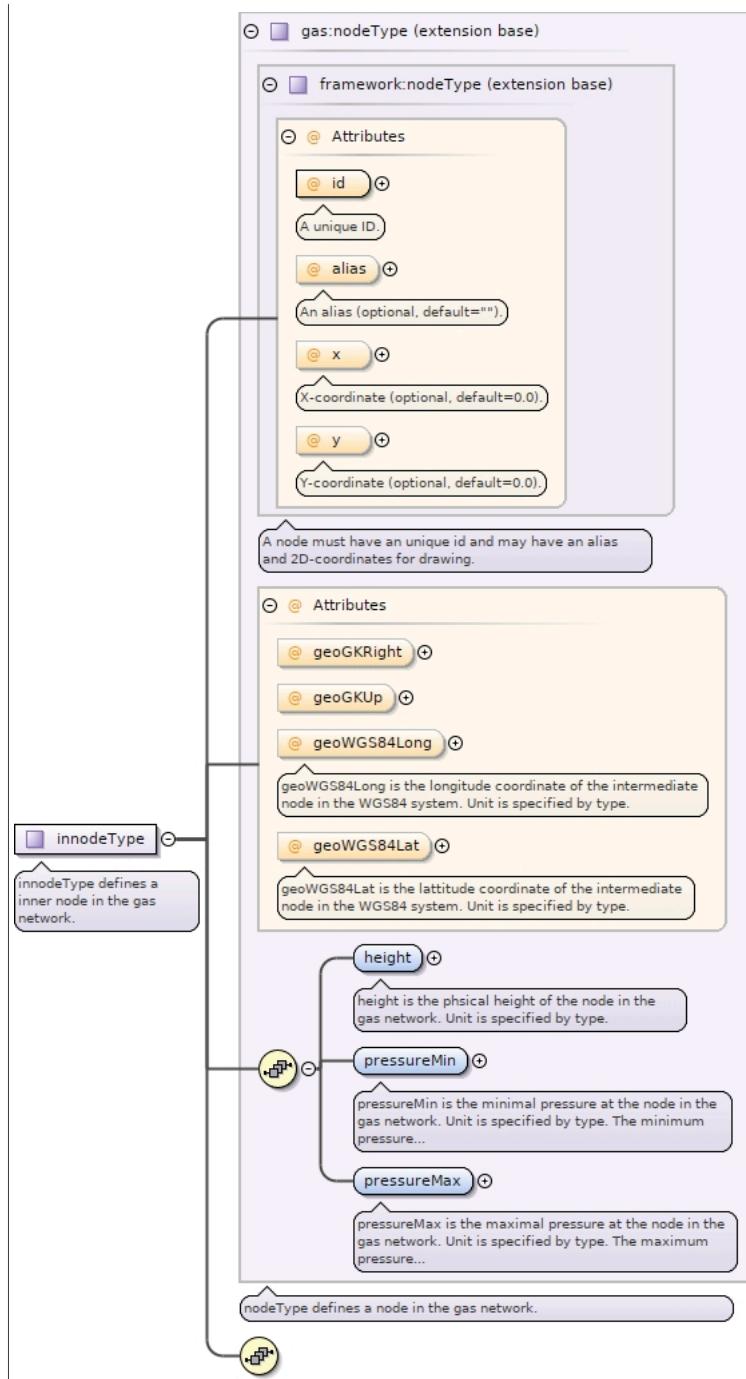


Type hierarchy	<ul style="list-style-type: none"> • nodeType <ul style="list-style-type: none"> • nodeType • boundaryNodeType • sinkType 				
Used by	Element sink				
Model	height , pressureMin , pressureMax , flowMin , flowMax				
Children	flowMax, flowMin, height, pressureMax, pressureMin				
Attributes	QName	Type	Default	Use	
	alias	xsd:string		optional	
	An alias (optional, default="").				
	geoGKRight	xsd:decimal	0	optional	
	geoGKUp	xsd:decimal	0	optional	
	geoWGS84Lat	xsd:decimal	0	optional	
	geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
	geoWGS84Long	xsd:decimal	0	optional	
	geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.				
	id	identifier		required	
	A unique ID.				
	x	xsd:decimal	0	optional	
	X-coordinate (optional, default=0.0).				
	y	xsd:decimal	0	optional	
	Y-coordinate (optional, default=0.0).				
Source	<pre><xsd:complexType name="sinkType"> <xsd:annotation> <xsd:documentation>sinkType defines a sink node in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:boundaryNodeType"> <xsd:sequence/> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

Complex Type innodeType

Namespace	http://gaslib.zib.de/Gas
Annotations	innodeType defines a inner node in the gas network.

Diagram



Type extension of nodeType

Type hierarchy

- nodeType
 - nodeType
 - innodeType

Used by Element innode

Model height , pressureMin , pressureMax

Children height, pressureMax, pressureMin

Attributes	QName	Type	Default	Use	
	<code>alias</code>	xsd:string		optional	
			An alias (optional, default="").		
	<code>geoGKRight</code>	xsd:decimal	0	optional	

QName	Type	Default	Use	
geoGKUp	xsd:decimal	0	optional	
geoWGS84Lat	xsd:decimal	0	optional	
		geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.		
geoWGS84Long	xsd:decimal	0	optional	
		geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.		
id	identifier		required	
		A unique ID.		
x	xsd:decimal	0	optional	
		X-coordinate (optional, default=0.0).		
y	xsd:decimal	0	optional	
		Y-coordinate (optional, default=0.0).		
Source	<pre><xsd:complexType name="innodeType"> <xsd:annotation> <xsd:documentation>innodeType defines a inner node in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:nodeType"> <xsd:sequence/> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>			

Complex Type connectionType

Namespace	http://gaslib.zib.de/Gas
Annotations	connectionType defines any (abstract) way to connect two nodes in the network with active or passive network elements.
Diagram	<p>The diagram illustrates the UML class <code>connectionType</code> and its associations with other classes. The <code>connectionType</code> class has the following attributes:</p> <ul style="list-style-type: none"> <code>@ id</code>: A unique ID. <code>@ alias</code>: An alias (optional, default=""). <code>@ from</code>: Tail of arc. <code>@ to</code>: Head of arc. <p>An association line connects <code>connectionType</code> to another class, which is shown as a box containing the text: "connectionType defines any (abstract) way to connect two nodes in the network with active or passive network elements." This indicates that <code>connectionType</code> is an abstract class.</p> <p>Below the class diagram, there is a note: "An arc must have an unique id, a tail node and a head node and may have an alias."</p>

Type	extension of connectionType																																						
Type hierarchy	<ul style="list-style-type: none"> • connectionType • connectionType 																																						
Used by	Element	connection																																					
	Complex Types	anyPressureArcType, compressorStationType, controlValveType, pipeType, resistorType, short-PipeType, valveType																																					
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1}																																						
Children	flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin																																						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>	QName	Type	Use		alias	xsd:string	optional			An alias (optional, default="").			from	xsd:string	required			Tail of arc.			id	identifier	required			A unique ID.			to	xsd:string	required			Head of arc.				
QName	Type	Use																																					
alias	xsd:string	optional																																					
	An alias (optional, default="").																																						
from	xsd:string	required																																					
	Tail of arc.																																						
id	identifier	required																																					
	A unique ID.																																						
to	xsd:string	required																																					
	Head of arc.																																						
Source	<pre> <xsd:complexType name="connectionType"> <xsd:annotation> <xsd:documentation>connectionType defines any (abstract) way to connect two nodes in the network with active or passive network elements.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:connectionType"> <xsd:sequence> <xsd:element name="flowMin" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMin is the minimal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that norm volume flow does not depend on gas pressure or density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="flowMax" type="framework:flowType"> <xsd:annotation> <xsd:documentation>flowMax is the maximal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that norm volume flow does not depend on gas pressure or density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="operatingVolumeFlowMin" type="framework:flowType" minOccurs="0"> <xsd:annotation> <xsd:documentation>operatingVolumeFlowMin is the minimal directed operating volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection, and a negative sign (value lower than 0) means a flow in the opposite direction of the connection. Note that operating volume flow depends on gas pressure and density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="operatingVolumeFlowMax" type="framework:flowType" minOccurs="0"> <xsd:annotation> <xsd:documentation>operatingVolumeFlowMax is the maximal directed operating volume gas flow on the corresponding abstract connection, i.e., an arc in the network, which can be, e.g., a pipe, a compressor station, a valve, etc. Note that the flow value is signed, where a positive sign (value greater than 0) means a flow in direction of the connection. Note that operating volume flow depends on gas pressure and density. Its unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																																						

Complex Type pipeType

Namespace	http://gaslib.zib.de/Gas
Annotations	pipeType defines a pipeline in the gas network.
Diagram	<p>The diagram illustrates the inheritance path of the <code>pipeType</code> complex type. It starts with the <code>pipeType</code> class at the bottom left, which is annotated with "pipeType defines a pipeline in the gas network.". An arrow points upwards to the <code>connectionType</code> class, which is annotated with "connectionType defines any (abstract) way to connect two nodes in the network with active or passive network elements.". The <code>connectionType</code> class has several attributes: <code>id</code> (A unique ID.), <code>alias</code> (An alias (optional, default="").), <code>from</code> (Tail of arc.), and <code>to</code> (Head of arc.). A note below these attributes states: "An arc must have an unique id, a tail node and a head node and may have an alias." Further up the inheritance path are the <code>framework:connectionType</code> and <code>gas:connectionType</code> classes, both of which inherit from <code>connectionType</code>. The <code>gas:connectionType</code> class is annotated with "extension base". The <code>framework:connectionType</code> class is also annotated with "extension base" and contains attributes: <code>flowMin</code> (flowMin is the minimal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the...), <code>flowMax</code> (flowMax is the maximal directed norm volume gas flow on the corresponding abstract connection, i.e., an arc in the...), <code>operatingVolumeFlowMin</code> (operatingVolumeFlowMin is the minimal directed operating volume gas flow on the corresponding abstract connection,...), and <code>operatingVolumeFlowMax</code> (operatingVolumeFlowMax is the maximal directed operating volume gas flow on the corresponding abstract connection....). The <code>connectionType</code> class also has attributes: <code>length</code> (length of the pipeline. Unit is specified by type.), <code>diameter</code> (diameter of the pipeline. Unit is specified by type.), <code>roughness</code> (roughness of the pipeline. Unit is specified by type.), <code>pressureMax</code> (pressureMax is the maximal pressure level of the pipeline. Unit is specified by type. This parameter is optional. Note...), <code>heatTransferCoefficient</code> (heatTransferCoefficient of the pipeline. Unit is specified by type.), <code>speedLimit</code> (speedLimit), and <code>path</code> (path of the pipeline contains intermediate nodes to model its geographical course. This element is optional. If used,...).</p>

Type	extension of connectionType																																						
Type hierarchy	<ul style="list-style-type: none"> • connectionType <ul style="list-style-type: none"> • connectionType • pipeType 																																						
Used by	Element	pipe																																					
	Complex Type	splitPipeType																																					
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , length , diameter , roughness , pressure-Max{0,1} , heatTransferCoefficient , speedLimit{0,1} , path{0,1}																																						
Children	diameter, flowMax, flowMin, heatTransferCoefficient, length, operatingVolumeFlowMax, operatingVolumeFlowMin, path, pressureMax, roughness, speedLimit																																						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>	QName	Type	Use		alias	xsd:string	optional			An alias (optional, default="").			from	xsd:string	required			Tail of arc.			id	identifier	required			A unique ID.			to	xsd:string	required			Head of arc.				
QName	Type	Use																																					
alias	xsd:string	optional																																					
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from	xsd:string	required																																					
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id	identifier	required																																					
	A unique ID.																																						
to	xsd:string	required																																					
	Head of arc.																																						
Source	<pre> <xsd:complexType name="pipeType"> <xsd:annotation> <xsd:documentation>pipeType defines a pipeline in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:connectionType"> <xsd:sequence> <xsd:element name="length" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>length of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="diameter" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameter of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="roughness" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>roughness of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="pressureMax" type="framework:pressureType" minOccurs="0"> <xsd:annotation> <xsd:documentation>pressureMax is the maximal pressure level of the pipeline. Unit is specified by type. This parameter is optional. Note that the head and tail node of the pipeline may have different values for the maximal pressure.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="heatTransferCoefficient" type="framework:heatTransferType"> <xsd:annotation> <xsd:documentation>heatTransferCoefficient of the pipeline. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="speedLimit" type="framework:velocityType" minOccurs="0" maxOccurs="1" /> <xsd:element name="path" minOccurs="0"> <xsd:annotation> <xsd:documentation>path of the pipeline contains intermediate nodes to model its geographical course. This element is optional. If used, only intermediate nodes have to be specified, not the head and tail nodes of the pipeline. Note that the course is sensitive to the given sequence of the intermediate nodes. The first node is the closest to tail, the last node is closest to the head node of the pipeline.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:sequence> <xsd:element maxOccurs="unbounded" name="node"> </pre>																																						

```

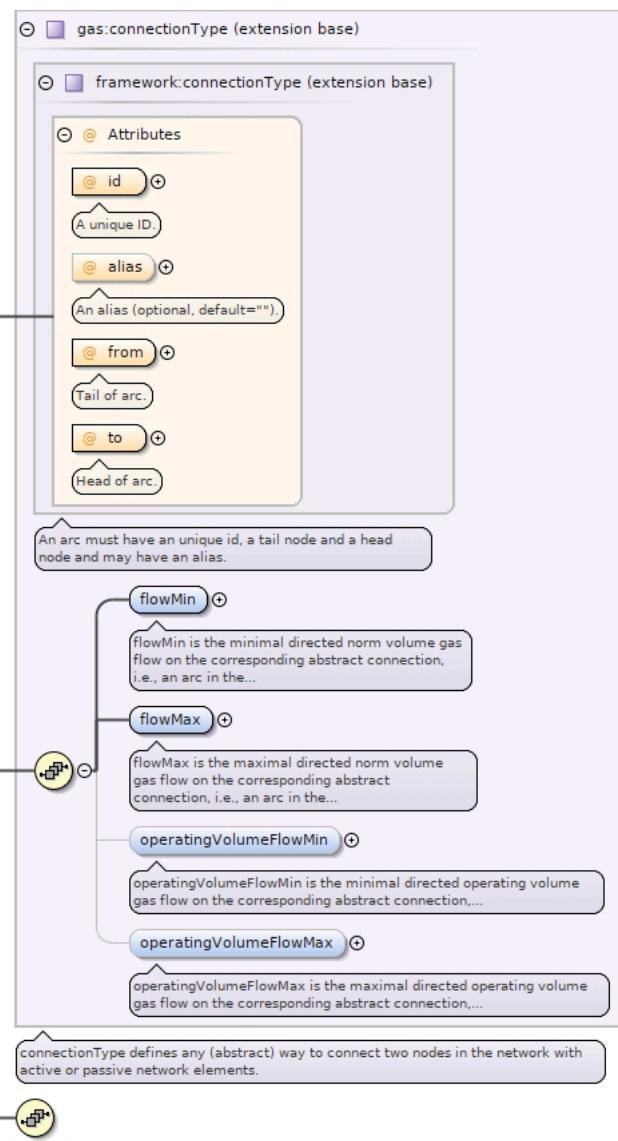
<xsd:annotation>
  <xsd:documentation>node is an intermediate node to model the course of the
pipeline.</xsd:documentation>
</xsd:annotation>
<xsd:complexType>
  <xsd:attribute default="0" name="geoGKRight" type="xsd:decimal"/>
  <xsd:attribute default="0" name="geoGKUp" type="xsd:decimal"/>
  <xsd:attribute default="0" name="geoWGS84Long" type="xsd:decimal">
    <xsd:annotation>
      <xsd:documentation>geoWGS84Long is the longitude coordinate of the
intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute default="0" name="geoWGS84Lat" type="xsd:decimal">
    <xsd:annotation>
      <xsd:documentation>geoWGS84Lat is the lattitude coordinate of the intermediate
node in the WGS84 system. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  </xsd:complexType>
  </xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type shortPipeType

Namespace	http://gaslib.zib.de/Gas
Annotations	shortPipeType defines a short pipe in the gas network.

Diagram



Type extension of connectionType

- Type hierarchy
- connectionType
 - connectionType
 - shortPipeType

Used by Element shortPipe

Model flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1}

Children flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin

Attributes	QName	Type	Use	
	alias	xsd:string	optional	
			An alias (optional, default="").	
	from	xsd:string	required	
			Tail of arc.	
	id	identifier	required	
			A unique ID.	
	to	xsd:string	required	
			Head of arc.	

Source

```
<xsd:complexType name="shortPipeType">
  <xsd:annotation>
    <xsd:documentation>shortPipeType defines a short pipe in the gas network.</xsd:documentation>
```

```

</xsd:annotation>
<xsd:complexContent>
  <xsd:extension base="gas:connectionType">
    <xsd:sequence>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Complex Type valveType

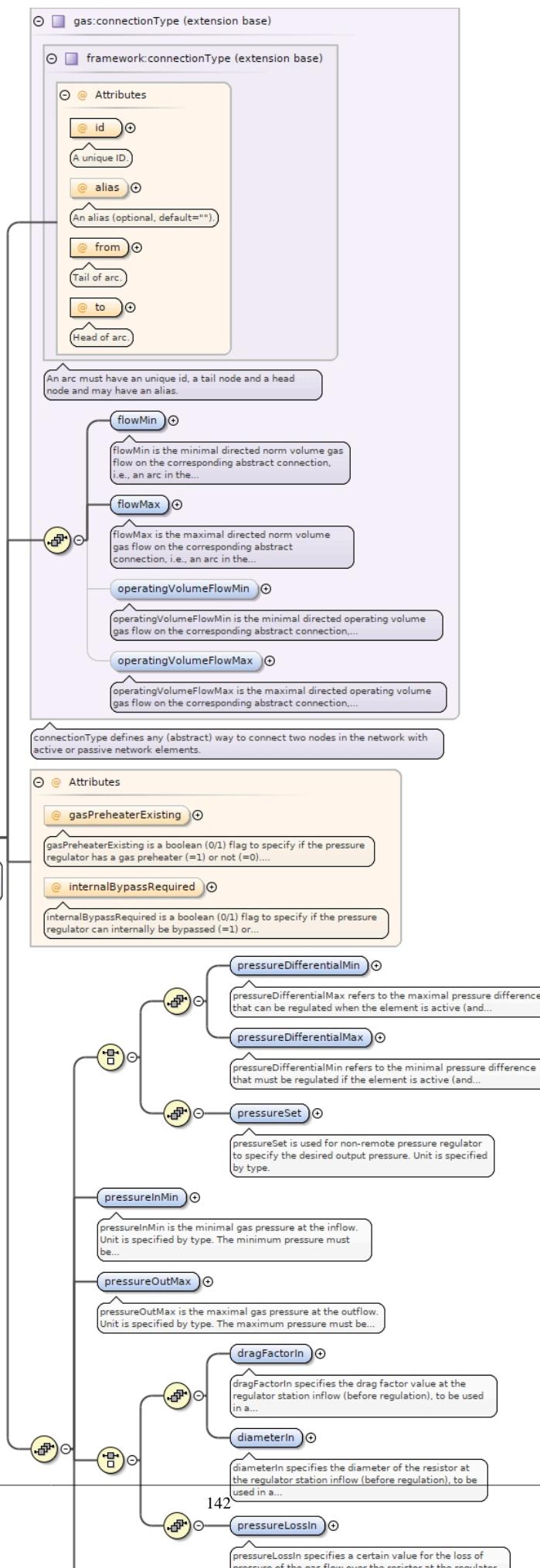
Namespace	http://gaslib.zib.de/Gas
Annotations	valveType defines a valve in the gas network.
Diagram	<p>The diagram illustrates the inheritance hierarchy of the valveType complex type. It shows that valveType extends connectionType, which in turn extends framework:connectionType, and finally gas:connectionType (extension base). The valveType class itself contains five attributes: flowMin, flowMax, operatingVolumeFlowMin, operatingVolumeFlowMax, and pressureDifferentialMax. Each of these attributes is accompanied by a detailed description of its purpose and usage within the gas network.</p>
Type	extension of connectionType
Type hierarchy	<ul style="list-style-type: none"> connectionType connectionType valveType
Used by	Element valve
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , pressureDifferentialMax
Children	flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureDifferentialMax

Attributes	QName	Type	Use	
	alias	xsd:string	optional	
		An alias (optional, default="").		
	from	xsd:string	required	
		Tail of arc.		
	id	identifier	required	
		A unique ID.		
	to	xsd:string	required	
		Head of arc.		
Source	<pre> <xsd:complexType name="valveType"> <xsd:annotation> <xsd:documentation>valveType defines a valve in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:connectionType"> <xsd:sequence> <xsd:element name="pressureDifferentialMax" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureDifferentialMax is the maximal pressure difference if the valve is closed. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>			

Complex Type controlValveType

Namespace	http://gaslib.zib.de/Gas
Annotations	controlValveType defines a pressure regulator in the gas network.

Diagram



Type	extension of connectionType																																																							
Type hierarchy	<ul style="list-style-type: none"> • connectionType <ul style="list-style-type: none"> • connectionType • controlValveType 																																																							
Used by	Element controlValve																																																							
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , ((pressureDifferentialMin , pressureDifferentialMax) (pressureSet)) , pressureInMin , pressureOutMax , ((dragFactorIn , diameterIn) (pressureLossIn)) , ((dragFactorOut , diameterOut) (pressureLossOut)) , increasedOutputTemperature{0,1}																																																							
Children	diameterIn, diameterOut, dragFactorIn, dragFactorOut, flowMax, flowMin, increasedOutputTemperature, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureDifferentialMax, pressureDifferentialMin, pressureInMin, pressureLossIn, pressureLossOut, pressureOutMax, pressureSet																																																							
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>gasPreheaterExisting</td> <td>xsd:boolean</td> <td>0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>internalBypassRequired</td> <td>xsd:boolean</td> <td>1</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">internalBypassRequired is a boolean (0/1) flag to specify if the pressure regulator can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>				QName	Type	Default	Use	alias	xsd:string		optional		An alias (optional, default="").			from	xsd:string		required		Tail of arc.			gasPreheaterExisting	xsd:boolean	0	optional		gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.			id	identifier		required		A unique ID.			internalBypassRequired	xsd:boolean	1	optional		internalBypassRequired is a boolean (0/1) flag to specify if the pressure regulator can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.			to	xsd:string		required		Head of arc.		
QName	Type	Default	Use																																																					
alias	xsd:string		optional																																																					
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to	xsd:string		required																																																					
	Head of arc.																																																							
Source	<pre> <xsd:complexType name="controlValveType"> <xsd:annotation> <xsd:documentation>controlValveType defines a pressure regulator in the gas network.</ xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:connectionType"> <xsd:sequence> <xsd:choice> <xsd:sequence> <xsd:element name="pressureDifferentialMin" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureDifferentialMax refers to the maximal pressure difference that can be regulated when the element is active (and not closed or in bypass). Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="pressureDifferentialMax" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureDifferentialMin refers to the minimal pressure difference that must be regulated if the element is active (and not closed or in bypass). Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:sequence> <xsd:element name="pressureSet" type="framework:pressureType"> <xsd:annotation> <xsd:documentation>pressureSet is used for non-remote pressure regulator to specify the desired output pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:choice> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																																																							

```

<xsd:element name="pressureInMin" type="framework:pressureType">
    <xsd:annotation>
        <xsd:documentation>pressureInMin is the minimal gas pressure at the inflow.  
Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="pressureOutMax" type="framework:pressureType">
    <xsd:annotation>
        <xsd:documentation>pressureOutMax is the maximal gas pressure at the outflow.  
Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:choice>
    <xsd:sequence>
        <xsd:element name="dragFactorIn" type="framework:noType">
            <xsd:annotation>
                <xsd:documentation>dragFactorIn specifies the drag factor value at the regulator  
station inflow (before regulation), to be used in a resistor formular to compute the actual  
pressure loss for the gas flow over the resistor as a function of the flow and the input pressure.  
This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by  
type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="diameterIn" type="framework:lengthType">
            <xsd:annotation>
                <xsd:documentation>diameterIn specifies the diameter of the resistor at the  
regulator station inflow (before regulation), to be used in a resistor formular to compute the  
actual pressure loss for the gas flow over the resistor as a function of the flow and the input  
pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is  
specified by type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:sequence>
    <xsd:sequence>
        <xsd:element name="pressureLossIn" type="framework:pressureDifferenceType">
            <xsd:annotation>
                <xsd:documentation>pressureLossIn specifies a certain value for the loss of pressure  
of the gas flow over the resistor at the regulator station inflow (before regulation). This  
pressure reduction is not applied if the regulator station is in bypass. Unit is specified by  
type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:sequence>
    <xsd:choice>
        <xsd:sequence>
            <xsd:element name="dragFactorOut" type="framework:noType">
                <xsd:annotation>
                    <xsd:documentation>dragFactorOut specifies the drag factor value at the regulator  
station inflow (after regulation), to be used in a resistor formular to compute the actual pressure  
loss for the gas flow over the resistor as a function of the flow and the input pressure. This  
pressure reduction is not applied if the regulator station is in bypass. Unit is specified by  
type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element name="diameterOut" type="framework:lengthType">
                <xsd:annotation>
                    <xsd:documentation>diameterOut specifies the diameter of the resistor at the  
regulator station inflow (after regulation), to be used in a resistor formular to compute the  
actual pressure loss for the gas flow over the resistor as a function of the flow and the input  
pressure. This pressure reduction is not applied if the regulator station is in bypass. Unit is  
specified by type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:sequence>
            <xsd:element name="pressureLossOut" type="framework:pressureDifferenceType">
                <xsd:annotation>
                    <xsd:documentation>pressureLossOut specifies a certain value for the loss of  
pressure of the gas flow over the resistor at the regulator station inflow (after regulation).  
This pressure reduction is not applied if the regulator station is in bypass. Unit is specified by  
type.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
    </xsd:choice>
    <xsd:element name="increasedOutputTemperature" minOccurs="0"  
type="framework:temperatureType">
        <xsd:annotation>

```

```

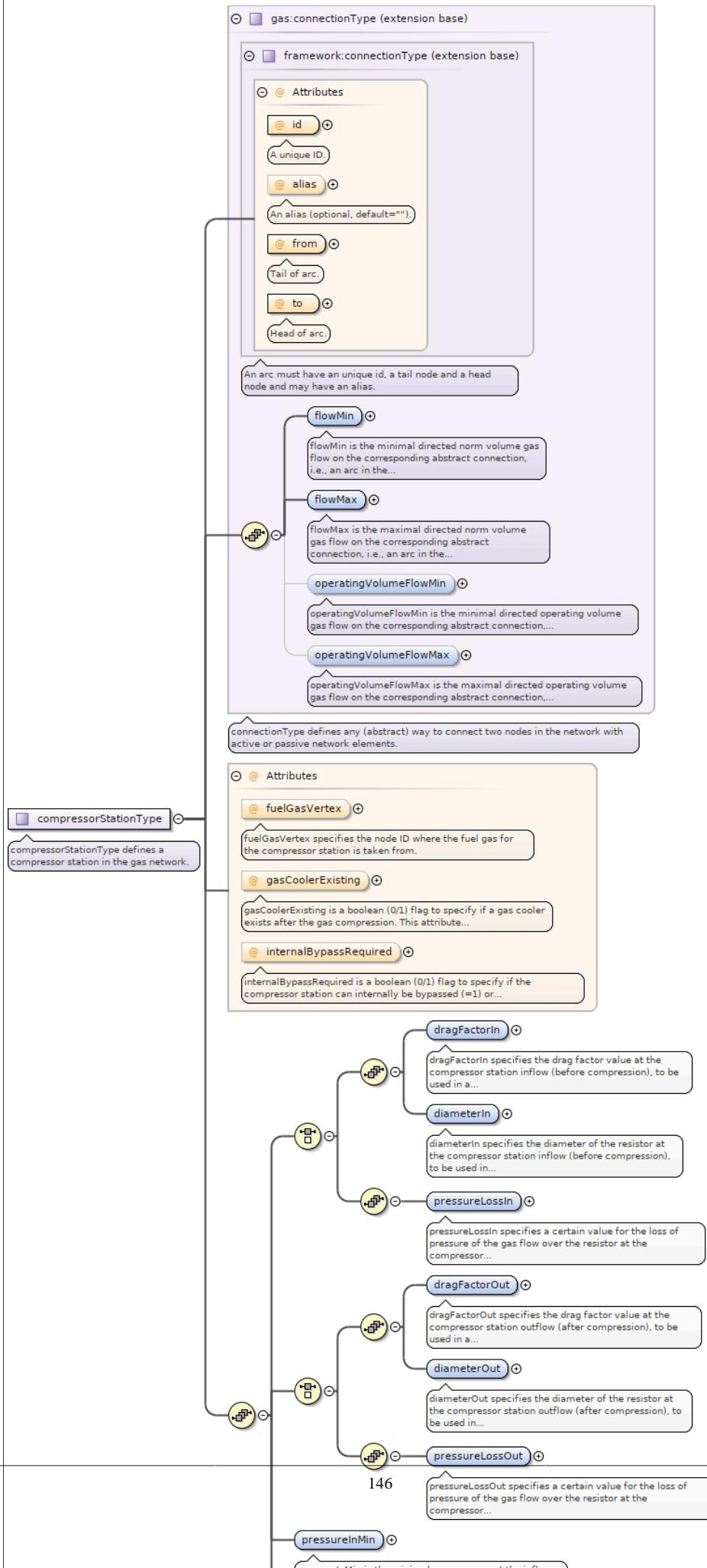
<xsd:documentation>increasedOutputTemperature is the temperature of the gas at the
outflow of the regulator, if a gas preheater exists. This element is optional; it should only be
used if the attribute gasPreheaterExisting is 1. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
</xsd:sequence>
<xsd:attribute name="gasPreheaterExisting" default="0" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>gasPreheaterExisting is a boolean (0/1) flag to specify if
the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then
the increasedOutputTemperature should also be specified. Per default, it is set to 0.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="internalBypassRequired" default="1" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>internalBypassRequired is a boolean (0/1) flag to specify if the
pressure regulator can internally be bypassed (=1) or not (=0). The value should be set to
0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type compressorStationType

Namespace	http://gaslib.zib.de/Gas
Annotations	compressorStationType defines a compressor station in the gas network.

Diagram



Type	extension of connectionType																																																																														
Type hierarchy	<ul style="list-style-type: none"> • connectionType <ul style="list-style-type: none"> • connectionType • compressorStationType 																																																																														
Used by	Element compressorStation																																																																														
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , ((dragFactorIn , diameterIn) (pressureLossIn)) , ((dragFactorOut , diameterOut) (pressureLossOut)) , pressureInMin , pressureOutMax , cooledOutputTemperature{0,1}																																																																														
Children	cooledOutputTemperature, diameterIn, diameterOut, dragFactorIn, dragFactorOut, flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureInMin, pressureLossIn, pressureLossOut, pressureOutMax																																																																														
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Tail of arc.</td></tr> <tr> <td>fuelGasVertex</td> <td>xsd:string</td> <td></td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.</td></tr> <tr> <td>gasCoolerExisting</td> <td>xsd:boolean</td> <td>0</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</td></tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A unique ID.</td></tr> <tr> <td>internalBypassRequired</td> <td>xsd:boolean</td> <td>1</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Head of arc.</td></tr> </tbody> </table>				QName	Type	Default	Use		alias	xsd:string		optional			An alias (optional, default="").				from	xsd:string		required			Tail of arc.				fuelGasVertex	xsd:string		optional			fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.				gasCoolerExisting	xsd:boolean	0	optional			gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).				id	identifier		required			A unique ID.				internalBypassRequired	xsd:boolean	1	optional			internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.				to	xsd:string		required			Head of arc.			
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alias	xsd:string		optional																																																																												
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to	xsd:string		required																																																																												
	Head of arc.																																																																														
Source	<pre> <xsd:complexType name="compressorStationType"> <xsd:annotation> <xsd:documentation>compressorStationType defines a compressor station in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:connectionType"> <xsd:sequence> <xsd:choice> <xsd:sequence> <xsd:element name="dragFactorIn" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactorIn specifies the drag factor value at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="diameterIn" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameterIn specifies the diameter of the resistor at the compressor station inflow (before compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:choice> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																																																																														

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        <xsd:element name="pressureLossIn" type="framework:pressureDifferenceType">
            <xsd:annotation>
                <xsd:documentation>pressureLossIn specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor station inflow (before compression). This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:sequence>
</xsd:choice>
<xsd:choice>
    <xsd:sequence>
        <xsd:element name="dragFactorOut" type="framework:noType">
            <xsd:annotation>
                <xsd:documentation>dragFactorOut specifies the drag factor value at the compressor station outflow (after compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="diameterOut" type="framework:lengthType">
            <xsd:annotation>
                <xsd:documentation>diameterOut specifies the diameter of the resistor at the compressor station outflow (after compression), to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:sequence>
    <xsd:sequence>
        <xsd:element name="pressureLossOut" type="framework:pressureDifferenceType">
            <xsd:annotation>
                <xsd:documentation>pressureLossOut specifies a certain value for the loss of pressure of the gas flow over the resistor at the compressor station outflow (after compression). This pressure reduction is not applied if the compressor station is in bypass. Unit is specified by type.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:sequence>
</xsd:choice>
<xsd:element name="pressureInMin" type="framework:pressureType">
    <xsd:annotation>
        <xsd:documentation>pressureInMin is the minimal gas pressure at the inflow. Unit is specified by type. The minimum pressure must be greater than or equal to 0 barg.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="pressureOutMax" type="framework:pressureType">
    <xsd:annotation>
        <xsd:documentation>pressureOutMax is the maximal gas pressure at the outflow. Unit is specified by type. The maximum pressure must be greater than or equal to 0 barg.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="cooledOutputTemperature" minOccurs="0" type="framework:temperatureType">
    <xsd:annotation>
        <xsd:documentation>cooledOutputTemperature is the temperature of the gas at the outflow of the compressor, if a gas cooler exists. This element is optional; it should only be used if the attribute gasCoolerExisting is 1. Unit is specified by type.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
</xsd:sequence>
<xsd:attribute name="fuelGasVertex" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation>fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="gasCoolerExisting" default="0" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="internalBypassRequired" default="1" type="xsd:boolean">
    <xsd:annotation>
        <xsd:documentation>internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to
```

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0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</
xsd:documentation>
</xsd:annotation>
</xsd:attribute>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type resistorType

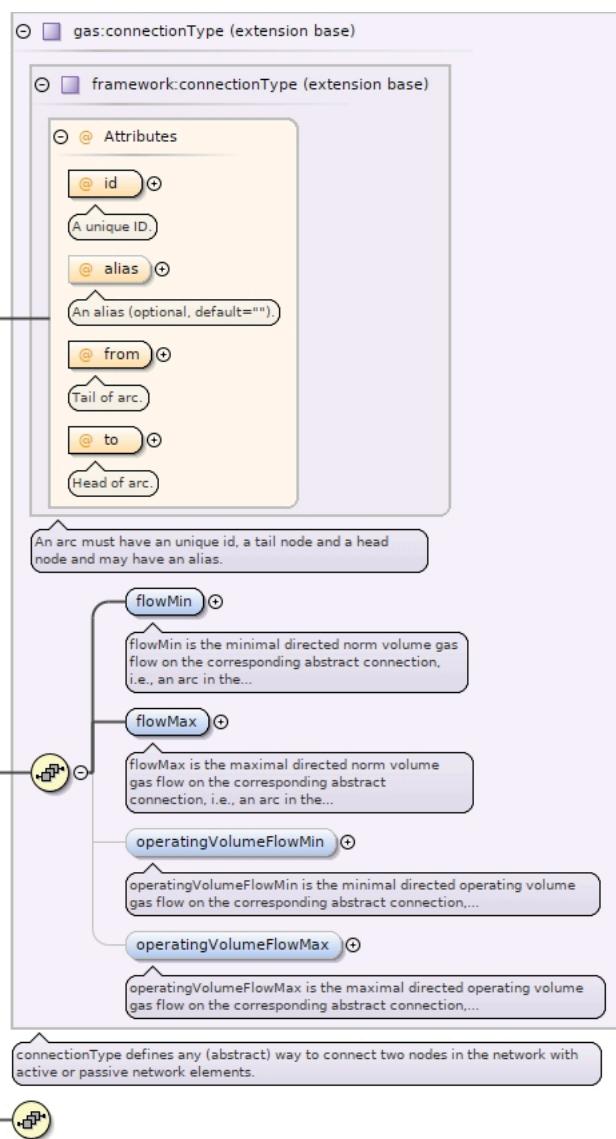
Namespace	http://gaslib.zib.de/Gas
Annotations	resistorType defines a resistor in the gas network.
Diagram	<p>The diagram illustrates the schema structure for the <code>resistorType</code> complex type. It shows how <code>resistorType</code> extends from <code>connectionType</code>, which in turn extends from <code>framework:connectionType</code> and <code>gas:connectionType</code>. <code>resistorType</code> includes attributes for unique identification, aliases, and connections between nodes, along with specific parameters for flow and pressure loss calculations.</p>
Type	extension of connectionType
Type hierarchy	<ul style="list-style-type: none"> • connectionType

	<ul style="list-style-type: none"> • connectionType • resistorType 																																				
Used by	Element resistor																																				
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , ((pressureLoss) (dragFactor , diameter))																																				
Children	diameter, dragFactor, flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin, pressureLoss																																				
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">QName</th> <th style="text-align: left;">Type</th> <th style="text-align: left;">Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>An alias (optional, default="").</td> <td></td> </tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Tail of arc.</td> <td></td> </tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>A unique ID.</td> <td></td> </tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Head of arc.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use		alias	xsd:string	optional				An alias (optional, default="").		from	xsd:string	required				Tail of arc.		id	identifier	required				A unique ID.		to	xsd:string	required				Head of arc.	
QName	Type	Use																																			
alias	xsd:string	optional																																			
		An alias (optional, default="").																																			
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		Tail of arc.																																			
id	identifier	required																																			
		A unique ID.																																			
to	xsd:string	required																																			
		Head of arc.																																			
Source	<pre> <xsd:complexType name="resistorType"> <xsd:annotation> <xsd:documentation>resistorType defines a resistor in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:connectionType"> <xsd:choice> <xsd:sequence> <xsd:element name="pressureLoss" type="framework:pressureDifferenceType"> <xsd:annotation> <xsd:documentation>pressureLoss specifies a certain value for the loss of pressure of the gas flow over the resistor. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:sequence> <xsd:element name="dragFactor" type="framework:noType"> <xsd:annotation> <xsd:documentation>dragFactor specifies the drag factor value, to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:element name="diameter" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>diameter specifies the diameter of the resistor, to be used in a resistor formular to compute the actual pressure loss for the gas flow over the resistor as a function of the flow and the input pressure. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:choice> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																																				

Complex Type anyPressureArcType

Namespace	http://gaslib.zib.de/Gas
Annotations	anyPressureArcType defines an arc in the gas network.

Diagram



Type extension of connectionType

Type hierarchy

- connectionType
 - connectionType
 - anyPressureArcType

Used by Element anyPressureArc

Model flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1}

Children flowMax, flowMin, operatingVolumeFlowMax, operatingVolumeFlowMin

Attributes	QName	Type	Use	
	<code>alias</code>	xsd:string	optional	
		An alias (optional, default="").		
	<code>from</code>	xsd:string	required	
		Tail of arc.		
	<code>id</code>	identifier	required	
		A unique ID.		
	<code>to</code>	xsd:string	required	
		Head of arc.		

Source

```
<xsd:complexType name="anyPressureArcType">
  <xsd:annotation>
    <xsd:documentation>anyPressureArcType defines an arc in the gas network.</xsd:documentation>
```

```

</xsd:annotation>
<xsd:complexContent>
  <xsd:extension base="gas:connectionType">
    <xsd:sequence>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

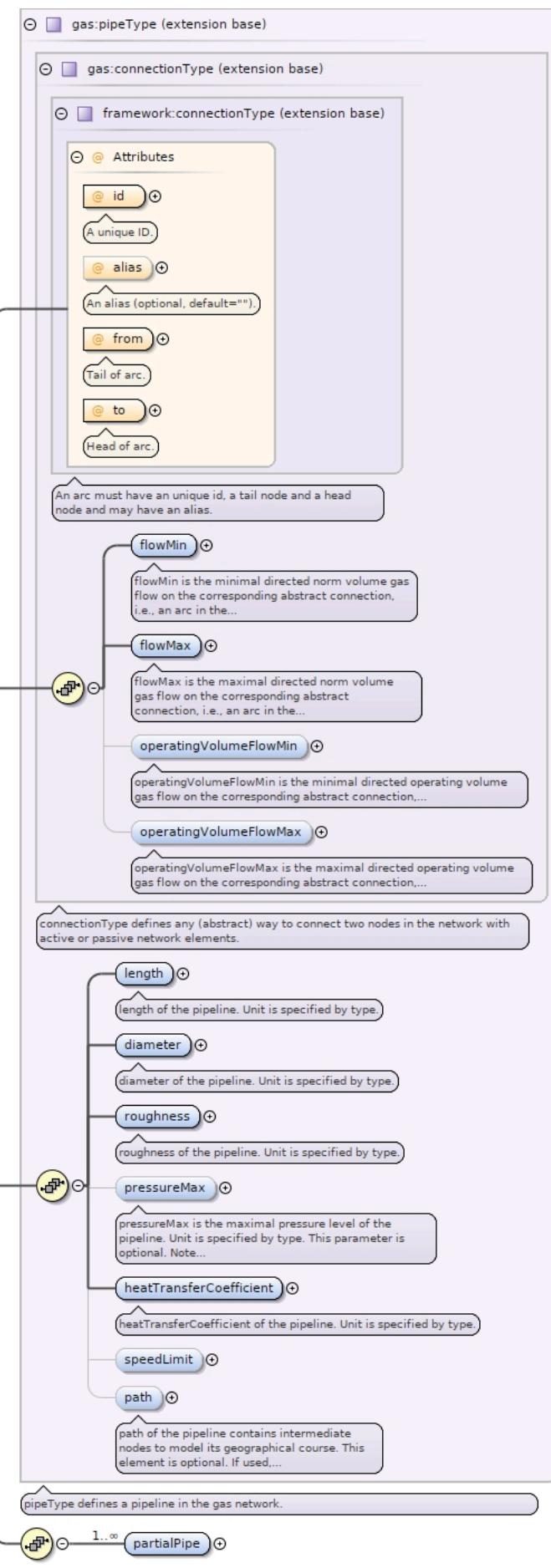
Complex Type partialPipeType

Namespace	http://gaslib.zib.de/Gas
Annotations	Parameters for a partial length of a pipeline.
Diagram	<pre> classDiagram class partialPipeType { diameter + costCoefficient + comment {0..1} } partialPipeType --> "Parameters for a partial length of a pipeline." diameter --> "Diameter of the partial pipeline." costCoefficient --> "Cost factor for relative length of partial pipe." comment --> "Optional comment" </pre>
Used by	Element splitPipeType/partialPipe
Model	diameter , costCoefficient , comment{0,1}
Children	comment, costCoefficient, diameter
Source	<pre> <xsd:complexType name="partialPipeType"> <xsd:annotation> <xsd:documentation>Parameters for a partial length of a pipeline.</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="diameter" type="framework:lengthType" minOccurs="1" maxOccurs="1"> <xsd:annotation> <xsd:documentation>Diameter of the partial pipeline.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="costCoefficient" type="framework:costType" minOccurs="1" maxOccurs="1"> <xsd:annotation> <xsd:documentation>Cost factor for relative length of partial pipe.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="comment" type="xsd:string" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>Optional comment</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </pre>

Complex Type splitPipeType

Namespace	http://gaslib.zib.de/Gas
Annotations	splitPipeType defines a split pipe in the gas network.

Diagram



Type	extension of pipeType																																						
Type hierarchy	<ul style="list-style-type: none"> • connectionType <ul style="list-style-type: none"> • connectionType • pipeType • splitPipeType 																																						
Used by	Element splitPipe																																						
Model	flowMin , flowMax , operatingVolumeFlowMin{0,1} , operatingVolumeFlowMax{0,1} , length , diameter , roughness , pressure-Max{0,1} , heatTransferCoefficient , speedLimit{0,1} , path{0,1} , partialPipe+																																						
Children	diameter, flowMax, flowMin, heatTransferCoefficient, length, operatingVolumeFlowMax, operatingVolumeFlowMin, partialPipe, path, pressureMax, roughness, speedLimit																																						
Attributes	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">An alias (optional, default="").</td></tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Tail of arc.</td></tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">A unique ID.</td></tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Head of arc.</td></tr> </tbody> </table>			QName	Type	Use		alias	xsd:string	optional			An alias (optional, default="").			from	xsd:string	required			Tail of arc.			id	identifier	required			A unique ID.			to	xsd:string	required			Head of arc.		
QName	Type	Use																																					
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id	identifier	required																																					
	A unique ID.																																						
to	xsd:string	required																																					
	Head of arc.																																						
Source	<pre><xsd:complexType name="splitPipeType"> <xsd:annotation> <xsd:documentation>splitPipeType defines a split pipe in the gas network.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="gas:pipeType"> <xsd:sequence> <xsd:element name="partialPipe" type="gas:partialPipeType" minOccurs="1" maxOccurs="unbounded" /> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																																						

Simple Type(s)

Simple Type **gas:probability**

Namespace	http://gaslib.zib.de/Gas					
Annotations	Value in the intervall [0,1].					
Diagram	<p>probability</p> <p>xsd:double</p> <p>Value in the intervall [0,1].</p> <p>Built-in primitive type. The double datatype corresponds to IEEE double-precision 64-bit floating point type [IEEE...]</p>					
Type	restriction of xsd:double					
Facets	<table border="1" style="margin-bottom: 10px;"> <tr> <td>maxInclusive</td> <td>1.0</td> </tr> <tr> <td>minInclusive</td> <td>0.0</td> </tr> </table>		maxInclusive	1.0	minInclusive	0.0
maxInclusive	1.0					
minInclusive	0.0					
Used by	Attribute gas:scenarioProbabilityType/@value					
Source	<pre><xsd:simpleType name="probability"> <xsd:annotation> <xsd:documentation>Value in the intervall [0,1].</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:double"> <xsd:minInclusive value="0.0"/> <xsd:maxInclusive value="1.0"/> </xsd:restriction> </xsd:simpleType></pre>					

Simple Type **gas:resbound**

Namespace	http://gaslib.zib.de/Gas
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Annotations	Type for bound direction ('lower', 'upper', 'both').						
Diagram	<p>The diagram shows a restriction of the xsd:string type. It has three facets: 'lower', 'upper', and 'both'. Each facet is represented by a small icon and a label.</p>						
Type	restriction of xsd:string						
Facets	<table> <tr> <td>enumeration</td> <td>lower</td> </tr> <tr> <td>enumeration</td> <td>upper</td> </tr> <tr> <td>enumeration</td> <td>both</td> </tr> </table>	enumeration	lower	enumeration	upper	enumeration	both
enumeration	lower						
enumeration	upper						
enumeration	both						
Used by	Attributes gas:flow_type/@bound, gas:power_type/@bound, gas:pressure_type/@bound						
Source	<pre> <xsd:simpleType name="resbound"> <xsd:annotation> <xsd:documentation>Type for bound direction ('lower', 'upper', 'both').</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="lower"/> <xsd:enumeration value="upper"/> <xsd:enumeration value="both"/> </xsd:restriction> </xsd:simpleType> </pre>						

Simple Type gas:nodetype

Namespace	http://gaslib.zib.de/Gas				
Annotations	Type for nodes ('exit', 'entry').				
Diagram	<p>The diagram shows a restriction of the xsd:string type. It has two facets: 'exit' and 'entry'. Each facet is represented by a small icon and a label.</p>				
Type	restriction of xsd:string				
Facets	<table> <tr> <td>enumeration</td> <td>exit</td> </tr> <tr> <td>enumeration</td> <td>entry</td> </tr> </table>	enumeration	exit	enumeration	entry
enumeration	exit				
enumeration	entry				
Used by	Attribute gas:boundaryValue/gas:scenario/gas:node/@type				
Source	<pre> <xsd:simpleType name="nodetype"> <xsd:annotation> <xsd:documentation>Type for nodes ('exit', 'entry').</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="exit"/> <xsd:enumeration value="entry"/> </xsd:restriction> </xsd:simpleType> </pre>				

Simple Type per_minUnit

Namespace	http://gaslib.zib.de/Gas		
Annotations	per_minUnit subsumes units with per minute.		
Diagram	<p>The diagram shows a restriction of the xsd:string type. It has one facet: 'per_min'. A note below the facet states 'per_minUnit subsumes units with per minute.'</p>		
Type	restriction of xsd:string		
Facets	<table> <tr> <td>enumeration</td> <td>per_min</td> </tr> </table>	enumeration	per_min
enumeration	per_min		
Used by	Attributes cs:speedType/@unit, speedType/@unit		
Source	<pre> <xsd:simpleType name="per_minUnit"> <xsd:annotation> <xsd:documentation>per_minUnit subsumes units with per minute.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="per_min"/> </xsd:restriction> </xsd:simpleType> </pre>		

Simple Type MJ_per_kWhUnit

Namespace	http://gaslib.zib.de/Gas
Annotations	MJ_per_kWhUnit subsumes units with mega Joule per kilo Watt hour.
Diagram	<p>MJ_per_kWhUnit subsumes units with mega Joule per kilo Watt hour.</p>
Type	restriction of xsd:string
Facets	enumeration MJ_per_kWh
Used by	Attribute specificFuelConsumptionType/@unit
Source	<pre><xsd:simpleType name="MJ_per_kWhUnit"> <xsd:annotation> <xsd:documentation>MJ_per_kWhUnit subsumes units with mega Joule per kilo Watt hour.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="MJ_per_kWh"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type noUnit

Namespace	http://gaslib.zib.de/Gas
Annotations	noUnit is used for quantities without units.
Diagram	<p>noUnit is used for quantities without units.</p>
Type	restriction of xsd:string
Facets	enumeration
Used by	Attribute efficiencyType/@unit
Source	<pre><xsd:simpleType name="noUnit"> <xsd:annotation> <xsd:documentation>noUnit is used for quantities without units.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="" /> </xsd:restriction> </xsd:simpleType></pre>

Namespace: "http://gaslib.zib.de/CombinedDecisions"

Schema(s)

Imported schema CombinedDecisions.xsd

Namespace	http://gaslib.zib.de/CombinedDecisions				
Annotations	This XML-Schema specifies XML documents, for the modeling of so called combined decisions. A combined decision consists of several decision groups, which in turn consist of (i) a set of switchable network elements and (ii) a number of possible switching states of the respective network elements. The tag combinedDecisions must be the root element of each XML document conforming to this schema.				
Properties	<table border="1"> <tr> <td>attribute form default:</td> <td>unqualified</td> </tr> <tr> <td>element form default:</td> <td>qualified</td> </tr> </table>	attribute form default:	unqualified	element form default:	qualified
attribute form default:	unqualified				
element form default:	qualified				

Element(s)

Element xschema:boundExType / xschema:referenceTemperature

Namespace	http://gaslib.zib.de/CombinedDecisions
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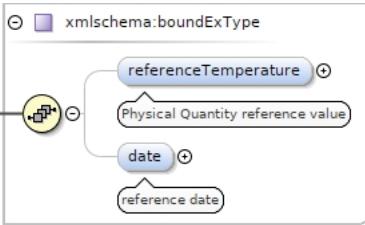
Annotations	Physical Quantity reference value																				
Diagram	<pre> classDiagram framework:temperatureType < -- framework:unitType {extension base} framework:temperatureType "referenceTemperature" --> PhysicalQuantityReferenceValue PhysicalQuantityReferenceValue --> framework:unitType framework:unitType "unit" --> TemperatureUnit framework:unitType "value" --> TemperatureValue </pre>																				
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> unitType temperatureType 																				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1														
content:	complex																				
minOccurs:	0																				
maxOccurs:	1																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A temperature unit (default = Kelvin).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Temperature value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).		value	xsd:double		required			Temperature value.	
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
		A temperature unit (default = Kelvin).																			
value	xsd:double		required																		
		Temperature value.																			
Source	<pre> <xs:element name="referenceTemperature" type="framework:temperatureType" minOccurs="0" maxOccurs="1"> <xs:annotation> <xs:documentation>Physical Quantity reference value</xs:documentation> </xs:annotation> </xs:element> </pre>																				

Element xschema:boundExType / xschema:date

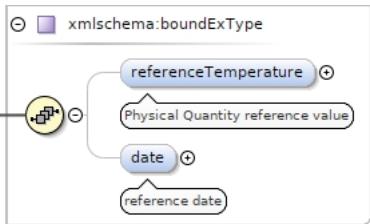
Namespace	http://gaslib.zib.de/CombinedDecisions						
Annotations	reference date						
Diagram	<pre> classDiagram xschema:dateType < -- xschema:dateTimeType xschema:dateType "date" --> ReferenceDate ReferenceDate --> xschema:dateTimeType xschema:dateTimeType "day" --> Day </pre>						
Type	xschema:dateType						
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1
content:	complex						
minOccurs:	0						
maxOccurs:	1						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>day</td> <td>xs:date</td> <td>optional</td> </tr> </tbody> </table>	QName	Type	Use	day	xs:date	optional
QName	Type	Use					
day	xs:date	optional					
Source	<pre> <xs:element name="date" type="xschema:dateType" minOccurs="0" maxOccurs="1"> <xs:annotation> <xs:documentation>reference date</xs:documentation> </xs:annotation> </xs:element> </pre>						

Element xschema:validityType / xschema:min

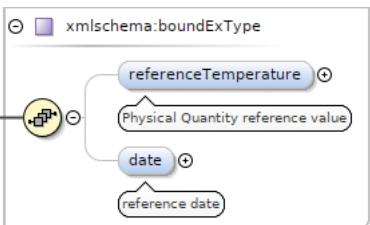
Namespace	http://gaslib.zib.de/CombinedDecisions
-----------	----------------------------------------

Diagram							
Type	xmlschema:boundExType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1
content:	complex						
minOccurs:	0						
maxOccurs:	1						
Model	xmlschema:referenceTemperature{0,1} , xmlschema:date{0,1}						
Children	xmlschema:date, xmlschema:referenceTemperature						
Instance	<pre><xmlschema:min xmlns:xmlschema="http://gaslib.zib.de/CombinedDecisions"> <xmlschema:referenceTemperature unit="K" value="">{0,1}</xmlschema:referenceTemperature> <xmlschema:date day="">{0,1}</xmlschema:date> </xmlschema:min></pre>						
Source	<code><xss:element minOccurs="0" maxOccurs="1" name="min" type="xmlschema:boundExType" /></code>						

Element xmlschema:validityType / xmlschema:minEx

Namespace	http://gaslib.zib.de/CombinedDecisions						
Diagram							
Type	xmlschema:boundExType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1
content:	complex						
minOccurs:	0						
maxOccurs:	1						
Model	xmlschema:referenceTemperature{0,1} , xmlschema:date{0,1}						
Children	xmlschema:date, xmlschema:referenceTemperature						
Instance	<pre><xmlschema:minEx xmlns:xmlschema="http://gaslib.zib.de/CombinedDecisions"> <xmlschema:referenceTemperature unit="K" value="">{0,1}</xmlschema:referenceTemperature> <xmlschema:date day="">{0,1}</xmlschema:date> </xmlschema:minEx></pre>						
Source	<code><xss:element minOccurs="0" maxOccurs="1" name="minEx" type="xmlschema:boundExType" /></code>						

Element xmlschema:validityType / xmlschema:max

Namespace	http://gaslib.zib.de/CombinedDecisions						
Diagram							
Type	xmlschema:boundExType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1
content:	complex						
minOccurs:	0						
maxOccurs:	1						

Model	xmleschema:referenceTemperature{0,1} , xmleschema:date{0,1}
Children	xmleschema:date, xmleschema:referenceTemperature
Instance	<xmleschema:max xmlns:xmleschema="http://gaslib.zib.de/CombinedDecisions"> <xmleschema:referenceTemperature unit="K" value="">{0,1}</xmleschema:referenceTemperature> <xmleschema:date day="">{0,1}</xmleschema:date> </xmleschema:max>
Source	<xs:element minOccurs="0" maxOccurs="1" name="max" type="xmleschema:boundExType"/>

Element xmleschema:validityType / xmleschema:maxEx

Namespace	http://gaslib.zib.de/CombinedDecisions						
Diagram	<pre> classDiagram class xmleschema { boundExType } class xmleschema { referenceTemperature } class xmleschema { date } xmleschema(boundExType) "0..1" -- "1" xmleschema(referenceTemperature) xmleschema(boundExType) "0..1" -- "1" xmleschema(date) </pre>						
Type	xmleschema:boundExType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	1
content:	complex						
minOccurs:	0						
maxOccurs:	1						
Model	xmleschema:referenceTemperature{0,1} , xmleschema:date{0,1}						
Children	xmleschema:date, xmleschema:referenceTemperature						
Instance	<xmleschema:maxEx xmlns:xmleschema="http://gaslib.zib.de/CombinedDecisions"> <xmleschema:referenceTemperature unit="K" value="">{0,1}</xmleschema:referenceTemperature> <xmleschema:date day="">{0,1}</xmleschema:date> </xmleschema:maxEx>						
Source	<xs:element minOccurs="0" maxOccurs="1" name="maxEx" type="xmleschema:boundExType"/>						

Element xmleschema:combinedDecisions

Namespace	http://gaslib.zib.de/CombinedDecisions
Annotations	combinedDecisions contains all groups of switchable elements where additional constraints not contained in the net-file need to be considered
Diagram	<p>combinedDecisions contains all groups of switchable elements where additional constraints not contained in the net-file...</p> <p>a decision group contains all possible decisions for the set of elements it is the obligation of the generator to make...</p> <pre> classDiagram class combinedDecisions class xmleschema { decisionGroup } combinedDecisions "*" -- "0..*" xmleschema(decisionGroup) </pre>
Properties	content: complex
Model	xmleschema:decisionGroup*
Children	xmleschema:decisionGroup
Instance	<xmleschema:combinedDecisions xmlns:xmleschema="http://gaslib.zib.de/CombinedDecisions"> <xmleschema:decisionGroup id="">{0,unbounded}</xmleschema:decisionGroup> </xmleschema:combinedDecisions>
Source	<pre> <xs:element name="combinedDecisions"> <xs:annotation> <xs:documentation>combinedDecisions contains all groups of switchable elements where additional constraints not contained in the net-file need to be considered</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element minOccurs="0" maxOccurs="unbounded" ref="xmleschema:decisionGroup"/> </xs:sequence> </xs:complexType> </xs:element> </pre>

Element xmleschema:decisionGroup

Namespace	http://gaslib.zib.de/CombinedDecisions
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Annotations	a decision group contains all possible decisions for the set of elements it is the obligation of the generator to make sure that the set of decisions is the complete set of possible states									
Diagram	<pre> classDiagram class xmlschema { idGroup sourceComment decision+ validity* } class xmlschema { id min max minEx maxEx } class xmlschema { decisionGroup validity sourceComment } class xmlschema { decision } idGroup < -- decisionGroup idGroup < -- validity idGroup < -- sourceComment idGroup < -- decision id < -- min id < -- max id < -- minEx id < -- maxEx </pre> <p>The diagram shows the structure of the <code>xmlschema:decisionGroup</code> element. It has attributes for <code>id</code>, <code>min</code>, <code>max</code>, <code>minEx</code>, and <code>maxEx</code>. It contains three child elements: <code>validity</code>, <code>sourceComment</code>, and <code>decision</code>. The <code>validity</code> element is marked with a multiplicity of <code>0..*</code>. The <code>sourceComment</code> and <code>decision</code> elements are marked with a multiplicity of <code>1..*</code>.</p>									
Properties	content: complex									
Used by	Element <code>xmlschema:combinedDecisions</code>									
Model	<code>xmlschema:validity*</code> , <code>xmlschema:sourceComment{0,1}</code> , <code>xmlschema:decision+</code>									
Children	<code>xmlschema:decision</code> , <code>xmlschema:sourceComment</code> , <code>xmlschema:validity</code>									
Instance	<pre> <xmlschema:decisionGroup id="" xmlns:xmlschema="http://gaslib.zib.de/CombinedDecisions"> <xmlschema:validity>{0,unbounded}</xmlschema:validity> <xmlschema:sourceComment>{0,1}</xmlschema:sourceComment> <xmlschema:decision fullName="" id="">{1,unbounded}</xmlschema:decision> </xmlschema:decisionGroup> </pre>									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>id</code></td> <td>restriction of xs:string</td> <td>required</td> </tr> <tr> <td></td> <td>A unique identifier</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	<code>id</code>	restriction of xs:string	required		A unique identifier	
QName	Type	Use								
<code>id</code>	restriction of xs:string	required								
	A unique identifier									
Source	<pre> <xss:element name="decisionGroup"> <xss:annotation> <xss:documentation>a decision group contains all possible decisions for the set of elements it is the obligation of the generator to make sure that the set of decisions is the complete set of possible states</xss:documentation> </xss:annotation> <xss:complexType> <xss:sequence> <xss:element name="validity" minOccurs="0" maxOccurs="unbounded" type="xmlschema:validityType"/> <xss:element ref="xmlschema:sourceComment" minOccurs="0"/> <xss:element maxOccurs="unbounded" ref="xmlschema:decision"/> </xss:sequence> <xss:attributeGroup ref="xmlschema:idGroup"/> </xss:complexType> </xss:element> </pre>									

Element `xmlschema:decisionGroup` / `xmlschema:validity`

Namespace	<code>http://gaslib.zib.de/CombinedDecisions</code>						
Diagram	<pre> classDiagram class xmlschema { validityType } class xmlschema { min minEx max maxEx } class xmlschema { validity } validityType < -- validity validityType < -- min validityType < -- max validityType < -- minEx validityType < -- maxEx </pre> <p>The diagram shows the structure of the <code>xmlschema:validityType</code> element. It has attributes for <code>min</code>, <code>max</code>, <code>minEx</code>, and <code>maxEx</code>. It contains one child element: <code>validity</code>.</p>						
Type	<code>xmlschema:validityType</code>						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	unbounded
content:	complex						
minOccurs:	0						
maxOccurs:	unbounded						
Model	<code>xmlschema:min{0,1}</code> , <code>xmlschema:minEx{0,1}</code> , <code>xmlschema:max{0,1}</code> , <code>xmlschema:maxEx{0,1}</code>						
Children	<code>xmlschema:max</code> , <code>xmlschema:maxEx</code> , <code>xmlschema:min</code> , <code>xmlschema:minEx</code>						
Instance	<pre> <xmlschema:validity xmlns:xmlschema="http://gaslib.zib.de/CombinedDecisions"> </pre>						

	<pre><xmleschema:min>{0,1}</xmleschema:min> <xmleschema:minEx>{0,1}</xmleschema:minEx> <xmleschema:max>{0,1}</xmleschema:max> <xmleschema:maxEx>{0,1}</xmleschema:maxEx> </xmleschema:validity></pre>
Source	<pre><xss:element name="validity" minOccurs="0" maxOccurs="unbounded" type="xmleschema:validityType" /></pre>

Element xmleschema:sourceComment

Namespace	http://gaslib.zib.de/CombinedDecisions
Annotations	the sourceComment field states the source of the set of decisions in human readable form
Diagram	<p>The diagram shows the <code>sourceComment</code> element as a class with a multiplicity of 0..1. It has a directed association to the <code>xs:string</code> primitive type. A callout box indicates that the <code>sourceComment</code> field states the source of the set of decisions in human readable form. Another callout box states that <code>xs:string</code> is a built-in primitive type representing character strings in XML.</p>
Type	xs:string
Properties	content: simple
Used by	Element xmleschema:decisionGroup
Source	<pre><xss:element name="sourceComment" type="xs:string"> <xss:annotation> <xss:documentation>the sourceComment field states the source of the set of decisions in human readable form</xss:documentation> </xss:annotation> </xss:element></pre>

Element xmleschema:decision

Namespace	http://gaslib.zib.de/CombinedDecisions															
Diagram	<p>The diagram shows the <code>decision</code> element as a class with a multiplicity of 0..1. It has attributes <code>idGroup</code> (with a callout 'id field') and <code>fullName</code> (with a callout 'Full name of the decision'). It also has three associations: one to <code>xmleschema:valve</code> (multiplicity 0..1), one to <code>xmleschema:controlValve</code> (multiplicity 0..1), and one to <code>xmleschema:compressorStation</code> (multiplicity 0..1).</p>															
Properties	content: complex															
Used by	Element xmleschema:decisionGroup															
Model	xmleschema:valve xmleschema:controlValve xmleschema:compressorStation															
Children	xmleschema:compressorStation, xmleschema:controlValve, xmleschema:valve															
Instance	<pre><xmleschema:decision fullName="" id="" xmlns:xmleschema="http://gaslib.zib.de/CombinedDecisions"> <xmleschema:valve flowDirections="" id="" value="">{1,1}</xmleschema:valve> <xmleschema:controlValve flowDirections="" id="" mode="" value="">{1,1}</xmleschema:controlValve> <xmleschema:compressorStation config="" flowDirection="" id="" mode="" value="">{1,1}</xmleschema:compressorStation> </xmleschema:decision></pre>															
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>fullName</td> <td>xs:string</td> <td>optional</td> </tr> <tr> <td></td> <td>Full name of the decision</td> <td></td> </tr> <tr> <td>id</td> <td>restriction of xs:string</td> <td>required</td> </tr> <tr> <td></td> <td>A unique identifier</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	fullName	xs:string	optional		Full name of the decision		id	restriction of xs:string	required		A unique identifier	
QName	Type	Use														
fullName	xs:string	optional														
	Full name of the decision															
id	restriction of xs:string	required														
	A unique identifier															
Source	<pre><xss:element name="decision"> <xss:complexType> <xss:choice minOccurs="0" maxOccurs="unbounded"> <xss:element ref="xmleschema:valve"/></pre>															

```

<xs:element ref="xmlschema:controlValve"/>
<xs:element ref="xmlschema:compressorStation"/>
</xs:choice>
<xs:attributeGroup ref="xmlschema:idGroup"/>
<xs:attribute name="fullName" type="xs:string" default="">
  <xs:annotation>
    <xs:documentation>Full name of the decision</xs:documentation>
  </xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>

```

Element xmlschema:valve

Namespace	http://gaslib.zib.de/CombinedDecisions																														
Diagram	<p>The diagram shows the 'valve' element with an 'Attributes' box. Inside the box is a 'xmlschema:switch' component, which is described as a 'standard attribute set for switchable elements'.</p>																														
Properties	content: complex																														
Used by	Element xmlschema:decision																														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>flowDirection</td> <td>restriction of xs:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)</td></tr> <tr> <td>id</td> <td>restriction of xs:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">A unique identifier</td></tr> <tr> <td>value</td> <td>xs:boolean</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">false, 0: closed true, 1: open</td></tr> </tbody> </table>	QName	Type	Use		flowDirection	restriction of xs:string	optional			the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)			id	restriction of xs:string	required			A unique identifier			value	xs:boolean	required			false, 0: closed true, 1: open				
QName	Type	Use																													
flowDirection	restriction of xs:string	optional																													
	the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)																														
id	restriction of xs:string	required																													
	A unique identifier																														
value	xs:boolean	required																													
	false, 0: closed true, 1: open																														
Source	<pre> <xs:element name="valve"> <xs:complexType> <xs:attributeGroup ref="xmlschema:switch"/> </xs:complexType> </xs:element> </pre>																														

Element xmlschema:controlValve

Namespace	http://gaslib.zib.de/CombinedDecisions															
Diagram	<p>The diagram shows the 'controlValve' element with an 'Attributes' box. Inside the box is a 'xmlschema:activeGroup' component, which is described as 'Attributes for active elements'.</p>															
Properties	content: complex															
Used by	Element xmlschema:decision															
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>flowDirection</td> <td>restriction of xs:string</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)</td></tr> </tbody> </table>	QName	Type	Use		flowDirection	restriction of xs:string	optional			the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)					
QName	Type	Use														
flowDirection	restriction of xs:string	optional														
	the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)															

QName	Type	Use	
direction in the network)			
id	restriction of xs:string	required	
A unique identifier			
mode	restriction of xs:string	optional	
When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.			
value	xs:boolean	required	
false, 0: closed true, 1: open			
Source	<pre><xs:element name="controlValve"> <xs:complexType> <xs:attributeGroup ref="xmlschema:activeGroup" /> </xs:complexType> </xs:element></pre>		

Element xmlschema:compressorStation

Namespace	http://gaslib.zib.de/CombinedDecisions																																														
Diagram																																															
Properties	content: complex																																														
Used by	Element xmlschema:decision																																														
Attributes <table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>config</td><td>xs:string</td><td>optional</td><td></td></tr> <tr> <td colspan="4">When the element is active, the optional attribute 'config' further restricts the choice of the configuration.</td></tr> <tr> <td>flowDirection</td><td>restriction of xs:string</td><td>optional</td><td></td></tr> <tr> <td colspan="4">the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)</td></tr> <tr> <td>id</td><td>restriction of xs:string</td><td>required</td><td></td></tr> <tr> <td colspan="4">A unique identifier</td></tr> <tr> <td>mode</td><td>restriction of xs:string</td><td>optional</td><td></td></tr> <tr> <td colspan="4">When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.</td></tr> <tr> <td>value</td><td>xs:boolean</td><td>required</td><td></td></tr> <tr> <td colspan="4">false, 0: closed true, 1: open</td></tr> </tbody></table>				QName	Type	Use		config	xs:string	optional		When the element is active, the optional attribute 'config' further restricts the choice of the configuration.				flowDirection	restriction of xs:string	optional		the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)				id	restriction of xs:string	required		A unique identifier				mode	restriction of xs:string	optional		When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.				value	xs:boolean	required		false, 0: closed true, 1: open			
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Source	<pre><xs:element name="compressorStation"> <xs:complexType> <xs:attributeGroup ref="xmlschema:activeGroup" /> <xs:attribute name="config" type="xs:string"> <xs:annotation> <xs:documentation>When the element is active, the optional attribute 'config' further restricts the choice of the configuration.</xs:documentation> </xs:annotation> </xs:attribute> </xs:complexType> </xs:element></pre>																																														

```
</xs:complexType>
</xs:element>
```

Complex Type(s)

Complex Type `xmlschema:dateType`

Namespace	http://gaslib.zib.de/CombinedDecisions		
Diagram	<pre> classDiagram class dateType { attribute day } </pre>		
Used by	Element xmlschema:boundExType/xmlschema:date		
Attributes	QName	Type	Use
	day	xs:date	optional
Source	<pre> <xs:complexType name="dateType"> <xs:attribute name="day" type="xs:date" /> </xs:complexType> </pre>		

Complex Type `xmlschema:boundExType`

Namespace	http://gaslib.zib.de/CombinedDecisions		
Diagram	<pre> classDiagram class boundExType { attribute referenceTemperature attribute date } </pre> <p>referenceTemperature documentation: Physical Quantity reference value</p> <p>date documentation: reference date</p>		
Used by	Elements xmlschema:validityType/xmlschema:max, xmlschema:validityType/xmlschema:maxEx, xmlschema:validityType/xmlschema:min, xmlschema:validityType/xmlschema:minEx		
Model	xmlschema:referenceTemperature{0,1}, xmlschema:date{0,1}		
Children	xmlschema:date, xmlschema:referenceTemperature		
Source	<pre> <xs:complexType name="boundExType"> <xs:sequence> <xs:element name="referenceTemperature" type="framework:temperatureType" minOccurs="0" maxOccurs="1"> <xs:annotation> <xs:documentation>Physical Quantity reference value</xs:documentation> </xs:annotation> </xs:element> <xs:element name="date" type="xmlschema:dateType" minOccurs="0" maxOccurs="1"> <xs:annotation> <xs:documentation>reference date</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>		

Complex Type `xmlschema:validityType`

Namespace	http://gaslib.zib.de/CombinedDecisions		
Diagram	<pre> classDiagram class validityType { attribute min attribute minEx attribute max attribute maxEx } </pre> <p>min documentation: min</p> <p>max documentation: max</p>		
Used by	Element xmlschema:decisionGroup/xmlschema:validity		
Model	xmlschema:min{0,1}, xmlschema:minEx{0,1}, xmlschema:max{0,1}, xmlschema:maxEx{0,1}		
Children	xmlschema:max, xmlschema:maxEx, xmlschema:min, xmlschema:minEx		
Source	<pre> <xs:complexType name="validityType"> <xs:sequence> </pre>		

```

<xs:element minOccurs="0" maxOccurs="1" name="min" type="xmlschema:boundExType" />
<xs:element minOccurs="0" maxOccurs="1" name="minEx" type="xmlschema:boundExType" />
<xs:element minOccurs="0" maxOccurs="1" name="max" type="xmlschema:boundExType" />
<xs:element minOccurs="0" maxOccurs="1" name="maxEx" type="xmlschema:boundExType" />
</xs:sequence>
</xs:complexType>

```

Attribute Group(s)

Attribute Group `xmlschema:idGroup`

Namespace	http://gaslib.zib.de/CombinedDecisions														
Annotations	id field														
Diagram	<p>The diagram shows the <code>idGroup</code> attribute group. It consists of a central box labeled <code>idGroup</code> with a circled minus sign (-) to its left. Two arrows point from this box to two other boxes: one labeled <code>@ id</code> with a circled plus sign (+) to its right, and another labeled <code>A unique identifier</code>. Below these boxes are two callout boxes: one labeled <code>id field</code> pointing to the <code>@ id</code> box, and another labeled <code>A unique identifier</code> pointing to the second box.</p>														
Used by	Attribute Group <code>xmleschema:switch</code> Elements <code>xmleschema:decision</code> , <code>xmleschema:decisionGroup</code>														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td><code>id</code></td> <td>restriction of <code>xs:string</code></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>A unique identifier</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Use		<code>id</code>	restriction of <code>xs:string</code>	required			A unique identifier				
QName	Type	Use													
<code>id</code>	restriction of <code>xs:string</code>	required													
	A unique identifier														
Source	<pre> <xs:attributeGroup name="idGroup"> <xs:annotation> <xs:documentation>id field</xs:documentation> </xs:annotation> <xs:attribute name="id" use="required"> <xs:annotation> <xs:documentation>A unique identifier</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:minLength value="2"/> <xs:maxLength value="30"/> <xs:pattern value="[a-zA-Z]{1}[a-zA-Z0-9_]*"/> </xs:restriction> </xs:simpleType> </xs:attribute> </xs:attributeGroup> </pre>														

Attribute Group `xmleschema:switch`

Namespace	http://gaslib.zib.de/CombinedDecisions														
Annotations	standard attribute set for switchable elements														
Diagram	<p>The diagram shows the <code>switch</code> attribute group. It consists of a central box labeled <code>switch</code> with a circled minus sign (-) to its left. Two arrows point from this box to two other boxes: one labeled <code>@ value</code> with a circled plus sign (+) to its right, and another labeled <code>false, 0: closed true, 1: open</code>. Below these boxes is a third box labeled <code>@ flowDirection</code> with a circled plus sign (+) to its right. A callout box labeled <code>standard attribute set for switchable elements</code> points to the <code>switch</code> box. Another callout box labeled <code>the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in...</code> points to the <code>@ flowDirection</code> box.</p>														
Used by	Attribute Group <code>xmleschema:activeGroup</code> Element <code>xmleschema:valve</code>														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td><code>flowDirection</code></td> <td>restriction of <code>xs:string</code></td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">the extra attribute <code>flowDirection</code> makes sure that a compressorStation or a control</td></tr> </tbody> </table>	QName	Type	Use		<code>flowDirection</code>	restriction of <code>xs:string</code>	optional			the extra attribute <code>flowDirection</code> makes sure that a compressorStation or a control				
QName	Type	Use													
<code>flowDirection</code>	restriction of <code>xs:string</code>	optional													
	the extra attribute <code>flowDirection</code> makes sure that a compressorStation or a control														

	QName	Type	Use	
		valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)		
	id	restriction of xs:string	required	
		A unique identifier		
	value	xs:boolean	required	
		false, 0: closed true, 1: open		
Source	<pre><xs:attributeGroup name="switch"> <xs:annotation> <xs:documentation>standard attribute set for switchable elements</xs:documentation> </xs:annotation> <xs:attributeGroup ref="xmlschema:idGroup"/> <xs:attribute name="value" use="required" type="xs:boolean"> <xs:annotation> <xs:documentation>false, 0: closed true, 1: open</xs:documentation> </xs:annotation> </xs:attribute> <xs:attribute name="flowDirection"> <xs:annotation> <xs:documentation>the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="forward"/> <xs:enumeration value="0"/> <xs:enumeration value="backward"/> <xs:enumeration value="1"/> </xs:restriction> </xs:simpleType> </xs:attribute> </xs:attributeGroup></pre>			

Attribute Group **xmlschema:activeGroup**

Namespace	http://gaslib.zib.de/CombinedDecisions										
Annotations	Attributes for active elements										
Diagram	<p>The diagram shows the activeGroup attribute group. It contains an idGroup attribute group and a flowDirection attribute. The flowDirection attribute has a note explaining its purpose: "the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)". A note also states that "standard attribute set for switchable elements" is used.</p>										
Used by	Elements xmlschema:compressorStation, xmlschema:controlValve										
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>flowDirection</td> <td>restriction of xs:string</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="2">the extra attribute flowDirection makes sure that a compressorStation or a control</td></tr> </tbody> </table>		QName	Type	Use	flowDirection	restriction of xs:string	optional		the extra attribute flowDirection makes sure that a compressorStation or a control	
QName	Type	Use									
flowDirection	restriction of xs:string	optional									
	the extra attribute flowDirection makes sure that a compressorStation or a control										

QName	Type	Use	
	valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)		
id	restriction of xs:string	required	
	A unique identifier		
mode	restriction of xs:string	optional	
	When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.		
value	xs:boolean	required	
	false, 0: closed true, 1: open		
Source	<pre> <xs:attributeGroup name="activeGroup"> <xs:annotation> <xs:documentation>Attributes for active elements</xs:documentation> </xs:annotation> <xs:attributeGroup ref="xmlschema:switch"/> <xs:attribute name="mode"> <xs:annotation> <xs:documentation>When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="active"/> <xs:enumeration value="bypass"/> </xs:restriction> </xs:simpleType> </xs:attribute> </xs:attributeGroup></pre>		

Namespace: "http://gaslib.zib.de/Framework"

Schema(s)

Imported schema Framework.xsd

Namespace	http://gaslib.zib.de/Framework
Annotations	Base XML-schema.
Properties	attribute form default: unqualified element form default: qualified

Included schema Topology.xsd

Namespace	http://gaslib.zib.de/Framework
Annotations	Within this XML Schema the underlaying network topology is defined. A network is considered as a directed graph. The root element of an XML document conforming to this schema is the network-tag. It contains exactly one information-, nodes- and connections-tag, given in this order. While within the information- tag, meta-data is provided. The nodes-tag encloses the definition of the nodes of the network and the connections-tag encloses the defintion of the arcs of the network. Nodes and arcs have to be given together with an unique ID.
Properties	attribute form default: unqualified element form default: qualified

Included schema Physicalvalues.xsd

Namespace	http://gaslib.zib.de/Framework
Annotations	Within this XML Schema basic physical values are described. A physical value is defined by its unit and a value.

Properties	attribute form default: unqualified element form default: qualified
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Element(s)

Element network

Namespace	http://gaslib.zib.de/Framework
Annotations	Root element of any XML document conforming to this schema.
Diagram	<p>The diagram illustrates the schema structure for the <code>networkType</code>. At the top is the <code>network</code> element, which is the root of the schema. It contains three main children: <code>information</code>, <code>nodes</code>, and <code>connections</code>. Each of these elements has a detailed annotation describing its purpose. Below the <code>network</code> element are four constraint sections: <code>tailIDRef</code>, <code>headIDRef</code>, <code>nodeID</code>, and <code>arcID</code>. Finally, there is a <code>Substitutions</code> section that defines <code>network</code> as a gas network type.</p>
Type	networkType
Properties	content: complex
Substitution Group	• network
Model	information , nodes , connections
Children	connections, information, nodes
Instance	<pre><network xmlns="http://gaslib.zib.de/Framework"> <information>{1,1}</information> <nodes>{1,1}</nodes></pre>

	<connections>{1,1}</connections> </network>				
Identity constraints	QName	Type	Refer	Selector	Field(s)
	tailIDRef	keyref	nodeID	framework:connections/framework/connection	@tail
	headIDRef	keyref	nodeID	framework:connections/framework/connection	@head
	nodeID	key		framework:nodes/framework:node	@id
Source	<pre><xsd:element name="network" type="framework:networkType"> <xsd:annotation> <xsd:documentation>Root element of any XML document conforming to this schema.</xsd:documentation> </xsd:annotation> <xsd:keyref name="tailIDRef" refer="framework:nodeID"> <xsd:selector xpath="framework:connections/framework/connection"/> <xsd:field xpath="@tail"/> </xsd:keyref> <xsd:keyref name="headIDRef" refer="framework:nodeID"> <xsd:selector xpath="framework:connections/framework/connection"/> <xsd:field xpath="@head"/> </xsd:keyref> <xsd:key name="nodeID"> <xsd:selector xpath="framework:nodes/framework:node"/> <xsd:field xpath="@id"/> </xsd:key> <xsd:key name="arcID"> <xsd:selector xpath="framework:connections/framework:connection"/> <xsd:field xpath="@id"/> </xsd:key> </xsd:element></pre>				

Element networkType / information

Namespace	http://gaslib.zib.de/Framework						
Annotations	This encloses meta-information about the network.						
Diagram	<pre> classDiagram class framework:informationType { title type author * "0..∞" date documentation } framework:informationType < -- information information --> framework:informationType </pre> <p>The diagram illustrates the structure of the <code>framework:informationType</code> element. It contains the following attributes:</p> <ul style="list-style-type: none"> <code>title</code>: An unique identifier for the network. <code>type</code>: The type of the network. <code>author</code>: An author of this file. This attribute is marked with a multiplicity of <code>0..∞</code>. <code>date</code>: Date of creation of this file. <code>documentation</code>: Further information on this file. <p>A note at the bottom states: "Meta information about a network consists of an unique identifier for the network, the type of the network, zero or..."</p>						
Type	informationType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>1</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	1
content:	complex						
minOccurs:	1						
maxOccurs:	1						
Model	title , type , author* , date{0,1} , documentation{0,1}						

Children	author, date, documentation, title, type
Instance	<pre><information xmlns="http://gaslib.zib.de/Framework"> <title>{1,1}</title> <type>{1,1}</type> <author>{0,unbounded}</author> <date>{0,1}</date> <documentation>{0,1}</documentation> </information></pre>
Source	<pre><xsd:element minOccurs="1" maxOccurs="1" name="information" type="framework:informationType"> <xsd:annotation> <xsd:documentation>This encloses meta-information about the network.</xsd:documentation> </xsd:annotation> </xsd:element></pre>

Element informationType / title

Namespace	http://gaslib.zib.de/Framework						
Annotations	An unique identifier for the network.						
Diagram							
Type	identifier						
Properties	<table> <tr> <td>content:</td> <td>simple</td> </tr> <tr> <td>minOccurs:</td> <td>1</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	simple	minOccurs:	1	maxOccurs:	1
content:	simple						
minOccurs:	1						
maxOccurs:	1						
Facets	<table> <tr> <td>minLength</td> <td>1</td> </tr> <tr> <td>maxLength</td> <td>160</td> </tr> <tr> <td>pattern</td> <td>(\i\c*) & ([\i-[:]][\c-[:]]*) & ([a-zA-Z]{1}[a-zA-Z0-9_]*)</td> </tr> </table>	minLength	1	maxLength	160	pattern	(\i\c*) & ([\i-[:]][\c-[:]]*) & ([a-zA-Z]{1}[a-zA-Z0-9_]*)
minLength	1						
maxLength	160						
pattern	(\i\c*) & ([\i-[:]][\c-[:]]*) & ([a-zA-Z]{1}[a-zA-Z0-9_]*)						
Source	<pre><xsd:element minOccurs="1" maxOccurs="1" name="title" type="framework:identifier"> <xsd:annotation> <xsd:documentation>An unique identifier for the network.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element informationType / type

Namespace	http://gaslib.zib.de/Framework						
Annotations	The type of the network.						
Diagram							
Type	networkTypeType						
Properties	<table> <tr> <td>content:</td> <td>simple</td> </tr> <tr> <td>minOccurs:</td> <td>1</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	simple	minOccurs:	1	maxOccurs:	1
content:	simple						
minOccurs:	1						
maxOccurs:	1						
Facets	enumeration gas						
Source	<pre><xsd:element minOccurs="1" maxOccurs="1" name="type" type="framework:networkTypeType"> <xsd:annotation> <xsd:documentation>The type of the network.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element informationType / author

Namespace	http://gaslib.zib.de/Framework
Annotations	An author of this file.

Diagram	A UML class diagram fragment. An 'author' node is connected to an 'xsd:string' node by a line with a hollow circle at the 'author' end. A callout box points to 'author' with the text 'An author of this file.' Another callout box points to 'xsd:string' with the text 'Built-in primitive type. The string datatype represents character strings in XML.'						
Type	xsd:string						
Properties	<table> <tr> <td>content:</td> <td>simple</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	simple	minOccurs:	0	maxOccurs:	unbounded
content:	simple						
minOccurs:	0						
maxOccurs:	unbounded						
Source	<pre><xsd:element minOccurs="0" maxOccurs="unbounded" name="author" type="xsd:string"> <xsd:annotation> <xsd:documentation>An author of this file.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element informationType / date

Namespace	http://gaslib.zib.de/Framework						
Annotations	Date of creation of this file.						
Diagram	A UML class diagram fragment. A 'date' node is connected to an 'xsd:date' node by a line with a hollow circle at the 'date' end. A callout box points to 'date' with the text 'Date of creation of this file.' Another callout box points to 'xsd:date' with the text 'Built-in primitive type. The date datatype represents a calendar date.'						
Type	xsd:date						
Properties	<table> <tr> <td>content:</td> <td>simple</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	simple	minOccurs:	0	maxOccurs:	1
content:	simple						
minOccurs:	0						
maxOccurs:	1						
Source	<pre><xsd:element minOccurs="0" maxOccurs="1" name="date" type="xsd:date"> <xsd:annotation> <xsd:documentation>Date of creation of this file.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element informationType / documentation

Namespace	http://gaslib.zib.de/Framework						
Annotations	Further information on this file.						
Diagram	A UML class diagram fragment. A 'documentation' node is connected to an 'xsd:string' node by a line with a hollow circle at the 'documentation' end. A callout box points to 'documentation' with the text 'Further information on this file.' Another callout box points to 'xsd:string' with the text 'Built-in primitive type. The string datatype represents character strings in XML.'						
Type	xsd:string						
Properties	<table> <tr> <td>content:</td> <td>simple</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	simple	minOccurs:	0	maxOccurs:	1
content:	simple						
minOccurs:	0						
maxOccurs:	1						
Source	<pre><xsd:element minOccurs="0" maxOccurs="1" name="documentation" type="xsd:string"> <xsd:annotation> <xsd:documentation>Further information on this file.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element networkType / nodes

Namespace	http://gaslib.zib.de/Framework
Annotations	This encloses the definition of all nodes of the network.
Diagram	A UML class diagram fragment. A 'nodes' node is connected to a 'framework:nodesType' node by a line with a hollow circle at the 'nodes' end. A callout box points to 'nodes' with the text 'This encloses the definition of all nodes of the network.' A 'framework:nodesType' node is connected to a 'framework:node' node by a line with a hollow circle at the 'framework:nodesType' end. A callout box points to 'framework:node' with the text 'Abstract type of a network node.' A multiplicity '1..∞' is shown between the two nodes. Another callout box points to 'framework:node' with the text 'A node of the network.'

Type	nodesType
Properties	<p>content: complex</p> <p>minOccurs: 1</p> <p>maxOccurs: 1</p>
Model	node+
Children	node
Instance	<pre><nodes xmlns="http://gaslib.zib.de/Framework"> <node alias="" id="" x="0" y="0">{1,unbounded}</node> </nodes></pre>
Source	<pre><xsd:element minOccurs="1" maxOccurs="1" name="nodes" type="framework:nodesType"> <xsd:annotation> <xsd:documentation>This encloses the definition of all nodes of the network.</xsd:documentation> </xsd:annotation> </xsd:element></pre>

Element node

Namespace	http://gaslib.zib.de/Framework																
Annotations	A node of the network.																
Diagram	<p>The diagram illustrates the structure of the node element. It shows a main node element with attributes: id (unique ID), alias (optional, default=""), x (X-coordinate, optional, default=0.0), and y (Y-coordinate, optional, default=0.0). A note states that a node must have an unique id and may have an alias and 2D-coordinates for drawing. Below the attributes is a Substitutions section with a node element, which is annotated as being a node in the gas network. Its definition is given by type.</p>																
Type	nodeType																
Properties	<p>content: complex</p> <p>abstract: true</p>																
Substitution Group	<ul style="list-style-type: none"> node boundaryNode source sink innode 																
Used by	Complex Type nodesType																
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td></td> <td>optional</td> </tr> <tr> <td></td> <td>An alias (optional, default="").</td> <td></td> <td></td> </tr> <tr> <td>id</td> <td>identifier</td> <td></td> <td>required</td> </tr> </tbody> </table>	QName	Type	Default	Use	alias	xsd:string		optional		An alias (optional, default="").			id	identifier		required
QName	Type	Default	Use														
alias	xsd:string		optional														
	An alias (optional, default="").																
id	identifier		required														

	QName	Type	Default	Use	
		A unique ID.			
x	xsd:decimal	0	optional		
		X-coordinate (optional, default=0.0).			
y	xsd:decimal	0	optional		
		Y-coordinate (optional, default=0.0).			
Source	<pre><xsd:element abstract="true" name="node" type="framework:nodeType"> <xsd:annotation> <xsd:documentation>A node of the network.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

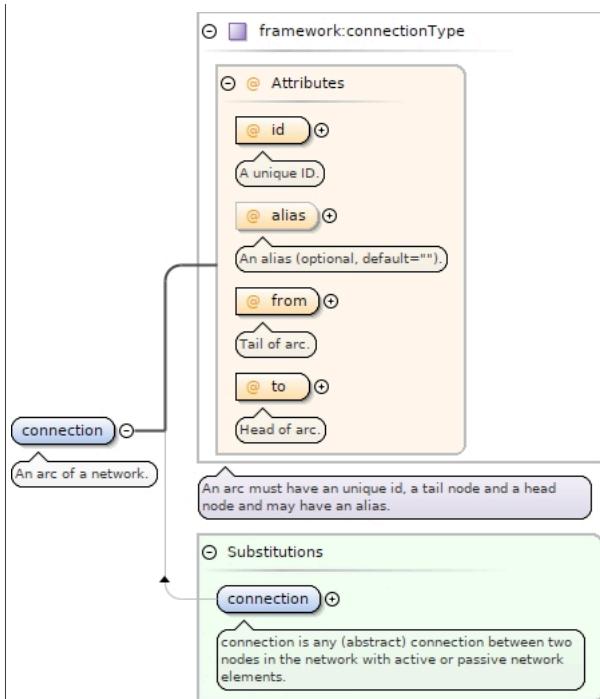
Element networkType / connections

Namespace	http://gaslib.zib.de/Framework						
Annotations	This encloses the definition of all arcs of the network.						
Diagram	<p>The diagram illustrates the UML class <code>framework:connectionsType</code>. It is an abstract type, indicated by a hollow rectangle. It has one association named <code>connection</code> with multiplicity <code>1..infinity</code>, which is annotated as <code>An arc of a network.</code>. A callout box points to this association with the text <code>This encloses the definition of all arcs of the network.</code>.</p>						
Type	connectionsType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>1</td> </tr> <tr> <td>maxOccurs:</td> <td>1</td> </tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	1
content:	complex						
minOccurs:	1						
maxOccurs:	1						
Model	connection+						
Children	connection						
Instance	<pre><connections xmlns="http://gaslib.zib.de/Framework"> <connection alias="" from="" id="" to="">{1,unbounded}</connection> </connections></pre>						
Source	<pre><xsd:element minOccurs="1" maxOccurs="1" name="connections" type="framework:connectionsType"> <xsd:annotation> <xsd:documentation>This encloses the definition of all arcs of the network.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element connection

Namespace	http://gaslib.zib.de/Framework
Annotations	An arc of a network.

Diagram



Type	connectionType																											
Properties	<p>content: complex</p> <p>abstract: true</p> <p>final: restriction</p>																											
Substitution Group	<ul style="list-style-type: none"> connection pipe shortPipe valve controlValve compressorStation resistor anyPressureArc splitPipe 																											
Used by	Complex Type connectionsType																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>alias</td> <td>xsd:string</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>An alias (optional, default="").</td> </tr> <tr> <td>from</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Tail of arc.</td> </tr> <tr> <td>id</td> <td>identifier</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>A unique ID.</td> </tr> <tr> <td>to</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Head of arc.</td> </tr> </tbody> </table>	QName	Type	Use	alias	xsd:string	optional			An alias (optional, default="").	from	xsd:string	required			Tail of arc.	id	identifier	required			A unique ID.	to	xsd:string	required			Head of arc.
QName	Type	Use																										
alias	xsd:string	optional																										
		An alias (optional, default="").																										
from	xsd:string	required																										
		Tail of arc.																										
id	identifier	required																										
		A unique ID.																										
to	xsd:string	required																										
		Head of arc.																										
Source	<pre> <xsd:element abstract="true" final="restriction" name="connection" type="framework:connectionType"> <xsd:annotation> <xsd:documentation>An arc of a network.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																											

Element unit

Namespace	http://gaslib.zib.de/Framework						
Annotations	An (abstract) physical unit						
Diagram	<pre> classDiagram class framework:unitType { <<Substitutions>> amountOfSubstance area density diameter electricalCurrent flow height length luminousIntensity mass power pressure radius roughness temperature velocity volume } framework:unitType < -- unit </pre> <p>The diagram illustrates the structure of the <code>framework:unitType</code> element. It is defined as a complex type with a substitution group named <code>Substitutions</code>. This group contains 15 members, each represented by a blue rounded rectangle with a plus sign (+) at the top right. Each member has a corresponding description in a light green rounded rectangle below it. The members are:</p> <ul style="list-style-type: none"> <code>amountOfSubstance</code>: An amount of substance specification. <code>area</code>: An area specification. <code>density</code>: A density specification. <code>diameter</code>: A diameter specification. <code>electricalCurrent</code>: An electric current specification. <code>flow</code>: A flow specification. <code>height</code>: A height indication. <code>length</code>: A length specification. <code>luminousIntensity</code>: A luminous intensity specification. <code>mass</code>: An indication of mass. <code>power</code>: A power specification. <code>pressure</code>: A pressure specification. <code>radius</code>: A radius specification. <code>roughness</code>: A roughness specification. <code>temperature</code>: A temperature specification. <code>velocity</code>: A velocity specification. <code>volume</code>: A volume specification. <p>A blue rounded rectangle labeled <code>unit</code> with a minus sign (-) at the top left is connected to the <code>Substitutions</code> group. A callout arrow points from the <code>unit</code> box to the text "An (abstract) physical unit".</p>						
Type	unitType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>abstract:</td> <td>true</td> </tr> <tr> <td>final:</td> <td>restriction</td> </tr> </table>	content:	complex	abstract:	true	final:	restriction
content:	complex						
abstract:	true						
final:	restriction						

Substitution Group	<ul style="list-style-type: none"> height length mass diameter radius roughness temperature pressure flow power density velocity area volume electricalCurrent amountOfSubstance luminousIntensity
Source	<pre><xsd:element abstract="true" final="restriction" name="unit" type="framework:unitType"> <xsd:annotation> <xsd:documentation>An (abstract) physical unit</xsd:documentation> </xsd:annotation> </xsd:element></pre>

Element height

Namespace	http://gaslib.zib.de/Framework
Annotations	A height indication.
Diagram	<pre> classDiagram framework:lengthType framework:unitType "extension base" framework:lengthType < -- framework:unitType framework:lengthType < -- Substitution Group framework:lengthType < -- height framework:unitType < -- Attributes framework:Attributes < -- unit framework:unitType < -- value height --> lengthType </pre>
Type	lengthType
Type hierarchy	<ul style="list-style-type: none"> unitType lengthType
Properties	content: complex
Substitution Group Affiliation	<ul style="list-style-type: none"> unit

Attributes	QName	Type	Default	Use	
	unit	lengthUnit	m	optional	
		A length unit (default = meter).			
	value	xsd:double		required	
		Length value.			
Source	<pre><xsd:element name="height" substitutionGroup="framework:unit" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>A height indication.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element length

Namespace	http://gaslib.zib.de/Framework																									
Annotations	A length specification.																									
Diagram	<pre> classDiagram class framework:lengthType { <<framework:unitType (extension base)>> <<Attributes>> <<@ unit >> <<A length unit (default = meter).>> <<@ value >> <<Length value.>> } class framework:unitType { <<Substitution Group>> <<unit >> <<An (abstract) physical unit>> } length --> framework:lengthType : length note over length : A length specification. </pre>																									
Type	lengthType																									
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • lengthType 																									
Properties	content: complex																									
Substitution Group Affiliation	• unit																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> <td></td></tr> <tr> <td></td> <td colspan="4">A length unit (default = meter).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="4">Length value.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	lengthUnit	m	optional			A length unit (default = meter).				value	xsd:double		required			Length value.			
QName	Type	Default	Use																							
unit	lengthUnit	m	optional																							
	A length unit (default = meter).																									
value	xsd:double		required																							
	Length value.																									
Source	<pre><xsd:element name="length" substitutionGroup="framework:unit" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>A length specification.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																									

Element mass

Namespace	http://gaslib.zib.de/Framework
Annotations	An indication of mass.

Diagram	<pre> classDiagram framework:massType < -- framework:unitType framework:massType < -- SubstitutionGroup{unit} framework:massType "1..1" --> mass : mass framework:massType "1..1" --> Attributes{unit, value} framework:massType "1..1" --> MassType{Mass type} framework:massType "1..1" --> SubstitutionGroup{unit} </pre> <p>The diagram shows the schema type <code>framework:massType</code>. It is an extension of <code>framework:unitType</code> (extension base). It has attributes <code>unit</code> (A mass unit (default = kilogram)) and <code>value</code> (Mass value). It is part of a substitution group named <code>unit</code>. A note indicates that <code>mass</code> is an indication of mass.</p>																				
Type	<code>massType</code>																				
Type hierarchy	<ul style="list-style-type: none"> • <code>unitType</code> <ul style="list-style-type: none"> • <code>massType</code> 																				
Properties	content: complex																				
Substitution Group Affiliation	<ul style="list-style-type: none"> • <code>unit</code> 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td><code>unit</code></td><td><code>massUnit</code></td><td><code>kg</code></td><td>optional</td></tr> <tr> <td></td><td></td><td colspan="2">A mass unit (default = kilogram).</td></tr> <tr> <td><code>value</code></td><td><code>xsd:double</code></td><td></td><td>required</td></tr> <tr> <td></td><td></td><td colspan="2">Mass value.</td></tr> </tbody> </table>	QName	Type	Default	Use	<code>unit</code>	<code>massUnit</code>	<code>kg</code>	optional			A mass unit (default = kilogram).		<code>value</code>	<code>xsd:double</code>		required			Mass value.	
QName	Type	Default	Use																		
<code>unit</code>	<code>massUnit</code>	<code>kg</code>	optional																		
		A mass unit (default = kilogram).																			
<code>value</code>	<code>xsd:double</code>		required																		
		Mass value.																			
Source	<pre> <xsd:element name="mass" substitutionGroup="framework:unit" type="framework:massType"> <xsd:annotation> <xsd:documentation>An indication of mass.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element diameter

Namespace	http://gaslib.zib.de/Framework
Annotations	A diameter specification.
Diagram	<pre> classDiagram framework:lengthType < -- framework:unitType framework:lengthType < -- SubstitutionGroup{unit} framework:lengthType "1..1" --> diameter : diameter framework:lengthType "1..1" --> Attributes{unit, value} framework:lengthType "1..1" --> LengthType{Length type} framework:lengthType "1..1" --> SubstitutionGroup{unit} </pre> <p>The diagram shows the schema type <code>framework:lengthType</code>. It is an extension of <code>framework:unitType</code> (extension base). It has attributes <code>unit</code> (A length unit (default = meter)) and <code>value</code> (Length value). It is part of a substitution group named <code>unit</code>. A note indicates that <code>diameter</code> is a diameter specification.</p>
Type	<code>lengthType</code>

Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> lengthType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	lengthUnit	m	optional	
		A length unit (default = meter).			
Source	value	xsd:double		required	
		Length value.			

Element radius

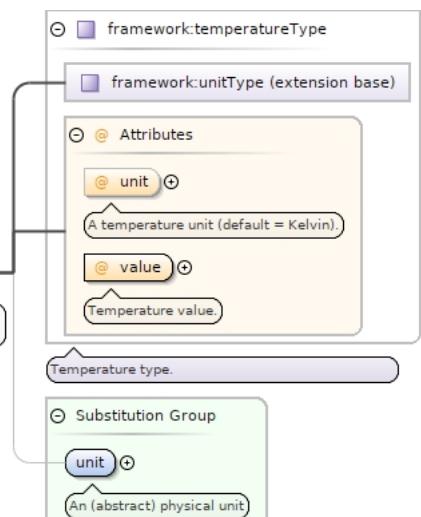
Namespace	http://gaslib.zib.de/Framework				
Annotations	A radius specification.				
Diagram	<pre> classDiagram framework:lengthType framework:unitType "extension base" framework:unitType { @Attributes @unit A length unit (default = meter). @value Length value. } framework:unitType { unit An (abstract) physical unit } radius { A radius specification. } radius --> framework:unitType </pre>				
Type	lengthType				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> lengthType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	lengthUnit	m	optional	
		A length unit (default = meter).			
Source	value	xsd:double		required	
		Length value.			

Element roughness

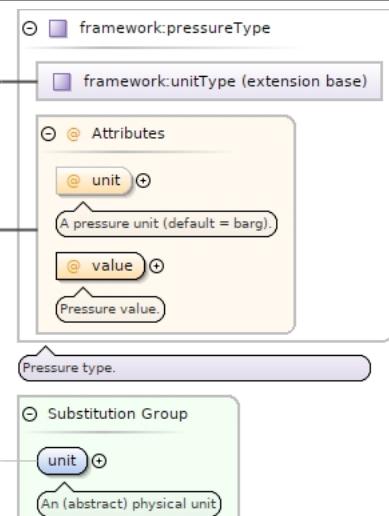
Namespace	http://gaslib.zib.de/Framework																				
Annotations	A roughness specification.																				
Diagram	<pre> classDiagram framework:lengthType { <<framework:unitType (extension base)>> <<Attributes>> <<@ unit >> <<A length unit (default = meter).>> <<@ value >> <<Length value.>> <<Length type.>> } roughness { <<A roughness specification.>> } framework:lengthType "2" -- "1" roughness framework:lengthType "1" -- "1" framework:unitType framework:unitType "1" -- "1" Attributes Attributes "1" -- "1" @unit Attributes "1" -- "1" @value Attributes "1" -- "1" LengthType framework:unitType "1" -- "1" SubstitutionGroup SubstitutionGroup "1" -- "1" unit unit "1" -- "1" AnAbstractPhysicalUnit </pre>																				
Type	lengthType																				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> lengthType 																				
Properties	content: complex																				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A length unit (default = meter).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Length value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	lengthUnit	m	optional			A length unit (default = meter).		value	xsd:double		required			Length value.	
QName	Type	Default	Use																		
unit	lengthUnit	m	optional																		
		A length unit (default = meter).																			
value	xsd:double		required																		
		Length value.																			
Source	<pre> <xsd:element name="roughness" substitutionGroup="framework:unit" type="framework:lengthType"> <xsd:annotation> <xsd:documentation>A roughness specification.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element temperature

Namespace	http://gaslib.zib.de/Framework
Annotations	A temperature specification.

Diagram																					
Type	temperatureType																				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> temperatureType 																				
Properties	content: complex																				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td></tr> <tr> <td></td><td colspan="3">A temperature unit (default = Kelvin).</td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td colspan="3">Temperature value.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional		A temperature unit (default = Kelvin).			value	xsd:double		required		Temperature value.		
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
	A temperature unit (default = Kelvin).																				
value	xsd:double		required																		
	Temperature value.																				
Source	<pre><xsd:element name="temperature" substitutionGroup="framework:unit" type="framework:temperatureType"> <xsd:annotation> <xsd:documentation>A temperature specification.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element pressure

Namespace	http://gaslib.zib.de/Framework
Annotations	A pressure specification.
Diagram	
Type	pressureType

Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> pressureType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	pressureUnit	barg	optional	
		A pressure unit (default = barg).			
Source	value	xsd:double		required	
		Pressure value.			

Element flow

Namespace	http://gaslib.zib.de/Framework				
Annotations	A flow specification.				
Diagram	<pre> classDiagram class flowType { <<framework>> } class unitType { <<framework>> <<Attributes>> attribute unit attribute value <</Attributes>> } class unit { <<framework>> <<Substitution Group>> attribute unit <</Substitution Group>> } flowType "1..* -- "*" unitType unitType "*" "1..* -- "*" unit </pre>				
Type	flowType				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> flowType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	flowUnit	1000m_cube_per_hour	optional	
		A flow unit (default = cubic meters per second).			
Source	value	xsd:double		required	
		Flow value.			

Element power

Namespace	http://gaslib.zib.de/Framework																				
Annotations	A power specification.																				
Diagram	<pre> classDiagram framework:powerType < -- power framework:powerType < -- framework:unitType power <--> Attributes power --> unit power --> value unit <--> SubstitutionGroup </pre> <p>The diagram illustrates the schema structure for the 'power' element. It is defined as an extension of the 'framework:powerType' element. This type is itself an extension of the 'framework:unitType' element. The 'power' element has two attributes: 'unit' and 'value'. The 'unit' attribute is also part of a 'Substitution Group', which includes other abstract physical units.</p>																				
Type	powerType																				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> powerType 																				
Properties	content: complex																				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>powerUnit</td> <td>kW</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A power unit (default = kilowatt).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Power value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	powerUnit	kW	optional			A power unit (default = kilowatt).		value	xsd:double		required			Power value.	
QName	Type	Default	Use																		
unit	powerUnit	kW	optional																		
		A power unit (default = kilowatt).																			
value	xsd:double		required																		
		Power value.																			
Source	<pre> <xsd:element name="power" substitutionGroup="framework:unit" type="framework:powerType"> <xsd:annotation> <xsd:documentation>A power specification.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element density

Namespace	http://gaslib.zib.de/Framework
Annotations	A density specification.

Diagram	<pre> classDiagram framework:densityType < -- framework:unitType framework:densityType : Attributes @unit @value framework:densityType : Density type. framework:densityType : Substitution Group unit </pre>																									
Type	densityType																									
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> densityType 																									
Properties	content: complex																									
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td data-bbox="303 1035 382 1057">unit</td><td data-bbox="589 1035 684 1057">densityUnit</td><td data-bbox="890 1035 1017 1057">kg_per_m_cube</td><td data-bbox="1033 1035 1129 1057">optional</td><td data-bbox="1287 1035 1367 1057"></td></tr> <tr> <td></td><td></td><td data-bbox="589 1069 1017 1091">A density unit (default = kilogramm per cubicmeter).</td><td></td><td></td></tr> <tr> <td data-bbox="303 1102 350 1125">value</td><td data-bbox="589 1102 684 1125">xsd:double</td><td></td><td data-bbox="1033 1102 1129 1125">required</td><td data-bbox="1287 1102 1367 1125"></td></tr> <tr> <td></td><td></td><td data-bbox="589 1147 732 1170">Density value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use		unit	densityUnit	kg_per_m_cube	optional				A density unit (default = kilogramm per cubicmeter).			value	xsd:double		required				Density value.		
QName	Type	Default	Use																							
unit	densityUnit	kg_per_m_cube	optional																							
		A density unit (default = kilogramm per cubicmeter).																								
value	xsd:double		required																							
		Density value.																								
Source	<pre> <xsd:element name="density" substitutionGroup="framework:unit" type="framework:densityType"> <xsd:annotation> <xsd:documentation>A density specification.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																									

Element velocity

Namespace	http://gaslib.zib.de/Framework
Annotations	A velocity specification.
Diagram	<pre> classDiagram framework:velocityType < -- framework:unitType framework:velocityType : Attributes @unit @value framework:velocityType : Velocity type. framework:velocityType : Substitution Group unit </pre>
Type	velocityType

Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> velocityType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	velocityUnit	m_per_s	optional	
		A velocity unit (default = meter per second).			
Source	value	xsd:double		required	
		Velocity value.			

Element area

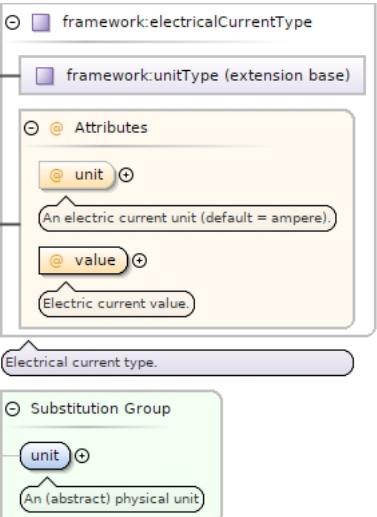
Namespace	http://gaslib.zib.de/Framework				
Annotations	An area specification.				
Diagram	<pre> classDiagram framework:areaType < -- framework:unitType framework:areaType "1" -- "1" framework:areaType : unit framework:areaType "1" -- "1" framework:areaType : value framework:areaType "1" -- "1" framework:SubstitutionGroup : unit </pre>				
Type	areaType				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> areaType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	areaUnit	m_square	optional	
		An area unit (default = square meters).			
Source	value	xsd:double		required	
		Area value.			

Element volume

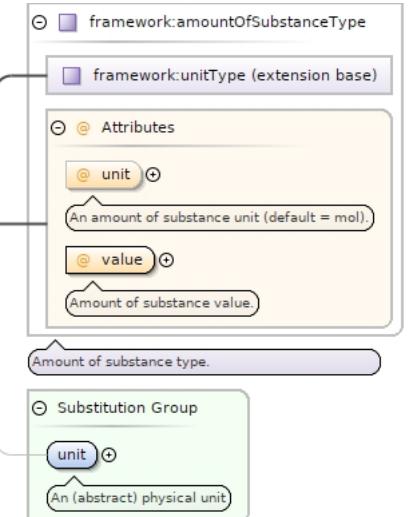
Namespace	http://gaslib.zib.de/Framework																				
Annotations	A volume specification.																				
Diagram	<pre> classDiagram volumeType < -- framework:unitType volumeType < -- Substitution Group volumeType < -- unit volumeType < -- value </pre> <p>The diagram illustrates the schema structure for the <code>volume</code> element. It shows <code>volume</code> as a complex type (<code>volumeType</code>) that extends <code>framework:unitType</code>. The <code>volumeType</code> type includes attributes <code>unit</code> (described as a volume unit with a default of cubic meter) and <code>value</code> (described as a Volume value). Additionally, <code>volumeType</code> is associated with a <code>Substitution Group</code> for the <code>unit</code> attribute, which defines it as an abstract physical unit.</p>																				
Type	volumeType																				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> volumeType 																				
Properties	content: complex																				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>volumeUnit</td> <td>m_cube</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td colspan="2">A volume unit (default = cubic meter).</td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td colspan="2">Volume value.</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	volumeUnit	m_cube	optional			A volume unit (default = cubic meter).		value	xsd:double		required			Volume value.	
QName	Type	Default	Use																		
unit	volumeUnit	m_cube	optional																		
		A volume unit (default = cubic meter).																			
value	xsd:double		required																		
		Volume value.																			
Source	<pre> <xsd:element name="volume" substitutionGroup="framework:unit" type="framework:volumeType"> <xsd:annotation> <xsd:documentation>A volume specification.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>																				

Element electricalCurrent

Namespace	http://gaslib.zib.de/Framework
Annotations	An electric current specification.

Diagram																					
Type	electricalCurrentType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType <ul style="list-style-type: none"> • electricalCurrentType 																				
Properties	content: complex																				
Substitution Group Affiliation	• unit																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>electricalCurrentUnit</td><td>A</td><td>optional</td></tr> <tr> <td></td><td></td><td>An electric current unit (default = ampere).</td><td></td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td></td><td>Electric current value.</td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	electricalCurrentUnit	A	optional			An electric current unit (default = ampere).		value	xsd:double		required			Electric current value.	
QName	Type	Default	Use																		
unit	electricalCurrentUnit	A	optional																		
		An electric current unit (default = ampere).																			
value	xsd:double		required																		
		Electric current value.																			
Source	<pre><xsd:element name="electricalCurrent" substitutionGroup="framework:unit" type="framework:electricalCurrentType"> <xsd:annotation> <xsd:documentation>An electric current specification.</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element amountOfSubstance

Namespace	http://gaslib.zib.de/Framework
Annotations	An amount of substance specification.
Diagram	
Type	amountOfSubstanceType

Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> amountOfSubstanceType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	amountOfSubstanceUnit	mol	optional	
		An amount of substance unit (default = mol).			
Source	value	xsd:double		required	
		Amount of substance value.			

Element luminousIntensity

Namespace	http://gaslib.zib.de/Framework				
Annotations	A luminous intensity specification.				
Diagram	<pre> classDiagram class framework:luminousIntensityType { <<framework:unitType (extension base)>> <<Attributes>> <<@ unit>> <<A luminous intensity unit (default = candela)>> <<@ value>> <<Luminous intensity value>> <<Substitution Group>> <<unit>> <<An (abstract) physical unit>> } class framework:unitType { <<extension base>> <<Attributes>> <<@ unit>> <<A luminous intensity unit (default = candela)>> <<@ value>> <<Luminous intensity value>> } </pre>				
Type	luminousIntensityType				
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> luminousIntensityType 				
Properties	content: complex				
Substitution Group Affiliation	<ul style="list-style-type: none"> unit 				
Attributes	QName	Type	Default	Use	
	unit	luminousIntensityUnit	cd	optional	
		A luminous intensity unit (default = candela).			
Source	value	xsd:double		required	
		Luminous intensity value.			

Complex Type(s)

Complex Type temperatureType

Namespace	http://gaslib.zib.de/Framework																													
Annotations	Temperature type.																													
Diagram	<pre> classDiagram framework:unitType "extension base" temperatureType "Temperature type." temperatureType < -- framework:unitType framework:unitType < -- Attributes Attributes < -- @unit Attributes < -- @value @unit < -- "A temperature unit (default = Kelvin)." @value < -- "Temperature value." </pre>																													
Type	extension of unitType																													
Type hierarchy	<ul style="list-style-type: none"> unitType temperatureType 																													
Used by	Elements	compressorStationType/cooledOutputTemperature, controlValveType/increasedOutputTemperature, gas:boundaryValue/gas:scenario/gas:ambientTemperature, gas:boundaryValue/gas:scenario/gas:compressorStation/gas:ambientTemperature, gas:boundaryValue/gas:scenario/gas:compressorStation/gas:cooledOutputTemperature, gas:boundaryValue/gas:scenario/gas:controlValve/gas:increasedOutputTemperature, gas:boundaryValue/gas:scenario/gas:node/gas:gasTemperature, gas:boundaryValue/gas:scenario/gas:node/gas:pseudocriticalTemperature, gas:boundaryValue/gas:scenario/gas:pipe/gas:soilTemperature, gas:boundaryValue/gas:scenario/gas:scenarioTemperature, gas:boundaryValue/gas:scenario/gas:soilTemperature, gas:boundaryValue/gas:scenario/gas:temperatureMax, gas:boundaryValue/gas:scenario/gas:temperatureMin, sourceType/gasTemperature, sourceType/pseudocriticalTemperature, temperature, xmlns:boundExType/xmlschema:referenceTemperature																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>temperatureUnit</td> <td>K</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A temperature unit (default = Kelvin).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="4">Temperature value.</td></tr> </tbody> </table>					QName	Type	Default	Use		unit	temperatureUnit	K	optional			A temperature unit (default = Kelvin).				value	xsd:double		required			Temperature value.			
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unit	temperatureUnit	K	optional																											
	A temperature unit (default = Kelvin).																													
value	xsd:double		required																											
	Temperature value.																													
Source	<pre> <xsd:complexType name="temperatureType"> <xsd:annotation> <xsd:documentation>Temperature type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>A temperature unit (default = Kelvin).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Temperature value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																													

Complex Type unitType

Namespace	http://gaslib.zib.de/Framework	
Diagram	<pre> unitType </pre>	
Used by	Complex Types	amountOfSubstanceType, areaType, calorificValueType, costFactorType, costType, cs:speedType, cs:torqueType, densityType, efficiencyType, electricalCurrentType, flowType, heatTransferType, lengthType, luminousIntensityType, massType, molarMassType, noType, powerType, pressureDifferenceType, pressureType, specificFuelConsumptionType, speedType, speedType, temperatureType, timeType, velocityType, volumeType
	Element	unit

Source	<code><xsd:complexType name="unitType" /></code>
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Complex Type networkType

Namespace	http://gaslib.zib.de/Framework				
Annotations	A network must contain exactly one information-, nodes- and connections-tag, given in this order.				
Diagram	<pre> classDiagram class networkType { <<A network must contain exactly one information-, nodes- and connections-tag, given in this order.>> +information +nodes +connections } information < --> networkType nodes < --> networkType connections < --> networkType </pre> <p>The diagram shows the <code>networkType</code> complex type as a class with three associations: <code>information</code>, <code>nodes</code>, and <code>connections</code>. Each association is marked with a multiplicity of 1..1 and has a plus sign (+) indicating it is required. A note below the class states: "A network must contain exactly one information-, nodes- and connections-tag, given in this order."</p>				
Used by	<table border="1"> <tr> <td>Element</td> <td>network</td> </tr> <tr> <td>Complex Type</td> <td>networkType</td> </tr> </table>	Element	network	Complex Type	networkType
Element	network				
Complex Type	networkType				
Model	information , nodes , connections				
Children	connections, information, nodes				
Source	<pre> <xsd:complexType name="networkType"> <xsd:annotation> <xsd:documentation>A network must contain exactly one information-, nodes- and connections-tag, given in this order.</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element minOccurs="1" maxOccurs="1" name="information" type="framework:informationType"> <xsd:annotation> <xsd:documentation>This encloses meta-information about the network.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element minOccurs="1" maxOccurs="1" name="nodes" type="framework:nodesType"> <xsd:annotation> <xsd:documentation>This encloses the definition of all nodes of the network.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element minOccurs="1" maxOccurs="1" name="connections" type="framework:connectionsType"> <xsd:annotation> <xsd:documentation>This encloses the definition of all arcs of the network.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </pre>				

Complex Type informationType

Namespace	http://gaslib.zib.de/Framework
Annotations	Meta information about a network consists of an unique identifier for the network, the type of the network, zero or more authors, date of creation (optional) and some human readable additional informatin (optional), given in this order.
Diagram	<pre> classDiagram class informationType { <<Meta information about a network consists of an unique identifier for the network, the type of the network, zero or...>> +title +type 0..∞ author +date +documentation } title < --> informationType type < --> informationType author < --> informationType date < --> informationType documentation < --> informationType </pre> <p>The diagram shows the <code>informationType</code> complex type as a class with five associations: <code>title</code>, <code>type</code>, <code>author</code>, <code>date</code>, and <code>documentation</code>. The <code>author</code> association has a multiplicity of 0..∞. A note below the class states: "Meta information about a network consists of an unique identifier for the network, the type of the network, zero or..."</p>

Used by	Element	networkType/information
Model	title , type , author* , date{0,1} , documentation{0,1}	
Children	author, date, documentation, title, type	
Source		<pre> <xsd:complexType name="informationType"> <xsd:annotation> <xsd:documentation>Meta information about a network consists of an unique identifier for the network, the type of the network, zero or more authors, date of creation (optional) and some human readable additional informatin (optional), given in this order.</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element minOccurs="1" maxOccurs="1" name="title" type="framework:identifier"> <xsd:annotation> <xsd:documentation>An unique identifier for the network.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element minOccurs="1" maxOccurs="1" name="type" type="framework:networkTypeType"> <xsd:annotation> <xsd:documentation>The type of the network.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element minOccurs="0" maxOccurs="unbounded" name="author" type="xsd:string"> <xsd:annotation> <xsd:documentation>An author of this file.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element minOccurs="0" maxOccurs="1" name="date" type="xsd:date"> <xsd:annotation> <xsd:documentation>Date of creation of this file.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element minOccurs="0" maxOccurs="1" name="documentation" type="xsd:string"> <xsd:annotation> <xsd:documentation>Further information on this file.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType></pre>

Complex Type nodesType

Namespace	http://gaslib.zib.de/Framework
Annotations	Abstract type of a network node.
Diagram	<pre> classDiagram class nodesType { <<Abstract type of a network node.>> } class framework:node { <<A node of the network.>> } nodesType "1..>> framework:node </pre> <p>The diagram shows a UML class named 'nodesType' represented by a rectangle with a purple header. It has a multiplicity of '1..>>' at its end of a directed association line pointing to another class named 'framework:node'. The 'framework:node' class is represented by a rounded rectangle with a green header. A text box below the association line contains the annotation: 'Abstract type of a network node.'</p>
Used by	Element
	networkType/nodes
Model	node+
Children	node
Source	<pre> <xsd:complexType name="nodesType"> <xsd:annotation> <xsd:documentation>Abstract type of a network node.</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element minOccurs="1" maxOccurs="unbounded" ref="framework:node"/> </xsd:sequence> </xsd:complexType></pre>

Complex Type nodeType

Namespace	http://gaslib.zib.de/Framework
Annotations	A node must have an unique id and may have an alias and 2D-coordinates for drawing.

Diagram	<p>Attributes</p> <ul style="list-style-type: none"> @ id: A unique ID. @ alias: An alias (optional, default=""). @ x: X-coordinate (optional, default=0.0). @ y: Y-coordinate (optional, default=0.0). <p>A node must have an unique id and may have an alias and 2D-coordinates for drawing.</p>																																													
Used by	<table border="1"> <tr> <td data-bbox="311 599 431 619">Element</td><td data-bbox="431 599 809 619">node</td></tr> <tr> <td data-bbox="311 635 431 655">Complex Type</td><td data-bbox="431 635 809 655">nodeType</td></tr> </table>	Element	node	Complex Type	nodeType																																									
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Attributes	<table border="1"> <thead> <tr> <th data-bbox="311 678 431 700">QName</th><th data-bbox="431 678 554 700">Type</th><th data-bbox="554 678 689 700">Default</th><th data-bbox="689 678 809 700">Use</th><th data-bbox="809 678 1252 700"></th></tr> </thead> <tbody> <tr> <td data-bbox="311 714 431 736">alias</td><td data-bbox="431 714 554 736">xsd:string</td><td data-bbox="554 714 689 736"></td><td data-bbox="689 714 809 736">optional</td><td data-bbox="809 714 1252 736"></td></tr> <tr> <td data-bbox="311 750 431 772"></td><td data-bbox="431 750 554 772"></td><td data-bbox="554 750 689 772">An alias (optional, default="").</td><td data-bbox="689 750 809 772"></td><td data-bbox="809 750 1252 772"></td></tr> <tr> <td data-bbox="311 786 431 808">id</td><td data-bbox="431 786 554 808">identifier</td><td data-bbox="554 786 689 808"></td><td data-bbox="689 786 809 808">required</td><td data-bbox="809 786 1252 808"></td></tr> <tr> <td data-bbox="311 822 431 844"></td><td data-bbox="431 822 554 844"></td><td data-bbox="554 822 689 844">A unique ID.</td><td data-bbox="689 822 809 844"></td><td data-bbox="809 822 1252 844"></td></tr> <tr> <td data-bbox="311 857 431 880">x</td><td data-bbox="431 857 554 880">xsd:decimal</td><td data-bbox="554 857 689 880">0</td><td data-bbox="689 857 809 880">optional</td><td data-bbox="809 857 1252 880"></td></tr> <tr> <td data-bbox="311 893 431 916"></td><td data-bbox="431 893 554 916"></td><td data-bbox="554 893 689 916">X-coordinate (optional, default=0.0).</td><td data-bbox="689 893 809 916"></td><td data-bbox="809 893 1252 916"></td></tr> <tr> <td data-bbox="311 929 431 952">y</td><td data-bbox="431 929 554 952">xsd:decimal</td><td data-bbox="554 929 689 952">0</td><td data-bbox="689 929 809 952">optional</td><td data-bbox="809 929 1252 952"></td></tr> <tr> <td data-bbox="311 965 431 988"></td><td data-bbox="431 965 554 988"></td><td data-bbox="554 965 689 988">Y-coordinate (optional, default=0.0).</td><td data-bbox="689 965 809 988"></td><td data-bbox="809 965 1252 988"></td></tr> </tbody> </table>	QName	Type	Default	Use		alias	xsd:string		optional				An alias (optional, default="").			id	identifier		required				A unique ID.			x	xsd:decimal	0	optional				X-coordinate (optional, default=0.0).			y	xsd:decimal	0	optional				Y-coordinate (optional, default=0.0).		
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Source	<pre> <xsd:complexType name="nodeType"> <xsd:annotation> <xsd:documentation>A node must have an unique id and may have an alias and 2D-coordinates for drawing.</xsd:documentation> </xsd:annotation> <xsd:attribute name="id" type="framework:identifier" use="required"> <xsd:annotation> <xsd:documentation>A unique ID.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="" name="alias" type="xsd:string"> <xsd:annotation> <xsd:documentation>An alias (optional, default="").</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="0" name="x" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>X-coordinate (optional, default=0.0).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="0" name="y" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>Y-coordinate (optional, default=0.0).</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>																																													

Complex Type connectionsType

Namespace	http://gaslib.zib.de/Framework
Annotations	Abstract type of a network arc.
Diagram	<pre> classDiagram connectionsType < -- framework:connection connectionsType --> "1..>" framework:connection note over connectionsType: Abstract type of a network arc. note over framework:connection: An arc of a network. </pre>
Used by	Element networkType/connections
Model	connection+
Children	connection
Source	<pre> <xsd:complexType name="connectionsType"> <xsd:annotation> </pre>

```

<xsd:documentation>Abstract type of a network arc.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
  <xsd:element minOccurs="1" maxOccurs="unbounded" ref="framework:connection"/>
</xsd:sequence>
</xsd:complexType>

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Complex Type connectionType

Namespace	http://gaslib.zib.de/Framework																													
Annotations	An arc must have an unique id, a tail node and a head node and may have an alias.																													
Diagram	<p>The diagram illustrates the attributes of the <code>connectionType</code> element. It shows four attributes: <code>@ id</code> (A unique ID.), <code>@ alias</code> (An alias (optional, default="").), <code>@ from</code> (Tail of arc.), and <code>@ to</code> (Head of arc.). A note at the bottom states: "An arc must have an unique id, a tail node and a head node and may have an alias."</p>																													
Used by	Element <code>connection</code> Complex Type <code>connectionType</code>																													
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>alias</code></td> <td><code>xsd:string</code></td> <td>optional</td> </tr> <tr> <td></td> <td colspan="2">An alias (optional, default="").</td></tr> <tr> <td><code>from</code></td> <td><code>xsd:string</code></td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">Tail of arc.</td></tr> <tr> <td><code>id</code></td> <td><code>identifier</code></td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">A unique ID.</td></tr> <tr> <td><code>to</code></td> <td><code>xsd:string</code></td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">Head of arc.</td></tr> </tbody> </table>			QName	Type	Use	<code>alias</code>	<code>xsd:string</code>	optional		An alias (optional, default="").		<code>from</code>	<code>xsd:string</code>	required		Tail of arc.		<code>id</code>	<code>identifier</code>	required		A unique ID.		<code>to</code>	<code>xsd:string</code>	required		Head of arc.	
QName	Type	Use																												
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Source	<pre> <xsd:complexType name="connectionType"> <xsd:annotation> <xsd:documentation>An arc must have an unique id, a tail node and a head node and may have an alias.</xsd:documentation> </xsd:annotation> <xsd:attribute name="id" type="framework:identifier" use="required"> <xsd:annotation> <xsd:documentation>A unique ID.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="" name="alias" type="xsd:string"> <xsd:annotation> <xsd:documentation>An alias (optional, default="").</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="from" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>Tail of arc.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="to" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>Head of arc.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>																													

Complex Type lengthType

Namespace	http://gaslib.zib.de/Framework		
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Annotations	Length type.																				
Diagram	<pre> classDiagram lengthType < -- framework:unitType lengthType : @ Attributes unit value note over lengthType: Length type. note over unit: A length unit (default = meter). note over value: Length value. </pre>																				
Type	extension of unitType																				
Type hierarchy	<ul style="list-style-type: none"> unitType lengthType 																				
Used by	<p>Elements</p> <p>compressorStationType/diameterIn, compressorStationType/diameterOut, controlValveType/diameterIn, controlValveType/diameterOut, diameter, height, length, nodeType/height, partialPipeType/diameter, pipeType/diameter, pipeType/length, pipeType/roughness, radius, resistorType/diameter, roughness</p>																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>lengthUnit</td> <td>m</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A length unit (default = meter).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>Length value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	lengthUnit	m	optional			A length unit (default = meter).		value	xsd:double		required			Length value.	
QName	Type	Default	Use																		
unit	lengthUnit	m	optional																		
		A length unit (default = meter).																			
value	xsd:double		required																		
		Length value.																			
Source	<pre> <xsd:complexType name="lengthType"> <xsd:annotation> <xsd:documentation>Length type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="m" name="unit" type="framework:lengthUnit"> <xsd:annotation> <xsd:documentation>A length unit (default = meter).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Length value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																				

Complex Type massType

Namespace	http://gaslib.zib.de/Framework
Annotations	Mass type.
Diagram	<pre> classDiagram massType < -- framework:unitType massType : @ Attributes unit value note over massType: Mass type. note over unit: A mass unit (default = kilogram). note over value: Mass value. </pre>
Type	extension of unitType
Type hierarchy	<ul style="list-style-type: none"> unitType massType
Used by	<p>Element</p> <p>mass</p>

Attributes	QName	Type	Default	Use	
	unit	massUnit	kg	optional	
	A mass unit (default = kilogram).				
	value	xsd:double		required	
	Mass value.				
Source	<pre><xsd:complexType name="massType"> <xsd:annotation> <xsd:documentation>Mass type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="kg" name="unit" type="framework:massUnit"> <xsd:annotation> <xsd:documentation>A mass unit (default = kilogram).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Mass value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

Complex Type pressureType

Namespace	http://gaslib.zib.de/Framework				
Annotations	Pressure type.				
Diagram	<pre> classDiagram framework:unitType "extension base" pressureType "Pressure type." pressureType --o framework:unitType pressureType "Attributes" pressureType "unit @ default = barg" pressureType "value" </pre>				
Type	extension of unitType				
Type hierarchy	<ul style="list-style-type: none"> unitType pressureType 				
Used by	Elements	compressorStationType/pressureInMin, compressorStationType/pressureOutMax, controlValveType/pressureInMin, controlValveType/pressureOutMax, controlValveType/pressureSet, gas:boundaryValue/gas:scenario/gas:controlValve/gas:pressureSet, gas:boundaryValue/gas:scenario/gas:nod... e/gas:contractPressureMax, gas:boundaryValue/gas:scenario/gas:node/gas:contractPressureMin, gas:boundaryValue/gas:scenario/gas:node/gas:pseudocriticalPressure, gas:boundaryValue/gas:scenario/gas:pipe/gas:contractPressureMax, gas:boundaryValue/gas:scenario/gas:pipe/gas:physicalPressureMax, nodeType/pressureMax, nodeType/pressureMin, pipeType/pressureMax, pressure, sourceType/pseudocriticalPressure			
Attributes	QName	Type	Default	Use	
	unit	pressureUnit	barg	optional	
	A pressure unit (default = barg).				
	value	xsd:double		required	
	Pressure value.				
Source	<pre><xsd:complexType name="pressureType"> <xsd:annotation> <xsd:documentation>Pressure type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="barg" name="unit" type="framework:pressureUnit"> <xsd:annotation> <xsd:documentation>A pressure unit (default = barg).</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

```

</xsd:attribute>
<xsd:attribute name="value" type="xsd:double" use="required">
  <xsd:annotation>
    <xsd:documentation>Pressure value.</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type flowType

Namespace	http://gaslib.zib.de/Framework																												
Annotations	Flow type.																												
Diagram	<pre> classDiagram framework:unitType "extension base" flowType "Flow type." flowType --> framework:unitType flowType < -- Attributes Attributes < -- unit Attributes < -- value unit < -- flowUnit value < -- xsd:double </pre>																												
Type	extension of unitType																												
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> flowType 																												
Used by	Elements	boundaryNodeType/flowMax, boundaryNodeType/flowMin, connectionType/flowMax, connectionType/flowMin, connectionType/operatingVolumeFlowMax, connectionType/operatingVolumeFlowMin, flow																											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>flowUnit</td> <td>1000m_cube_per_hour</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="3">A flow unit (default = cubic meters per second).</td><td></td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Flow value.</td><td></td></tr> </tbody> </table>				QName	Type	Default	Use		unit	flowUnit	1000m_cube_per_hour	optional			A flow unit (default = cubic meters per second).				value	xsd:double		required			Flow value.			
QName	Type	Default	Use																										
unit	flowUnit	1000m_cube_per_hour	optional																										
	A flow unit (default = cubic meters per second).																												
value	xsd:double		required																										
	Flow value.																												
Source	<pre> <xsd:complexType name="flowType"> <xsd:annotation> <xsd:documentation>Flow type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="1000m_cube_per_hour" name="unit" type="framework:flowUnit"> <xsd:annotation> <xsd:documentation>A flow unit (default = cubic meters per second).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Flow value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																												

Complex Type powerType

Namespace	http://gaslib.zib.de/Framework	
Annotations	Power type.	

Diagram																					
Type	extension of unitType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • powerType 																				
Used by	Elements cs:steamTurbineType/cs:powerMax, cs:steamTurbineType/cs:powerMin, power																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>powerUnit</td><td>kW</td><td>optional</td></tr> <tr> <td></td><td colspan="3">A power unit (default = kilowatt).</td></tr> <tr> <td>value</td><td>xsd:double</td><td></td><td>required</td></tr> <tr> <td></td><td colspan="3">Power value.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	powerUnit	kW	optional		A power unit (default = kilowatt).			value	xsd:double		required		Power value.		
QName	Type	Default	Use																		
unit	powerUnit	kW	optional																		
	A power unit (default = kilowatt).																				
value	xsd:double		required																		
	Power value.																				
Source	<pre> <xsd:complexType name="powerType"> <xsd:annotation> <xsd:documentation>Power type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="kW" name="unit" type="framework:powerUnit"> <xsd:annotation> <xsd:documentation>A power unit (default = kilowatt).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Power value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																				

Complex Type densityType

Namespace	http://gaslib.zib.de/Framework												
Annotations	Density type.												
Diagram													
Type	extension of unitType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • densityType 												
Used by	Elements density, gas:boundaryValue/gas:scenario/gas:node/gas:normDensity, sourceType/normDensity												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>densityUnit</td><td>kg_per_m_cube</td><td>optional</td></tr> <tr> <td></td><td colspan="3">A density unit (default = kilogramm per cubicmeter).</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	densityUnit	kg_per_m_cube	optional		A density unit (default = kilogramm per cubicmeter).		
QName	Type	Default	Use										
unit	densityUnit	kg_per_m_cube	optional										
	A density unit (default = kilogramm per cubicmeter).												

	QName	Type	Default	Use	
	value	xsd:double		required	
		Density value.			
Source	<pre><xsd:complexType name="densityType"> <xsd:annotation> <xsd:documentation>Density type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="kg_per_m_cube" name="unit" type="framework:densityUnit"> <xsd:annotation> <xsd:documentation>A density unit (default = kilogramm per cubicmeter).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Density value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

Complex Type velocityType

Namespace	http://gaslib.zib.de/Framework																									
Annotations	Velocity type.																									
Diagram	<pre> classDiagram class framework:unitType { <<extension base>> } class velocityType { <<Velocity type.>> <<Attributes>> @unit velocityUnit @value xsd:double } velocityType < -- framework:unitType </pre>																									
Type	extension of unitType																									
Type hierarchy	<ul style="list-style-type: none"> unitType velocityType 																									
Used by	Elements networkType/networkPipeSpeedLimit, pipeType/speedLimit, velocity																									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>velocityUnit</td> <td>m_per_s</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">A velocity unit (default = meter per second).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Velocity value.</td></tr> </tbody> </table>	QName	Type	Default	Use		unit	velocityUnit	m_per_s	optional			A velocity unit (default = meter per second).				value	xsd:double		required			Velocity value.			
QName	Type	Default	Use																							
unit	velocityUnit	m_per_s	optional																							
	A velocity unit (default = meter per second).																									
value	xsd:double		required																							
	Velocity value.																									
Source	<pre><xsd:complexType name="velocityType"> <xsd:annotation> <xsd:documentation>Velocity type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="m_per_s" name="unit" type="framework:velocityUnit"> <xsd:annotation> <xsd:documentation>A velocity unit (default = meter per second).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Velocity value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																									

Complex Type areaType

Namespace	http://gaslib.zib.de/Framework																							
Annotations	Area type.																							
Diagram	<pre> classDiagram framework:unitType "extension base" areaType "Area type." areaType < -- framework:unitType areaType "Attributes" unit "An area unit (default = square meters)." value "Area value." end </pre>																							
Type	extension of unitType																							
Type hierarchy	<ul style="list-style-type: none"> unitType areaType 																							
Used by	Element area																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>areaUnit</td> <td>m_square</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">An area unit (default = square meters).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Area value.</td></tr> </tbody> </table>				QName	Type	Default	Use	unit	areaUnit	m_square	optional		An area unit (default = square meters).			value	xsd:double		required		Area value.		
QName	Type	Default	Use																					
unit	areaUnit	m_square	optional																					
	An area unit (default = square meters).																							
value	xsd:double		required																					
	Area value.																							
Source	<pre> <xsd:complexType name="areaType"> <xsd:annotation> <xsd:documentation>Area type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="m_square" name="unit" type="framework:areaUnit"> <xsd:annotation> <xsd:documentation>An area unit (default = square meters).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Area value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																							

Complex Type volumeType

Namespace	http://gaslib.zib.de/Framework			
Annotations	Volume type.			
Diagram	<pre> classDiagram framework:unitType "extension base" volumeType "Volume type." volumeType < -- framework:unitType volumeType "Attributes" unit "A volume unit (default = cubic meter)." value "Volume value." end </pre>			
Type	extension of unitType			
Type hierarchy	<ul style="list-style-type: none"> unitType volumeType 			
Used by	Elements cs:pistonCompressorType/cs:operatingVolume, volume			

Attributes	QName	Type	Default	Use	
	unit	volumeUnit	m_cube	optional	
		A volume unit (default = cubic meter).			
	value	xsd:double		required	
		Volume value.			
Source	<pre><xsd:complexType name="volumeType"> <xsd:annotation> <xsd:documentation>Volume type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="m_cube" name="unit" type="framework:volumeUnit"> <xsd:annotation> <xsd:documentation>A volume unit (default = cubic meter).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Volume value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

Complex Type electricalCurrentType

Namespace	http://gaslib.zib.de/Framework				
Annotations	Electrical current type.				
Diagram	<pre> classDiagram framework:unitType "extension base" electricalCurrentType "Electrical current type." electricalCurrentType --> framework:unitType electricalCurrentType "Attributes" electricalCurrentType "unit @ A" electricalCurrentType "value xsd:double required" </pre>				
Type	extension of unitType				
Type hierarchy	<ul style="list-style-type: none"> unitType electricalCurrentType 				
Used by	Element electricalCurrent				
Attributes	QName	Type	Default	Use	
	unit	electricalCurrentUnit	A	optional	
		An electric current unit (default = ampere).			
	value	xsd:double		required	
		Electric current value.			
Source	<pre><xsd:complexType name="electricalCurrentType"> <xsd:annotation> <xsd:documentation>Electrical current type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="A" name="unit" type="framework:electricalCurrentUnit"> <xsd:annotation> <xsd:documentation>An electric current unit (default = ampere).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Electric current value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

<pre></xsd:complexType></pre>

Complex Type amountOfSubstanceType

Namespace	http://gaslib.zib.de/Framework																												
Annotations	Amount of substance type.																												
Diagram	<p>The diagram illustrates the UML class structure for the amountOfSubstanceType. It shows amountOfSubstanceType as a class that extends the framework:unitType. The amountOfSubstanceType class has two attributes: unit and value. The unit attribute is of type amountOfSubstanceUnit with a default value of mol. The value attribute is of type xsd:double and is marked as required. A note indicates that the value represents an amount of substance.</p>																												
Type	extension of unitType																												
Type hierarchy	<ul style="list-style-type: none"> unitType amountOfSubstanceType 																												
Used by	Element amountOfSubstance																												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>amountOfSubstanceUnit</td> <td>mol</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td colspan="4">An amount of substance unit (default = mol).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="4">Amount of substance value.</td></tr> </tbody> </table>				QName	Type	Default	Use		unit	amountOfSubstanceUnit	mol	optional			An amount of substance unit (default = mol).				value	xsd:double		required			Amount of substance value.			
QName	Type	Default	Use																										
unit	amountOfSubstanceUnit	mol	optional																										
	An amount of substance unit (default = mol).																												
value	xsd:double		required																										
	Amount of substance value.																												
Source	<pre><xsd:complexType name="amountOfSubstanceType"> <xsd:annotation> <xsd:documentation>Amount of substance type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="mol" name="unit" type="framework:amountOfSubstanceUnit"> <xsd:annotation> <xsd:documentation>An amount of substance unit (default = mol).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Amount of substance value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																												

Complex Type luminousIntensityType

Namespace	http://gaslib.zib.de/Framework				
Annotations	Luminous intensity type.				
Diagram	<p>The diagram illustrates the UML class structure for the luminousIntensityType. It shows luminousIntensityType as a class that extends the framework:unitType. The luminousIntensityType class has two attributes: unit and value. The unit attribute is of type amountOfSubstanceUnit with a default value of candela. The value attribute is of type xsd:double. A note indicates that the value represents a luminous intensity.</p>				
Type	extension of unitType				
Type hierarchy	<ul style="list-style-type: none"> unitType luminousIntensityType 				

	<ul style="list-style-type: none"> • luminousIntensityType 																				
Used by	Element luminousIntensity																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>luminousIntensityUnit</td> <td>cd</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A luminous intensity unit (default = candela).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Luminous intensity value.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	luminousIntensityUnit	cd	optional		A luminous intensity unit (default = candela).			value	xsd:double		required		Luminous intensity value.		
QName	Type	Default	Use																		
unit	luminousIntensityUnit	cd	optional																		
	A luminous intensity unit (default = candela).																				
value	xsd:double		required																		
	Luminous intensity value.																				
Source	<pre><xsd:complexType name="luminousIntensityType"> <xsd:annotation> <xsd:documentation>Luminous intensity type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="cd" name="unit" type="framework:luminousIntensityUnit"> <xsd:annotation> <xsd:documentation>A luminous intensity unit (default = candela).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Luminous intensity value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																				

Complex Type timeType

Namespace	http://gaslib.zib.de/Framework																				
Annotations	Time type.																				
Diagram	<pre> classDiagram class timeType { <<Time type.>> <<@ Attributes @ unit @ value >> } class framework:unitType { <<extension base>> <<@ Attributes @ unit @ value >> } timeType < -- framework:unitType </pre>																				
Type	extension of unitType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • timeType 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>timeUnit</td> <td>s</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A time unit (default = second).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Time value.</td></tr> </tbody> </table>	QName	Type	Default	Use	unit	timeUnit	s	optional		A time unit (default = second).			value	xsd:double		required		Time value.		
QName	Type	Default	Use																		
unit	timeUnit	s	optional																		
	A time unit (default = second).																				
value	xsd:double		required																		
	Time value.																				
Source	<pre><xsd:complexType name="timeType"> <xsd:annotation> <xsd:documentation>Time type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="s" name="unit" type="framework:timeUnit"> <xsd:annotation> <xsd:documentation>A time unit (default = second).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Time value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																				

```

</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type pressureDifferenceType

Namespace	http://gaslib.zib.de/Framework																							
Annotations	Pressure difference type.																							
Diagram	<pre> classDiagram pressureDifferenceType < -- framework:unitType pressureDifferenceType : Pressure difference type. pressureDifferenceType < -- Attributes @unit : A pressure difference unit (default = bar). @value : Pressure value. </pre>																							
Type	extension of unitType																							
Type hierarchy	<ul style="list-style-type: none"> unitType <ul style="list-style-type: none"> pressureDifferenceType 																							
Used by	Elements <ul style="list-style-type: none"> compressorStationType/pressureLossIn, compressorStationType/pressureLossOut, controlValveType/pressureDifferentialMax, controlValveType/pressureDifferentialMin, controlValveType/pressureLossIn, controlValveType/pressureLossOut, resistorType/pressureLoss, valveType/pressureDifferentialMax 																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>pressureDifferenceUnit</td> <td>bar</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A pressure difference unit (default = bar).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Pressure value.</td></tr> </tbody> </table>				QName	Type	Default	Use	unit	pressureDifferenceUnit	bar	optional		A pressure difference unit (default = bar).			value	xsd:double		required		Pressure value.		
QName	Type	Default	Use																					
unit	pressureDifferenceUnit	bar	optional																					
	A pressure difference unit (default = bar).																							
value	xsd:double		required																					
	Pressure value.																							
Source	<pre> <xsd:complexType name="pressureDifferenceType"> <xsd:annotation> <xsd:documentation>Pressure difference type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="bar" name="unit" type="framework:pressureDifferenceUnit"> <xsd:annotation> <xsd:documentation>A pressure difference unit (default = bar).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Pressure value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																							

Complex Type heatTransferType

Namespace	http://gaslib.zib.de/Framework			
Annotations	Heat transfer type.			
Diagram	<pre> classDiagram heatTransferType < -- framework:unitType heatTransferType : Heat transfer type. heatTransferType < -- Attributes @unit : A heat transfer unit (default = watt per square meters per Kelvin). @value : Heat transfer value. </pre>			

Type	extension of unitType				
Type hierarchy	<ul style="list-style-type: none"> unitType heatTransferType 				
Used by	Element	pipeType/heatTransferCoefficient			
Attributes	QName	Type	Default	Use	
	unit	heatTransferUnit	W_per_m_square_per_K	optional	
		A heat transfer unit (default = watt per square meters per Kelvin).			
	value	xsd:double		required	
		Heat transfer value.			
Source	<pre><xsd:complexType name="heatTransferType"> <xsd:annotation> <xsd:documentation>Heat transfer type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="W_per_m_square_per_K" name="unit" type="framework:heatTransferUnit"> <xsd:annotation> <xsd:documentation>A heat transfer unit (default = watt per square meters per Kelvin).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Heat transfer value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>				

Complex Type calorificValueType

Namespace	http://gaslib.zib.de/Framework									
Annotations	calorificValueType defines the calorific value of the gas.									
Diagram	<p>The diagram illustrates the inheritance relationship between the <code>calorificValueType</code> and <code>framework:unitType</code>. The <code>calorificValueType</code> class is shown as a box with a hollow square icon, indicating it is an extension of the base class. It has two attributes: <code>unit</code> (with type <code>heatTransferUnit</code>) and <code>value</code> (with type <code>xsd:double</code>). A callout box provides a detailed description of each attribute.</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><code>unit</code></td> <td>Unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.</td> </tr> <tr> <td><code>value</code></td> <td>Value is the value of the calorific value of the gas. Unit is specified by type.</td> </tr> </tbody> </table>				Attribute	Description	<code>unit</code>	Unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.	<code>value</code>	Value is the value of the calorific value of the gas. Unit is specified by type.
Attribute	Description									
<code>unit</code>	Unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.									
<code>value</code>	Value is the value of the calorific value of the gas. Unit is specified by type.									
Type	extension of unitType									
Type hierarchy	<ul style="list-style-type: none"> unitType calorificValueType 									
Used by	Elements	gas:boundaryValue/gas:scenario/gas:node/gas:calorificValue, sourceType/calorificValue								
Attributes	QName	Type	Default	Use						
	unit	MJ_per_m_cubeUnit	MJ_per_m_cube	optional						
		unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.								
	value	double		required						
		value is the value of the calorific value of the gas. Unit is specified by type.								
Source	<pre><xsd:complexType name="calorificValueType"> <xsd:annotation> <xsd:documentation>calorificValueType defines the calorific value of the gas.</xsd:documentation> </xsd:annotation> </xsd:complexType></pre>									

```

<xsd:complexContent>
  <xsd:extension base="framework:unitType">
    <xsd:attribute default="MJ_per_m_cube" name="unit" type="MJ_per_m_cubeUnit">
      <xsd:annotation>
        <xsd:documentation>unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.</xsd:documentation>
      </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="value" type="double" use="required">
      <xsd:annotation>
        <xsd:documentation>value is the value of the calorific value of the gas. Unit is specified by type.</xsd:documentation>
      </xsd:annotation>
    </xsd:attribute>
  </xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type stateType

Namespace	http://gaslib.zib.de/Framework		
Annotations	Discrete state type.		
Diagram	<pre> classDiagram stateType "Discrete state type." --> framework:unitType stateType "Attributes" / value "onOffPattern" </pre>		
Attributes	QName	Type	Use
	value	onOffPattern	required
		Discrete state.	
Source	<pre> <xsd:complexType name="stateType"> <xsd:annotation> <xsd:documentation>Discrete state type.</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="framework:onOffPattern" use="required"> <xsd:annotation> <xsd:documentation>Discrete state.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>		

Complex Type costType

Namespace	http://gaslib.zib.de/Framework		
Annotations	Building cost type.		
Diagram	<pre> classDiagram costType "Building cost type." --> framework:unitType costType "Attributes" / unit "costUnit" / value "xsd:double" </pre>		
Type	extension of unitType		
Type hierarchy	<ul style="list-style-type: none"> unitType costType 		
Used by	Element partialPipeType/costCoefficient		
Attributes	QName	Type	Default
	unit	costUnit	MEUR
		Cost unit in currency: EUR.	
	value	xsd:double	required

	QName	Type	Default	Use	
		Cost value.			
Source		<pre><xsd:complexType name="costType"> <xsd:annotation> <xsd:documentation>Building cost type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute name="unit" type="framework:costUnit" default="MEUR"> <xsd:annotation> <xsd:documentation>Cost unit in currency: EUR.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Cost value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>			

Complex Type costFactorType

Namespace	http://gaslib.zib.de/Framework																								
Annotations	Building cost factor type.																								
Diagram	<pre> classDiagram class costFactorType { <<Building cost factor type.>> } class framework:unitType { <<extension base>> <<Attributes>> <<unit : cost in EUR per meter.>> <<value : cost factor value.>> } costFactorType < -- framework:unitType </pre>																								
Type	extension of unitType																								
Type hierarchy	<ul style="list-style-type: none"> unitType costFactorType 																								
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>costFactorUnit</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Cost in EUR per meter.</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Cost factor value.</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Use		unit	costFactorUnit	required			Cost in EUR per meter.			value	xsd:double	required			Cost factor value.						
QName	Type	Use																							
unit	costFactorUnit	required																							
	Cost in EUR per meter.																								
value	xsd:double	required																							
	Cost factor value.																								
Source	<pre><xsd:complexType name="costFactorType"> <xsd:annotation> <xsd:documentation>Building cost factor type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute name="unit" type="framework:costFactorUnit" use="required"> <xsd:annotation> <xsd:documentation>Cost in EUR per meter.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Cost factor value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>																								

Complex Type speedType

Namespace	http://gaslib.zib.de/Framework				
-----------	--------------------------------	--	--	--	--

Annotations	speed type.																				
Diagram	<pre> classDiagram framework:unitType "extension base" speedType "speed type." speedType --> framework:unitType speedType < -- Attributes Attributes < -- unit unit < -- documentation: "A speed unit (default = 1/min)." speedType < -- value value < -- documentation: "speed value." </pre>																				
Type	extension of unitType																				
Type hierarchy	<ul style="list-style-type: none"> unitType speedType 																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>speedUnit</td> <td>per_min</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>A speed unit (default = 1/min).</td> <td></td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>speed value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	speedUnit	per_min	optional			A speed unit (default = 1/min).		value	xsd:double		required			speed value.	
QName	Type	Default	Use																		
unit	speedUnit	per_min	optional																		
		A speed unit (default = 1/min).																			
value	xsd:double		required																		
		speed value.																			
Source	<pre> <xsd:complexType name="speedType"> <xsd:annotation> <xsd:documentation>speed type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute default="per_min" name="unit" type="framework:speedUnit"> <xsd:annotation> <xsd:documentation>A speed unit (default = 1/min).</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>speed value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																				

Complex Type noType

Namespace	http://gaslib.zib.de/Framework	
Annotations	Unitless type.	
Diagram	<pre> classDiagram framework:unitType "extension base" noType "Unitless type." noType --> framework:unitType noType < -- Attributes Attributes < -- value value < -- documentation: "Value." </pre>	
Type	extension of unitType	
Type hierarchy	<ul style="list-style-type: none"> unitType noType 	
Used by	Elements	compressorStationType/dragFactorIn, compressorStationType/dragFactorOut, controlValveType/dragFactorIn, controlValveType/dragFactorOut, cs:driveType/cs:energy_rate_fun_coeff_1, cs:driveType/cs:energy_rate_fun_coeff_2, cs:driveType/cs:energy_rate_fun_coeff_3, cs:electricMotorType/cs:power_fun_coeff_1, cs:electricMotorType/cs:power_fun_coeff_2, cs:electricMotorType/cs:power_fun_coeff_3, cs:electricMotorType/cs:power_fun_coeff_4, cs:electricMotorType/cs:power_fun_coeff_5, cs:electricMotorType/cs:power_fun_coeff_6, cs:electricMotorType/cs:power_fun_coeff_7, cs:electricMotorType/cs:power_fun_coeff_8, cs:electricMotorType/cs:power_fun_coeff_9, cs:gasDrivenMotorType/cs:power_fun_coeff_1, cs:gasDrivenMotorType/cs:power_fun_coeff_2, cs:gasDrivenMotorType/cs:power_fun_coeff_3, cs:gasTurbineType/cs:power_fun_coeff_1, cs:gasTurbineType/cs:power_fun_coeff_2, cs:gasTurbineType/cs:power_fun_coeff_3, cs:gasTurbineType/cs:power_fun_coeff_4, cs:gasTurbineType/cs:power_fun_coeff_5

f_5, cs:gasTurbineType/cs:power_fun_coeff_6, cs:gasTurbineType/cs:power_coeff_7, cs:gasTurbineType/cs:power_coeff_8, cs:gasTurbineType/cs:power_coeff_9, cs:pistonCompressorType/cs:additionalReductionVolFlow, cs:pistonCompressorType/cs:adiabaticEfficiency, cs:pistonCompressorType/cs:maximalCompressionRatio, cs:turboCompressorType/cs:chokeline_coeff_f_1, cs:turboCompressorType/cs:chokeline_coeff_2, cs:turboCompressorType/cs:chokeline_coeff_f_3, cs:turboCompressorType/cs:efficiencyOfChokeline, cs:turboCompressorType/cs:eta_ad_isoline_coeff_1, cs:turboCompressorType/cs:eta_ad_isoline_coeff_2, cs:turboCompressorType/cs:eta_ad_isoline_coeff_3, cs:turboCompressorType/cs:eta_ad_isoline_coeff_4, cs:turboCompressorType/cs:eta_ad_isoline_coeff_5, cs:turboCompressorType/cs:eta_ad_isoline_coeff_6, cs:turboCompressorType/cs:eta_ad_isoline_coeff_7, cs:turboCompressorType/cs:eta_ad_isoline_coeff_8, cs:turboCompressorType/cs:eta_ad_isoline_coeff_9, cs:turboCompressorType/cs:n_isoline_coeff_f_1, cs:turboCompressorType/cs:n_isoline_coeff_2, cs:turboCompressorType/cs:n_isoline_coeff_3, cs:turboCompressorType/cs:n_isoline_coeff_4, cs:turboCompressorType/cs:n_isoline_coeff_5, cs:turboCompressorType/cs:n_isoline_coeff_6, cs:turboCompressorType/cs:n_isoline_coeff_7, cs:turboCompressorType/cs:n_isoline_coeff_8, cs:turboCompressorType/cs:surgeline_coeff_1, cs:turboCompressorType/cs:surgeline_coeff_2, cs:turboCompressorType/cs:surgeline_coeff_3, gas:boundaryValue/gas:scenario/gas:node/gas:coefficient-A-heatCapacity, gas:boundaryValue/gas:scenario/gas:node/gas:coefficient-B-heatCapacity, gas:boundaryValue/gas:scenario/gas:node/gas:coefficient-C-heatCapacity, resistorType/dragFactor, sourceType/coefficient-A-heatCapacity, sourceType/coefficient-B-heatCapacity, sourceType/coefficient-C-heatCapacity

Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<pre><xsd:complexType name="noType"> <xsd:annotation> <xsd:documentation>Unitless type.</xsd:documentation> </xsd:annotation> <xsd:complexContent mixed="false"> <xsd:extension base="framework:unitType"> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Value.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>			

Complex Type molarMassType

Namespace	http://gaslib.zib.de/Framework			
Annotations	molarMassType defines the molar mass of the gas.			
Diagram	<pre> classDiagram class unitType { <<extension base>> } class molarMassType { <<molarMassType defines the molar mass of the gas.>> } unitType < -- molarMassType molarMassType < --> attribute unit molarMassType < --> attribute value </pre> <p>The diagram illustrates the UML class structure for the molarMassType complex type. It shows molarMassType as an extension of the base class unitType. The molarMassType class has two attributes: unit and value. A callout box provides a detailed description of the unit attribute: "unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default." Another callout box describes the value attribute: "value is the value of the molar mass of the gas. Unit is specified by type."</p>			
Type	extension of unitType			
Type hierarchy	<ul style="list-style-type: none"> unitType molarMassType 			
Used by	Elements gas:boundaryValue/gas:scenario/gas:node/gas:molarMass, sourceType/molarMass			
Attributes	QName	Type	Default	Use
	unit	kg_per_kmolUnit	kg_per_kmol	optional
		unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.		
	value	double		required
		value is the value of the molar mass of the gas. Unit is specified by type.		

	QName	Type	Default	Use	
Source		by type.			

Simple Type(s)

Simple Type temperatureUnit

Namespace	http://gaslib.zib.de/Framework							
Annotations	Units of temperature.							
Diagram	<pre> classDiagram class temperatureUnit { <<Units of temperature.>> } class xsd.string { <<Built-in primitive type. The string datatype represents character strings in XML.>> } temperatureUnit --o xsd.string </pre>							
Type	restriction of xsd:string							
Facets	<table border="1"> <tr> <td>enumeration</td> <td>Celsius</td> </tr> <tr> <td>enumeration</td> <td>Fahrenheit</td> </tr> <tr> <td>enumeration</td> <td>K</td> </tr> </table>		enumeration	Celsius	enumeration	Fahrenheit	enumeration	K
enumeration	Celsius							
enumeration	Fahrenheit							
enumeration	K							
Used by	Attributes	cs:electricMotorType/cs:maximalPowerMeasurements/cs:ambientTemperature/@unit, cs:gasTurbine-Type/cs:maximalPowerMeasurements/cs:ambientTemperature/@unit, temperatureType/@unit						
Source	<pre> <xsd:simpleType name="temperatureUnit"> <xsd:annotation> <xsd:documentation>Units of temperature.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="Celsius"/> <xsd:enumeration value="Fahrenheit"/> <xsd:enumeration value="K"/> </xsd:restriction> </xsd:simpleType> </pre>							

Simple Type identifier

Namespace	http://gaslib.zib.de/Framework	
Annotations	An identifier must start with a letter and may contain any letter, any number and underscores. The length of an identifier may range between 1 and 160 letters. An identifier has to be unique within an XML-document.	
Diagram	<pre> classDiagram class identifier { <<An identifier must start with a letter and may contain any letter, any number and underscores. The length of an...>> } class xsd.ID { <<Built-in derived type. ID represents the ID attribute type. The base type of ID is NCName.>> } identifier --o xsd.ID </pre>	
Type	restriction of xsd:ID	
Facets	minLength	1

	maxLength	160
	pattern	(\i\c*) & ([\i-[:]][\c-[:]]*) & ([a-zA-Z]{1}[a-zA-Z0-9_]*)
Used by	Element	informationType/title
	Attributes	connectionType/@id, nodeType/@id

Source	<pre><xsd:simpleType name="identifier"> <xsd:annotation> <xsd:documentation>An identifier must start with a letter and may contain any letter, any number and underscores. The length of an identifier may range between 1 and 160 letters. An identifier has to be unique within an XML-document.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:ID"> <xsd:minLength value="1"/> <xsd:maxLength value="160"/> <xsd:pattern value="[a-zA-Z]{1}[a-zA-Z0-9_]*"/> </xsd:restriction> </xsd:simpleType></pre>
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Simple Type networkTypeType

Namespace	http://gaslib.zib.de/Framework	
Annotations	The only valid type is 'gas'.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration	gas
Used by	Element	informationType/type
Source	<pre><xsd:simpleType name="networkTypeType"> <xsd:annotation> <xsd:documentation>The only valid type is 'gas'.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="gas"/> </xsd:restriction> </xsd:simpleType></pre>	

Simple Type ambiguousIdentifier

Namespace	http://gaslib.zib.de/Framework	
Annotations	An identifier must start with a letter and may contain any letter, any number and underscores. The length of an identifier may range between 1 and 160 letters.	
Diagram		
Type	restriction of xsd:string	
Facets	minLength	1
	maxLength	160
	pattern	[a-zA-Z]{1}[a-zA-Z0-9_]*
Used by	Attribute	gas:activeContractType/@id
Source	<pre><xsd:simpleType name="ambiguousIdentifier"> <xsd:annotation> <xsd:documentation>An identifier must start with a letter and may contain any letter, any number and underscores. The length of an identifier may range between 1 and 160 letters.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:minLength value="1"/> </xsd:restriction> </xsd:simpleType></pre>	

```

<xsd:maxLength value="160" />
<xsd:pattern value="[a-zA-Z]{1}[a-zA-Z0-9_]*" />
</xsd:restriction>
</xsd:simpleType>

```

Simple Type lengthUnit

Namespace	http://gaslib.zib.de/Framework									
Annotations	Units of length.									
Diagram	<p>lengthUnit</p> <p>xsd:string</p> <p>Units of length.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>									
Type	restriction of xsd:string									
Facets	<table> <tr> <td>enumeration</td> <td>mm</td> </tr> <tr> <td>enumeration</td> <td>cm</td> </tr> <tr> <td>enumeration</td> <td>m</td> </tr> <tr> <td>enumeration</td> <td>km</td> </tr> </table>		enumeration	mm	enumeration	cm	enumeration	m	enumeration	km
enumeration	mm									
enumeration	cm									
enumeration	m									
enumeration	km									
Used by	Attribute lengthType/@unit									
Source	<pre> <xsd:simpleType name="lengthUnit"> <xsd:annotation> <xsd:documentation>Units of length.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="mm"/> <xsd:enumeration value="cm"/> <xsd:enumeration value="m"/> <xsd:enumeration value="km"/> </xsd:restriction> </xsd:simpleType> </pre>									

Simple Type massUnit

Namespace	http://gaslib.zib.de/Framework										
Annotations	Units of mass.										
Diagram	<p>massUnit</p> <p>xsd:string</p> <p>Units of mass.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>										
Type	restriction of xsd:string										
Facets	<table> <tr> <td>enumeration</td> <td>kg</td> <td>Kilogram.</td> </tr> <tr> <td>enumeration</td> <td>g</td> <td>Gram.</td> </tr> <tr> <td>enumeration</td> <td>mg</td> <td>Milligram.</td> </tr> </table>		enumeration	kg	Kilogram.	enumeration	g	Gram.	enumeration	mg	Milligram.
enumeration	kg	Kilogram.									
enumeration	g	Gram.									
enumeration	mg	Milligram.									
Used by	Attribute massType/@unit										
Source	<pre> <xsd:simpleType name="massUnit"> <xsd:annotation> <xsd:documentation>Units of mass.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="kg"> <xsd:annotation> <xsd:documentation>Kilogram.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="g"> <xsd:annotation> <xsd:documentation>Gram.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="mg"> <xsd:annotation> <xsd:documentation>Milligram.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType> </pre>										

<pre></xsd:simpleType></pre>

Simple Type pressureUnit

Namespace	http://gaslib.zib.de/Framework							
Annotations	Units of pressure.							
Diagram	<p>The diagram illustrates the UML representation of the simple type <code>pressureUnit</code>. It shows a class node labeled <code>pressureUnit</code> connected by a line with an open circle to a class node labeled <code>xsd:string</code>. A callout box below the line indicates that <code>pressureUnit</code> is a restriction of <code>xsd:string</code>. Another callout box below the <code>xsd:string</code> node states: "Built-in primitive type. The string datatype represents character strings in XML." A separate callout box to the left of the line specifies: "Units of pressure."</p>							
Type	restriction of xsd:string							
Facets	<table border="1"> <tr> <td>enumeration</td> <td>bar</td> </tr> <tr> <td>enumeration</td> <td>barg</td> </tr> <tr> <td>enumeration</td> <td>Pa</td> </tr> </table>		enumeration	bar	enumeration	barg	enumeration	Pa
enumeration	bar							
enumeration	barg							
enumeration	Pa							
Used by	Attributes gas:pressure_type/@unit, pressureType/@unit							
Source	<pre><xsd:simpleType name="pressureUnit"> <xsd:annotation> <xsd:documentation>Units of pressure.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="bar"/> <xsd:enumeration value="barg"/> <xsd:enumeration value="Pa"/> </xsd:restriction> </xsd:simpleType></pre>							

Simple Type flowUnit

Namespace	http://gaslib.zib.de/Framework							
Annotations	Units of flow.							
Diagram	<p>The diagram illustrates the UML representation of the simple type <code>flowUnit</code>. It shows a class node labeled <code>flowUnit</code> connected by a line with an open circle to a class node labeled <code>xsd:string</code>. A callout box below the line indicates that <code>flowUnit</code> is a restriction of <code>xsd:string</code>. Another callout box below the <code>xsd:string</code> node states: "Built-in primitive type. The string datatype represents character strings in XML." A separate callout box to the left of the line specifies: "Units of flow."</p>							
Type	restriction of xsd:string							
Facets	<table border="1"> <tr> <td>enumeration</td> <td>m_cube_per_s</td> </tr> <tr> <td>enumeration</td> <td>m_cube_per_hour</td> </tr> <tr> <td>enumeration</td> <td>1000m_cube_per_hour</td> </tr> </table>		enumeration	m_cube_per_s	enumeration	m_cube_per_hour	enumeration	1000m_cube_per_hour
enumeration	m_cube_per_s							
enumeration	m_cube_per_hour							
enumeration	1000m_cube_per_hour							
Used by	Attributes flowType/@unit, gas:flow_type/@unit							
Source	<pre><xsd:simpleType name="flowUnit"> <xsd:annotation> <xsd:documentation>Units of flow.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="m_cube_per_s"/> <xsd:enumeration value="m_cube_per_hour"/> <xsd:enumeration value="1000m_cube_per_hour"/> </xsd:restriction> </xsd:simpleType></pre>							

Simple Type powerUnit

Namespace	http://gaslib.zib.de/Framework				
Annotations	Units of power.				
Diagram	<p>The diagram illustrates the UML representation of the simple type <code>powerUnit</code>. It shows a class node labeled <code>powerUnit</code> connected by a line with an open circle to a class node labeled <code>xsd:string</code>. A callout box below the line indicates that <code>powerUnit</code> is a restriction of <code>xsd:string</code>. Another callout box below the <code>xsd:string</code> node states: "Built-in primitive type. The string datatype represents character strings in XML." A separate callout box to the left of the line specifies: "Units of power."</p>				
Type	restriction of xsd:string				
Facets	<table border="1"> <tr> <td>enumeration</td> <td>W</td> <td>Watt.</td> </tr> </table>		enumeration	W	Watt.
enumeration	W	Watt.			

	enumeration	kW	Kilowatt.
	enumeration	MW	Megawatt.
	enumeration	mW	Milliwatt.
Used by	Attributes	gas:power_type/@unit, powerType/@unit	
Source	<pre><xsd:simpleType name="powerUnit"> <xsd:annotation> <xsd:documentation>Units of power.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="W"> <xsd:annotation> <xsd:documentation>Watt.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="kW"> <xsd:annotation> <xsd:documentation>Kilowatt.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="MW"> <xsd:annotation> <xsd:documentation>Megawatt.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="mW"> <xsd:annotation> <xsd:documentation>Milliwatt.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType></pre>		

Simple Type densityUnit

Namespace	http://gaslib.zib.de/Framework		
Annotations	Units of density.		
Diagram	<p>densityUnit</p> <p>xsd:string</p> <p>Units of density.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>		
Type	restriction	of xsd:string	
Facets	enumeration	kg_per_m_cube	Kilogram per cubic meter.
Used by	Attribute	densityType/@unit	
Source	<pre><xsd:simpleType name="densityUnit"> <xsd:annotation> <xsd:documentation>Units of density.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="kg_per_m_cube"> <xsd:annotation> <xsd:documentation>Kilogram per cubic meter.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType></pre>		

Simple Type velocityUnit

Namespace	http://gaslib.zib.de/Framework		
Annotations	Units of velocity.		
Diagram	<p>velocityUnit</p> <p>xsd:string</p> <p>Units of velocity.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>		
Type	restriction	of xsd:string	
Facets	enumeration	m_per_s	Meter per second.

Used by	Attribute	velocityType/@unit
Source		<pre><xsd:simpleType name="velocityUnit"> <xsd:annotation> <xsd:documentation>Units of velocity.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="m_per_s"> <xsd:annotation> <xsd:documentation>Meter per second.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType></pre>

Simple Type areaUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Units of area.	
Diagram		<p>Units of area.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>
Type	restriction of xsd:string	
Facets	enumeration mm_square enumeration cm_square enumeration m_square enumeration km_square	
Used by	Attribute	areaType/@unit
Source		<pre><xsd:simpleType name="areaUnit"> <xsd:annotation> <xsd:documentation>Units of area.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="mm_square"/> <xsd:enumeration value="cm_square"/> <xsd:enumeration value="m_square"/> <xsd:enumeration value="km_square"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type volumeUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Units of volume.	
Diagram		<p>Units of volume.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>
Type	restriction of xsd:string	
Facets	enumeration mm_cube enumeration cm_cube enumeration m_cube enumeration km_cube	
Used by	Attribute	volumeType/@unit
Source		<pre><xsd:simpleType name="volumeUnit"> <xsd:annotation> <xsd:documentation>Units of volume.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="mm_cube"/> <xsd:enumeration value="cm_cube"/> <xsd:enumeration value="m_cube"/> <xsd:enumeration value="km_cube"/> </xsd:restriction> </xsd:simpleType></pre>

```

    </xsd:restriction>
</xsd:simpleType>

```

Simple Type electricalCurrentUnit

Namespace	http://gaslib.zib.de/Framework										
Annotations	Units of electrical current.										
Diagram											
Type	restriction of xsd:string										
Facets	<table> <tr> <td>enumeration</td> <td>A</td> <td>Ampere.</td> </tr> <tr> <td>enumeration</td> <td>mA</td> <td>Milliampere.</td> </tr> <tr> <td>enumeration</td> <td>kA</td> <td>Kiloampere.</td> </tr> </table>		enumeration	A	Ampere.	enumeration	mA	Milliampere.	enumeration	kA	Kiloampere.
enumeration	A	Ampere.									
enumeration	mA	Milliampere.									
enumeration	kA	Kiloampere.									
Used by	Attribute electricalCurrentType/@unit										
Source	<pre> <xsd:simpleType name="electricalCurrentUnit"> <xsd:annotation> <xsd:documentation>Units of electrical current.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="A"> <xsd:annotation> <xsd:documentation>Ampere.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="mA"> <xsd:annotation> <xsd:documentation>Milliampere.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="kA"> <xsd:annotation> <xsd:documentation>Kiloampere.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType> </pre>										

Simple Type amountOfSubstanceUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Units of amount of substance.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration mol Mol.	
Used by	Attribute amountOfSubstanceType/@unit	
Source	<pre> <xsd:simpleType name="amountOfSubstanceUnit"> <xsd:annotation> <xsd:documentation>Units of amount of substance.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="mol"> <xsd:annotation> <xsd:documentation>Mol.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType> </pre>	

Simple Type luminousIntensityUnit

Namespace	http://gaslib.zib.de/Framework
-----------	--------------------------------

Annotations	Units of luminous intensity.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration cd Candela.	
Used by	Attribute luminousIntensityType/@unit	
Source	<pre><xsd:simpleType name="luminousIntensityUnit"> <xsd:annotation> <xsd:documentation>Units of luminous intensity.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="cd"> <xsd:annotation> <xsd:documentation>Candela.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType></pre>	

Simple Type timeUnit

Namespace	http://gaslib.zib.de/Framework									
Annotations	Units of time.									
Diagram										
Type	restriction of xsd:string									
Facets	<table border="1"> <tr> <td>enumeration</td> <td>s</td> <td>Second.</td> </tr> <tr> <td>enumeration</td> <td>min</td> <td>Minute.</td> </tr> <tr> <td>enumeration</td> <td>hour</td> <td>Hour.</td> </tr> </table>	enumeration	s	Second.	enumeration	min	Minute.	enumeration	hour	Hour.
enumeration	s	Second.								
enumeration	min	Minute.								
enumeration	hour	Hour.								
Used by	Attribute timeType/@unit									
Source	<pre><xsd:simpleType name="timeUnit"> <xsd:annotation> <xsd:documentation>Units of time.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="s"> <xsd:annotation> <xsd:documentation>Second.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="min"> <xsd:annotation> <xsd:documentation>Minute.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="hour"> <xsd:annotation> <xsd:documentation>Hour.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType></pre>									

Simple Type pressureDifferenceUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Units of pressure.	
Diagram		
Type	restriction of xsd:string	

Facets	enumeration	bar
	enumeration	Pa
Used by	Attribute	pressureDifferenceType/@unit
Source	<pre><xsd:simpleType name="pressureDifferenceUnit"> <xsd:annotation> <xsd:documentation>Units of pressure.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="bar"/> <xsd:enumeration value="Pa"/> </xsd:restriction> </xsd:simpleType></pre>	

Simple Type heatTransferUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Units of heat transfer.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration	W_per_m_square_per_K
Used by	Attribute	heatTransferType/@unit
Source	<pre><xsd:simpleType name="heatTransferUnit"> <xsd:annotation> <xsd:documentation>Units of heat transfer.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="W_per_m_square_per_K"/> </xsd:restriction> </xsd:simpleType></pre>	

Simple Type MJ_per_m_cubeUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	MJ_per_m_cubeUnit subsumes units with mega Joule per cubic meter.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration	MJ_per_m_cube
Used by	Attribute	calorificValueType/@unit
Source	<pre><xsd:simpleType name="MJ_per_m_cubeUnit"> <xsd:annotation> <xsd:documentation>MJ_per_m_cubeUnit subsumes units with mega Joule per cubic meter.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="MJ_per_m_cube"/> </xsd:restriction> </xsd:simpleType></pre>	

Simple Type double

Namespace	http://gaslib.zib.de/Framework	
Annotations	Double precision floating point number.	
Diagram		

Type	xsd:double
Used by	Attributes calorificValueType/@value, cs:SEC_MeasurementsType/cs:measurement/cs:compressorPower/@value, cs:SEC_MeasurementsType/cs:measurement/cs:fuelConsumption/@value, cs:electricMotorType/cs:maximalPowerMeasurements/cs:ambientTemperature/@value, cs:gasTurbineType/cs:maximalPowerMeasurements/cs:ambientTemperature/@value, cs:mp_measurementType/cs:maximalPower/@value, cs:speedType/@value, cs:tc_measurementType/cs:adiabaticHead/@value, cs:tc_measurementType/cs:volumetricFlowrate/@value, cs:torqueType/@value, efficiencyType/@value, molarMassType/@value, specificFuelConsumptionType/@value, speedType/@value
Source	<pre><xsd:simpleType name="double"> <xsd:annotation> <xsd:documentation>Double precision floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:double"/> </xsd:simpleType></pre>

Simple Type onOffPattern

Namespace	http://gaslib.zib.de/Framework				
Annotations	Either 'on' or 'off'.				
Diagram	<pre> classDiagram class onOffPattern { <<Either 'on' or 'off'.>> } class xsd.string { <<Built-in primitive type. The string datatype represents character strings in XML.>> } onOffPattern --o xsd.string </pre>				
Type	restriction of xsd:string				
Facets	<table> <tr> <td>enumeration</td> <td>on</td> </tr> <tr> <td>enumeration</td> <td>off</td> </tr> </table>	enumeration	on	enumeration	off
enumeration	on				
enumeration	off				
Used by	Attribute stateType/@value				
Source	<pre><xsd:simpleType name="onOffPattern"> <xsd:annotation> <xsd:documentation>Either 'on' or 'off'.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="on"/> <xsd:enumeration value="off"/> </xsd:restriction> </xsd:simpleType></pre>				

Simple Type costUnit

Namespace	http://gaslib.zib.de/Framework						
Annotations	Building cost.						
Diagram	<pre> classDiagram class costUnit { <<Building cost.>> } class xsd.string { <<Built-in primitive type. The string datatype represents character strings in XML.>> } costUnit --o xsd.string </pre>						
Type	restriction of xsd:string						
Facets	<table> <tr> <td>enumeration</td> <td>EUR</td> <td>EUR.</td> </tr> <tr> <td>enumeration</td> <td>MEUR</td> <td>Mio EUR.</td> </tr> </table>	enumeration	EUR	EUR.	enumeration	MEUR	Mio EUR.
enumeration	EUR	EUR.					
enumeration	MEUR	Mio EUR.					
Used by	Attribute costType/@unit						
Source	<pre><xsd:simpleType name="costUnit"> <xsd:annotation> <xsd:documentation>Building cost.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="EUR"> <xsd:annotation> <xsd:documentation>EUR.</xsd:documentation> </xsd:annotation> </xsd:enumeration> <xsd:enumeration value="MEUR"> <xsd:annotation> <xsd:documentation>Mio EUR.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType></pre>						

```

    </xsd:restriction>
</xsd:simpleType>

```

Simple Type costFactorUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Building cost per length.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration	EUR_per_m
Used by	Attribute	costFactorType/@unit
Source	<pre> <xsd:simpleType name="costFactorUnit"> <xsd:annotation> <xsd:documentation>Building cost per length.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="EUR_per_m"> <xsd:annotation> <xsd:documentation>EUR per meter.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType> </pre>	

Simple Type speedUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	Units of speed.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration	per_min
Used by	Attribute	speedType/@unit
Source	<pre> <xsd:simpleType name="speedUnit"> <xsd:annotation> <xsd:documentation>Units of speed.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="per_min"> <xsd:annotation> <xsd:documentation>1/min.</xsd:documentation> </xsd:annotation> </xsd:enumeration> </xsd:restriction> </xsd:simpleType> </pre>	

Simple Type kg_per_kmolUnit

Namespace	http://gaslib.zib.de/Framework	
Annotations	kg_per_kmolUnit subsumes units with kilo gramm per kilo Mol.	
Diagram		
Type	restriction of xsd:string	
Facets	enumeration	kg_per_kmol
Used by	Attribute	molarMassType/@unit

Source	<pre><xsd:simpleType name="kg_per_kmolUnit"> <xsd:annotation> <xsd:documentation>kg_per_kmolUnit subsumes units with kilo gramm per kilo Mol.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="kg_per_kmol"/> </xsd:restriction> </xsd:simpleType></pre>
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Simple Type float

Namespace	http://gaslib.zib.de/Framework
Annotations	Floating point number.
Diagram	<pre> classDiagram class nonNegativeFloat class float nonNegativeFloat < -- float </pre> <p>The diagram shows a UML class hierarchy. A class named "nonNegativeFloat" is shown with a generalization arrow pointing to another class named "float". Below the "nonNegativeFloat" class is a callout box containing the text "Non-negative floating point number.". Below the "float" class is a callout box containing the text "Built-in primitive type. Corresponds to the IEEE single-precision 32-bit floating point type [IEEE 754-1985].".</p>
Type	xsd:float
Source	<pre><xsd:simpleType name="float"> <xsd:annotation> <xsd:documentation>Floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"/> </xsd:simpleType></pre>

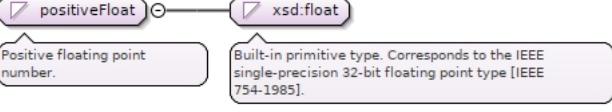
Simple Type nonNegativeFloat

Namespace	http://gaslib.zib.de/Framework
Annotations	Non-negative floating point number.
Diagram	<pre> classDiagram class nonPositiveFloat class float nonPositiveFloat < -- float </pre> <p>The diagram shows a UML class hierarchy. A class named "nonPositiveFloat" is shown with a generalization arrow pointing to another class named "float". Below the "nonPositiveFloat" class is a callout box containing the text "Non-positive floating point number.". Below the "float" class is a callout box containing the text "Built-in primitive type. Corresponds to the IEEE single-precision 32-bit floating point type [IEEE 754-1985].".</p>
Type	restriction of xsd:float
Facets	minInclusive 0.0
Source	<pre><xsd:simpleType name="nonNegativeFloat"> <xsd:annotation> <xsd:documentation>Non-negative floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"> <xsd:minInclusive value="0.0"/> </xsd:restriction> </xsd:simpleType></pre>

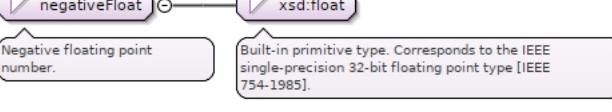
Simple Type nonPositiveFloat

Namespace	http://gaslib.zib.de/Framework
Annotations	Non-positive floating point number.
Diagram	<pre> classDiagram class nonPositiveFloat class float nonPositiveFloat < -- float </pre> <p>The diagram shows a UML class hierarchy. A class named "nonPositiveFloat" is shown with a generalization arrow pointing to another class named "float". Below the "nonPositiveFloat" class is a callout box containing the text "Non-positive floating point number.". Below the "float" class is a callout box containing the text "Built-in primitive type. Corresponds to the IEEE single-precision 32-bit floating point type [IEEE 754-1985].".</p>
Type	restriction of xsd:float
Facets	maxInclusive 0.0
Source	<pre><xsd:simpleType name="nonPositiveFloat"> <xsd:annotation> <xsd:documentation>Non-positive floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"> <xsd:maxInclusive value="0.0"/> </xsd:restriction> </xsd:simpleType></pre>

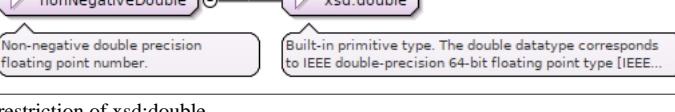
Simple Type positiveFloat

Namespace	http://gaslib.zib.de/Framework
Annotations	Positive floating point number.
Diagram	 <pre> classDiagram class positiveFloat { <<Positive floating point number.>> } class xsd::float { <<Built-in primitive type. Corresponds to the IEEE single-precision 32-bit floating point type [IEEE 754-1985].>> } positiveFloat < -- xsd::float </pre>
Type	restriction of xsd:float
Facets	minExclusive 0.0
Source	<pre> <xsd:simpleType name="positiveFloat"> <xsd:annotation> <xsd:documentation>Positive floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"> <xsd:minExclusive value="0.0"/> </xsd:restriction> </xsd:simpleType> </pre>

Simple Type negativeFloat

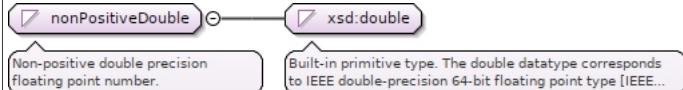
Namespace	http://gaslib.zib.de/Framework
Annotations	Negative floating point number.
Diagram	 <pre> classDiagram class negativeFloat { <<Negative floating point number.>> } class xsd::float { <<Built-in primitive type. Corresponds to the IEEE single-precision 32-bit floating point type [IEEE 754-1985].>> } negativeFloat < -- xsd::float </pre>
Type	restriction of xsd:float
Facets	maxExclusive 0.0
Source	<pre> <xsd:simpleType name="negativeFloat"> <xsd:annotation> <xsd:documentation>Negative floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"> <xsd:maxExclusive value="0.0"/> </xsd:restriction> </xsd:simpleType> </pre>

Simple Type nonNegativeDouble

Namespace	http://gaslib.zib.de/Framework
Annotations	Non-negative double precision floating point number.
Diagram	 <pre> classDiagram class nonNegativeDouble { <<Non-negative double precision floating point number.>> } class xsd::double { <<Built-in primitive type. The double datatype corresponds to IEEE double-precision 64-bit floating point type [IEEE...].>> } nonNegativeDouble < -- xsd::double </pre>
Type	restriction of xsd:double
Facets	minInclusive 0.0
Source	<pre> <xsd:simpleType name="nonNegativeDouble"> <xsd:annotation> <xsd:documentation>Non-negative double precision floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:double"> <xsd:minInclusive value="0.0"/> </xsd:restriction> </xsd:simpleType> </pre>

Simple Type nonPositiveDouble

Namespace	http://gaslib.zib.de/Framework
Annotations	Non-positive double precision floating point number.

Diagram	
Type	restriction of xsd:double
Facets	maxInclusive 0.0
Source	<pre><xsd:simpleType name="nonPositiveDouble"> <xsd:annotation> <xsd:documentation>Non-positive double precision floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:double"> <xsd:maxInclusive value="0.0"/> </xsd:restriction> </xsd:simpleType></pre>

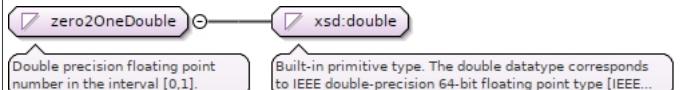
Simple Type positiveDouble

Namespace	http://gaslib.zib.de/Framework
Annotations	Positive double precision floating point number.
Diagram	
Type	restriction of xsd:float
Facets	minExclusive 0.0
Source	<pre><xsd:simpleType name="positiveDouble"> <xsd:annotation> <xsd:documentation>Positive double precision floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"> <xsd:minExclusive value="0.0"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type negativeDouble

Namespace	http://gaslib.zib.de/Framework
Annotations	Negative double precision floating point number.
Diagram	
Type	restriction of xsd:float
Facets	maxExclusive 0.0
Source	<pre><xsd:simpleType name="negativeDouble"> <xsd:annotation> <xsd:documentation>Negative double precision floating point number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:float"> <xsd:maxExclusive value="0.0"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type zero2OneDouble

Namespace	http://gaslib.zib.de/Framework
Annotations	Double precision floating point number in the interval [0,1].
Diagram	

Type	restriction of xsd:double				
Facets	<table> <tr> <td>maxInclusive</td> <td>1.0</td> </tr> <tr> <td>minInclusive</td> <td>0.0</td> </tr> </table>	maxInclusive	1.0	minInclusive	0.0
maxInclusive	1.0				
minInclusive	0.0				
Source	<pre><xsd:simpleType name="zero2OneDouble"> <xsd:annotation> <xsd:documentation>Double precision floating point number in the interval [0,1].</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:double"> <xsd:minInclusive value="0.0"/> <xsd:maxInclusive value="1.0"/> </xsd:restriction> </xsd:simpleType></pre>				

Simple Type integer

Namespace	http://gaslib.zib.de/Framework
Annotations	Integer number
Diagram	<p>The diagram illustrates the derivation of the integerList type from xsd:integer. It shows two nodes: 'integerList' and 'xsd:integer'. An association line connects them with a hollow circle at the 'integerList' end, indicating a derived type relationship. Below the nodes, two callouts provide additional information: one for 'integerList' stating 'List of integer numbers.' and another for 'xsd:integer' stating 'Built-in derived type. The integer datatype is derived from decimal by fixing the value of fractionDigits to be 0. This...'.</p>
Type	xsd:integer
Source	<pre><xsd:simpleType name="integer"> <xsd:annotation> <xsd:documentation>Integer number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:integer"/> </xsd:simpleType></pre>

Simple Type integerList

Namespace	http://gaslib.zib.de/Framework
Annotations	List of integer numbers.
Diagram	<p>The diagram illustrates the derivation of the integerList type from xsd:integer. It shows two nodes: 'integerList' and 'xsd:integer'. An association line connects them with a hollow circle at the 'integerList' end, indicating a derived type relationship. Below the nodes, two callouts provide additional information: one for 'integerList' stating 'List of integer numbers.' and another for 'xsd:integer' stating 'Built-in derived type. The integer datatype is derived from decimal by fixing the value of fractionDigits to be 0. This...'.</p>
Type	list of xsd:integer
Source	<pre><xsd:simpleType name="integerList"> <xsd:annotation> <xsd:documentation>List of integer numbers.</xsd:documentation> </xsd:annotation> <xsd:list itemType="xsd:integer"/> </xsd:simpleType></pre>

Simple Type nonNegativeInteger

Namespace	http://gaslib.zib.de/Framework		
Annotations	Non-negative integer number.		
Diagram	<p>The diagram illustrates the derivation of the nonNegativeInteger type from xsd:integer. It shows two nodes: 'nonNegativeInteger' and 'xsd:integer'. An association line connects them with a hollow circle at the 'nonNegativeInteger' end, indicating a derived type relationship. Below the nodes, two callouts provide additional information: one for 'nonNegativeInteger' stating 'Non-negative integer number.' and another for 'xsd:integer' stating 'Built-in derived type. The integer datatype is derived from decimal by fixing the value of fractionDigits to be 0. This...'.</p>		
Type	restriction of xsd:integer		
Facets	<table> <tr> <td>minInclusive</td> <td>0</td> </tr> </table>	minInclusive	0
minInclusive	0		
Source	<pre><xsd:simpleType name="nonNegativeInteger"> <xsd:annotation> <xsd:documentation>Non-negative integer number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:integer"> <xsd:minInclusive value="0"/> </xsd:restriction> </xsd:simpleType></pre>		

Simple Type nonPositiveInteger

Namespace	http://gaslib.zib.de/Framework
Annotations	Non-positive integer number.
Diagram	
Type	restriction of xsd:integer
Facets	maxInclusive 0
Source	<pre><xsd:simpleType name="nonPositiveInteger"> <xsd:annotation> <xsd:documentation>Non-positive integer number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:integer"> <xsd:maxInclusive value="0"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type positiveInteger

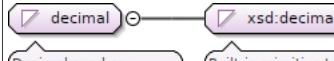
Namespace	http://gaslib.zib.de/Framework
Annotations	Positive integer number.
Diagram	
Type	restriction of xsd:integer
Facets	minExclusive 0
Source	<pre><xsd:simpleType name="positiveInteger"> <xsd:annotation> <xsd:documentation>Positive integer number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:integer"> <xsd:minExclusive value="0"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type negativeInteger

Namespace	http://gaslib.zib.de/Framework
Annotations	Negative integer number.
Diagram	
Type	restriction of xsd:integer
Facets	maxExclusive 0
Source	<pre><xsd:simpleType name="negativeInteger"> <xsd:annotation> <xsd:documentation>Negative integer number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:integer"> <xsd:maxExclusive value="0"/> </xsd:restriction> </xsd:simpleType></pre>

Simple Type decimal

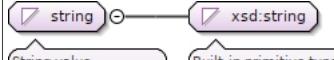
Namespace	http://gaslib.zib.de/Framework
Annotations	Decimal number.

Diagram	 Decimal number.	Built-in primitive type. The decimal datatype represents arbitrary precision decimal numbers.
Type	xsd:decimal	
Source		<pre><xsd:simpleType name="decimal"> <xsd:annotation> <xsd:documentation>Decimal number.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:decimal"/> </xsd:simpleType></pre>

Simple Type boolean

Namespace	http://gaslib.zib.de/Framework	
Annotations	Boolean value.	
Diagram	 Boolean value.	Built-in primitive type. It defines the boolean values true and false.
Type	xsd:boolean	
Used by	Attribute	gas:boundaryValue/gas:scenario/@defaultPowerAndFlowZero
Source		<pre><xsd:simpleType name="boolean"> <xsd:annotation> <xsd:documentation>Boolean value.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:boolean"/> </xsd:simpleType></pre>

Simple Type string

Namespace	http://gaslib.zib.de/Framework	
Annotations	String value.	
Diagram	 String value.	Built-in primitive type. The string datatype represents character strings in XML.
Type	xsd:string	
Used by	Attributes	cs:SEC_MeasurementsType/cs:measurement/cs:compressorPower/@unit, cs:SEC_MeasurementsType/cs:measurement/cs:fuelConsumption/@unit, cs:mp_measurementType/cs:maximalPower/@unit, cs:tc_measurementType/cs:adiabaticHead/@unit, cs:tc_measurementType/cs:volumetricFlowrate/@unit
Source		<pre><xsd:simpleType name="string"> <xsd:annotation> <xsd:documentation>String value.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"/> </xsd:simpleType></pre>

Simple Type byte

Namespace	http://gaslib.zib.de/Framework	
Annotations	Byte value.	
Diagram	 Byte value.	Built-in derived type. The byte datatype is derived from short by setting the value of maxInclusive to be 127 and...
Type	xsd:byte	
Source		<pre><xsd:simpleType name="byte"> <xsd:annotation> <xsd:documentation>Byte value.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:byte"/></pre>

<pre></xsd:simpleType></pre>

Simple Type date

Namespace	http://gaslib.zib.de/Framework
Annotations	Date value.
Diagram	<p>The diagram illustrates the definition of the <code>date</code> simple type. It shows a box labeled <code>date</code> connected by a line with an open circle to a box labeled <code>xsd:date</code>. Below the <code>date</code> box is a callout bubble containing the text "Date value.". Below the <code>xsd:date</code> box is another callout bubble containing the text "Built-in primitive type. The date datatype represents a calendar date."</p>
Type	xsd:date
Source	<pre><xsd:simpleType name="date"> <xsd:annotation> <xsd:documentation>Date value.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:date" /> </xsd:simpleType></pre>

Namespace: "http://gaslib.zib.de/CompressorStations"

Schema(s)

Imported schema CompressorStations.xsd

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	<p>This file constitutes a specification for XML files defining the compressor stations of a gas network such that there should be a one-to-one correspondence between the compressor stations defined in a file conforming to Gas.xsd and the compressor stations defined in a file conforming to this schema.</p> <p>Basic types used within this schema are defined in PhysicalValues.xsd.</p> <p>The tag compressorStations must be the root element of each XML document conforming to this schema.</p>				
Properties	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">attribute form default:</td> <td style="padding: 2px;">unqualified</td> </tr> <tr> <td style="padding: 2px;">element form default:</td> <td style="padding: 2px;">qualified</td> </tr> </table>	attribute form default:	unqualified	element form default:	qualified
attribute form default:	unqualified				
element form default:	qualified				

Element(s)

Element cs:compressorStations

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Contains all compressor stations of a gas network
Diagram	<p>The diagram shows the <code>cs:compressorStations</code> element as a collection of <code>cs:compressorStation</code> elements. It features a box labeled <code>cs:compressorStations</code> connected by a line with an open circle to a box labeled <code>cs:compressorStation</code>. A multiplicity of <code>0..∞</code> is indicated between them. Below the <code>cs:compressorStations</code> box is a callout bubble containing the text "Contains all compressor stations of a gas network". Below the <code>cs:compressorStation</code> box is another callout bubble containing the text "A compressor station with compressors, drives and configurations". A third callout bubble at the bottom points to the <code>cs:compressorStation</code> box and contains the text "The compressor station type".</p>
Type	cs:compressorStationsType
Properties	content: complex
Model	cs:compressorStation*
Children	cs:compressorStation
Instance	<pre><cs:compressorStations xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:compressorStation buildingCost="0.0" id="" upgradeCost="0.0">{0,unbounded}</ cs:compressorStation> </cs:compressorStations></pre>
Source	<pre><xsd:element name="compressorStations" type="cs:compressorStationsType"> <xsd:annotation> <xsd:documentation>Contains all compressor stations of a gas network</xsd:documentation> </xsd:annotation> </xsd:element></pre>

Element cs:compressorStationType / cs:compressorStation

Namespace	http://gaslib.zib.de/CompressorStations																															
Annotations	A compressor station with compressors, drives and configurations																															
Diagram	<pre> classDiagram class compressorStation { @id @buildingCost @upgradeCost } compressorStation "0..1" -- "0..1" compressors : Contains all compressors of this station compressorStation "0..1" -- "0..1" drives : Contains all drives in the station compressorStation "0..1" -- "0..1" configurations : A list of configurations for the enclosing station </pre>																															
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>																															
Model	cs:compressors , cs:drives , cs:configurations{0,1}																															
Children	cs:compressors, cs:configurations, cs:drives																															
Instance	<pre> <cs:compressorStation buildingCost="0.0" id="" upgradeCost="0.0" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:compressors>{1,1}</cs:compressors> <cs:drives>{1,1}</cs:drives> <cs:configurations>{0,1}</cs:configurations> </cs:compressorStation> </pre>																															
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>buildingCost</td> <td>xsd:decimal</td> <td>0.0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">The building cost of the station</td></tr> <tr> <td>id</td> <td>xsd:string</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">The id of the station</td></tr> <tr> <td>upgradeCost</td> <td>xsd:decimal</td> <td>0.0</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">The upgrade cost for adding station to an existing station</td></tr> </tbody> </table>				QName	Type	Default	Use	buildingCost	xsd:decimal	0.0	optional		The building cost of the station			id	xsd:string		required		The id of the station			upgradeCost	xsd:decimal	0.0	optional		The upgrade cost for adding station to an existing station		
QName	Type	Default	Use																													
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upgradeCost	xsd:decimal	0.0	optional																													
	The upgrade cost for adding station to an existing station																															
Source	<pre> <xsd:element name="compressorStation" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A compressor station with compressors, drives and configurations</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of compressors in this station</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="compressors"> <xsd:annotation> <xsd:documentation>Contains all compressors of this station</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of turbo compressors and piston compressors</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="turboCompressor" type="cs:turboCompressorType" minOccurs="0" maxOccurs="unbounded"> </pre>																															

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        <xsd:annotation>
            <xsd:documentation>A turbo compressor which is a special type of a compressor</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element name="pistonCompressor" type="cs:pistonCompressorType" minOccurs="0"
maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>A piston compressor which is a special type of a compressor</
xsd:documentation>
            </xsd:annotation>
            </xsd:element>
            </xsd:sequence>
            </xsd:complexType>
        </xsd:element>
        <xsd:element name="drives">
            <xsd:annotation>
                <xsd:documentation>Contains all drives in the station</xsd:documentation>
            </xsd:annotation>
            <xsd:complexType>
                <xsd:annotation>
                    <xsd:documentation>A list of gas turbines, gas driven motors, electric motors and steam
turbines</xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                    <xsd:element name="gasTurbine" type="cs:gasTurbineType" minOccurs="0"
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation>A gas turbine which is a special type of drive</
xsd:documentation>
                        </xsd:annotation>
                        </xsd:element>
                    <xsd:element name="gasDrivenMotor" type="cs:gasDrivenMotorType" minOccurs="0"
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation>A gas driven motor which is a special type of drive</
xsd:documentation>
                        </xsd:annotation>
                        </xsd:element>
                    <xsd:element name="electricMotor" type="cs:electricMotorType" minOccurs="0"
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation>An electric motor which is a special type of drive</
xsd:documentation>
                        </xsd:annotation>
                        </xsd:element>
                    <xsd:element name="steamTurbine" type="cs:steamTurbineType" minOccurs="0"
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation>A steam turbine which is a special type of drive</
xsd:documentation>
                        </xsd:annotation>
                        </xsd:element>
                    </xsd:sequence>
                    </xsd:complexType>
                </xsd:element>
                <xsd:element name="configurations" minOccurs="0" maxOccurs="1">
                    <xsd:annotation>
                        <xsd:documentation>A list of configurations for the enclosing station</xsd:documentation>
                    </xsd:annotation>
                    <xsd:complexType>
                        <xsd:sequence>
                            <xsd:element name="configuration" type="cs:configurationType" minOccurs="1"
maxOccurs="unbounded">
                                <xsd:annotation>
                                    <xsd:documentation>A configuration defines the way the station is configured, that
is which compressors are running parallel or serial. A configuration defines one or more stages.
Every stage has one or more compressors assigned to it. The compressors assigned to a single
stage are running in parallel. The stages itself are viewed as units running serial. Therefore
a configuration as defined here cannot model all possibilities but just serial units of parallel
compressors.</xsd:documentation>
                            </xsd:annotation>
                            </xsd:element>
                        </xsd:sequence>
                        </xsd:complexType>
                    </xsd:element>
                </xsd:sequence>
                <xsd:attribute name="id" type="xsd:string" use="required">
                    <xsd:annotation>
                        <xsd:documentation>The id of the station</xsd:documentation>
                    </xsd:annotation>
                </xsd:attribute>
                <xsd:attribute name="buildingCost" type="xsd:decimal" use="optional" default="0.0">

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<xsd:annotation>
  <xsd:documentation>The building cost of the station</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="upgradeCost" type="xsd:decimal" use="optional" default="0.0">
  <xsd:annotation>
    <xsd:documentation>The upgrade cost for adding station to an existing station</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>

```

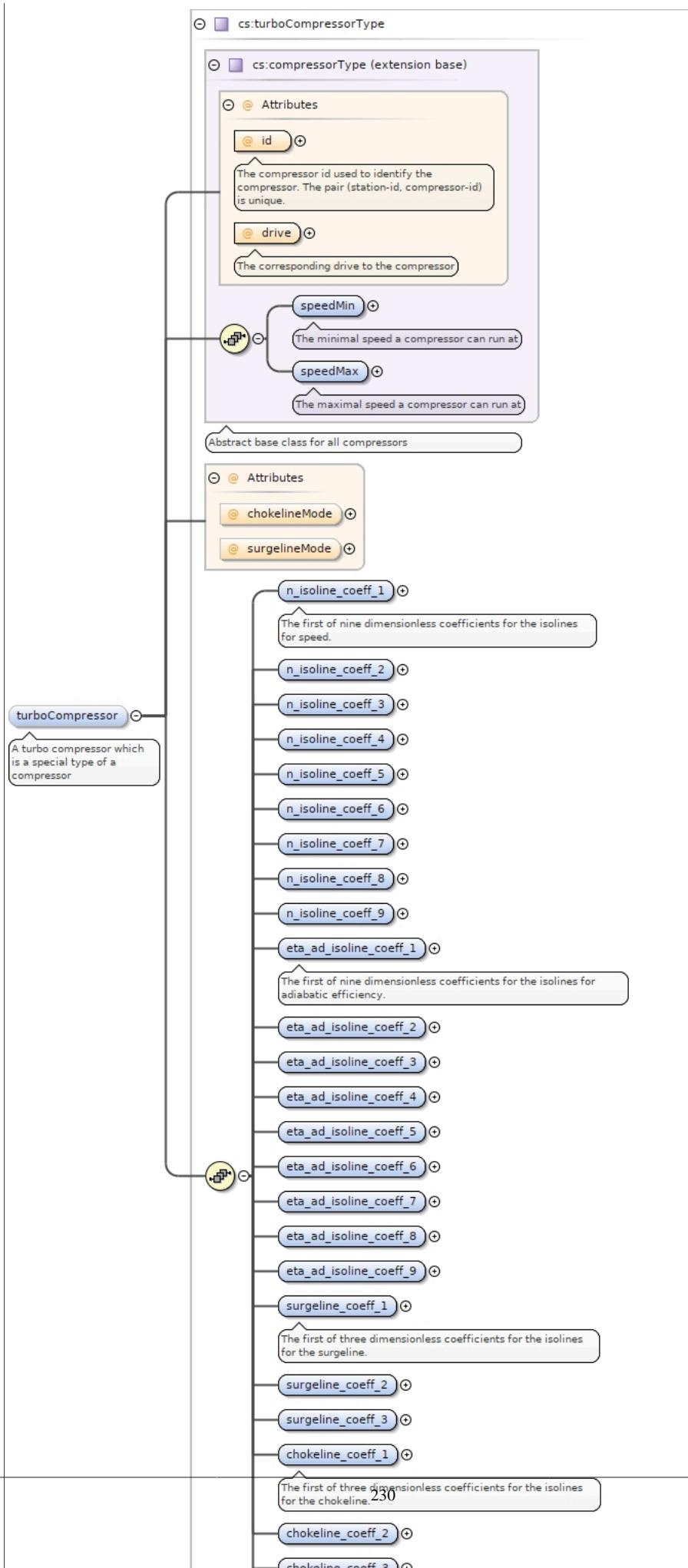
Element cs:compressorStationsType / cs:compressorStation / cs:compressors

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Contains all compressors of this station
Diagram	<pre> classDiagram class compressors { <<Contains all compressors of this station>> } class turboCompressor { <<A turbo compressor which is a special type of a compressor>> } class pistonCompressor { <<A piston compressor which is a special type of a compressor>> } compressors "0..infinity" -- "0..infinity" turboCompressor compressors "0..infinity" -- "0..infinity" pistonCompressor </pre>
Properties	content: complex
Model	cs:turboCompressor*, cs:pistonCompressor*
Children	cs:pistonCompressor, cs:turboCompressor
Instance	<pre> <cs:compressors xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:turboCompressor chokelineMode="" drive="" id="" surgelineMode="">{0,unbounded}</cs:turboCompressor> <cs:pistonCompressor drive="" id="">{0,unbounded}</cs:pistonCompressor> </cs:compressors> </pre>
Source	<pre> <xsd:element name="compressors"> <xsd:annotation> <xsd:documentation>Contains all compressors of this station</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of turbo compressors and piston compressors</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="turboCompressor" type="cs:turboCompressorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A turbo compressor which is a special type of a compressor</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="pistonCompressor" type="cs:pistonCompressorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A piston compressor which is a special type of a compressor</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </pre>

Element cs:compressorStationsType / cs:compressorStation / cs:compressors / cs:turboCompressor

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A turbo compressor which is a special type of a compressor

Diagram



Type	cs:turboCompressorType																													
Type hierarchy	<ul style="list-style-type: none"> • cs:compressorType • cs:turboCompressorType 																													
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>																													
Model	cs:speedMin , cs:speedMax , cs:n_isoline_coeff_1 , cs:n_isoline_coeff_2 , cs:n_isoline_coeff_3 , cs:n_isoline_coeff_4 , cs:n_isoline_coeff_5 , cs:n_isoline_coeff_6 , cs:n_isoline_coeff_7 , cs:n_isoline_coeff_8 , cs:n_isoline_coeff_9 , cs:eta_ad_isoline_coeff_f_1 , cs:eta_ad_isoline_coeff_2 , cs:eta_ad_isoline_coeff_3 , cs:eta_ad_isoline_coeff_4 , cs:eta_ad_isoline_coeff_5 , cs:eta_ad_isoline_coeff_6 , cs:eta_ad_isoline_coeff_7 , cs:eta_ad_isoline_coeff_8 , cs:eta_ad_isoline_coeff_9 , cs:surgeline_coeff_1 , cs:surgeline_coeff_2 , cs:surgeline_coeff_3 , cs:chokeline_coeff_1 , cs:chokeline_coeff_2 , cs:chokeline_coeff_3 , cs:efficiencyOfChokeline{0,1} , cs:surgelineMeasurements{0,1} , cs:characteristicDiagramMeasurements{0,1}																													
Children	cs:characteristicDiagramMeasurements , cs:chokeline_coeff_1 , cs:chokeline_coeff_2 , cs:chokeline_coeff_3 , cs:efficiencyOfChokeline , cs:eta_ad_isoline_coeff_1 , cs:eta_ad_isoline_coeff_2 , cs:eta_ad_isoline_coeff_3 , cs:eta_ad_isoline_coeff_4 , cs:eta_ad_isoline_coeff_5 , cs:eta_ad_isoline_coeff_6 , cs:eta_ad_isoline_coeff_7 , cs:eta_ad_isoline_coeff_8 , cs:eta_ad_isoline_coeff_9 , cs:n_isoline_coeff_1 , cs:n_isoline_coeff_2 , cs:n_isoline_coeff_3 , cs:n_isoline_coeff_4 , cs:n_isoline_coeff_5 , cs:n_isoline_coeff_6 , cs:n_isoline_coeff_7 , cs:n_isoline_coeff_8 , cs:n_isoline_coeff_9 , cs:speedMax , cs:speedMin , cs:surgelineMeasurements , cs:surgeline_coeff_1 , cs:surgeline_coeff_2 , cs:surgeline_coeff_3																													
Instance	<pre><cs:turboCompressor chokelineMode="" drive="" id="" surgelineMode="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speedMin unit="per_min" value="">{1,1}</cs:speedMin> <cs:speedMax unit="per_min" value="">{1,1}</cs:speedMax> <cs:n_isoline_coeff_1 value="">{1,1}</cs:n_isoline_coeff_1> <cs:n_isoline_coeff_2 value="">{1,1}</cs:n_isoline_coeff_2> <cs:n_isoline_coeff_3 value="">{1,1}</cs:n_isoline_coeff_3> <cs:n_isoline_coeff_4 value="">{1,1}</cs:n_isoline_coeff_4> <cs:n_isoline_coeff_5 value="">{1,1}</cs:n_isoline_coeff_5> <cs:n_isoline_coeff_6 value="">{1,1}</cs:n_isoline_coeff_6> <cs:n_isoline_coeff_7 value="">{1,1}</cs:n_isoline_coeff_7> <cs:n_isoline_coeff_8 value="">{1,1}</cs:n_isoline_coeff_8> <cs:n_isoline_coeff_9 value="">{1,1}</cs:n_isoline_coeff_9> <cs:eta_ad_isoline_coeff_1 value="">{1,1}</cs:eta_ad_isoline_coeff_1> <cs:eta_ad_isoline_coeff_2 value="">{1,1}</cs:eta_ad_isoline_coeff_2> <cs:eta_ad_isoline_coeff_3 value="">{1,1}</cs:eta_ad_isoline_coeff_3> <cs:eta_ad_isoline_coeff_4 value="">{1,1}</cs:eta_ad_isoline_coeff_4> <cs:eta_ad_isoline_coeff_5 value="">{1,1}</cs:eta_ad_isoline_coeff_5> <cs:eta_ad_isoline_coeff_6 value="">{1,1}</cs:eta_ad_isoline_coeff_6> <cs:eta_ad_isoline_coeff_7 value="">{1,1}</cs:eta_ad_isoline_coeff_7> <cs:eta_ad_isoline_coeff_8 value="">{1,1}</cs:eta_ad_isoline_coeff_8> <cs:eta_ad_isoline_coeff_9 value="">{1,1}</cs:eta_ad_isoline_coeff_9> <cs:surgeline_coeff_1 value="">{1,1}</cs:surgeline_coeff_1> <cs:surgeline_coeff_2 value="">{1,1}</cs:surgeline_coeff_2> <cs:surgeline_coeff_3 value="">{1,1}</cs:surgeline_coeff_3> <cs:chokeline_coeff_1 value="">{1,1}</cs:chokeline_coeff_1> <cs:chokeline_coeff_2 value="">{1,1}</cs:chokeline_coeff_2> <cs:chokeline_coeff_3 value="">{1,1}</cs:chokeline_coeff_3> <cs:efficiencyOfChokeline value="">{0,1}</cs:efficiencyOfChokeline> <cs:surgelineMeasurements>{0,1}</cs:surgelineMeasurements> <cs:characteristicDiagramMeasurements>{0,1}</cs:characteristicDiagramMeasurements> </cs:turboCompressor></pre>																													
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>chokelineMode</td> <td>cs:chokelineModeType</td> <td>optional</td> <td></td> </tr> <tr> <td>drive</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>The corresponding drive to the compressor</td> <td></td> </tr> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.</td> <td></td> </tr> <tr> <td>surgelineMode</td> <td>cs:surgelineModeType</td> <td>optional</td> <td></td> </tr> </tbody> </table>	QName	Type	Use		chokelineMode	cs:chokelineModeType	optional		drive	xsd:string	required				The corresponding drive to the compressor		id	xsd:string	required				The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.		surgelineMode	cs:surgelineModeType	optional		
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surgelineMode	cs:surgelineModeType	optional																												
Source	<pre><xsd:element name="turboCompressor" type="cs:turboCompressorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A turbo compressor which is a special type of a compressor</xsd:documentation> </xsd:annotation> </xsd:element></pre>																													

Element cs:compressorType / cs:speedMin

Namespace	http://gaslib.zib.de/CompressorStations																							
Annotations	The minimal speed a compressor can run at																							
Diagram	<p>The diagram illustrates the UML class structure for the cs:speedType element. It is an extension of the framework:unitType base class. The class has two attributes: unit, which is further refined by the unitOfSpeed association, and value, which is further refined by the valueOfSpeed association. A callout box points to the speedMin attribute with the annotation: "The minimal speed a compressor can run at".</p>																							
Type	cs:speedType																							
Type hierarchy	<ul style="list-style-type: none"> • unitType • cs:speedType 																							
Properties	content: complex																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>per_minUnit</td><td>per_min</td><td>optional</td></tr> <tr> <td></td><td>Unit of speed</td><td></td><td></td></tr> <tr> <td>value</td><td>double</td><td></td><td>required</td></tr> <tr> <td></td><td>Value of speed</td><td></td><td></td></tr> </tbody> </table>				QName	Type	Default	Use	unit	per_minUnit	per_min	optional		Unit of speed			value	double		required		Value of speed		
QName	Type	Default	Use																					
unit	per_minUnit	per_min	optional																					
	Unit of speed																							
value	double		required																					
	Value of speed																							
Source	<pre><xsd:element name="speedMin" type="cs:speedType"> <xsd:annotation> <xsd:documentation>The minimal speed a compressor can run at</xsd:documentation> </xsd:annotation> </xsd:element></pre>																							

Element cs:compressorType / cs:speedMax

Namespace	http://gaslib.zib.de/CompressorStations															
Annotations	The maximal speed a compressor can run at															
Diagram	<p>The diagram illustrates the UML class structure for the cs:speedType element. It is an extension of the framework:unitType base class. The class has two attributes: unit, which is further refined by the unitOfSpeed association, and value, which is further refined by the valueOfSpeed association. A callout box points to the speedMax attribute with the annotation: "The maximal speed a compressor can run at".</p>															
Type	cs:speedType															
Type hierarchy	<ul style="list-style-type: none"> • unitType • cs:speedType 															
Properties	content: complex															
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>per_maxUnit</td><td>per_max</td><td>optional</td></tr> <tr> <td></td><td>Unit of speed</td><td></td><td></td></tr> </tbody> </table>				QName	Type	Default	Use	unit	per_maxUnit	per_max	optional		Unit of speed		
QName	Type	Default	Use													
unit	per_maxUnit	per_max	optional													
	Unit of speed															

	QName	Type	Default	Use	
	value	double		required	
		Value of speed			
Source	<pre><xsd:element name="speedMax" type="cs:speedType"> <xsd:annotation> <xsd:documentation>The maximal speed a compressor can run at</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element cs:turboCompressorType / cs:n_isoline_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	The first of nine dimensionless coefficients for the isolines for speed.				
Diagram	<pre> classDiagram class n_isoline_coeff_1 { <<The first of nine dimensionless coefficients for the isolines for speed.>> <<Unitless type.>> } class framework { class noType class unitType { <<extension base>> <<Attributes>> <<@value : xsd:double>> <<Value.>> } } n_isoline_coeff_1 < -- framework:unitType </pre>				
Type	noType				
Type hierarchy	<ul style="list-style-type: none"> unitType noType 				
Properties	content: complex				
Attributes	QName	Type	Use		
	value	xsd:double	required		
		Value.			
Source	<pre><xsd:element name="n_isoline_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of nine dimensionless coefficients for the isolines for speed.</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element cs:turboCompressorType / cs:n_isoline_coeff_2

Namespace	http://gaslib.zib.de/CompressorStations				
Diagram	<pre> classDiagram class n_isoline_coeff_2 { <<The first of nine dimensionless coefficients for the isolines for speed.>> <<Unitless type.>> } class framework { class noType class unitType { <<extension base>> <<Attributes>> <<@value : xsd:double>> <<Value.>> } } n_isoline_coeff_2 < -- framework:unitType </pre>				
Type	noType				
Type hierarchy	<ul style="list-style-type: none"> unitType noType 				
Properties	content: complex				
Attributes	QName	Type	Use		
	value	xsd:double	required		

	QName	Type	Use	
Source	<xsd:element name="n_isoline_coeff_2" type="framework:noType" />	Value.		

Element cs:turboCompressorType / cs:n_isoline_coeff_3

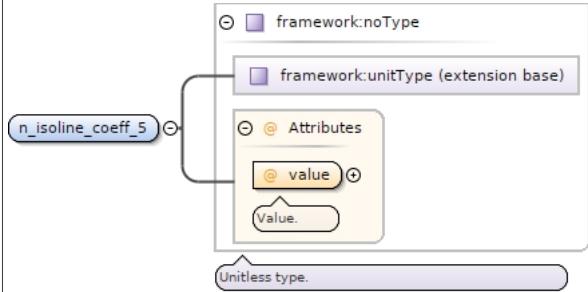
Namespace	http://gaslib.zib.de/CompressorStations			
Diagram	<pre> classDiagram class n_isoline_coeff_3 { <<Unitless type.>> <<@value>> <<Value.>> } n_isoline_coeff_3 < -- framework:unitType framework:unitType < -- framework:noType </pre>			
Type	noType			
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 			
Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<xsd:element name="n_isoline_coeff_3" type="framework:noType" />			

Element cs:turboCompressorType / cs:n_isoline_coeff_4

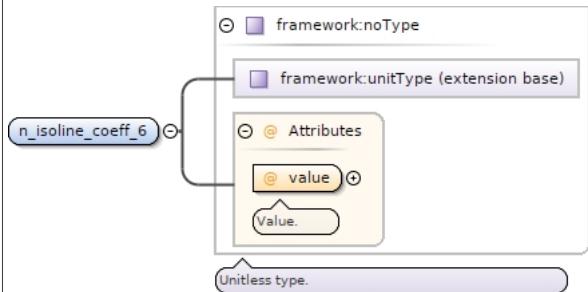
Namespace	http://gaslib.zib.de/CompressorStations			
Diagram	<pre> classDiagram class n_isoline_coeff_4 { <<Unitless type.>> <<@value>> <<Value.>> } n_isoline_coeff_4 < -- framework:unitType framework:unitType < -- framework:noType </pre>			
Type	noType			
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 			
Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<xsd:element name="n_isoline_coeff_4" type="framework:noType" />			

Element cs:turboCompressorType / cs:n_isoline_coeff_5

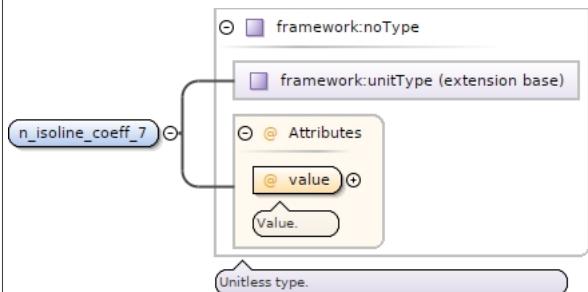
Namespace	http://gaslib.zib.de/CompressorStations			
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Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="n_isoline_coeff_5" type="framework:noType"/></code>												

Element cs:turboCompressorType / cs:n_isoline_coeff_6

Namespace	http://gaslib.zib.de/CompressorStations												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="n_isoline_coeff_6" type="framework:noType"/></code>												

Element cs:turboCompressorType / cs:n_isoline_coeff_7

Namespace	http://gaslib.zib.de/CompressorStations
Diagram	

Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="n_isoline_coeff_7" type="framework:noType" />		

Element cs:turboCompressorType / cs:n_isoline_coeff_8

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<p>The diagram illustrates the inheritance of the element 'n_isoline_coeff_8'. It shows a base class 'framework:unitType (extension base)' which is itself an extension of 'framework:noType'. The 'n_isoline_coeff_8' class inherits from this base. Within the 'Attributes' block, there is a slot '@ value' with a '+' sign, indicating it is required, and another slot 'Value.'.</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="n_isoline_coeff_8" type="framework:noType" />		

Element cs:turboCompressorType / cs:n_isoline_coeff_9

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<p>The diagram illustrates the inheritance of the element 'n_isoline_coeff_9'. It shows a base class 'framework:unitType (extension base)' which is itself an extension of 'framework:noType'. The 'n_isoline_coeff_9' class inherits from this base. Within the 'Attributes' block, there is a slot '@ value' with a '+' sign, indicating it is required, and another slot 'Value.'.</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="n_isoline_coeff_9" type="framework:noType" />		

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_1

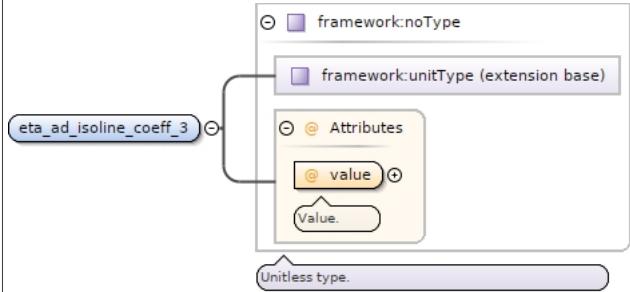
Namespace	http://gaslib.zib.de/CompressorStations											
Annotations	The first of nine dimensionless coefficients for the isolines for adiabatic efficiency.											
Diagram	<p>The diagram illustrates the type hierarchy for the element <code>eta_ad_isoline_coeff_1</code>. It is defined as a <code>framework:noType</code>, which extends a <code>framework:unitType</code> (the extension base). The <code>framework:unitType</code> has an attribute <code>value</code> with a value <code>Value.</code>. A note specifies: "The first of nine dimensionless coefficients for the isolines for adiabatic efficiency."</p>											
Type	noType											
Type hierarchy	<ul style="list-style-type: none"> unitType noType 											
Properties	content: complex											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use	<code>value</code>	xsd:double	required		Value.	
QName	Type	Use										
<code>value</code>	xsd:double	required										
	Value.											
Source	<pre><xsd:element name="eta_ad_isoline_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of nine dimensionless coefficients for the isolines for adiabatic efficiency.</xsd:documentation> </xsd:annotation> </xsd:element></pre>											

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_2

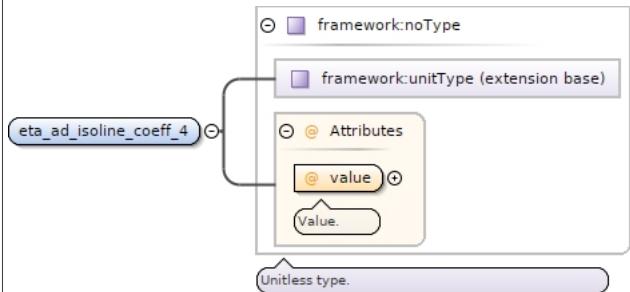
Namespace	http://gaslib.zib.de/CompressorStations											
Diagram	<p>The diagram illustrates the type hierarchy for the element <code>eta_ad_isoline_coeff_2</code>. It is defined as a <code>framework:noType</code>, which extends a <code>framework:unitType</code> (the extension base). The <code>framework:unitType</code> has an attribute <code>value</code> with a value <code>Value.</code>. A note specifies: "The first of nine dimensionless coefficients for the isolines for adiabatic efficiency."</p>											
Type	noType											
Type hierarchy	<ul style="list-style-type: none"> unitType noType 											
Properties	content: complex											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use	<code>value</code>	xsd:double	required		Value.	
QName	Type	Use										
<code>value</code>	xsd:double	required										
	Value.											
Source	<pre><xsd:element name="eta_ad_isoline_coeff_2" type="framework:noType"/></pre>											

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_3

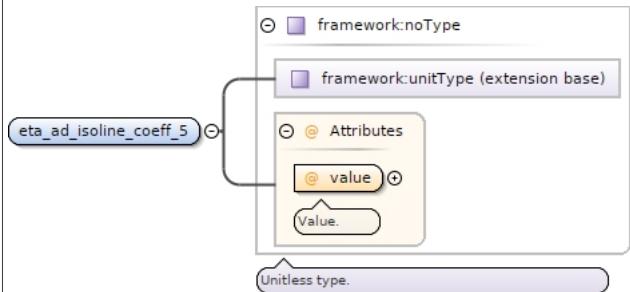
Namespace	http://gaslib.zib.de/CompressorStations		
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Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="eta_ad_isoline_coeff_3" type="framework:noType"/></code>												

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_4

Namespace	http://gaslib.zib.de/CompressorStations												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="eta_ad_isoline_coeff_4" type="framework:noType"/></code>												

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_5

Namespace	http://gaslib.zib.de/CompressorStations
Diagram	

Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="eta_ad_isoline_coeff_5" type="framework:noType" />		

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_6

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<pre> classDiagram class eta_ad_isoline_coeff_6 class framework:unitType [extension base] class Attributes attribute value eta_ad_isoline_coeff_6 "0..1" -- "1..1" framework:unitType framework:unitType "0..1" -- "1..1" Attributes Attributes "0..1" -- "1..1" value note over framework:unitType, Attributes, value: (Unitless type.) </pre>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="eta_ad_isoline_coeff_6" type="framework:noType" />		

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_7

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<pre> classDiagram class eta_ad_isoline_coeff_7 class framework:unitType [extension base] class Attributes attribute value eta_ad_isoline_coeff_7 "0..1" -- "1..1" framework:unitType framework:unitType "0..1" -- "1..1" Attributes Attributes "0..1" -- "1..1" value note over framework:unitType, Attributes, value: (Unitless type.) </pre>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="eta_ad_isoline_coeff_7" type="framework:noType" />		

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_8

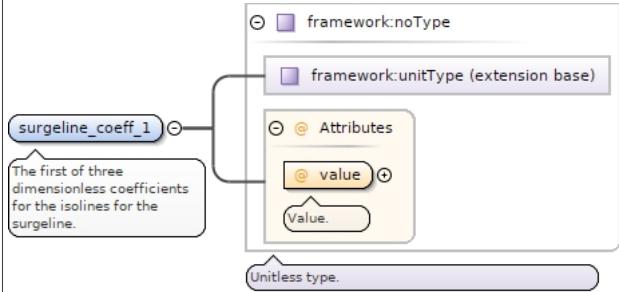
Namespace	http://gaslib.zib.de/CompressorStations														
Diagram	<p>The diagram illustrates the type hierarchy for the element <code>eta_ad_isoline_coeff_8</code>. It extends from <code>framework:unitType</code> (extension base), which itself extends from <code>framework:noType</code>. The <code>framework:unitType</code> base class contains an attribute <code>@ value</code> with a multiplicity of 1..1, associated with a <code>Value.</code> class. A note below the diagram states: <code>(Unitless type.)</code>.</p>														
Type	noType														
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 														
Properties	content: complex														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use		<code>value</code>	xsd:double	required				Value.	
QName	Type	Use													
<code>value</code>	xsd:double	required													
		Value.													
Source	<pre><xsd:element name="eta_ad_isoline_coeff_8" type="framework:noType"/></pre>														

Element cs:turboCompressorType / cs:eta_ad_isoline_coeff_9

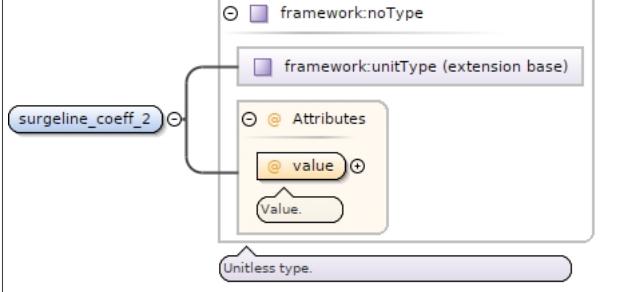
Namespace	http://gaslib.zib.de/CompressorStations														
Diagram	<p>The diagram illustrates the type hierarchy for the element <code>eta_ad_isoline_coeff_9</code>. It extends from <code>framework:unitType</code> (extension base), which itself extends from <code>framework:noType</code>. The <code>framework:unitType</code> base class contains an attribute <code>@ value</code> with a multiplicity of 1..1, associated with a <code>Value.</code> class. A note below the diagram states: <code>(Unitless type.)</code>.</p>														
Type	noType														
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 														
Properties	content: complex														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use		<code>value</code>	xsd:double	required				Value.	
QName	Type	Use													
<code>value</code>	xsd:double	required													
		Value.													
Source	<pre><xsd:element name="eta_ad_isoline_coeff_9" type="framework:noType"/></pre>														

Element cs:turboCompressorType / cs:surgeline_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	The first of three dimensionless coefficients for the isolines for the surgeline.		

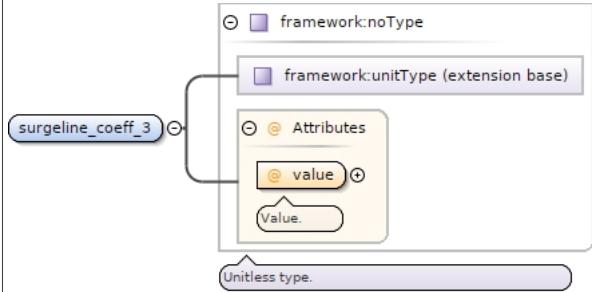
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<pre><xsd:element name="surgeline_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of three dimensionless coefficients for the isolines for the surgeline.</xsd:documentation> </xsd:annotation> </xsd:element></pre>												

Element cs:turboCompressorType / cs:surgeline_coeff_2

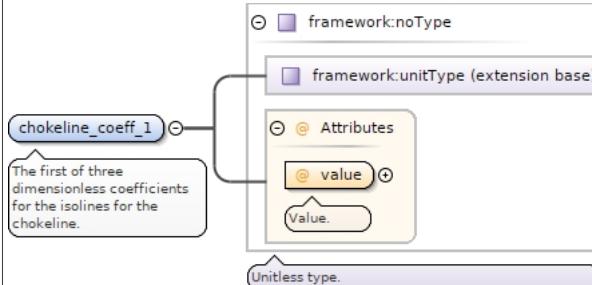
Namespace	http://gaslib.zib.de/CompressorStations												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<pre><xsd:element name="surgeline_coeff_2" type="framework:noType" /></pre>												

Element cs:turboCompressorType / cs:surgeline_coeff_3

Namespace	http://gaslib.zib.de/CompressorStations
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Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="surgeline_coeff_3" type="framework:noType"/></code>												

Element cs:turboCompressorType / cs:chokeline_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations												
Annotations	The first of three dimensionless coefficients for the isolines for the chokeline.												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="chokeline_coeff_1" type="framework:noType"></code> <code><xsd:annotation></code> <code> <xsd:documentation>The first of three dimensionless coefficients for the isolines for the chokeline.</xsd:documentation></code> <code></xsd:annotation></code> <code></xsd:element></code>												

Element cs:turboCompressorType / cs:chokeline_coeff_2

Namespace	http://gaslib.zib.de/CompressorStations
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Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="chokeline_coeff_2" type="framework:noType" /></code>												

Element cs:turboCompressorType / cs:chokeline_coeff_3

Namespace	http://gaslib.zib.de/CompressorStations												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="chokeline_coeff_3" type="framework:noType" /></code>												

Element cs:turboCompressorType / cs:efficiencyOfChokeline

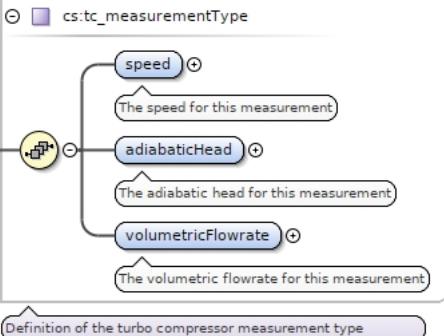
Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Defines the efficiency of the chokeline. A compressor should not operate to the right of the chokeline in the characteristic diagram due to technical restrictions.

Diagram										
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 									
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0					
content:	complex									
minOccurs:	0									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use								
value	xsd:double	required								
	Value.									
Source	<pre><xsd:element name="efficiencyOfChokeline" type="framework:noType" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines the efficiency of the chokeline. A compressor should not operate to the right of the chokeline in the characteristic diagram due to technical restrictions.</xsd:documentation> </xsd:annotation> </xsd:element></pre>									

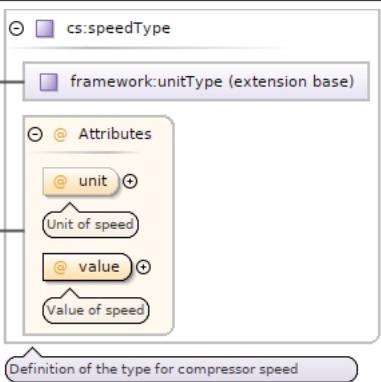
Element cs:turboCompressorType / cs:surgelineMeasurements

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	Defines the measurements from which the surgeline was fitted as a quadratic function.				
Diagram					
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0
content:	complex				
minOccurs:	0				
Model	cs:measurement*				
Children	cs:measurement				
Instance	<pre><cs:surgelineMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{0,unbounded}</cs:measurement> </cs:surgelineMeasurements></pre>				
Source	<pre><xsd:element name="surgelineMeasurements" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines the measurements from which the surgeline was fitted as a quadratic function.</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements for the surgeline</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>Defines a single measurement of the surgeline. There must be at least three measurements to be able to guarantee a meaningful quadratic least-squares fit.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element></pre>				

Element cs:turboCompressorType / cs:surgelineMeasurements / cs:measurement

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	Defines a single measurement of the surgeline. There must be at least three measurements to be able to guarantee a meaningful quadratic least-squares fit.						
Diagram							
Type	cs:tc_measurementType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	unbounded
content:	complex						
minOccurs:	0						
maxOccurs:	unbounded						
Model	cs:speed , cs:adiabaticHead , cs:volumetricFlowrate						
Children	cs:adiabaticHead, cs:speed, cs:volumetricFlowrate						
Instance	<pre><cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speed unit="per_min" value="">{1,1}</cs:speed> <cs:adiabaticHead unit="kJ_per_kg" value="">{1,1}</cs:adiabaticHead> <cs:volumetricFlowrate unit="m_cube_per_s" value="">{1,1}</cs:volumetricFlowrate> </cs:measurement></pre>						
Source	<pre><xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>Defines a single measurement of the surgeline. There must be at least three measurements to be able to guarantee a meaningful quadratic least-squares fit.</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element cs:tc_measurementType / cs:speed

Namespace	http://gaslib.zib.de/CompressorStations								
Annotations	The speed for this measurement								
Diagram									
Type	cs:speedType								
Type hierarchy	<ul style="list-style-type: none"> • unitType • cs:speedType 								
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> </table>	content:	complex						
content:	complex								
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>per_minUnit</td> <td>per_min</td> <td>optional</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	per_minUnit	per_min	optional
QName	Type	Default	Use						
unit	per_minUnit	per_min	optional						

	QName	Type	Default	Use	
		Unit of speed			
	value	double		required	
		Value of speed			
Source	<xsd:element name="speed" type="cs:speedType"> <xsd:annotation> <xsd:documentation>The speed for this measurement</xsd:documentation> </xsd:annotation> </xsd:element>				

Element cs:tc_measurementType / cs:adiabaticHead

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	The adiabatic head for this measurement				
Diagram	<pre> graph LR adiabaticHead[adiabaticHead] --> unit["unit: string"] adiabaticHead --> value["value: double"] </pre> <p>The diagram shows the <code>adiabaticHead</code> element with two attributes: <code>unit</code> (string) and <code>value</code> (double). The <code>unit</code> attribute is described as "The unit of the adiabatic head". The <code>value</code> attribute is described as "The value of the adiabatic head".</p>				
Properties	content: complex				
Attributes	QName	Type	Default	Use	
	unit	string	kJ_per_kg	optional	
		The unit of the adiabatic head			
	value	double		required	
		The value of the adiabatic head			
Source	<xsd:element name="adiabaticHead"> <xsd:annotation> <xsd:documentation>The adiabatic head for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kJ_per_kg" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the adiabatic head</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the adiabatic head</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element>				

Element cs:tc_measurementType / cs:volumetricFlowrate

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	The volumetric flowrate for this measurement				
Diagram	<pre> graph LR volumetricFlowrate[volumetricFlowrate] --> unit["unit: string"] volumetricFlowrate --> value["value: double"] </pre> <p>The diagram shows the <code>volumetricFlowrate</code> element with two attributes: <code>unit</code> (string) and <code>value</code> (double). The <code>unit</code> attribute is described as "The unit of the volumetric flowrate". The <code>value</code> attribute is described as "The value of the volumetric flowrate".</p>				
Properties	content: complex				
Attributes	QName	Type	Default	Use	
	unit	string	m_cube_per_s	optional	
		The unit of the volumetric flowrate			

	QName	Type	Default	Use	
	value	double		required	
	The value of the volumetric flowrate				
Source	<pre><xsd:element name="volumetricFlowrate"> <xsd:annotation> <xsd:documentation>The volumetric flowrate for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="m_cube_per_s" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the volumetric flowrate</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the volumetric flowrate</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>				

Element cs:turboCompressorType / cs:characteristicDiagramMeasurements

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Defines all measurements for the characteristic diagram of the turbo compressor
Diagram	<p>The diagram shows a class named "characteristicDiagramMeasurements" connected to a class named "adiabaticEfficiency". The connection is marked with a multiplicity of "1...∞" at the "adiabaticEfficiency" side. A note below the "characteristicDiagramMeasurements" class states: "Defines all measurements for the characteristic diagram of the turbo compressor". A note below the "adiabaticEfficiency" class states: "Defines a context in which all measurements have the same adiabatic efficiency".</p>
Properties	content: complex minOccurs: 0
Model	cs:adiabaticEfficiency+
Children	cs:adiabaticEfficiency
Instance	<pre><cs:characteristicDiagramMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:adiabaticEfficiency value="">{1,unbounded}</cs:adiabaticEfficiency> </cs:characteristicDiagramMeasurements></pre>
Source	<pre><xsd:element name="characteristicDiagramMeasurements" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines all measurements for the characteristic diagram of the turbo compressor</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="adiabaticEfficiency" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>Defines a context in which all measurements have the same adiabatic efficiency</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements for a specific adiabatic efficiency</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement for the characteristic diagram</xsd:documentation> </xsd:annotation> </xsd:sequence> <xsd:attribute name="value" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>Defines the adiabatic efficiency for all measurements in this context</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </xsd:complexType></pre>

</xsd:element>

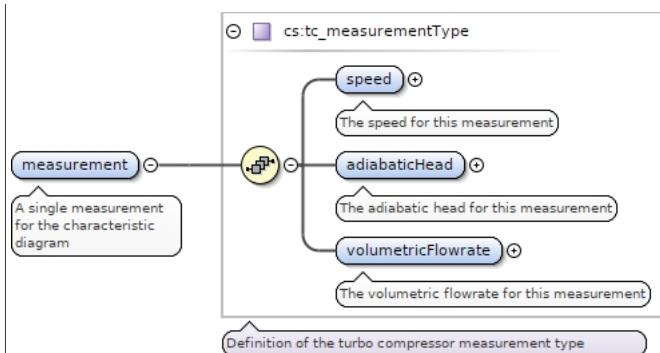
Element cs:turboCompressorType / cs:characteristicDiagramMeasurements / cs:adiabaticEfficiency

Namespace	http://gaslib.zib.de/CompressorStations											
Annotations	Defines a context in which all measurements have the same adiabatic efficiency											
Diagram	<pre> classDiagram class AdiabaticEfficiency { @ value } class Measurement { << A single measurement for the characteristic diagram >> } AdiabaticEfficiency "1..>" Measurement AdiabaticEfficiency --> Attribute { @ value << Defines the adiabatic efficiency for all measurements in this context >> } </pre>											
Properties	content: complex maxOccurs: unbounded											
Model	cs:measurement+											
Children	cs:measurement											
Instance	<cs:adiabaticEfficiency value="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{1,unbounded}</cs:measurement> </cs:adiabaticEfficiency>											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">Defines the adiabatic efficiency for all measurements in this context</td></tr> </tbody> </table>			QName	Type	Use	value	xsd:string	required		Defines the adiabatic efficiency for all measurements in this context	
QName	Type	Use										
value	xsd:string	required										
	Defines the adiabatic efficiency for all measurements in this context											
Source	<pre> <xsd:element name="adiabaticEfficiency" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>Defines a context in which all measurements have the same adiabatic efficiency</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements for a specific adiabatic efficiency</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement for the characteristic diagram</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="value" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>Defines the adiabatic efficiency for all measurements in this context</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </pre>											

Element cs:turboCompressorType / cs:characteristicDiagramMeasurements / cs:adiabaticEfficiency / cs:measurement

Namespace	http://gaslib.zib.de/CompressorStations	
Annotations	A single measurement for the characteristic diagram	

Diagram

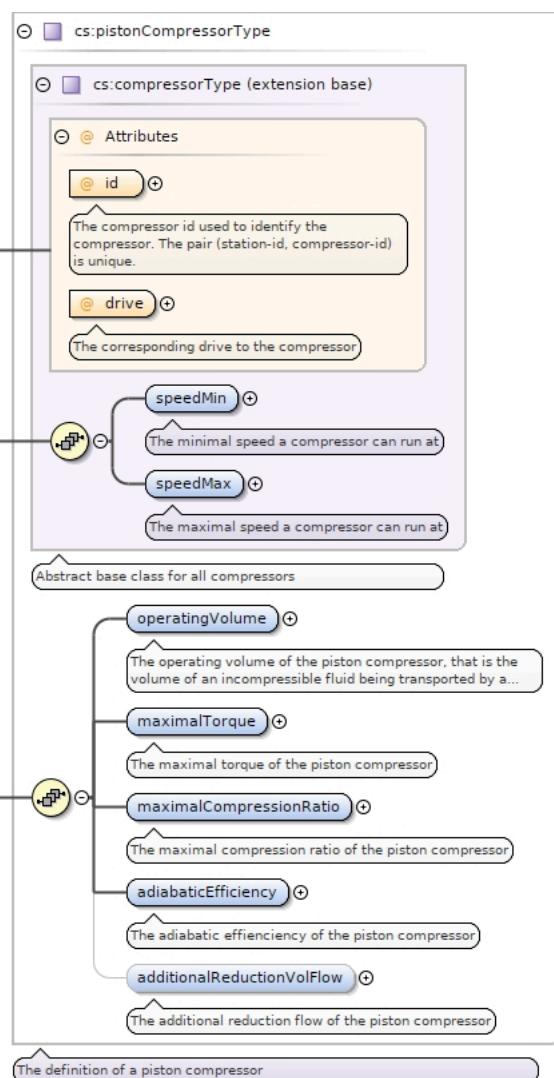


Type	cs:tc_measurementType
Properties	content: complex
	minOccurs: 1
	maxOccurs: unbounded
Model	cs:speed , cs:adiabaticHead , cs:volumetricFlowrate
Children	cs:adiabaticHead, cs:speed, cs:volumetricFlowrate
Instance	<cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speed unit="per_min" value="">{1,1}</cs:speed> <cs:adiabaticHead unit="kJ_per_kg" value="">{1,1}</cs:adiabaticHead> <cs:volumetricFlowrate unit="m_cube_per_s" value="">{1,1}</cs:volumetricFlowrate> </cs:measurement>
Source	<xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement for the characteristic diagram</xsd:documentation> </xsd:annotation> </xsd:element>

Element cs:compressorStation / cs:compressor / cs:compressors / cs:pistonCompressor

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A piston compressor which is a special type of a compressor

Diagram



Type	<code>cs:pistonCompressorType</code>												
Type hierarchy	<ul style="list-style-type: none"> • <code>cs:compressorType</code> • <code>cs:pistonCompressorType</code> 												
Properties	content: complex minOccurs: 0 maxOccurs: unbounded												
Model	<code>cs:speedMin</code> , <code>cs:speedMax</code> , <code>cs:operatingVolume</code> , <code>cs:maximalTorque</code> , <code>cs:maximalCompressionRatio</code> , <code>cs:adiabaticEfficiency</code> , <code>cs:additionalReductionVolFlow{0,1}</code>												
Children	<code>cs:additionalReductionVolFlow</code> , <code>cs:adiabaticEfficiency</code> , <code>cs:maximalCompressionRatio</code> , <code>cs:maximalTorque</code> , <code>cs:operatingVolume</code> , <code>cs:speedMax</code> , <code>cs:speedMin</code>												
Instance	<pre><cs:pistonCompressor drive="" id="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speedMin unit="per_min" value="">{1,1}</cs:speedMin> <cs:speedMax unit="per_min" value="">{1,1}</cs:speedMax> <cs:operatingVolume unit="m_cube" value="">{1,1}</cs:operatingVolume> <cs:maximalTorque unit="kNm" value="">{1,1}</cs:maximalTorque> <cs:maximalCompressionRatio value="">{1,1}</cs:maximalCompressionRatio> <cs:adiabaticEfficiency value="">{1,1}</cs:adiabaticEfficiency> <cs:additionalReductionVolFlow value="">{0,1}</cs:additionalReductionVolFlow> </cs:pistonCompressor></pre>												
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>drive</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">The corresponding drive to the compressor</td> </tr> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> </tr> </tbody> </table>	QName	Type	Use	drive	xsd:string	required		The corresponding drive to the compressor		id	xsd:string	required
QName	Type	Use											
drive	xsd:string	required											
	The corresponding drive to the compressor												
id	xsd:string	required											

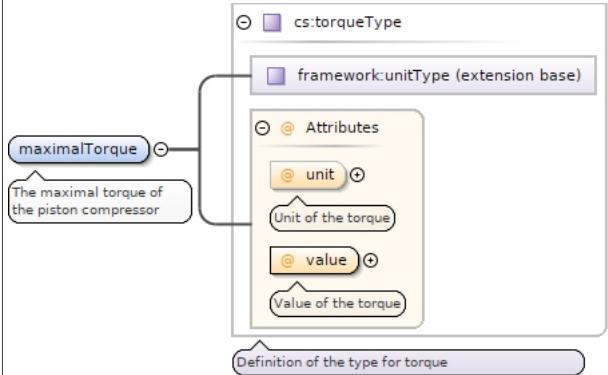
	QName	Type	Use
		The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.	
Source	<pre><xsd:element name="pistonCompressor" type="cs:pistonCompressorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A piston compressor which is a special type of a compressor</ xsd:documentation> </xsd:annotation> </xsd:element></pre>	A piston compressor which is a special type of a compressor	

Element cs:pistonCompressorType / cs:operatingVolume

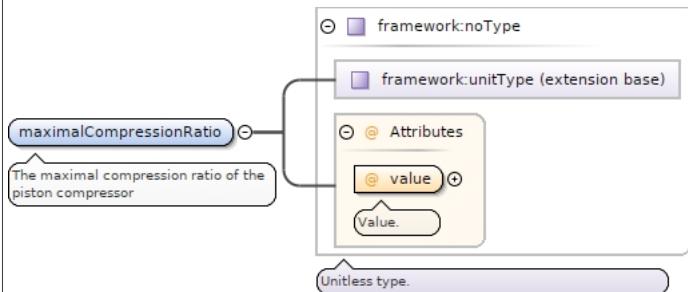
Namespace	http://gaslib.zib.de/CompressorStations																						
Annotations	The operating volume of the piston compressor, that is the volume of an incompressible fluid being transported by a single revolution of the crankshaft.																						
Diagram	<pre> classDiagram framework:volumeType < -- framework:unitType framework:unitType < -- operatingVolume class operatingVolume { <<The operating volume of the piston compressor, that is the volume of an incompressible fluid being transported by a single revolution of the crankshaft.>> <<Attributes</>> <<@ unit <<A volume unit (default = cubic meter).>>> <<@ value <<Volume value.>>> } </pre>																						
Type	volumeType																						
Type hierarchy	<ul style="list-style-type: none"> unitType volumeType 																						
Properties	content: complex																						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>volumeUnit</td> <td>m_cube</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td colspan="2">A volume unit (default = cubic meter).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td colspan="2" rowspan="2">Volume value.</td></tr> </tbody> </table>			QName	Type	Default	Use	unit	volumeUnit	m_cube	optional			A volume unit (default = cubic meter).		value	xsd:double		required			Volume value.	
QName	Type	Default	Use																				
unit	volumeUnit	m_cube	optional																				
		A volume unit (default = cubic meter).																					
value	xsd:double		required																				
		Volume value.																					
Source	<pre><xsd:element name="operatingVolume" type="framework:volumeType"> <xsd:annotation> <xsd:documentation>The operating volume of the piston compressor, that is the volume of an incompressible fluid being transported by a single revolution of the crankshaft.</ xsd:documentation> </xsd:annotation> </xsd:element></pre>																						

Element cs:pistonCompressorType / cs:maximalTorque

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	The maximal torque of the piston compressor		

Diagram																					
Type	cs:torqueType																				
Type hierarchy	<ul style="list-style-type: none"> • unitType • cs:torqueType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>cs:kNmUnit</td><td>kNm</td><td>optional</td></tr> <tr> <td></td><td>Unit of the torque</td><td></td><td></td></tr> <tr> <td>value</td><td>double</td><td></td><td>required</td></tr> <tr> <td></td><td>Value of the torque</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	cs:kNmUnit	kNm	optional		Unit of the torque			value	double		required		Value of the torque		
QName	Type	Default	Use																		
unit	cs:kNmUnit	kNm	optional																		
	Unit of the torque																				
value	double		required																		
	Value of the torque																				
Source	<pre><xsd:element name="maximalTorque" type="cs:torqueType"> <xsd:annotation> <xsd:documentation>The maximal torque of the piston compressor</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element cs:pistonCompressorType / cs:maximalCompressionRatio

Namespace	http://gaslib.zib.de/CompressorStations									
Annotations	The maximal compression ratio of the piston compressor									
Diagram										
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td></tr> <tr> <td></td><td>Value.</td><td></td></tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use								
value	xsd:double	required								
	Value.									
Source	<pre><xsd:element name="maximalCompressionRatio" type="framework:noType"> <xsd:annotation> <xsd:documentation>The maximal compression ratio of the piston compressor</xsd:documentation> </xsd:annotation> </xsd:element></pre>									

Element cs:pistonCompressorType / cs:adiabaticEfficiency

Namespace	http://gaslib.zib.de/CompressorStations											
Annotations	The adiabatic efficiency of the piston compressor											
Diagram	<p>The diagram illustrates the type hierarchy for the element <code>adiabaticEfficiency</code>. It starts with a base type <code>framework:noType</code>, which is extended by <code>framework:unitType</code> (the extension base). The element <code>adiabaticEfficiency</code> is associated with <code>framework:unitType</code>. An annotation "The adiabatic efficiency of the piston compressor" is attached to the element. The attribute <code>value</code> is defined with a value "Value.".</p>											
Type	noType											
Type hierarchy	<ul style="list-style-type: none"> unitType noType 											
Properties	content: complex											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use	<code>value</code>	xsd:double	required		Value.	
QName	Type	Use										
<code>value</code>	xsd:double	required										
	Value.											
Source	<pre><xsd:element name="adiabaticEfficiency" type="framework:noType"> <xsd:annotation> <xsd:documentation>The adiabatic efficiency of the piston compressor</xsd:documentation> </xsd:annotation> </xsd:element></pre>											

Element cs:pistonCompressorType / cs:additionalReductionVolFlow

Namespace	http://gaslib.zib.de/CompressorStations											
Annotations	The additional reduction flow of the piston compressor											
Diagram	<p>The diagram illustrates the type hierarchy for the element <code>additionalReductionVolFlow</code>. It starts with a base type <code>framework:noType</code>, which is extended by <code>framework:unitType</code> (the extension base). The element <code>additionalReductionVolFlow</code> is associated with <code>framework:unitType</code>. An annotation "The additional reduction flow of the piston compressor" is attached to the element. The attribute <code>value</code> is defined with a value "Value.".</p>											
Type	noType											
Type hierarchy	<ul style="list-style-type: none"> unitType noType 											
Properties	<p>content: complex</p> <p>minOccurs: 0</p>											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>value</code></td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>			QName	Type	Use	<code>value</code>	xsd:double	required		Value.	
QName	Type	Use										
<code>value</code>	xsd:double	required										
	Value.											
Source	<pre><xsd:element name="additionalReductionVolFlow" type="framework:noType" minOccurs="0"> <xsd:annotation> <xsd:documentation>The additional reduction flow of the piston compressor</xsd:documentation> </xsd:annotation> </xsd:element></pre>											

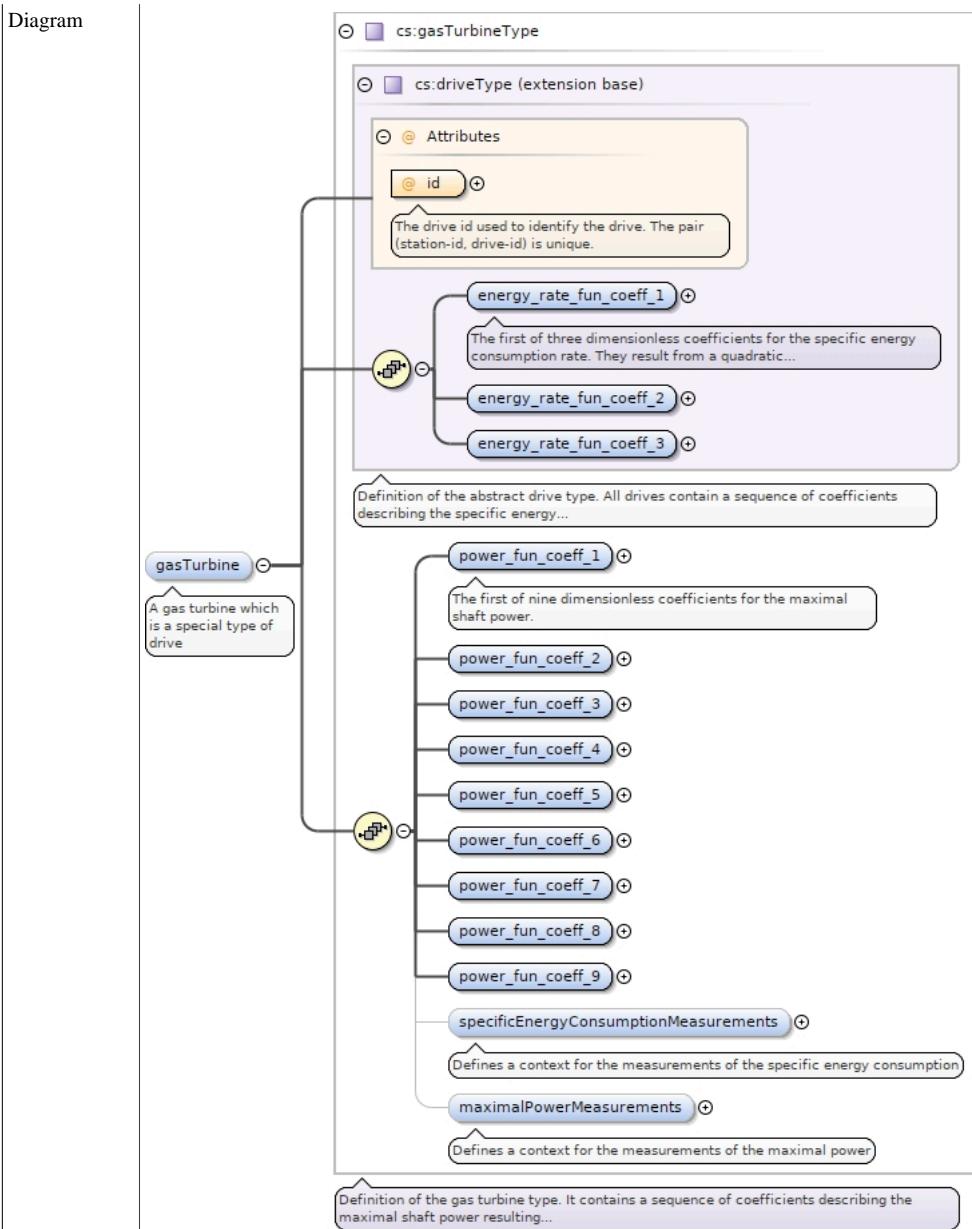
Element cs:compressorStationsType / cs:compressorStation / cs:drives

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Contains all drives in the station
Diagram	<pre> classDiagram class compressorStation { <<Contains all drives in the station>> } class gasTurbine class gasDrivenMotor class electricMotor class steamTurbine compressorStation "0..oo" -- "0..oo" gasTurbine : + gasTurbine compressorStation "0..oo" -- "0..oo" gasDrivenMotor : + gasDrivenMotor compressorStation "0..oo" -- "0..oo" electricMotor : + electricMotor compressorStation "0..oo" -- "0..oo" steamTurbine : + steamTurbine </pre>
Properties	content: complex
Model	cs:gasTurbine*, cs:gasDrivenMotor*, cs:electricMotor*, cs:steamTurbine*
Children	cs:electricMotor, cs:gasDrivenMotor, cs:gasTurbine, cs:steamTurbine
Instance	<pre> <cs:drives xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:gasTurbine id="">{0,unbounded}</cs:gasTurbine> <cs:gasDrivenMotor id="">{0,unbounded}</cs:gasDrivenMotor> <cs:electricMotor id="">{0,unbounded}</cs:electricMotor> <cs:steamTurbine explicit="" id="">{0,unbounded}</cs:steamTurbine> </cs:drives> </pre>
Source	<pre> <xsd:element name="drives"> <xsd:annotation> <xsd:documentation>Contains all drives in the station</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of gas turbines, gas driven motors, electric motors and steam turbines</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="gasTurbine" type="cs:gasTurbineType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A gas turbine which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="gasDrivenMotor" type="cs:gasDrivenMotorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A gas driven motor which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="electricMotor" type="cs:electricMotorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>An electric motor which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="steamTurbine" type="cs:steamTurbineType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A steam turbine which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </pre>

Element cs:compressorStationsType / cs:compressorStation / cs:drives / cs:gasTurbine

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A gas turbine which is a special type of drive

Diagram



Type	<code>cs:gasTurbineType</code>
Type hierarchy	<ul style="list-style-type: none"> • <code>cs:driveType</code> • <code>cs:gasTurbineType</code>
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>
Model	<code>cs:energy_rate_fun_coeff_1</code> , <code>cs:energy_rate_fun_coeff_2</code> , <code>cs:energy_rate_fun_coeff_3</code> , <code>cs:power_fun_coeff_1</code> , <code>cs:power_fun_coeff_2</code> , <code>cs:power_fun_coeff_3</code> , <code>cs:power_fun_coeff_4</code> , <code>cs:power_fun_coeff_5</code> , <code>cs:power_fun_coeff_6</code> , <code>cs:power_fun_coeff_7</code> , <code>cs:power_fun_coeff_8</code> , <code>cs:power_fun_coeff_9</code> , <code>cs:specificEnergyConsumptionMeasurements{0,1}</code> , <code>cs:maximalPowerMeasurements{0,1}</code>
Children	<code>cs:energy_rate_fun_coeff_1</code> , <code>cs:energy_rate_fun_coeff_2</code> , <code>cs:energy_rate_fun_coeff_3</code> , <code>cs:maximalPowerMeasurements</code> , <code>cs:power_fun_coeff_1</code> , <code>cs:power_fun_coeff_2</code> , <code>cs:power_fun_coeff_3</code> , <code>cs:power_fun_coeff_4</code> , <code>cs:power_fun_coeff_5</code> , <code>cs:power_fun_coeff_6</code> , <code>cs:power_fun_coeff_7</code> , <code>cs:power_fun_coeff_8</code> , <code>cs:power_fun_coeff_9</code> , <code>cs:specificEnergyConsumptionMeasurements</code>
Instance	<pre><cs:gasTurbine id="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:energy_rate_fun_coeff_1 value="">{1,1}</cs:energy_rate_fun_coeff_1> <cs:energy_rate_fun_coeff_2 value="">{1,1}</cs:energy_rate_fun_coeff_2> <cs:energy_rate_fun_coeff_3 value="">{1,1}</cs:energy_rate_fun_coeff_3> <cs:power_fun_coeff_1 value="">{1,1}</cs:power_fun_coeff_1> <cs:power_fun_coeff_2 value="">{1,1}</cs:power_fun_coeff_2> <cs:power_fun_coeff_3 value="">{1,1}</cs:power_fun_coeff_3></pre>

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<cs:power_fun_coeff_4 value="">{1,1}</cs:power_fun_coeff_4>
<cs:power_fun_coeff_5 value="">{1,1}</cs:power_fun_coeff_5>
<cs:power_fun_coeff_6 value="">{1,1}</cs:power_fun_coeff_6>
<cs:power_fun_coeff_7 value="">{1,1}</cs:power_fun_coeff_7>
<cs:power_fun_coeff_8 value="">{1,1}</cs:power_fun_coeff_8>
<cs:power_fun_coeff_9 value="">{1,1}</cs:power_fun_coeff_9>
<cs:specificEnergyConsumptionMeasurements>{0,1}</cs:specificEnergyConsumptionMeasurements>
<cs:maximalPowerMeasurements>{0,1}</cs:maximalPowerMeasurements>
</cs:gasTurbine>

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Attributes	QName	Type	Use	
	id	xsd:string	required	
	The drive id used to identify the drive. The pair (station-id, drive-id) is unique.			
Source	<pre> <xsd:element name="gasTurbine" type="cs:gasTurbineType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A gas turbine which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> </pre>			

Element cs:driveType / cs:energy_rate_fun_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	The first of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic least-squares fit.		
Diagram			
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> unitType noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<pre> <xsd:element name="energy_rate_fun_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic least-squares fit.</xsd:documentation> </xsd:annotation> </xsd:element> </pre>		

Element cs:driveType / cs:energy_rate_fun_coeff_2

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram			

Type	noType									
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td></tr> <tr> <td></td><td></td><td>Value.</td></tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required			Value.
QName	Type	Use								
value	xsd:double	required								
		Value.								
Source	<code><xsd:element name="energy_rate_fun_coeff_2" type="framework:noType" /></code>									

Element cs:driveType / cs:energy_rate_fun_coeff_3

Namespace	http://gaslib.zib.de/CompressorStations									
Diagram	<pre> classDiagram framework:unitType < -- energy_rate_fun_coeff_3 framework:unitType { <<Attributes>> @value : xsd:double } framework:unitType -- "Unitless type." </pre>									
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td></tr> <tr> <td></td><td></td><td>Value.</td></tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required			Value.
QName	Type	Use								
value	xsd:double	required								
		Value.								
Source	<code><xsd:element name="energy_rate_fun_coeff_3" type="framework:noType" /></code>									

Element cs:gasTurbineType / cs:power_fun_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations									
Annotations	The first of nine dimensionless coefficients for the maximal shaft power.									
Diagram	<pre> classDiagram framework:unitType < -- power_fun_coeff_1 framework:unitType { <<Attributes>> @value : xsd:double } framework:unitType -- "Unitless type." </pre>									
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td></tr> <tr> <td></td><td></td><td>Value.</td></tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required			Value.
QName	Type	Use								
value	xsd:double	required								
		Value.								

	QName	Type	Use	
Source		Value.		

`<xsd:element name="power_fun_coeff_1" type="framework:noType">
 <xsd:annotation>
 <xsd:documentation>The first of nine dimensionless coefficients for the maximal shaft power.</xsd:documentation>
 </xsd:annotation>
</xsd:element>`

Element cs:gasTurbineType / cs:power_coeff_2

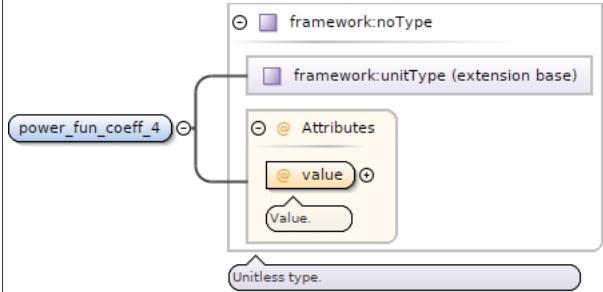
Namespace	http://gaslib.zib.de/CompressorStations			
Diagram	<pre> classDiagram class power_coeff_2 { <<framework:unitType (extension base)>> <<Attributes>> <<@ value>> <<Value.>> } class framework:unitType { <<framework:unitType (extension base)>> <<Attributes>> <<@ value>> <<Value.>> } power_coeff_2 < -- framework:unitType </pre>			
Type	noType			
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 			
Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<code><xsd:element name="power_coeff_2" type="framework:noType" /></code>			

Element cs:gasTurbineType / cs:power_coeff_3

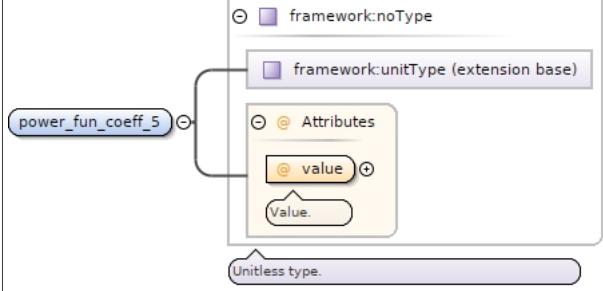
Namespace	http://gaslib.zib.de/CompressorStations			
Diagram	<pre> classDiagram class power_coeff_3 { <<framework:unitType (extension base)>> <<Attributes>> <<@ value>> <<Value.>> } class framework:unitType { <<framework:unitType (extension base)>> <<Attributes>> <<@ value>> <<Value.>> } power_coeff_3 < -- framework:unitType </pre>			
Type	noType			
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 			
Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<code><xsd:element name="power_coeff_3" type="framework:noType" /></code>			

Element cs:gasTurbineType / cs:power_coeff_4

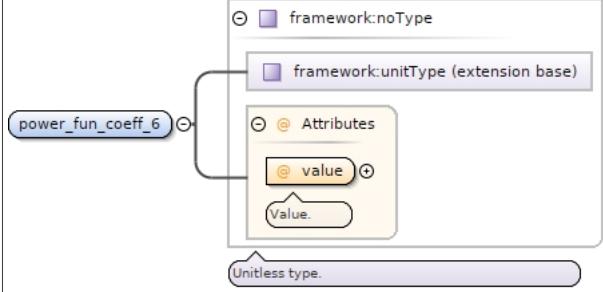
Namespace	http://gaslib.zib.de/CompressorStations			
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Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="power_fun_coeff_4" type="framework:noType" /></code>												

Element cs:gasTurbineType / cs:power_coeff_5

Namespace	http://gaslib.zib.de/CompressorStations												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="power_coeff_5" type="framework:noType" /></code>												

Element cs:gasTurbineType / cs:power_coeff_6

Namespace	http://gaslib.zib.de/CompressorStations
Diagram	

Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="power_fun_coeff_6" type="framework:noType" />		

Element cs:gasTurbineType / cs:power_coeff_7

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<pre> classDiagram class power_coeff_7 { <<framework:unitType extension base>> <<Attributes>> <<@ value>> <<Value.>> } </pre>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="power_coeff_7" type="framework:noType" />		

Element cs:gasTurbineType / cs:power_coeff_8

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<pre> classDiagram class power_coeff_8 { <<framework:unitType extension base>> <<Attributes>> <<@ value>> <<Value.>> } </pre>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="power_coeff_8" type="framework:noType" />		

Element cs:gasTurbineType / cs:power_fun_coeff_9

Namespace	http://gaslib.zib.de/CompressorStations														
Diagram	<pre> classDiagram class power_fun_coeff_9 { <<Unitless type.>> } class framework:unitType { <<extension base>> } class framework:noType power_fun_coeff_9 --> unitType unitType --> noType attribute power_fun_coeff_9 { <<@value>> <<Value.>> } </pre>														
Type	noType														
Type hierarchy	<ul style="list-style-type: none"> unitType noType 														
Properties	content: complex														
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td>Value.</td> <td></td> <td></td> </tr> </tbody> </table>			QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use													
value	xsd:double	required													
	Value.														
Source	<pre><xsd:element name="power_fun_coeff_9" type="framework:noType" /></pre>														

Element cs:gasTurbineType / cs:specificEnergyConsumptionMeasurements

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	Defines a context for the measurements of the specific energy consumption		
Diagram	<pre> classDiagram class specificEnergyConsumptionMeasurements { <<Defines a context for the measurements of the specific energy consumption>> } class measurement { <<A measurement for the specific energy consumption>> } specificEnergyConsumptionMeasurements --> measurement multiplicity 3..infinity </pre>		
Type	cs:SEC_MeasurementsType		
Properties	<p>content: complex</p> <p>minOccurs: 0</p>		
Model	cs:measurement{3,unbounded}		
Children	cs:measurement		
Instance	<pre><cs:specificEnergyConsumptionMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3,unbounded}</cs:measurement> </cs:specificEnergyConsumptionMeasurements></pre>		
Source	<pre><xsd:element name="specificEnergyConsumptionMeasurements" type="cs:SEC_MeasurementsType" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the specific energy consumption</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element cs:SEC_MeasurementsType / cs:measurement

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	A measurement for the specific energy consumption		
Diagram	<pre> classDiagram class measurement { <<A measurement for the specific energy consumption>> } class compressorPower class fuelConsumption measurement --> compressorPower measurement --> fuelConsumption multiplicity 3..infinity </pre>		

Properties	content: complex minOccurs: 3 maxOccurs: unbounded
Model	cs:compressorPower , cs:fuelConsumption
Children	cs:compressorPower, cs:fuelConsumption
Instance	<cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:compressorPower unit="kW" value="">{1,1}</cs:compressorPower> <cs:fuelConsumption unit="kW" value="">{1,1}</cs:fuelConsumption> </cs:measurement>
Source	<pre> <xsd:element name="measurement" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A measurement for the specific energy consumption</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="compressorPower"> <xsd:annotation> <xsd:documentation>The compressor power for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> <xsd:element name="fuelConsumption"> <xsd:annotation> <xsd:documentation>The fuel consumption for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </pre>

Element cs:SEC_MeasurementsType / cs:measurement / cs:compressorPower

Namespace	http://gaslib.zib.de/CompressorStations																			
Annotations	The compressor power for this measurement																			
Diagram	<pre> classDiagram class compressorPower { @ Attributes @ unit string @ value double } class compressorPower { <<The compressor power for this measurement>> } </pre>																			
Properties	content: complex																			
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>string</td> <td>kW</td> <td>optional</td> </tr> <tr> <td></td> <td></td> <td>The unit of the compressor power</td> <td></td> </tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> </tr> </tbody> </table>				QName	Type	Default	Use	unit	string	kW	optional			The unit of the compressor power		value	double		required
QName	Type	Default	Use																	
unit	string	kW	optional																	
		The unit of the compressor power																		
value	double		required																	

	QName	Type	Default	Use	
		The unit of the compressor power			
Source	<pre><xsd:element name="compressorPower"> <xsd:annotation> <xsd:documentation>The compressor power for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>				

Element cs:SEC_MeasurementsType / cs:measurement / cs:fuelConsumption

Namespace	http://gaslib.zib.de/CompressorStations																													
Annotations	The fuel consumption for this measurement																													
Diagram	<pre> classDiagram class fuelConsumption { @ Attributes @ unit @ value } fuelConsumption < --> Attributes fuelConsumption --> unit : The unit of the fuel consumption fuelConsumption --> value : The value of the fuel consumption </pre>																													
Properties	content: complex																													
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>string</td> <td>kW</td> <td>optional</td> <td></td> </tr> <tr> <td></td> <td></td> <td>The unit of the fuel consumption</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> <td></td> </tr> <tr> <td></td> <td></td> <td>The value of the fuel consumption</td> <td></td> <td></td> </tr> </tbody> </table>					QName	Type	Default	Use		unit	string	kW	optional				The unit of the fuel consumption			value	double		required				The value of the fuel consumption		
QName	Type	Default	Use																											
unit	string	kW	optional																											
		The unit of the fuel consumption																												
value	double		required																											
		The value of the fuel consumption																												
Source	<pre><xsd:element name="fuelConsumption"> <xsd:annotation> <xsd:documentation>The fuel consumption for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>																													

Element cs:gasTurbineType / cs:maximalPowerMeasurements

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	Defines a context for the measurements of the maximal power				
Diagram	<pre> classDiagram class maximalPowerMeasurements class ambientTemperature maximalPowerMeasurements < --> ambientTemperature : 1..∞ maximalPowerMeasurements < --> "Defines a context for the measurements of the maximal power" ambientTemperature < --> "The ambient temperature for all measurements in this context" </pre>				
Properties	content: complex				

	minOccurs:	0
Model	cs:ambientTemperature+	
Children	cs:ambientTemperature	
Instance	<cs:maximalPowerMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:ambientTemperature unit="K" value="">{1,unbounded}</cs:ambientTemperature> </cs:maximalPowerMeasurements>	
Source	<xsd:element name="maximalPowerMeasurements" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the maximal power</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of ambient temperatures containing the measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="ambientTemperature" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>The ambient temperature for all measurements in this context</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>The unit of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:sequence> </xsd:complexType> </xsd:element>	

Element cs:gasTurbineType / cs:maximalPowerMeasurements / cs:ambientTemperature

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	The ambient temperature for all measurements in this context
Diagram	<pre> classDiagram class ambientTemperature { @value @unit <<The ambient temperature for all measurements in this context>> * measurement } measurement { <<A single measurement>> } ambientTemperature "3..oo" -- "*" measurement </pre>
Properties	content: complex maxOccurs: unbounded
Model	cs:measurement{3,unbounded}
Children	cs:measurement

Instance	<pre><cs:ambientTemperature unit="K" value="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3,unbounded}</cs:measurement> </cs:ambientTemperature></pre>				
Attributes	QName	Type	Default	Use	
	unit	temperatureUnit	K	optional	
Source		The unit of the ambient temperature			
	value	double		required	
<pre><xsd:element name="ambientTemperature" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>The ambient temperature for all measurements in this context</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>The unit of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>					

Element cs:gasTurbineType / cs:maximalPowerMeasurements / cs:ambientTemperature / cs:measurement

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	A single measurement						
Diagram	<pre> classDiagram class cs:mp_measurementType { measurement "A single measurement" cs:measurement "The speed for this measurement" speed maximalPower } measurement --> cs:measurement speed maximalPower </pre>						
Type	cs:mp_measurementType						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>3</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	complex	minOccurs:	3	maxOccurs:	unbounded
content:	complex						
minOccurs:	3						
maxOccurs:	unbounded						
Model	cs:speed , cs:maximalPower						
Children	cs:maximalPower, cs:speed						
Instance	<pre><cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speed unit="per_min" value="">{1,1}</cs:speed> <cs:maximalPower unit="kW" value="">{1,1}</cs:maximalPower> </cs:measurement></pre>						
Source	<pre><xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element cs:mp_measurementType / cs:speed

Namespace	http://gaslib.zib.de/CompressorStations																				
Annotations	The speed for this measurement																				
Diagram	<p>Diagram illustrating the definition of the type for compressor speed:</p> <ul style="list-style-type: none"> cs:speedType (Extension base: framework:unitType) Attributes: <ul style="list-style-type: none"> unit: per_minUnit (Documentation: Unit of speed) value: double (Documentation: Value of speed) speed: The speed for this measurement 																				
Type	cs:speedType																				
Type hierarchy	<ul style="list-style-type: none"> unitType cs:speedType 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>per_minUnit</td> <td>per_min</td> <td>optional</td> </tr> <tr> <td></td> <td>Unit of speed</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td>Value of speed</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	per_minUnit	per_min	optional		Unit of speed			value	double		required		Value of speed		
QName	Type	Default	Use																		
unit	per_minUnit	per_min	optional																		
	Unit of speed																				
value	double		required																		
	Value of speed																				
Source	<pre><xsd:element name="speed" type="cs:speedType"> <xsd:annotation> <xsd:documentation>The speed for this measurement</xsd:documentation> </xsd:annotation> </xsd:element></pre>																				

Element cs:mp_measurementType / cs:maximalPower

Namespace	http://gaslib.zib.de/CompressorStations																				
Annotations	Definition of measurement type for the maximal power																				
Diagram	<p>Diagram illustrating the definition of measurement type for the maximal power:</p> <ul style="list-style-type: none"> Attributes: <ul style="list-style-type: none"> unit: string (Documentation: The unit of the maximal power) value: double (Documentation: The value of the maximal power) maximalPower: Definition of measurement type for the maximal power 																				
Properties	content: complex																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>string</td> <td>kW</td> <td>optional</td> </tr> <tr> <td></td> <td>The unit of the maximal power</td> <td></td> <td></td> </tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td>The value of the maximal power</td> <td></td> <td></td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	string	kW	optional		The unit of the maximal power			value	double		required		The value of the maximal power		
QName	Type	Default	Use																		
unit	string	kW	optional																		
	The unit of the maximal power																				
value	double		required																		
	The value of the maximal power																				
Source	<pre><xsd:element name="maximalPower"> <xsd:annotation> <xsd:documentation>Definition of measurement type for the maximal power</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the maximal power</xsd:documentation></pre>																				

```

</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="value" type="framework:double" use="required">
  <xsd:annotation>
    <xsd:documentation>The value of the maximal power</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>

```

Element cs:compressorStationsType / cs:compressorStation / cs:drives / cs:gas-DrivenMotor

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	A gas driven motor which is a special type of drive						
Diagram	<p>The diagram illustrates the structure of the cs:gasDrivenMotorType element. It is an extension base for the cs:driveType. The attributes include id (drive id), energy_rate_fun_coeff_1, energy_rate_fun_coeff_2, energy_rate_fun_coeff_3, power_fun_coeff_1, power_fun_coeff_2, power_fun_coeff_3, specificEnergyConsumptionMeasurements, and maximalPowerMeasurements. Associations are shown between id and the three energy rate coefficients, and between the three power function coefficients and their respective measurement types.</p>						
Type	cs:gasDrivenMotorType						
Type hierarchy	<ul style="list-style-type: none"> • cs:driveType • cs:gasDrivenMotorType 						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	unbounded
content:	complex						
minOccurs:	0						
maxOccurs:	unbounded						
Model	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3 , cs:power_fun_coeff_1 , cs:power_fun_coeff_2 , cs:power_fun_coeff_3 , cs:specificEnergyConsumptionMeasurements{0,1} , cs:maximalPowerMeasurements{0,1}						
Children	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3, cs:maximalPowerMeasurements, cs:power_fun_coeff_1, cs:power_fun_coeff_2, cs:power_fun_coeff_3, cs:specificEnergyConsumptionMeasurements						
Instance	<pre> <cs:gasDrivenMotor id="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:energy_rate_fun_coeff_1 value="">{1,1}</cs:energy_rate_fun_coeff_1> <cs:energy_rate_fun_coeff_2 value="">{1,1}</cs:energy_rate_fun_coeff_2> <cs:energy_rate_fun_coeff_3 value="">{1,1}</cs:energy_rate_fun_coeff_3> </pre>						

	<pre><cs:power_fun_coeff_1 value="">{1,1}</cs:power_fun_coeff_1> <cs:power_fun_coeff_2 value="">{1,1}</cs:power_fun_coeff_2> <cs:power_fun_coeff_3 value="">{1,1}</cs:power_fun_coeff_3> <cs:specificEnergyConsumptionMeasurements>{0,1}</cs:specificEnergyConsumptionMeasurements> <cs:maximalPowerMeasurements>{0,1}</cs:maximalPowerMeasurements> </cs:gasDrivenMotor></pre>		
Attributes	QName id	Type xsd:string	Use required The drive id used to identify the drive. The pair (station-id, drive-id) is unique.
Source	<pre><xsd:element name="gasDrivenMotor" type="cs:gasDrivenMotorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A gas driven motor which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element cs:gasDrivenMotorType / cs:power_fun_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	The first of three dimensionless coefficients for the power function.		
Diagram	<p>The diagram shows a class hierarchy. At the top is 'framework:noType'. Below it is 'framework:unitType (extension base)'. An association line connects 'power_fun_coeff_1' to 'framework:unitType'. A note box next to 'power_fun_coeff_1' contains: 'The first of three dimensionless coefficients for the power function.' A callout box labeled 'Attributes' points to a compartment containing an '@ value' association and a 'Value.' note. A note at the bottom says '(Unitless type.)'.</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName value	Type xsd:double	Use required Value.
Source	<pre><xsd:element name="power_fun_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of three dimensionless coefficients for the power function.</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element cs:gasDrivenMotorType / cs:power_fun_coeff_2

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<p>The diagram shows a class hierarchy. At the top is 'framework:noType'. Below it is 'framework:unitType (extension base)'. An association line connects 'power_fun_coeff_2' to 'framework:unitType'. A note box next to 'power_fun_coeff_2' contains: 'The second of three dimensionless coefficients for the power function.' A callout box labeled 'Attributes' points to a compartment containing an '@ value' association and a 'Value.' note. A note at the bottom says '(Unitless type.)'.</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType 		

	<ul style="list-style-type: none"> noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use								
value	xsd:double	required								
	Value.									
Source	<xsd:element name="power_fun_coeff_2" type="framework:noType" />									

Element cs:gasDrivenMotorType / cs:power_fun_coeff_3

Namespace	http://gaslib.zib.de/CompressorStations									
Diagram	<pre> classDiagram class power_fun_coeff_3 { <<framework:unitType extension base>> <<Attributes>> <<@value>> <<Value.>> } class framework:unitType class framework:noType class Attributes class Value </pre> <p>The diagram illustrates the UML structure of the <code>power_fun_coeff_3</code> element. It is defined as an extension base of <code>framework:unitType</code>. Inside, there is a compartment for <code>Attributes</code> containing an attribute <code>value</code> of type <code>xsd:double</code>, which is annotated with <code>@</code>. A note below states <code>Value.</code>. The entire structure is labeled as a <code>Unitless type.</code></p>									
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> unitType noType 									
Properties	content: complex									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use								
value	xsd:double	required								
	Value.									
Source	<xsd:element name="power_fun_coeff_3" type="framework:noType" />									

Element cs:gasDrivenMotorType / cs:specificEnergyConsumptionMeasurements

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	Defines a context for the measurements of the specific energy consumption				
Diagram	<pre> classDiagram class specificEnergyConsumptionMeasurements class measurement class cs:SEC_MeasurementsType class cs:measurement </pre> <p>The diagram shows the <code>specificEnergyConsumptionMeasurements</code> element associated with the <code>cs:SEC_MeasurementsType</code> class via a multiplicity of <code>3..∞</code>. The <code>measurement</code> class is also depicted. Annotations provide context: <code>Defines a context for the measurements of the specific energy consumption</code> for the element, and <code>A measurement for the specific energy consumption</code> for the <code>measurement</code> class. A note at the bottom indicates the <code>Definition of specific energy consumption measurements type</code>.</p>				
Type	cs:SEC_MeasurementsType				
Properties	<table> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> </table>	content:	complex	minOccurs:	0
content:	complex				
minOccurs:	0				
Model	cs:measurement{3,unbounded}				
Children	cs:measurement				
Instance	<pre> <cs:specificEnergyConsumptionMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3, unbounded}</cs:measurement> </cs:specificEnergyConsumptionMeasurements> </pre>				
Source	<pre> <xsd:element name="specificEnergyConsumptionMeasurements" type="cs:SEC_MeasurementsType" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the specific energy consumption</xsd:documentation> </xsd:annotation> </xsd:element> </pre>				

Element cs:gasDrivenMotorType / cs:maximalPowerMeasurements

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Defines a context for the measurements of the maximal power
Diagram	<pre> sequenceDiagram participant MPM as maximalPowerMeasurements participant M1 as measurement participant M2 as measurement MPM->>M1: activate M1 M1-->>M2: 3..∞ deactivate M1 M2-->>MPM: </pre>
Properties	<p>content: complex</p> <p>minOccurs: 0</p>
Model	cs:measurement{3,unbounded}
Children	cs:measurement
Instance	<pre><cs:maximalPowerMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3,unbounded}</cs:measurement> </cs:maximalPowerMeasurements></pre>
Source	<pre> <xsd:element name="maximalPowerMeasurements" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the maximal power</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </pre>

Element cs:gasDrivenMotorType / cs:maximalPowerMeasurements / cs:measurement

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A single measurement
Diagram	<pre> sequenceDiagram participant M as measurement participant S as speed participant MP as maximalPower M->>S: activate S S-->>MP: deactivate S MP-->>M: </pre>
Type	cs:mp_measurementType
Properties	<p>content: complex</p> <p>minOccurs: 3</p> <p>maxOccurs: unbounded</p>
Model	cs:speed , cs:maximalPower
Children	cs:maximalPower, cs:speed
Instance	<pre><cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speed unit="per_min" value="">{1,1}</cs:speed> <cs:maximalPower unit="kW" value="">{1,1}</cs:maximalPower> </cs:measurement></pre>
Source	<pre> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> </xsd:element> </pre>

Element cs:compressorStationsType / cs:compressorStation / cs:drives / cs:electricMotor

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	An electric motor which is a special type of drive						
Diagram	<pre> classDiagram class cs:electricMotorType { <<An electric motor which is a special type of drive>> <<The drive id used to identify the drive. The pair (station-id, drive-id) is unique.>> <<The first of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic...>> <<The second of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic...>> <<The third of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic...>> <<Definition of the abstract drive type. All drives contain a sequence of coefficients describing the specific energy...>> <<power_fun_coeff_1 ... power_fun_coeff_9>> <<specificEnergyConsumptionMeasurements>> <<maximalPowerMeasurements>> <<Definition of the electric motor type. Depending on whether this electric motor is modeled as a gas turbine or a gas...>> } class cs:driveType { <<Attributes>> <<id>> <<energy_rate_fun_coeff_1 ... energy_rate_fun_coeff_3>> } cs:electricMotorType < -- cs:driveType class electricMotor { <<An electric motor which is a special type of drive>> } electricMotor < -- cs:electricMotorType </pre> <p>The diagram illustrates the UML class structure for the cs:electricMotorType element. It shows inheritance from the cs:driveType extension base. The cs:driveType class has an attribute '@id' with a note: 'The drive id used to identify the drive. The pair (station-id, drive-id) is unique.' It also contains three attributes for energy rate coefficients: 'energy_rate_fun_coeff_1', 'energy_rate_fun_coeff_2', and 'energy_rate_fun_coeff_3', each with a note: 'The first of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic...'. The cs:electricMotorType class itself has no attributes but inherits the '@id' attribute. It contains a sequence of nine power function coefficients: 'power_fun_coeff_1' through 'power_fun_coeff_9', each with a note: 'power_fun_coeff_1 ... power_fun_coeff_9'. Additionally, it includes two measurement contexts: 'specificEnergyConsumptionMeasurements' and 'maximalPowerMeasurements', each with its own notes: 'specificEnergyConsumptionMeasurements' (Defines a context for the measurements of the specific energy consumption) and 'maximalPowerMeasurements' (Defines a context for all maximal power measurements). A note at the bottom states: 'Definition of the electric motor type. Depending on whether this electric motor is modeled as a gas turbine or a gas...'. Finally, there is a note on the left side of the diagram: 'An electric motor which is a special type of drive'.</p>						
Type	cs:electricMotorType						
Type hierarchy	<ul style="list-style-type: none"> • cs:driveType <ul style="list-style-type: none"> • cs:electricMotorType 						
Properties	<table border="1"> <tr> <td>content:</td> <td>complex</td> </tr> <tr> <td>minOccurs:</td> <td>0</td> </tr> <tr> <td>maxOccurs:</td> <td>unbounded</td> </tr> </table>	content:	complex	minOccurs:	0	maxOccurs:	unbounded
content:	complex						
minOccurs:	0						
maxOccurs:	unbounded						
Model	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3, cs:power_fun_coeff_1, cs:power_fun_coeff_2, cs:power_fun_coeff_3, cs:power_fun_coeff_4, cs:power_fun_coeff_5, cs:power_fun_coeff_6, cs:power_fun_coeff_7, cs:power_fun_coeff_8, cs:power_fun_coeff_9, cs:specificEnergyConsumptionMeasurements, cs:maximalPowerMeasurements						
Children	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3, cs:maximalPowerMeasurements, cs:power_fun_coeff_1, cs:power_fun_coeff_2, cs:power_fun_coeff_3, cs:power_fun_coeff_4, cs:power_fun_coeff_5, cs:power_fun_coeff_6, cs:power_fun_coeff_7, cs:power_fun_coeff_8, cs:power_fun_coeff_9, cs:specificEnergyConsumptionMeasurements						
Instance	<pre> <cs:electricMotor id="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:energy_rate_fun_coeff_1 value="">{1,1}</cs:energy_rate_fun_coeff_1> <cs:energy_rate_fun_coeff_2 value="">{1,1}</cs:energy_rate_fun_coeff_2> </pre>						

	<pre> <cs:energy_rate_fun_coeff_3 value="">{1,1}</cs:energy_rate_fun_coeff_3> <cs:power_fun_coeff_1 value="">{1,1}</cs:power_fun_coeff_1> <cs:power_fun_coeff_2 value="">{1,1}</cs:power_fun_coeff_2> <cs:power_fun_coeff_3 value="">{1,1}</cs:power_fun_coeff_3> <cs:power_fun_coeff_4 value="">{1,1}</cs:power_fun_coeff_4> <cs:power_fun_coeff_5 value="">{1,1}</cs:power_fun_coeff_5> <cs:power_fun_coeff_6 value="">{1,1}</cs:power_fun_coeff_6> <cs:power_fun_coeff_7 value="">{1,1}</cs:power_fun_coeff_7> <cs:power_fun_coeff_8 value="">{1,1}</cs:power_fun_coeff_8> <cs:power_fun_coeff_9 value="">{1,1}</cs:power_fun_coeff_9> <cs:specificEnergyConsumptionMeasurements>{1,1}</cs:specificEnergyConsumptionMeasurements> <cs:maximalPowerMeasurements>{1,1}</cs:maximalPowerMeasurements> </cs:electricMotor></pre>		
Attributes	QName	Type	Use
	id	xsd:string	required
	The drive id used to identify the drive. The pair (station-id, drive-id) is unique.		
Source	<pre> <xsd:element name="electricMotor" type="cs:electricMotorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>An electric motor which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element></pre>		

Element cs:electricMotorType / cs:power_fun_coeff_1

Namespace	http://gaslib.zib.de/CompressorStations									
Diagram	<pre> graph TD power_fun_coeff_1["power_fun_coeff_1"] --> noType["framework:noType"] power_fun_coeff_1 --> unitType["framework:unitType (extension base)"] unitType --> attributes["Attributes"] attributes --> value["@ value"] value --> valueNote["Value."] value --> untypedNote["Untypeless type."] </pre>									
Type	noType									
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 									
Properties	content: complex									
Attributes	<table border="1"> <tr> <td>QName</td> <td>Type</td> <td>Use</td> </tr> <tr> <td>value</td> <td>xsd:double</td> <td>required</td> </tr> <tr> <td></td> <td>Value.</td> <td></td> </tr> </table>	QName	Type	Use	value	xsd:double	required		Value.	
QName	Type	Use								
value	xsd:double	required								
	Value.									
Source	<pre><xsd:element name="power_fun_coeff_1" type="framework:noType" /></pre>									

Element cs:electricMotorType / cs:power_fun_coeff_2

Namespace	http://gaslib.zib.de/CompressorStations
Diagram	<pre> graph TD power_fun_coeff_2["power_fun_coeff_2"] --> noType["framework:noType"] power_fun_coeff_2 --> unitType["framework:unitType (extension base)"] unitType --> attributes["Attributes"] attributes --> value["@ value"] value --> valueNote["Value."] value --> untypedNote["Untypeless type."] </pre>
Type	noType
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType

Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<xsd:element name="power_fun_coeff_2" type="framework:noType" />			

Element cs:electricMotorType / cs:power_fun_coeff_3

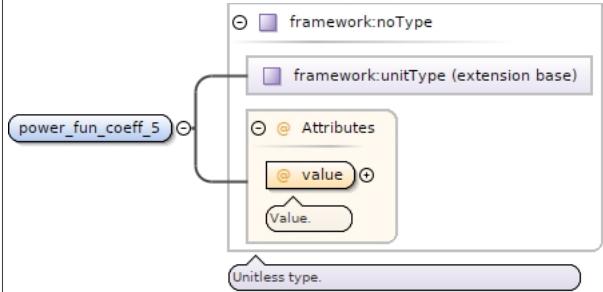
Namespace	http://gaslib.zib.de/CompressorStations			
Diagram	<pre> classDiagram class power_fun_coeff_3 { <<framework:unitType (extension base)>> <<Attributes>> <<@value>> Value. } power_fun_coeff_3 < -- framework:unitType </pre>			
Type	noType			
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 			
Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<xsd:element name="power_fun_coeff_3" type="framework:noType" />			

Element cs:electricMotorType / cs:power_fun_coeff_4

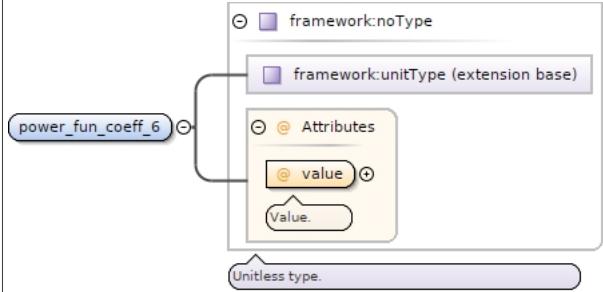
Namespace	http://gaslib.zib.de/CompressorStations			
Diagram	<pre> classDiagram class power_fun_coeff_4 { <<framework:unitType (extension base)>> <<Attributes>> <<@value>> Value. } power_fun_coeff_4 < -- framework:unitType </pre>			
Type	noType			
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 			
Properties	content: complex			
Attributes	QName	Type	Use	
	value	xsd:double	required	
		Value.		
Source	<xsd:element name="power_fun_coeff_4" type="framework:noType" />			

Element cs:electricMotorType / cs:power_fun_coeff_5

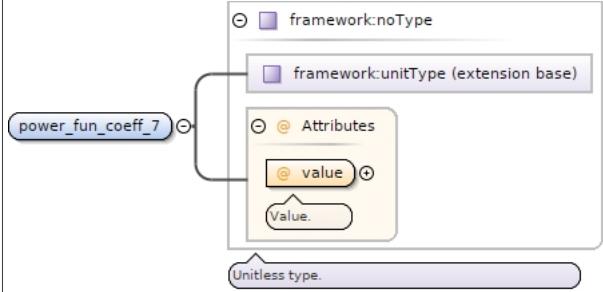
Namespace	http://gaslib.zib.de/CompressorStations		
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Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="power_fun_coeff_5" type="framework:noType"/></code>												

Element cs:electricMotorType / cs:power_fun_coeff_6

Namespace	http://gaslib.zib.de/CompressorStations												
Diagram													
Type	noType												
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 												
Properties	content: complex												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>value</td><td>xsd:double</td><td>required</td><td></td></tr> <tr> <td></td><td>Value.</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Use		value	xsd:double	required			Value.		
QName	Type	Use											
value	xsd:double	required											
	Value.												
Source	<code><xsd:element name="power_fun_coeff_6" type="framework:noType"/></code>												

Element cs:electricMotorType / cs:power_fun_coeff_7

Namespace	http://gaslib.zib.de/CompressorStations
Diagram	

Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="power_fun_coeff_7" type="framework:noType" />		

Element cs:electricMotorType / cs:power_fun_coeff_8

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<pre> classDiagram class power_fun_coeff_8 { <<framework:unitType (extension base)>> <<Attributes>> <<@ value>> <<Value.>> } power_fun_coeff_8 < -- framework:unitType </pre> <p>Unitless type.</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="power_fun_coeff_8" type="framework:noType" />		

Element cs:electricMotorType / cs:power_fun_coeff_9

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<pre> classDiagram class power_fun_coeff_9 { <<framework:unitType (extension base)>> <<Attributes>> <<@ value>> <<Value.>> } power_fun_coeff_9 < -- framework:unitType </pre> <p>Unitless type.</p>		
Type	noType		
Type hierarchy	<ul style="list-style-type: none"> • unitType • noType 		
Properties	content: complex		
Attributes	QName	Type	Use
	value	xsd:double	required
		Value.	
Source	<xsd:element name="power_fun_coeff_9" type="framework:noType" />		

Element cs:electricMotorType / cs:specificEnergyConsumptionMeasurements

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Defines a context for the measurements of the specific energy consumption
Diagram	<pre> classDiagram class cs:SEC_MeasurementsType class specificEnergyConsumptionMeasurements class measurement cs:SEC_MeasurementsType "3..∞" -- "measurement" specificEnergyConsumptionMeasurements --> cs:SEC_MeasurementsType measurement --> cs:SEC_MeasurementsType </pre> <p>The diagram shows a UML class named 'cs:SEC_MeasurementsType' represented by a purple rectangle. It has a multiplicity of '3..∞' associated with a directed association to another class named 'measurement', represented by a blue rectangle. A directed association also connects the class 'specificEnergyConsumptionMeasurements' (represented by a grey rounded rectangle) to the class 'cs:SEC_MeasurementsType'. Callouts provide the following descriptions: 'Defines a context for the measurements of the specific energy consumption' points to the association between 'specificEnergyConsumptionMeasurements' and 'cs:SEC_MeasurementsType'; 'A measurement for the specific energy consumption' points to the association between 'measurement' and 'cs:SEC_MeasurementsType'; and 'Definition of specific energy consumption measurements type' points to the class 'cs:SEC_MeasurementsType'.</p>
Type	cs:SEC_MeasurementsType
Properties	content: complex
Model	cs:measurement{3,unbounded}
Children	cs:measurement
Instance	<pre> <cs:specificEnergyConsumptionMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3,unbounded}</cs:measurement> </cs:specificEnergyConsumptionMeasurements> </pre>
Source	<pre> <xsd:element name="specificEnergyConsumptionMeasurements" type="cs:SEC_MeasurementsType"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the specific energy consumption</xsd:documentation> </xsd:annotation> </xsd:element> </pre>

Element cs:electricMotorType / cs:maximalPowerMeasurements

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Defines a context for all maximal power measurements
Diagram	<pre> classDiagram class maximalPowerMeasurements class measurement class ambientTemperature maximalPowerMeasurements "3..∞" -- "measurement" maximalPowerMeasurements "1..∞" -- "ambientTemperature" measurement --> maximalPowerMeasurements ambientTemperature --> maximalPowerMeasurements </pre> <p>The diagram shows a UML class named 'maximalPowerMeasurements' represented by a blue rounded rectangle. It has two directed associations: one with a multiplicity of '3..∞' to a class 'measurement' (blue rectangle), and another with a multiplicity of '1..∞' to a class 'ambientTemperature' (blue rectangle). Both 'measurement' and 'ambientTemperature' classes have directed associations pointing back to 'maximalPowerMeasurements'. Callouts provide the following descriptions: 'Defines a context for all maximal power measurements' points to the association between 'maximalPowerMeasurements' and 'measurement'; 'A single measurement in the case of a gas driven motor' points to the association between 'measurement' and 'maximalPowerMeasurements'; 'The ambient temperature for all measurements in this context' points to the association between 'ambientTemperature' and 'maximalPowerMeasurements'.</p>
Properties	content: complex
Model	(cs:measurement{3,unbounded}) (cs:ambientTemperature+)
Children	cs:ambientTemperature, cs:measurement
Instance	<pre> <cs:maximalPowerMeasurements xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3,unbounded}</cs:measurement> <cs:ambientTemperature unit="K" value="">{1,unbounded}</cs:ambientTemperature> </cs:maximalPowerMeasurements> </pre>
Source	<pre> <xsd:element name="maximalPowerMeasurements"> <xsd:annotation> <xsd:documentation>Defines a context for all maximal power measurements</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>Either a sequence of measurement or a sequence of ambientTemperature</xsd:documentation> </xsd:annotation> <xsd:choice> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement in the case of a gas driven motor</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:sequence> <xsd:element name="ambientTemperature" maxOccurs="unbounded"> <xsd:annotation> </xsd:annotation> </xsd:sequence> </xsd:choice> </xsd:complexType> </xsd:element> </pre>

```

        <xsd:documentation>The ambient temperature for all measurements in this context</xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:annotation>
                <xsd:documentation>A list of measurements</xsd:documentation>
            </xsd:annotation>
            <xsd:sequence>
                <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded">
                    <xsd:annotation>
                        <xsd:documentation>A single measurement in the case of a gas turbine</xsd:documentation>
                    </xsd:annotation>
                    <xsd:element>
                    </xsd:sequence>
                    <xsd:attribute name="value" type="framework:double" use="required">
                        <xsd:annotation>
                            <xsd:documentation>The value of the ambient temperature</xsd:documentation>
                        </xsd:annotation>
                    </xsd:attribute>
                    <xsd:attribute default="K" name="unit" type="framework:temperatureUnit">
                        <xsd:annotation>
                            <xsd:documentation>The unit of the ambient temperature</xsd:documentation>
                        </xsd:annotation>
                    </xsd:attribute>
                </xsd:complexType>
                <xsd:element>
                </xsd:sequence>
            </xsd:choice>
        </xsd:complexType>
    </xsd:element>

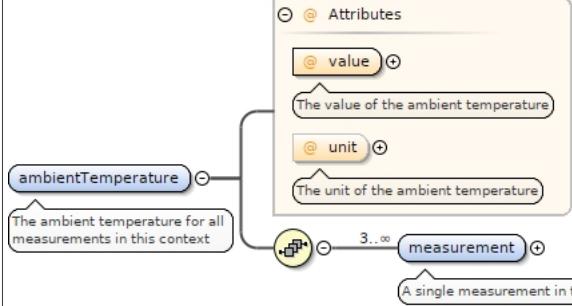
```

Element cs:electricMotorType / cs:maximalPowerMeasurements / cs:measurement

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	A single measurement in the case of a gas driven motor						
Diagram	<pre> classDiagram class measurement { <<A single measurement in the case of a gas driven motor>> } class cs:mp_measurementType { <<The ambient temperature for all measurements in this context>> } measurement < -- cs:mp_measurementType measurement "3..unbounded" --> speed : speed measurement "0..1" --> maximalPower : maximalPower note over speed, maximalPower: <<Definition of measurement type for the maximal power>> note over measurement: <<A single measurement in the case of a gas driven motor>> </pre>						
Type	cs:mp_measurementType						
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>3</td></tr> <tr> <td>maxOccurs:</td><td>unbounded</td></tr> </table>	content:	complex	minOccurs:	3	maxOccurs:	unbounded
content:	complex						
minOccurs:	3						
maxOccurs:	unbounded						
Model	cs:speed , cs:maximalPower						
Children	cs:maximalPower, cs:speed						
Instance	<pre> <cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speed unit="per_min" value="">{1,1}</cs:speed> <cs:maximalPower unit="kW" value="">{1,1}</cs:maximalPower> </cs:measurement> </pre>						
Source	<pre> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement in the case of a gas driven motor</xsd:documentation> </xsd:annotation> </xsd:element> </pre>						

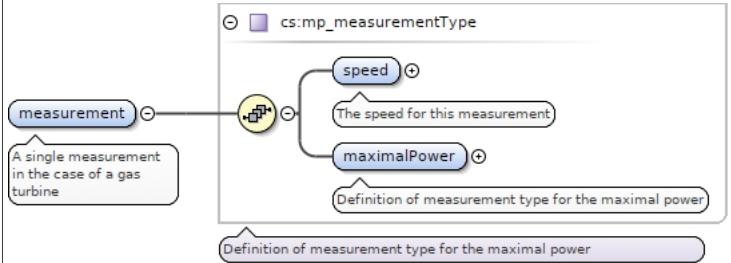
Element cs:electricMotorType / cs:maximalPowerMeasurements / cs:ambientTemperature

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	The ambient temperature for all measurements in this context

Diagram																					
Properties	<p>content: complex</p> <p>maxOccurs: unbounded</p>																				
Model	cs:measurement{3,unbounded}																				
Children	cs:measurement																				
Instance	<pre><cs:ambientTemperature unit="K" value="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:measurement>{3,unbounded}</cs:measurement> </cs:ambientTemperature></pre>																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>temperatureUnit</td><td>K</td><td>optional</td></tr> <tr> <td></td><td>The unit of the ambient temperature</td><td></td><td></td></tr> <tr> <td>value</td><td>double</td><td></td><td>required</td></tr> <tr> <td></td><td>The value of the ambient temperature</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	temperatureUnit	K	optional		The unit of the ambient temperature			value	double		required		The value of the ambient temperature		
QName	Type	Default	Use																		
unit	temperatureUnit	K	optional																		
	The unit of the ambient temperature																				
value	double		required																		
	The value of the ambient temperature																				
Source	<pre><xsd:element name="ambientTemperature" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>The ambient temperature for all measurements in this context</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement in the case of a gas turbine</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>The unit of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>																				

Element cs:electricMotorType / cs:maximalPowerMeasurements / cs:ambientTemperature / cs:measurement

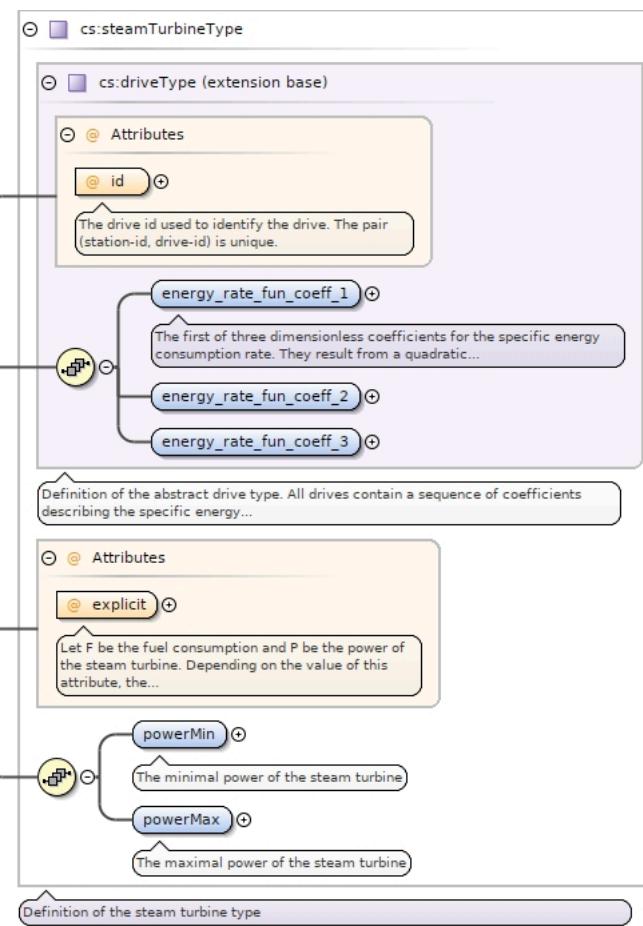
Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A single measurement in the case of a gas turbine

Diagram							
Type	cs:mp_measurementType						
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>3</td></tr> <tr> <td>maxOccurs:</td><td>unbounded</td></tr> </table>	content:	complex	minOccurs:	3	maxOccurs:	unbounded
content:	complex						
minOccurs:	3						
maxOccurs:	unbounded						
Model	cs:speed , cs:maximalPower						
Children	cs:maximalPower, cs:speed						
Instance	<pre><cs:measurement xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:speed unit="per_min" values="">{1,1}</cs:speed> <cs:maximalPower unit="kW" value="">{1,1}</cs:maximalPower> </cs:measurement></pre>						
Source	<pre><xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement in the case of a gas turbine</xsd:documentation> </xsd:annotation> </xsd:element></pre>						

Element cs:compressorStationsType / cs:compressorStation / cs:drives / cs:steamTurbine

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A steam turbine which is a special type of drive

Diagram



Type	cs:steamTurbineType															
Type hierarchy	<ul style="list-style-type: none"> • cs:driveType • cs:steamTurbineType 															
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: unbounded</p>															
Model	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3 , cs:powerMin , cs:powerMax															
Children	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3 , cs:powerMax , cs:powerMin															
Instance	<pre><cs:steamTurbine explicit="" id="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:energy_rate_fun_coeff_1 value="">{1,1}</cs:energy_rate_fun_coeff_1> <cs:energy_rate_fun_coeff_2 value="">{1,1}</cs:energy_rate_fun_coeff_2> <cs:energy_rate_fun_coeff_3 value="">{1,1}</cs:energy_rate_fun_coeff_3> <cs:powerMin unit="kW" value="">{1,1}</cs:powerMin> <cs:powerMax unit="kW" value="">{1,1}</cs:powerMax> </cs:steamTurbine></pre>															
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>explicit</td> <td>xsd:boolean</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.</td> </tr> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td colspan="2">The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</td> </tr> </tbody> </table>	QName	Type	Use	explicit	xsd:boolean	required		Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.		id	xsd:string	required		The drive id used to identify the drive. The pair (station-id, drive-id) is unique.	
QName	Type	Use														
explicit	xsd:boolean	required														
	Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.															
id	xsd:string	required														
	The drive id used to identify the drive. The pair (station-id, drive-id) is unique.															
Source	<pre><xsd:element name="steamTurbine" type="cs:steamTurbineType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A steam turbine which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element></pre>															

```
</xsd:annotation>
</xsd:element>
```

Element cs:steamTurbineType / cs:powerMin

Namespace	http://gaslib.zib.de/CompressorStations																							
Annotations	The minimal power of the steam turbine																							
Diagram	<p>The diagram illustrates the UML class hierarchy for the powerMin element. At the top is the <code>framework:powerType</code> class, which has an association with its extension base, <code>framework:unitType</code>. The <code>unitType</code> class contains two attributes: <code>unit</code> (with a note "A power unit (default = kilowatt).") and <code>value</code> (with a note "Power value."). A callout box labeled "Power type." points to the <code>powerType</code> class.</p>																							
Type	powerType																							
Type hierarchy	<ul style="list-style-type: none"> unitType powerType 																							
Properties	content: complex																							
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>powerUnit</td> <td>kW</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">A power unit (default = kilowatt).</td></tr> <tr> <td>value</td> <td>xsd:double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Power value.</td></tr> </tbody> </table>				QName	Type	Default	Use	unit	powerUnit	kW	optional		A power unit (default = kilowatt).			value	xsd:double		required		Power value.		
QName	Type	Default	Use																					
unit	powerUnit	kW	optional																					
	A power unit (default = kilowatt).																							
value	xsd:double		required																					
	Power value.																							
Source	<pre><xsd:element name="powerMin" type="framework:powerType"> <xsd:annotation> <xsd:documentation>The minimal power of the steam turbine</xsd:documentation> </xsd:annotation> </xsd:element></pre>																							

Element cs:steamTurbineType / cs:powerMax

Namespace	http://gaslib.zib.de/CompressorStations											
Annotations	The maximal power of the steam turbine											
Diagram	<p>The diagram illustrates the UML class hierarchy for the powerMax element. At the top is the <code>framework:powerType</code> class, which has an association with its extension base, <code>framework:unitType</code>. The <code>unitType</code> class contains two attributes: <code>unit</code> (with a note "A power unit (default = kilowatt).") and <code>value</code> (with a note "Power value."). A callout box labeled "Power type." points to the <code>powerType</code> class.</p>											
Type	powerType											
Type hierarchy	<ul style="list-style-type: none"> unitType powerType 											
Properties	content: complex											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>powerUnit</td> <td>kW</td> <td>optional</td> </tr> </tbody> </table>				QName	Type	Default	Use	unit	powerUnit	kW	optional
QName	Type	Default	Use									
unit	powerUnit	kW	optional									

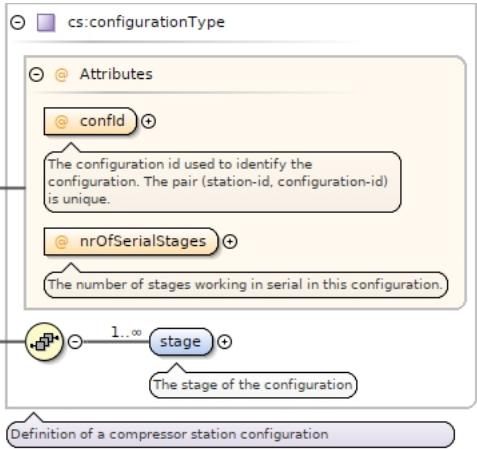
	QName	Type	Default	Use	
			A power unit (default = kilowatt).		
	value	xsd:double		required	
			Power value.		
Source	<pre><xsd:element name="powerMax" type="framework:powerType"> <xsd:annotation> <xsd:documentation>The maximal power of the steam turbine</xsd:documentation> </xsd:annotation> </xsd:element></pre>				

Element cs:compressorStationsType / cs:compressorStation / cs:configurations

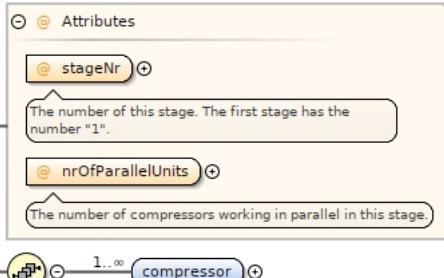
Namespace	http://gaslib.zib.de/CompressorStations
Annotations	A list of configurations for the enclosing station
Diagram	<pre> classDiagram class configurations { <<A list of configurations for the enclosing station>> } class configuration { <<A configuration defines the way the station is configured, that is which compressors are running parallel or serial. A...>> } configurations "1..*" -- "1..*" configuration </pre>
Properties	<p>content: complex</p> <p>minOccurs: 0</p> <p>maxOccurs: 1</p>
Model	cs:configuration+
Children	cs:configuration
Instance	<pre><cs:configurations xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:configuration confId="" nrOfSerialStages="">{1,unbounded}</cs:configuration> </cs:configurations></pre>
Source	<pre><xsd:element name="configurations" minOccurs="0" maxOccurs="1"> <xsd:annotation> <xsd:documentation>A list of configurations for the enclosing station</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="configuration" type="cs:configurationType" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A configuration defines the way the station is configured, that is which compressors are running parallel or serial. A configuration defines one or more stages. Every stage has one or more compressors assigned to it. The compressors assigned to a single stage are running in parallel. The stages itself are viewed as units running serial. Therefore a configuration as defined here cannot model all possibilities but just serial units of parallel compressors.</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element></pre>

Element cs:compressorStationsType / cs:compressorStation / cs:configurations / cs:configuration

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	<p>A configuration defines the way the station is configured, that is which compressors are running parallel or serial. A configuration defines one or more stages. Every stage has one or more compressors assigned to it. The compressors assigned to a single stage are running in parallel. The stages itself are viewed as units running serial. Therefore a configuration as defined here cannot model all possibilities but just serial units of parallel compressors.</p>

Diagram																
Type	cs:configurationType															
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>1</td></tr> <tr> <td>maxOccurs:</td><td>unbounded</td></tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	unbounded									
content:	complex															
minOccurs:	1															
maxOccurs:	unbounded															
Model	cs:stage+															
Children	cs:stage															
Instance	<pre><cs:configuration confId="" nrOfSerialStages="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:stage nrOfParallelUnits="" stageNr="">{1,unbounded}</cs:stage> </cs:configuration></pre>															
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th></tr> </thead> <tbody> <tr> <td>confId</td><td>xsd:string</td><td>required</td></tr> <tr> <td></td><td>The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.</td><td></td></tr> <tr> <td>nrOfSerialStages</td><td>xsd:positiveInteger</td><td>required</td></tr> <tr> <td></td><td>The number of stages working in serial in this configuration.</td><td></td></tr> </tbody> </table>	QName	Type	Use	confId	xsd:string	required		The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.		nrOfSerialStages	xsd:positiveInteger	required		The number of stages working in serial in this configuration.	
QName	Type	Use														
confId	xsd:string	required														
	The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.															
nrOfSerialStages	xsd:positiveInteger	required														
	The number of stages working in serial in this configuration.															
Source	<pre><xsd:element name="configuration" type="cs:configurationType" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A configuration defines the way the station is configured, that is which compressors are running parallel or serial. A configuration defines one or more stages. Every stage has one or more compressors assigned to it. The compressors assigned to a single stage are running in parallel. The stages itself are viewed as units running serial. Therefore a configuration as defined here cannot model all possibilities but just serial units of parallel compressors.</xsd:documentation> </xsd:annotation> </xsd:element></pre>															

Element cs:configurationType / cs:stage

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	The stage of the configuration						
Diagram							
Properties	<table border="1"> <tr> <td>content:</td><td>complex</td></tr> <tr> <td>minOccurs:</td><td>1</td></tr> <tr> <td>maxOccurs:</td><td>unbounded</td></tr> </table>	content:	complex	minOccurs:	1	maxOccurs:	unbounded
content:	complex						
minOccurs:	1						
maxOccurs:	unbounded						
Model	cs:compressor+						

Children	cs:compressor		
Instance	<cs:stage nrOfParallelUnits="" stageNr="" xmlns:cs="http://gaslib.zib.de/CompressorStations"><cs:compressor id="" nominalSpeed="">{1,unbounded}</cs:compressor></cs:stage>		
Attributes	QName	Type	Use
	nrOfParallelUnits	xsd:positiveInteger	required
	The number of compressors working in parallel in this stage.		
	stageNr	xsd:positiveInteger	required
	The number of this stage. The first stage has the number "1".		
Source	<pre><xsd:element name="stage" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>The stage of the configuration</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of stages</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="compressor" minOccurs="1" maxOccurs="unbounded"> <xsd:complexType> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The compressor id of the compressor belonging in this stage</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="nominalSpeed" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>The nominal speed of the compressor</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </xsd:sequence> <xsd:attribute name="stageNr" type="xsd:positiveInteger" use="required"> <xsd:annotation> <xsd:documentation>The number of this stage. The first stage has the number "1".</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="nrOfParallelUnits" type="xsd:positiveInteger" use="required"> <xsd:annotation> <xsd:documentation>The number of compressors working in parallel in this stage.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>		

Element cs:configurationType / cs:stage / cs:compressor

Namespace	http://gaslib.zib.de/CompressorStations		
Diagram	<p>The diagram shows a UML class named 'compressor'. Inside the class, there are two attributes: 'id' and 'nominalSpeed'. The 'id' attribute is annotated with the text 'The compressor id of the compressor belonging in this stage'. The 'nominalSpeed' attribute is annotated with the text 'The nominal speed of the compressor'.</p>		
Properties	content:	complex	
	minOccurs:	1	
	maxOccurs:	unbounded	
Attributes	QName	Type	Use
	id	xsd:string	required
	The compressor id of the compressor		

	QName	Type	Use	
		belonging in this stage		
	nominalSpeed	xsd:double	required	
		The nominal speed of the compressor		
Source	<pre><xsd:element name="compressor" minOccurs="1" maxOccurs="unbounded"> <xsd:complexType> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The compressor id of the compressor belonging in this stage</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="nominalSpeed" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>The nominal speed of the compressor</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element></pre>			

Element cs:drive

Namespace	http://gaslib.zib.de/CompressorStations									
Annotations	Abstract base class for all drives									
Diagram										
Type	cs:driveType									
Properties	<p>content: complex</p> <p>abstract: true</p>									
Model	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3									
Children	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3									
Instance	<pre><cs:drive id="" xmlns:cs="http://gaslib.zib.de/CompressorStations"> <cs:energy_rate_fun_coeff_1 value="">{1,1}</cs:energy_rate_fun_coeff_1> <cs:energy_rate_fun_coeff_2 value="">{1,1}</cs:energy_rate_fun_coeff_2> <cs:energy_rate_fun_coeff_3 value="">{1,1}</cs:energy_rate_fun_coeff_3> </cs:drive></pre>									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td>The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</td> <td></td> </tr> </tbody> </table>	QName	Type	Use	id	xsd:string	required		The drive id used to identify the drive. The pair (station-id, drive-id) is unique.	
QName	Type	Use								
id	xsd:string	required								
	The drive id used to identify the drive. The pair (station-id, drive-id) is unique.									
Source	<pre><xsd:element abstract="true" name="drive" type="cs:driveType"> <xsd:annotation> <xsd:documentation>Abstract base class for all drives</xsd:documentation> </xsd:annotation> </xsd:element></pre>									

Complex Type(s)

Complex Type cs:compressorStationsType

Namespace	http://gaslib.zib.de/CompressorStations
-----------	-----------------------------------------

Annotations	The compressor station type
Diagram	<pre> classDiagram class compressorStationsType class compressorStation compressorStationsType "0..∞" -- "A compressor station with compressors, drives and configurations" compressorStation </pre>
Used by	Element cs:compressorStations
Model	cs:compressorStation*
Children	cs:compressorStation
Source	<pre> <xsd:complexType name="compressorStationsType"> <xsd:annotation> <xsd:documentation>The compressor station type</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="compressorStation" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A compressor station with compressors, drives and configurations</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of compressors in this station</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="compressors"> <xsd:annotation> <xsd:documentation>Contains all compressors of this station</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of turbo compressors and piston compressors</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="turboCompressor" type="cs:turboCompressorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A turbo compressor which is a special type of a compressor</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="pistonCompressor" type="cs:pistonCompressorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A piston compressor which is a special type of a compressor</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of gas turbines, gas driven motors, electric motors and steam turbines</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="gasTurbine" type="cs:gasTurbineType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A gas turbine which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="gasDrivenMotor" type="cs:gasDrivenMotorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A gas driven motor which is a special type of drive</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="electricMotor" type="cs:electricMotorType" minOccurs="0" maxOccurs="unbounded"> <xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:annotation> </xsd:sequence> </xsd:complexType> </xsd:annotation> </xsd:sequence> </xsd:element> </xsd:sequence> </xsd:complexType> </pre>

```

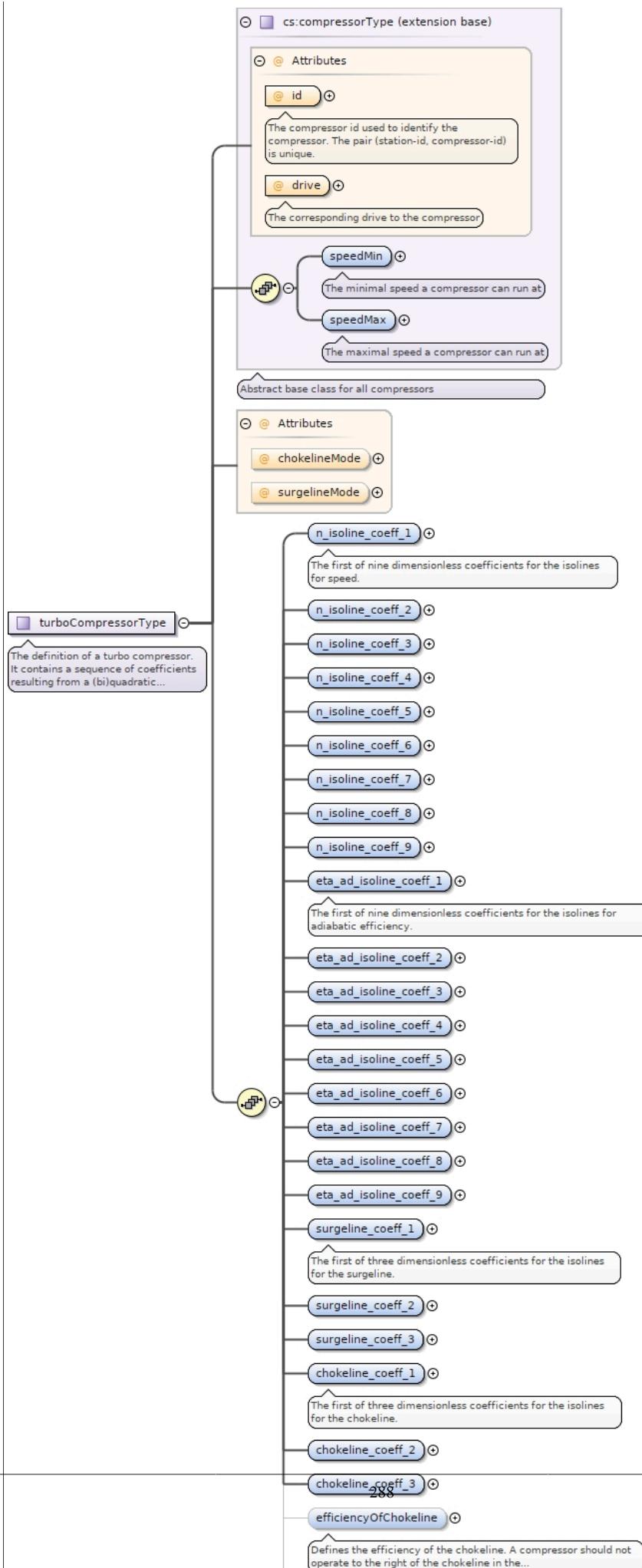
        <xsd:documentation>An electric motor which is a special type of drive</
xsd:documentation>
        </xsd:annotation>
        </xsd:element>
        <xsd:element name="steamTurbine" type="cs:steamTurbineType" minOccurs="0"
maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>A steam turbine which is a special type of drive</
xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
        <xsd:complexType>
    </xsd:element>
    <xsd:element name="configurations" minOccurs="0" maxOccurs="1">
        <xsd:annotation>
            <xsd:documentation>A list of configurations for the enclosing station</
xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element name="configuration" type="cs:configurationType" minOccurs="1"
maxOccurs="unbounded">
                    <xsd:annotation>
                        <xsd:documentation>A configuration defines the way the station is configured,
that is which compressors are running parallel or serial. A configuration defines one or more
stages. Every stage has one or more compressors assigned to it. The compressors assigned to
a single stage are running in parallel. The stages itself are viewed as units running serial.
Therefore a configuration as defined here cannot model all possibilities but just serial units of
parallel compressors.</xsd:documentation>
                    </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
                <xsd:complexType>
            </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="id" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>The id of the station</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="buildingCost" type="xsd:decimal" use="optional" default="0.0">
            <xsd:annotation>
                <xsd:documentation>The building cost of the station</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="upgradeCost" type="xsd:decimal" use="optional" default="0.0">
            <xsd:annotation>
                <xsd:documentation>The upgrade cost for adding station to an existing station</
xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>

```

Complex Type cs:turboCompressorType

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	The definition of a turbo compressor. It contains a sequence of coefficients resulting from a (bi)quadratic least-squares fit. A biquadratic least-squares-fit has the form: $f(x, y) = [1 \ x \ x^2] * A * [1 \ y \ y^2]^T$ where A is a matrix of coefficients [a1 a2 a3; a4 a5 a6; a7 a8 a9] (written in row-major order). A quadratic least-squares fit has the form: $f(x) = [1 \ x \ x^2] * [b1 \ b2 \ b3]^T$. Nine dimensionless coefficients for the isolines for speed resulting from a biquadratic fit: $f(x, y) = z$ with x = volumetric flowrate in m^3/s , y = revolutions per minute, z = adiabatic head in kJ/kg . Nine dimensionless coefficients for the isolines for adiabatic efficiency resulting from a biquadratic fit: $f(x, y) = z$ with x = volumetric flowrate in m^3/s , y = revolutions per minute, z = adiabatic efficiency. Three dimensionless coefficients for the surgeline resulting from a quadratic fit: $f(y) = z$ with y = revolutions per minute, z = adiabatic head in kJ/kg . Three dimensionless coefficients for the chokeline resulting from a quadratic fit: $f(y) = z$ with y = revolutions per minute, z = adiabatic head in kJ/kg .

Diagram



Type	extension of cs:compressorType																														
Type hierarchy	<ul style="list-style-type: none"> • cs:compressorType • cs:turboCompressorType 																														
Used by	Element	cs:compressorStationsType/cs:compressorStation/cs:compressors/cs:turboCompressor																													
Model	cs:speedMin , cs:speedMax , cs:n_isoline_coeff_1 , cs:n_isoline_coeff_2 , cs:n_isoline_coeff_3 , cs:n_isoline_coeff_4 , cs:n_isoline_coeff_5 , cs:n_isoline_coeff_6 , cs:n_isoline_coeff_7 , cs:n_isoline_coeff_8 , cs:n_isoline_coeff_9 , cs:eta_ad_isoline_coeff_1 , cs:eta_ad_isoline_coeff_2 , cs:eta_ad_isoline_coeff_3 , cs:eta_ad_isoline_coeff_4 , cs:eta_ad_isoline_coeff_5 , cs:eta_ad_isoline_coeff_6 , cs:eta_ad_isoline_coeff_7 , cs:eta_ad_isoline_coeff_8 , cs:eta_ad_isoline_coeff_9 , cs:surgeline_coeff_1 , cs:surgeline_coeff_2 , cs:surgeline_coeff_3 , cs:chokeline_coeff_1 , cs:chokeline_coeff_2 , cs:chokeline_coeff_3 , cs:efficiencyOfChokeline{0,1} , cs:surgelineMeasurements{0,1} , cs:characteristicDiagramMeasurements{0,1}																														
Children	cs:characteristicDiagramMeasurements, cs:chokeline_coeff_1, cs:chokeline_coeff_2, cs:chokeline_coeff_3, cs:efficiencyOfChokeline, cs:eta_ad_isoline_coeff_1, cs:eta_ad_isoline_coeff_2, cs:eta_ad_isoline_coeff_3, cs:eta_ad_isoline_coeff_4, cs:eta_ad_isoline_coeff_5, cs:eta_ad_isoline_coeff_6, cs:eta_ad_isoline_coeff_7, cs:eta_ad_isoline_coeff_8, cs:eta_ad_isoline_coeff_9, cs:n_isoline_coeff_1, cs:n_isoline_coeff_2, cs:n_isoline_coeff_3, cs:n_isoline_coeff_4, cs:n_isoline_coeff_5, cs:n_isoline_coeff_6, cs:n_isoline_coeff_7, cs:n_isoline_coeff_8, cs:n_isoline_coeff_9, cs:speedMax, cs:speedMin, cs:surgelineMeasurements, cs:surgeline_coeff_1, cs:surgeline_coeff_2, cs:surgeline_coeff_3																														
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>chokelineMode</td><td>cs:chokelineModeType</td><td>optional</td><td></td></tr> <tr> <td>drive</td><td>xsd:string</td><td>required</td><td></td></tr> <tr> <td></td><td colspan="3">The corresponding drive to the compressor</td></tr> <tr> <td>id</td><td>xsd:string</td><td>required</td><td></td></tr> <tr> <td></td><td colspan="3">The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.</td></tr> <tr> <td>surgelineMode</td><td>cs:surgelineModeType</td><td>optional</td><td></td></tr> </tbody> </table>			QName	Type	Use		chokelineMode	cs:chokelineModeType	optional		drive	xsd:string	required			The corresponding drive to the compressor			id	xsd:string	required			The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.			surgelineMode	cs:surgelineModeType	optional	
QName	Type	Use																													
chokelineMode	cs:chokelineModeType	optional																													
drive	xsd:string	required																													
	The corresponding drive to the compressor																														
id	xsd:string	required																													
	The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.																														
surgelineMode	cs:surgelineModeType	optional																													
Source	<pre> <xsd:complexType name="turboCompressorType"> <xsd:annotation> <xsd:documentation>The definition of a turbo compressor. It contains a sequence of coefficients resulting from a (bi)quadratic least-squares fit. A biquadratic least-squares-fit has the form: f(x, y) = [1 x x*x] * A * [1 y y*y]^T where A is a matrix of coefficients [a1 a2 a3; a4 a5 a6; a7 a8 a9] (written in row-major order). A quadratic least-squares fit has the form: f(x) = [1 x x*x] * [b1 b2 b3]^T. Nine dimensionless coefficients for the isolines for speed resulting from a biquadratic fit: f(x, y) = z with x = volumetric flowrate in m^3/s, y = revolutions per minute, z = adiabatic head in kJ/kg. Nine dimensionless coefficients for the isolines for adiabatic efficiency resulting from a biquadratic fit: f(x, y) = z with x = volumetric flowrate in m^3/s, y = revolutions per minute, z = adiabatic efficiency. Three dimensionless coefficients for the surgeline resulting from a quadratic fit: f(y) = z with y = revolutions per minute, z = adiabatic head in kJ/kg. Three dimensionless coefficients for the chokeline resulting from a quadratic fit: f(y) = z with y = revolutions per minute, z = adiabatic head in kJ/kg.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="cs:compressorType"> <xsd:sequence> <xsd:annotation> <xsd:documentation> </xsd:documentation> </xsd:annotation> <xsd:element name="n_isoline_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of nine dimensionless coefficients for the isolines for speed.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="n_isoline_coeff_2" type="framework:noType"/> <xsd:element name="n_isoline_coeff_3" type="framework:noType"/> <xsd:element name="n_isoline_coeff_4" type="framework:noType"/> <xsd:element name="n_isoline_coeff_5" type="framework:noType"/> <xsd:element name="n_isoline_coeff_6" type="framework:noType"/> <xsd:element name="n_isoline_coeff_7" type="framework:noType"/> <xsd:element name="n_isoline_coeff_8" type="framework:noType"/> <xsd:element name="n_isoline_coeff_9" type="framework:noType"/> <xsd:element name="eta_ad_isoline_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of nine dimensionless coefficients for the isolines for adiabatic efficiency.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="eta_ad_isoline_coeff_2" type="framework:noType"/> <xsd:element name="eta_ad_isoline_coeff_3" type="framework:noType"/> <xsd:element name="eta_ad_isoline_coeff_4" type="framework:noType"/> <xsd:element name="eta_ad_isoline_coeff_5" type="framework:noType"/> <xsd:element name="eta_ad_isoline_coeff_6" type="framework:noType"/> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																														

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<xsd:element name="eta_ad_isoline_coeff_7" type="framework:noType"/>
<xsd:element name="eta_ad_isoline_coeff_8" type="framework:noType"/>
<xsd:element name="eta_ad_isoline_coeff_9" type="framework:noType"/>
<xsd:element name="surgeline_coeff_1" type="framework:noType">
    <xsd:annotation>
        <xsd:documentation>The first of three dimensionless coefficients for the isolines for the surgeline.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="surgeline_coeff_2" type="framework:noType"/>
<xsd:element name="surgeline_coeff_3" type="framework:noType"/>
<xsd:element name="chokeline_coeff_1" type="framework:noType">
    <xsd:annotation>
        <xsd:documentation>The first of three dimensionless coefficients for the isolines for the chokeline.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="chokeline_coeff_2" type="framework:noType"/>
<xsd:element name="chokeline_coeff_3" type="framework:noType"/>
<xsd:element name="efficiencyOfChokeline" type="framework:noType" minOccurs="0">
    <xsd:annotation>
        <xsd:documentation>Defines the efficiency of the chokeline. A compressor should not operate to the right of the chokeline in the characteristic diagram due to technical restrictions.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="surgelineMeasurements" minOccurs="0">
    <xsd:annotation>
        <xsd:documentation>Defines the measurements from which the surgeline was fitted as a quadratic function.</xsd:documentation>
    </xsd:annotation>
<xsd:complexType>
    <xsd:annotation>
        <xsd:documentation>A list of measurements for the surgeline</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
        <xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="0" maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>Defines a single measurement of the surgeline. There must be at least three measurements to be able to guarantee a meaningful quadratic least-squares fit.</xsd:documentation>
            </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="characteristicDiagramMeasurements" minOccurs="0">
    <xsd:annotation>
        <xsd:documentation>Defines all measurements for the characteristic diagram of the turbo compressor</xsd:documentation>
    </xsd:annotation>
<xsd:complexType>
    <xsd:sequence>
        <xsd:element name="adiabaticEfficiency" maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>Defines a context in which all measurements have the same adiabatic efficiency</xsd:documentation>
            </xsd:annotation>
            <xsd:complexType>
                <xsd:annotation>
                    <xsd:documentation>A list of measurements for a specific adiabatic efficiency</xsd:documentation>
                </xsd:annotation>
            </xsd:complexType>
        </xsd:sequence>
        <xsd:element name="measurement" type="cs:tc_measurementType" minOccurs="1" maxOccurs="unbounded">
            <xsd:annotation>
                <xsd:documentation>A single measurement for the characteristic diagram</xsd:documentation>
            </xsd:annotation>
        </xsd:sequence>
        <xsd:attribute name="value" type="xsd:string" use="required">
            <xsd:annotation>
                <xsd:documentation>Defines the adiabatic efficiency for all measurements in this context</xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
    </xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>

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</xsd:element>
</xsd:sequence>
<xsd:attribute name="chokelineMode" type="cs:chokelineModeType"/>
<xsd:attribute name="surgeLineMode" type="cs:surgeLineModeType"/>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

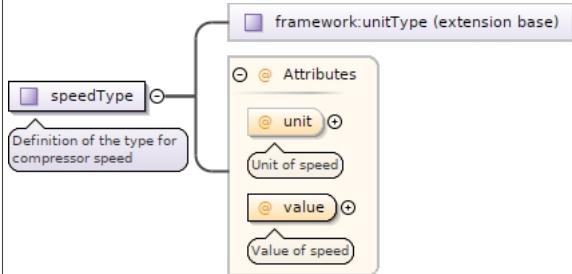
```

Complex Type cs:compressorType

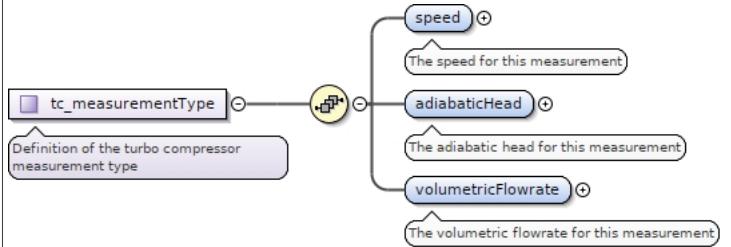
Namespace	http://gaslib.zib.de/CompressorStations															
Annotations	Abstract base class for all compressors															
Diagram	<p>The diagram shows the <code>compressorType</code> class as an abstract base class for all compressors. It has four attributes: <code>@ id</code>, <code>@ drive</code>, <code>speedMin</code>, and <code>speedMax</code>. <code>@ id</code> is described as the compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique. <code>@ drive</code> is described as the corresponding drive to the compressor. <code>speedMin</code> is described as the minimal speed a compressor can run at. <code>speedMax</code> is described as the maximal speed a compressor can run at.</p>															
Used by	Complex Types cs:pistonCompressorType, cs:turboCompressorType															
Model	cs:speedMin , cs:speedMax															
Children	cs:speedMax, cs:speedMin															
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>drive</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>The corresponding drive to the compressor</td> </tr> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.</td> </tr> </tbody> </table>	QName	Type	Use	drive	xsd:string	required			The corresponding drive to the compressor	id	xsd:string	required			The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.
QName	Type	Use														
drive	xsd:string	required														
		The corresponding drive to the compressor														
id	xsd:string	required														
		The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.														
Source	<pre> <xsd:complexType name="compressorType"> <xsd:annotation> <xsd:documentation>Abstract base class for all compressors</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="speedMin" type="cs:speedType"> <xsd:annotation> <xsd:documentation>The minimal speed a compressor can run at</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="speedMax" type="cs:speedType"> <xsd:annotation> <xsd:documentation>The maximal speed a compressor can run at</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="drive" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The corresponding drive to the compressor</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>															

Complex Type cs:speedType

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Definition of the type for compressor speed

Diagram																					
Type	extension of unitType																				
Type hierarchy	<ul style="list-style-type: none"> unitType cs:speedType 																				
Used by	Elements cs:compressorType/cs:speedMax, cs:compressorType/cs:speedMin, cs:mp_measurementType/cs:speed, cs:tc_measurementType/cs:speed																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Default</th><th>Use</th></tr> </thead> <tbody> <tr> <td>unit</td><td>per_minUnit</td><td>per_min</td><td>optional</td></tr> <tr> <td></td><td>Unit of speed</td><td></td><td></td></tr> <tr> <td>value</td><td>double</td><td></td><td>required</td></tr> <tr> <td></td><td>Value of speed</td><td></td><td></td></tr> </tbody> </table>	QName	Type	Default	Use	unit	per_minUnit	per_min	optional		Unit of speed			value	double		required		Value of speed		
QName	Type	Default	Use																		
unit	per_minUnit	per_min	optional																		
	Unit of speed																				
value	double		required																		
	Value of speed																				
Source	<pre> <xsd:complexType name="speedType"> <xsd:annotation> <xsd:documentation>Definition of the type for compressor speed</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:unitType"> <xsd:attribute default="per_min" name="unit" type="gas:per_minUnit"> <xsd:annotation> <xsd:documentation>Unit of speed</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>Value of speed</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																				

Complex Type cs:tc_measurementType

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Definition of the turbo compressor measurement type
Diagram	
Used by	Elements cs:turboCompressorType/cs:characteristicDiagramMeasurements/cs:adiabaticEfficiency/cs:measurement, cs:turboCompressorType/cs:surgeLineMeasurements/cs:measurement
Model	cs:speed, cs:adiabaticHead, cs:volumetricFlowrate
Children	cs:adiabaticHead, cs:speed, cs:volumetricFlowrate
Source	<pre> <xsd:complexType name="tc_measurementType"> <xsd:annotation> <xsd:documentation>Definition of the turbo compressor measurement type</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="speed" type="cs:speedType"> <xsd:annotation> </pre>

```

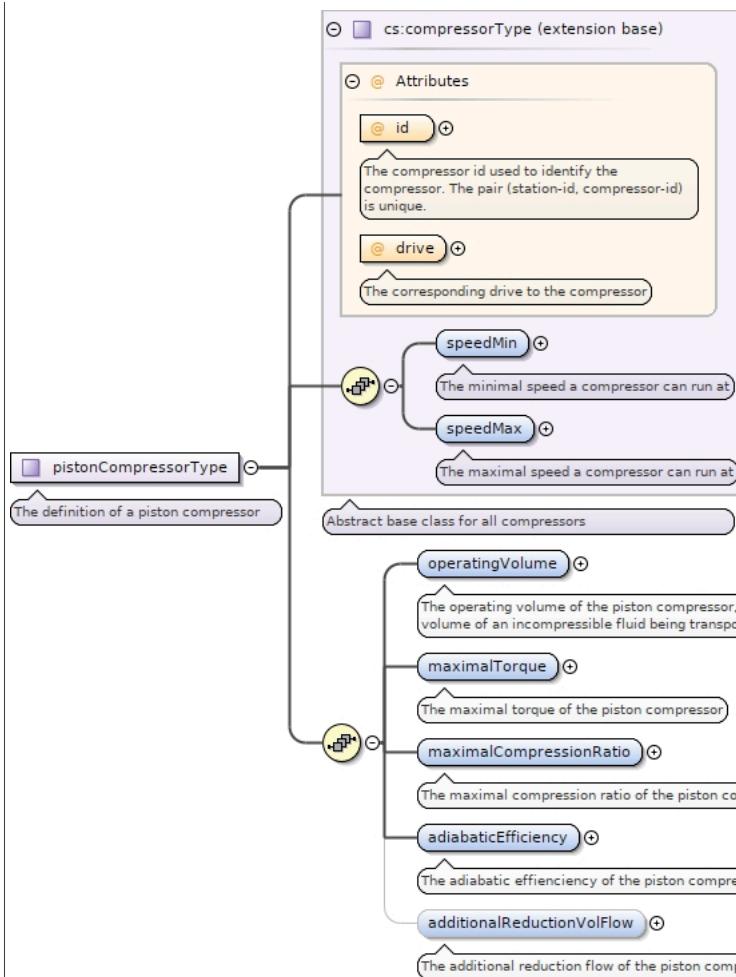
<xsd:documentation>The speed for this measurement</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="adiabaticHead">
<xsd:annotation>
<xsd:documentation>The adiabatic head for this measurement</xsd:documentation>
</xsd:annotation>
<xsd:complexType>
<xsd:attribute default="kJ_per_kg" name="unit" type="framework:string">
<xsd:annotation>
<xsd:documentation>The unit of the adiabatic head</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="value" type="framework:double" use="required">
<xsd:annotation>
<xsd:documentation>The value of the adiabatic head</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>
<xsd:element name="volumetricFlowrate">
<xsd:annotation>
<xsd:documentation>The volumetric flowrate for this measurement</xsd:documentation>
</xsd:annotation>
<xsd:complexType>
<xsd:attribute default="m_cube_per_s" name="unit" type="framework:string">
<xsd:annotation>
<xsd:documentation>The unit of the volumetric flowrate</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
<xsd:attribute name="value" type="framework:double" use="required">
<xsd:annotation>
<xsd:documentation>The value of the volumetric flowrate</xsd:documentation>
</xsd:annotation>
</xsd:attribute>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>

```

Complex Type cs:pistonCompressorType

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	The definition of a piston compressor

Diagram



Type	extension of cs:compressorType																						
Type hierarchy	<ul style="list-style-type: none"> • cs:compressorType • cs:pistonCompressorType 																						
Used by	Element cs:compressorStationsType/cs:compressorStation/cs:compressors/cs:pistonCompressor																						
Model	cs:speedMin , cs:speedMax , cs:operatingVolume , cs:maximalTorque , cs:maximalCompressionRatio , cs:adiabaticEfficiency , cs:additionalReductionVolFlow{0,1}																						
Children	cs:additionalReductionVolFlow, cs:adiabaticEfficiency, cs:maximalCompressionRatio, cs:maximalTorque, cs:operatingVolume, cs:speedMax, cs:speedMin																						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>drive</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">The corresponding drive to the compressor</td></tr> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> <td></td></tr> <tr> <td></td> <td colspan="3">The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.</td></tr> </tbody> </table>			QName	Type	Use		drive	xsd:string	required			The corresponding drive to the compressor			id	xsd:string	required			The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.		
QName	Type	Use																					
drive	xsd:string	required																					
	The corresponding drive to the compressor																						
id	xsd:string	required																					
	The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.																						
Source	<pre> <xsd:complexType name="pistonCompressorType"> <xsd:annotation> <xsd:documentation>The definition of a piston compressor</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="cs:compressorType"> <xsd:sequence> <xsd:element name="operatingVolume" type="framework:volumeType"> <xsd:annotation> <xsd:documentation>The operating volume of the piston compressor, that is the volume of an incompressible fluid being transported by a single revolution of the crankshaft.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="maximalTorque" type="cs:torqueType"> <xsd:annotation> <xsd:documentation>The maximal torque of the piston compressor</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																						

```

<xsd:annotation>
  <xsd:documentation>The maximal torque of the piston compressor</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="maximalCompressionRatio" type="framework:noType">
  <xsd:annotation>
    <xsd:documentation>The maximal compression ratio of the piston compressor</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="adiabaticEfficiency" type="framework:noType">
  <xsd:annotation>
    <xsd:documentation>The adiabatic efficiency of the piston compressor</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="additionalReductionVolFlow" type="framework:noType" minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>The additional reduction flow of the piston compressor</xsd:documentation>
  </xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type cs:torqueType

Namespace	http://gaslib.zib.de/CompressorStations																				
Annotations	Definition of the type for torque																				
Diagram	<pre> classDiagram unitType "framework:unitType (extension base)" as E torqueType "torqueType" as T E < -- T T "Attributes" T < -- unit T < -- value note over T: Definition of the type for torque </pre>																				
Type	extension of unitType																				
Type hierarchy	<ul style="list-style-type: none"> unitType cs:torqueType 																				
Used by	Element cs:pistonCompressorType/cs:maximalTorque																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Default</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>unit</td> <td>cs:kNmUnit</td> <td>kNm</td> <td>optional</td> </tr> <tr> <td></td> <td colspan="3">Unit of the torque</td> </tr> <tr> <td>value</td> <td>double</td> <td></td> <td>required</td> </tr> <tr> <td></td> <td colspan="3">Value of the torque</td> </tr> </tbody> </table>	QName	Type	Default	Use	unit	cs:kNmUnit	kNm	optional		Unit of the torque			value	double		required		Value of the torque		
QName	Type	Default	Use																		
unit	cs:kNmUnit	kNm	optional																		
	Unit of the torque																				
value	double		required																		
	Value of the torque																				
Source	<pre> <xsd:complexType name="torqueType"> <xsd:annotation> <xsd:documentation>Definition of the type for torque</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="framework:unitType"> <xsd:attribute default="kNm" name="unit" type="cs:kNmUnit"> <xsd:annotation> <xsd:documentation>Unit of the torque</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>Value of the torque</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																				

Complex Type cs:gasTurbineType

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	<p>Definition of the gas turbine type. It contains a sequence of coefficients describing the maximal shaft power resulting from a biquadratic least-squares fit. A biquadratic least-squares-fit has the form: $f(x, y) = [1 \ x \ x^2] * A * [1 \ y \ y^2]^T$ where A is a matrix of coefficients [a1 a2 a3; a4 a5 a6; a7 a8 a9] (written in column-first order). Nine dimensionless coefficients for the isolines for speed resulting from a biquadratic fit: $f(x, y) = z$ with x = compressor speed in revolutions per minute, y = ambient temperature in degree celsius, z = maximal shaft power in kW</p>						
Diagram	<pre> classDiagram class cs:driveType { @id energy_rate_fun_coeff_1..3 power_fun_coeff_1..9 specificEnergyConsumptionMeasurements maximalPowerMeasurements } class cs:gasTurbineType { <<Definition of the gas turbine type. It contains a sequence of coefficients describing the maximal shaft power resulting...>> } cs:gasTurbineType < -- cs:driveType </pre>						
Type	extension of cs:driveType						
Type hierarchy	<ul style="list-style-type: none"> • cs:driveType • cs:gasTurbineType 						
Used by	Element cs:compressorStationsType/cs:compressorStation/cs:drives/cs:gasTurbine						
Model	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3, cs:power_fun_coeff_1, cs:power_fun_coeff_2, cs:power_fun_coeff_3, cs:power_fun_coeff_4, cs:power_fun_coeff_5, cs:power_fun_coeff_6, cs:power_fun_coeff_7, cs:power_fun_coeff_8, cs:power_fun_coeff_9, cs:specificEnergyConsumptionMeasurements{0,1}, cs:maximalPowerMeasurements{0,1}						
Children	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3, cs:maximalPowerMeasurements, cs:power_fun_coeff_1, cs:power_fun_coeff_2, cs:power_fun_coeff_3, cs:power_fun_coeff_4, cs:power_fun_coeff_5, cs:power_fun_coeff_6, cs:power_fun_coeff_7, cs:power_fun_coeff_8, cs:power_fun_coeff_9, cs:specificEnergyConsumptionMeasurements						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> </tr> </tbody> </table>	QName	Type	Use	id	xsd:string	required
QName	Type	Use					
id	xsd:string	required					

	QName	Type	Use
		The drive id used to identify the drive. The pair (station-id, drive-id) is unique.	
Source	<pre> <xsd:complexType name="gasTurbineType"> <xsd:annotation> <xsd:documentation>Definition of the gas turbine type. It contains a sequence of coefficients describing the maximal shaft power resulting from a biquadratic least-squares fit. A biquadratic least-squares-fit has the form: f(x, y) = [1 x x*x] * A * [1 y y*y]^T where A is a matrix of coefficients [a1 a2 a3; a4 a5 a6; a7 a8 a9] (written in column-first order). Nine dimensionless coefficients for the isolines for speed resulting from a biquadratic fit: f(x, y) = z with x = compressor speed in revolutions per minute, y = ambient temperature in degree celsius, z = maximal shaft power in kW</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="cs:driveType"> <xsd:sequence> <xsd:element name="power_fun_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of nine dimensionless coefficients for the maximal shaft power.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="power_fun_coeff_2" type="framework:noType"/> <xsd:element name="power_fun_coeff_3" type="framework:noType"/> <xsd:element name="power_fun_coeff_4" type="framework:noType"/> <xsd:element name="power_fun_coeff_5" type="framework:noType"/> <xsd:element name="power_fun_coeff_6" type="framework:noType"/> <xsd:element name="power_fun_coeff_7" type="framework:noType"/> <xsd:element name="power_fun_coeff_8" type="framework:noType"/> <xsd:element name="power_fun_coeff_9" type="framework:noType"/> <xsd:element name="specificEnergyConsumptionMeasurements" type="cs:SEC_MeasurementsType" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the specific energy consumption</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="maximalPowerMeasurements" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the maximal power</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of ambient temperatures containing the measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="ambientTemperature" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>The ambient temperature for all measurements in this context</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>The unit of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType></pre>		

```

</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type cs:driveType

Namespace	http://gaslib.zib.de/CompressorStations											
Annotations	Definition of the abstract drive type. All drives contain a sequence of coefficients describing the specific energy consumption rate. A quadratic least-squares fit has the form: $f(x) = [1 \ x \ x^2] * [b_1 \ b_2 \ b_3]^T$. Three dimensionless coefficients for the specific energy consumption rate resulting from a quadratic fit: $f(x) = y$ with $x = \text{shaft power in kW}$, $y = \text{specific fuel consumption in kW}$											
Diagram	<pre> classDiagram class driveType { @id energy_rate_fun_coeff_1 energy_rate_fun_coeff_2 energy_rate_fun_coeff_3 } </pre> <p>The diagram shows the <code>driveType</code> class with four attributes: <code>@id</code>, <code>energy_rate_fun_coeff_1</code>, <code>energy_rate_fun_coeff_2</code>, and <code>energy_rate_fun_coeff_3</code>. The <code>@id</code> attribute is annotated with a note: "The drive id used to identify the drive. The pair (station-id, drive-id) is unique." The three coefficient attributes are annotated with notes: "The first of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic..." and "The second and third dimensionless coefficients for the specific energy consumption rate. They result from a quadratic...".</p>											
Used by	Complex Types cs:electricMotorType, cs:gasDrivenMotorType, cs:gasTurbineType, cs:steamTurbineType Element cs:drive											
Model	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3											
Children	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3											
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>id</code></td> <td>xsd:string</td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</td> </tr> </tbody> </table>			QName	Type	Use	<code>id</code>	xsd:string	required			The drive id used to identify the drive. The pair (station-id, drive-id) is unique.
QName	Type	Use										
<code>id</code>	xsd:string	required										
		The drive id used to identify the drive. The pair (station-id, drive-id) is unique.										
Source	<pre> <xsd:complexType name="driveType"> <xsd:annotation> <xsd:documentation>Definition of the abstract drive type. All drives contain a sequence of coefficients describing the specific energy consumption rate. A quadratic least-squares fit has the form: $f(x) = [1 \ x \ x^2] * [b_1 \ b_2 \ b_3]^T$. Three dimensionless coefficients for the specific energy consumption rate resulting from a quadratic fit: $f(x) = y$ with $x = \text{shaft power in kW}$, $y = \text{specific fuel consumption in kW}$</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="energy_rate_fun_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of three dimensionless coefficients for the specific energy consumption rate. They result from a quadratic least-squares fit.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="energy_rate_fun_coeff_2" type="framework:noType"/> <xsd:element name="energy_rate_fun_coeff_3" type="framework:noType"/> </xsd:sequence> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </pre>											

Complex Type cs:SEC_MeasurementsType

Namespace	http://gaslib.zib.de/CompressorStations		
Annotations	Definition of specific energy consumption measurements type		
Diagram	<pre> classDiagram class SEC_MeasurementsType { measurement * } </pre> <p>The diagram shows the <code>SEC_MeasurementsType</code> class with a sequence of <code>measurement</code> elements. The <code>measurement</code> element is annotated with a note: "A measurement for the specific energy consumption".</p>		

Used by	Elements	cs:electricMotorType/cs:specificEnergyConsumptionMeasurements, cs:gasDrivenMotorType/cs:specificEnergyConsumptionMeasurements, cs:gasTurbineType/cs:specificEnergyConsumptionMeasurements
Model	cs:measurement{3,unbounded}	
Children	cs:measurement	
Source		<pre> <xsd:complexType name="SEC_MeasurementsType"> <xsd:annotation> <xsd:documentation>Definition of specific energy consumption measurements type</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A measurement for the specific energy consumption</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:sequence> <xsd:element name="compressorPower"> <xsd:annotation> <xsd:documentation>The compressor power for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> <xsd:element name="fuelConsumption"> <xsd:annotation> <xsd:documentation>The fuel consumption for this measurement</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:element> </xsd:sequence> </xsd:complexType> </pre>

Complex Type cs:mp_measurementType

Namespace	http://gaslib.zib.de/CompressorStations	
Annotations	Definition of measurement type for the maximal power	
Diagram	<p>The diagram shows a UML class named 'mp_measurementType'. It has two associations: one to 'speed' (multiplicity 0..1) and another to 'maximalPower' (multiplicity 0..1). Each association is labeled with its respective documentation: 'The speed for this measurement' and 'Definition of measurement type for the maximal power'.</p>	
Used by	Elements	cs:electricMotorType/cs:maximalPowerMeasurements/cs:ambientTemperature/cs:measurement, cs:electricMotorType/cs:maximalPowerMeasurements/cs:measurement, cs:gasDrivenMotorType/cs:maximalPowerMeasurements/cs:measurement, cs:gasTurbineType/cs:maximalPowerMeasurements/cs:ambientTemperature/cs:measurement
Model	cs:speed, cs:maximalPower	
Children	cs:maximalPower, cs:speed	
Source		<pre> <xsd:complexType name="mp_measurementType"> </pre>

```

<xsd:annotation>
  <xsd:documentation>Definition of measurement type for the maximal power</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
  <xsd:element name="speed" type="cs:speedType">
    <xsd:annotation>
      <xsd:documentation>The speed for this measurement</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <xsd:element name="maximalPower">
    <xsd:annotation>
      <xsd:documentation>Definition of measurement type for the maximal power</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
      <xsd:attribute default="kW" name="unit" type="framework:string">
        <xsd:annotation>
          <xsd:documentation>The unit of the maximal power</xsd:documentation>
        </xsd:annotation>
      </xsd:attribute>
      <xsd:attribute name="value" type="framework:double" use="required">
        <xsd:annotation>
          <xsd:documentation>The value of the maximal power</xsd:documentation>
        </xsd:annotation>
      </xsd:attribute>
    </xsd:complexType>
  </xsd:element>
</xsd:sequence>
</xsd:complexType>

```

Complex Type cs:gasDrivenMotorType

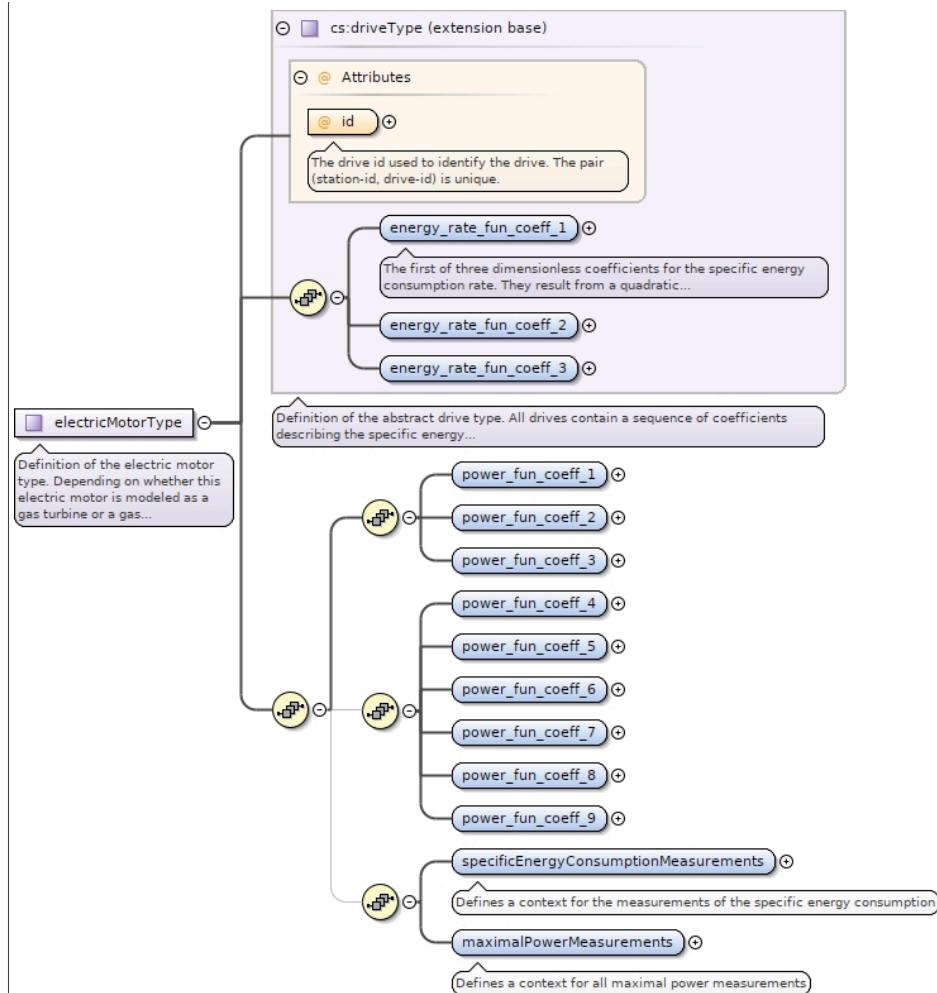
Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Definition of the gas driven motor type. It contains a sequence of coefficients describing the maximal shaft power resulting from a quadratic least-squares fit. A quadratic least-squares fit has the form: $f(x) = [1 \ x \ x^2] * [b_1 \ b_2 \ b_3]^T$. Three dimensionless coefficients for the maximal shaft power resulting from a quadratic fit: $f(x) = y$ with $x = \text{revolutions per minute}$, $y = \text{maximal shaft power in kW}$
Diagram	<p>The diagram shows the inheritance of the <code>gasDrivenMotorType</code> class from the <code>driveType</code> base class. The <code>driveType</code> class has an attribute <code>id</code> with a note: "The drive id used to identify the drive. The pair (station-id, drive-id) is unique." The <code>gasDrivenMotorType</code> class extends <code>driveType</code> and contains three groups of attributes: <code>energy_rate_fun_coeff_1</code>, <code>energy_rate_fun_coeff_2</code>, and <code>energy_rate_fun_coeff_3</code>; <code>power_fun_coeff_1</code>, <code>power_fun_coeff_2</code>, and <code>power_fun_coeff_3</code>; and two sequences of measurements: <code>specificEnergyConsumptionMeasurements</code> and <code>maximalPowerMeasurements</code>.</p>
Type	extension of <code>cs:driveType</code>
Type hierarchy	<ul style="list-style-type: none"> • <code>cs:driveType</code>

	<ul style="list-style-type: none"> • cs:gasDrivenMotorType 												
Used by	Element cs:compressorStationsType/cs:compressorStation/cs:drives/cs:gasDrivenMotor												
Model	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3 , cs:power_fun_coeff_1 , cs:power_fun_coeff_2 , cs:power_fun_coeff_3 , cs:specificEnergyConsumptionMeasurements{0,1} , cs:maximalPowerMeasurements{0,1}												
Children	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3 , cs:maximalPowerMeasurements , cs:power_fun_coeff_1 , cs:power_fun_coeff_2 , cs:power_fun_coeff_3 , cs:specificEnergyConsumptionMeasurements												
Attributes	<table border="1"> <thead> <tr> <th>QName</th><th>Type</th><th>Use</th><th></th></tr> </thead> <tbody> <tr> <td>id</td><td>xsd:string</td><td>required</td><td></td></tr> <tr> <td></td><td></td><td>The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</td><td></td></tr> </tbody> </table>	QName	Type	Use		id	xsd:string	required				The drive id used to identify the drive. The pair (station-id, drive-id) is unique.	
QName	Type	Use											
id	xsd:string	required											
		The drive id used to identify the drive. The pair (station-id, drive-id) is unique.											
Source	<pre> <xsd:complexType name="gasDrivenMotorType"> <xsd:annotation> <xsd:documentation>Definition of the gas driven motor type. It contains a sequence of coefficients describing the maximal shaft power resulting from a quadratic least-squares fit. A quadratic least-squares fit has the form: f(x) = [1 x x*x] * [b1 b2 b3]^T. Three dimensionless coefficients for the maximal shaft power resulting from a quadratic fit: f(x) = y with x = revolutions per minute, y = maximal shaft power in kW</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="cs:driveType"> <xsd:sequence> <xsd:element name="power_fun_coeff_1" type="framework:noType"> <xsd:annotation> <xsd:documentation>The first of three dimensionless coefficients for the power function.</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="power_fun_coeff_2" type="framework:noType"/> <xsd:element name="power_fun_coeff_3" type="framework:noType"/> <xsd:element name="specificEnergyConsumptionMeasurements" type="cs:SEC_MeasurementsType" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the specific energy consumption</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="maximalPowerMeasurements" minOccurs="0"> <xsd:annotation> <xsd:documentation>Defines a context for the measurements of the maximal power</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of measurements</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>A single measurement</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:complexType> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>												

Complex Type cs:electricMotorType

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Definition of the electric motor type. Depending on whether this electric motor is modeled as a gas turbine or a gas motor, nine or three dimensionless coefficients are given for the (bi)quadratic power function. For details, see the corresponding documentation in the gas turbine and gas motor type definitions.

Diagram



Type	extension of <code>cs:driveType</code>									
Type hierarchy	<ul style="list-style-type: none"> <code>cs:driveType</code> <code>cs:electricMotorType</code> 									
Used by	Element <code>cs:compressorStationsType/cs:compressorStation/cs:drives/cs:electricMotor</code>									
Model	<code>cs:energy_rate_fun_coeff_1</code> , <code>cs:energy_rate_fun_coeff_2</code> , <code>cs:energy_rate_fun_coeff_3</code> , <code>cs:power_fun_coeff_1</code> , <code>cs:power_fun_coeff_2</code> , <code>cs:power_fun_coeff_3</code> , <code>cs:power_fun_coeff_4</code> , <code>cs:power_fun_coeff_5</code> , <code>cs:power_fun_coeff_6</code> , <code>cs:power_fun_coeff_7</code> , <code>cs:power_fun_coeff_8</code> , <code>cs:power_fun_coeff_9</code> , <code>cs:specificEnergyConsumptionMeasurements</code> , <code>cs:maximalPowerMeasurements</code>									
Children	<code>cs:energy_rate_fun_coeff_1</code> , <code>cs:energy_rate_fun_coeff_2</code> , <code>cs:energy_rate_fun_coeff_3</code> , <code>cs:maximalPowerMeasurements</code> , <code>cs:power_fun_coeff_1</code> , <code>cs:power_fun_coeff_2</code> , <code>cs:power_fun_coeff_3</code> , <code>cs:power_fun_coeff_4</code> , <code>cs:power_fun_coeff_5</code> , <code>cs:power_fun_coeff_6</code> , <code>cs:power_fun_coeff_7</code> , <code>cs:power_fun_coeff_8</code> , <code>cs:power_fun_coeff_9</code> , <code>cs:specificEnergyConsumptionMeasurements</code>									
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td><code>id</code></td> <td><code>xsd:string</code></td> <td>required</td> </tr> <tr> <td></td> <td></td> <td>The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</td> </tr> </tbody> </table>	QName	Type	Use	<code>id</code>	<code>xsd:string</code>	required			The drive id used to identify the drive. The pair (station-id, drive-id) is unique.
QName	Type	Use								
<code>id</code>	<code>xsd:string</code>	required								
		The drive id used to identify the drive. The pair (station-id, drive-id) is unique.								
Source	<pre> <xsd:complexType name="electricMotorType"> <xsd:annotation> <xsd:documentation>Definition of the electric motor type. Depending on whether this electric motor is modeled as a gas turbine or a gas motor, nine or three dimensionless coefficients are given for the (bi)quadratic power function. For details, see the corresponding documentation in the gas turbine and gas motor type definitions.</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="cs:driveType"> <xsd:sequence> <xsd:sequence minOccurs="1" maxOccurs="1"> <xsd:element name="power_fun_coeff_1" type="framework:noType"/> <xsd:element name="power_fun_coeff_2" type="framework:noType"/> <xsd:element name="power_fun_coeff_3" type="framework:noType"/> </xsd:sequence> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>									

```

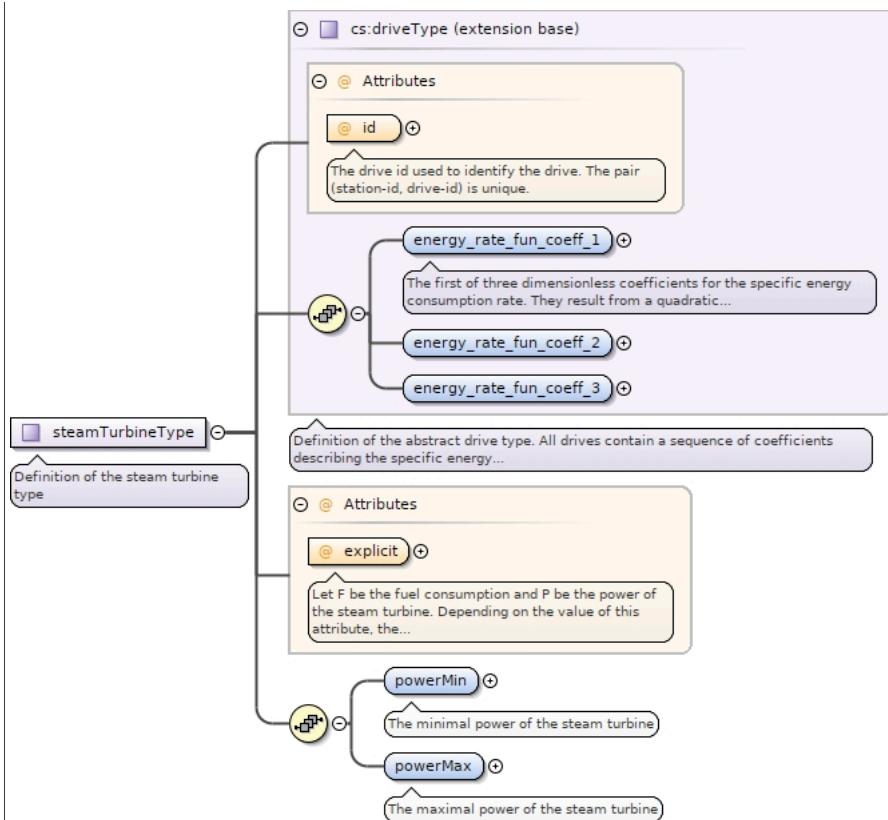
<xsd:sequence minOccurs="0" maxOccurs="1">
    <xsd:element name="power_fun_coeff_4" type="framework:noType"/>
    <xsd:element name="power_fun_coeff_5" type="framework:noType"/>
    <xsd:element name="power_fun_coeff_6" type="framework:noType"/>
    <xsd:element name="power_fun_coeff_7" type="framework:noType"/>
    <xsd:element name="power_fun_coeff_8" type="framework:noType"/>
    <xsd:element name="power_fun_coeff_9" type="framework:noType"/>
</xsd:sequence>
<xsd:sequence minOccurs="0">
    <xsd:element name="specificEnergyConsumptionMeasurements" type="cs:SEC_MeasurementsType">
        <xsd:annotation>
            <xsd:documentation>Defines a context for the measurements of the specific energy consumption</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element name="maximalPowerMeasurements">
        <xsd:annotation>
            <xsd:documentation>Defines a context for all maximal power measurements</xsd:documentation>
<xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:annotation>
                <xsd:documentation>Either a sequence of measurement or a sequence of ambientTemperature</xsd:documentation>
            </xsd:annotation>
            <xsd:choice>
                <xsd:sequence>
                    <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation>A single measurement in the case of a gas driven motor</xsd:documentation>
<xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
                <xsd:sequence>
                    <xsd:element name="ambientTemperature" maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation>The ambient temperature for all measurements in this context</xsd:documentation>
                        </xsd:annotation>
                        <xsd:complexType>
                            <xsd:annotation>
                                <xsd:documentation>A list of measurements</xsd:documentation>
                            </xsd:annotation>
                            <xsd:sequence>
                                <xsd:element name="measurement" type="cs:mp_measurementType" minOccurs="3" maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation>A single measurement in the case of a gas turbine</xsd:documentation>
<xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                            <xsd:attribute name="value" type="framework:double" use="required">
                                <xsd:annotation>
                                    <xsd:documentation>The value of the ambient temperature</xsd:documentation>
<xsd:documentation>
                                </xsd:annotation>
                            </xsd:attribute>
                            <xsd:attribute default="K" name="unit" type="framework:temperatureUnit">
                                <xsd:annotation>
                                    <xsd:documentation>The unit of the ambient temperature</xsd:documentation>
                                </xsd:annotation>
                            </xsd:attribute>
                        </xsd:complexType>
                    </xsd:element>
                </xsd:sequence>
            </xsd:choice>
        </xsd:complexType>
    </xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type cs:steamTurbineType

Namespace	http://gaslib.zib.de/CompressorStations
Annotations	Definition of the steam turbine type

Diagram



Type	extension of cs:driveType																						
Type hierarchy	<ul style="list-style-type: none"> • cs:driveType • cs:steamTurbineType 																						
Used by	Element cs:compressorStationsType/cs:compressorStation/cs:drives/cs:steamTurbine																						
Model	cs:energy_rate_fun_coeff_1 , cs:energy_rate_fun_coeff_2 , cs:energy_rate_fun_coeff_3 , cs:powerMin , cs:powerMax																						
Children	cs:energy_rate_fun_coeff_1, cs:energy_rate_fun_coeff_2, cs:energy_rate_fun_coeff_3, cs:powerMax, cs:powerMin																						
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>explicit</td> <td>xsd:boolean</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.</td></tr> <tr> <td>id</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</td></tr> </tbody> </table>	QName	Type	Use		explicit	xsd:boolean	required			Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.			id	xsd:string	required			The drive id used to identify the drive. The pair (station-id, drive-id) is unique.				
QName	Type	Use																					
explicit	xsd:boolean	required																					
	Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.																						
id	xsd:string	required																					
	The drive id used to identify the drive. The pair (station-id, drive-id) is unique.																						
Source	<pre> <xsd:complexType name="steamTurbineType"> <xsd:annotation> <xsd:documentation>Definition of the steam turbine type</xsd:documentation> </xsd:annotation> <xsd:complexContent> <xsd:extension base="cs:driveType"> <xsd:sequence> <xsd:element name="powerMin" type="framework:powerType"> <xsd:annotation> <xsd:documentation>The minimal power of the steam turbine</xsd:documentation> </xsd:annotation> </xsd:element> <xsd:element name="powerMax" type="framework:powerType"> <xsd:annotation> <xsd:documentation>The maximal power of the steam turbine</xsd:documentation> </xsd:annotation> </xsd:element> </xsd:sequence> </xsd:extension> </xsd:complexContent> </xsd:complexType> </pre>																						

```

<xsd:attribute name="explicit" type="xsd:boolean" use="required">
    <xsd:annotation>
        <xsd:documentation>Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have F(P) = a1 + a2*P + a3*P*P, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have P(F) = b1 + b2*F + b3*F*F, that is fuel consumption is implicitly given as solution of a quadratic function.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Complex Type cs:configurationType

Namespace	http://gaslib.zib.de/CompressorStations																				
Annotations	Definition of a compressor station configuration																				
Diagram	<pre> classDiagram class configurationType { @ Attributes @ confId @ nrOfSerialStages stage* } configurationType "1..∞" --> stage stage "*" --> configurationType note over configurationType: Definition of a compressor station configuration note over configurationType: The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique. note over configurationType: The number of stages working in serial in this configuration. note over stage: The stage of the configuration </pre>																				
Used by	Element cs:compressorStationsType/cs:compressorStation/cs:configurations/cs:configuration																				
Model	cs:stage+																				
Children	cs:stage																				
Attributes	<table border="1"> <thead> <tr> <th>QName</th> <th>Type</th> <th>Use</th> <th></th> </tr> </thead> <tbody> <tr> <td>confId</td> <td>xsd:string</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.</td></tr> <tr> <td>nrOfSerialStages</td> <td>xsd:positiveInteger</td> <td>required</td> <td></td> </tr> <tr> <td></td> <td colspan="3">The number of stages working in serial in this configuration.</td></tr> </tbody> </table>	QName	Type	Use		confId	xsd:string	required			The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.			nrOfSerialStages	xsd:positiveInteger	required			The number of stages working in serial in this configuration.		
QName	Type	Use																			
confId	xsd:string	required																			
	The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.																				
nrOfSerialStages	xsd:positiveInteger	required																			
	The number of stages working in serial in this configuration.																				
Source	<pre> <xsd:complexType name="configurationType"> <xsd:annotation> <xsd:documentation>Definition of a compressor station configuration</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="stage" minOccurs="1" maxOccurs="unbounded"> <xsd:annotation> <xsd:documentation>The stage of the configuration</xsd:documentation> </xsd:annotation> <xsd:complexType> <xsd:annotation> <xsd:documentation>A list of stages</xsd:documentation> </xsd:annotation> <xsd:sequence> <xsd:element name="compressor" minOccurs="1" maxOccurs="unbounded"> <xsd:complexType> <xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The compressor id of the compressor belonging in this stage</xsd:documentation> </xsd:annotation> </xsd:attribute> <xsd:attribute name="nominalSpeed" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>The nominal speed of the compressor</xsd:documentation> </xsd:annotation> </xsd:attribute> </xsd:complexType> </xsd:element> </xsd:sequence> <xsd:attribute name="stageNr" type="xsd:positiveInteger" use="required"> <xsd:annotation> </pre>																				

```

        <xsd:documentation>The number of this stage. The first stage has the number "1".</
xsd:documentation>
        </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="nrOfParallelUnits" type="xsd:positiveInteger" use="required">
            <xsd:annotation>
                <xsd:documentation>The number of compressors working in parallel in this stage.</
xsd:documentation>
            </xsd:annotation>
        </xsd:attribute>
        </xsd:complexType>
    </xsd:element>
</xsd:sequence>
<xsd:attribute name="confId" type="xsd:string" use="required">
    <xsd:annotation>
        <xsd:documentation>The configuration id used to identify the configuration. The pair (station-
id, configuration-id) is unique.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="nrOfSerialStages" type="xsd:positiveInteger" use="required">
    <xsd:annotation>
        <xsd:documentation>The number of stages working in serial in this configuration.</
xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:complexType>

```

Simple Type(s)

Simple Type cs:chokelineModeType

Namespace	http://gaslib.zib.de/CompressorStations						
Annotations	Definition of the chokeline mode of turbo compressors.						
Diagram	<p>chokelineModeType → xsd:string</p> <p>Definition of the chokeline mode of turbo compressors.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>						
Type	restriction of xsd:string						
Facets	<table> <tr> <td>enumeration</td> <td>chokeline</td> </tr> <tr> <td>enumeration</td> <td>maxSpeedIsoline</td> </tr> <tr> <td>enumeration</td> <td>constMaxVolFlow</td> </tr> </table>	enumeration	chokeline	enumeration	maxSpeedIsoline	enumeration	constMaxVolFlow
enumeration	chokeline						
enumeration	maxSpeedIsoline						
enumeration	constMaxVolFlow						
Used by	Attribute cs:turboCompressorType/@chokelineMode						
Source	<pre> <xsd:simpleType name="chokelineModeType"> <xsd:annotation> <xsd:documentation>Definition of the chokeline mode of turbo compressors.</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="chokeline"/> <xsd:enumeration value="maxSpeedIsoline"/> <xsd:enumeration value="constMaxVolFlow"/> </xsd:restriction> </xsd:simpleType> </pre>						

Simple Type cs:surgelineModeType

Namespace	http://gaslib.zib.de/CompressorStations				
Annotations	Definition of the surgeline mode of turbo compressors.				
Diagram	<p>surgelineModeType → xsd:string</p> <p>Definition of the surgeline mode of turbo compressors.</p> <p>Built-in primitive type. The string datatype represents character strings in XML.</p>				
Type	restriction of xsd:string				
Facets	<table> <tr> <td>enumeration</td> <td>surgeline</td> </tr> <tr> <td>enumeration</td> <td>maxSpeedIsoline</td> </tr> </table>	enumeration	surgeline	enumeration	maxSpeedIsoline
enumeration	surgeline				
enumeration	maxSpeedIsoline				
Used by	Attribute cs:turboCompressorType/@surgelineMode				
Source	<pre> <xsd:simpleType name="surgelineModeType"> <xsd:annotation> </pre>				

```

<xsd:documentation>Definition of the surgeline mode of turbo compressors.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
  <xsd:enumeration value="surgeline"/>
  <xsd:enumeration value="maxSpeedIsoline"/>
</xsd:restriction>
</xsd:simpleType>

```

Simple Type cs:kNmUnit

Namespace	http://gaslib.zib.de/CompressorStations	
Annotations	The "kilo newton per meter" unit	
Diagram	<p>The diagram shows a UML class named 'kNmUnit' with a multiplicity of 1..1. It has a directed association to another class named 'xsd:string' with a multiplicity of 0..1. A note below the association indicates: 'The "kilo newton per meter" unit'.</p>	
Type	restriction of xsd:string	
Facets	enumeration kNm	
Used by	Attribute cs:torqueType/@unit	
Source	<pre> <xsd:simpleType name="kNmUnit"> <xsd:annotation> <xsd:documentation>The "kilo newton per meter" unit</xsd:documentation> </xsd:annotation> <xsd:restriction base="xsd:string"> <xsd:enumeration value="kNm"/> </xsd:restriction> </xsd:simpleType> </pre>	

Namespace: ""

Attribute(s)

Attribute xschema:dateType / @day

Namespace	No namespace
Type	xs:date
Properties	content: simple
Used by	Complex Type xschema:dateType
Source	<xsd:attribute name="day" type="xs:date"/>

Attribute temperatureType / @unit

Namespace	No namespace						
Annotations	A temperature unit (default = Kelvin).						
Type	temperatureUnit						
Properties	default: K						
Facets	<table border="1"> <tr> <td>enumeration</td> <td>Celsius</td> </tr> <tr> <td>enumeration</td> <td>Fahrenheit</td> </tr> <tr> <td>enumeration</td> <td>K</td> </tr> </table>	enumeration	Celsius	enumeration	Fahrenheit	enumeration	K
enumeration	Celsius						
enumeration	Fahrenheit						
enumeration	K						
Used by	Complex Type temperatureType						
Source	<pre> <xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>A temperature unit (default = Kelvin).</xsd:documentation> </xsd:annotation> </xsd:attribute> </pre>						

Attribute temperatureType / @value

Namespace	No namespace
Annotations	Temperature value.

Type	xsd:double	
Properties	use: required	
Used by	Complex Type	temperatureType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Temperature value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute xschema:idGroup / @id

Namespace	No namespace							
Annotations	A unique identifier							
Type	restriction of xs:string							
Properties	use: required							
Facets	<table> <tr> <td>minLength</td> <td>2</td> </tr> <tr> <td>maxLength</td> <td>30</td> </tr> <tr> <td>pattern</td> <td>[a-zA-Z]{1}[a-zA-Z0-9_]*</td> </tr> </table>		minLength	2	maxLength	30	pattern	[a-zA-Z]{1}[a-zA-Z0-9_]*
minLength	2							
maxLength	30							
pattern	[a-zA-Z]{1}[a-zA-Z0-9_]*							
Used by	Attribute Group	xmleschema:idGroup						
Source	<pre><x:attribute name="id" use="required"> <x:annotation> <x:documentation>A unique identifier</x:documentation> </x:annotation> <x:simpleType> <x:restriction base="xs:string"> <xs:minLength value="2"/> <xs:maxLength value="30"/> <xs:pattern value="[a-zA-Z]{1}[a-zA-Z0-9_]*" /> </x:restriction> </x:simpleType> </x:attribute></pre>							

Attribute xschema:switch / @value

Namespace	No namespace	
Annotations	false, 0: closed true, 1: open	
Type	xs:boolean	
Properties	use: required	
Used by	Attribute Group	xmleschema:switch
Source	<pre><x:attribute name="value" use="required" type="xs:boolean"> <x:annotation> <x:documentation>false, 0: closed true, 1: open</x:documentation> </x:annotation> </x:attribute></pre>	

Attribute xschema:switch / @flowDirection

Namespace	No namespace									
Annotations	the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)									
Type	restriction of xs:string									
Properties	content: simple									
Facets	<table> <tr> <td>enumeration</td> <td>forward</td> </tr> <tr> <td>enumeration</td> <td>0</td> </tr> <tr> <td>enumeration</td> <td>backward</td> </tr> <tr> <td>enumeration</td> <td>1</td> </tr> </table>		enumeration	forward	enumeration	0	enumeration	backward	enumeration	1
enumeration	forward									
enumeration	0									
enumeration	backward									
enumeration	1									

Used by	Attribute Group	xmleschema:switch
Source		<pre> <xs:attribute name="flowDirection"> <xs:annotation> <xs:documentation>the extra attribute flowDirection makes sure that a compressorStation or a control valve in bypass-mode is only used in one direction. If the attribute is set to false or 0 it is only allowed to pass the element from tail to head (the given direction in the network). If the attribute is set to true or 1 it is only allowed to pass the element from head to tail (against the given direction in the network)</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="forward"/> <xs:enumeration value="0"/> <xs:enumeration value="backward"/> <xs:enumeration value="1"/> </xs:restriction> </xs:simpleType> </xs:attribute></pre>

Attribute xmleschema:activeGroup / @mode

Namespace	No namespace					
Annotations	When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.					
Type	restriction of xs:string					
Properties	content: simple					
Facets	<table> <tr> <td>enumeration</td> <td>active</td> </tr> <tr> <td>enumeration</td> <td>bypass</td> </tr> </table>		enumeration	active	enumeration	bypass
enumeration	active					
enumeration	bypass					
Used by	Attribute Group xmleschema:activeGroup					
Source	<pre> <xs:attribute name="mode"> <xs:annotation> <xs:documentation>When the element is open (value=1), the optional attribute 'mode' further refines the state of the element. The two possible values 'active' and 'bypass' fix the state, while a missing attribute allows for either.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="active"/> <xs:enumeration value="bypass"/> </xs:restriction> </xs:simpleType> </xs:attribute></pre>					

Attribute xmleschema:compressorStation / @config

Namespace	No namespace	
Annotations	When the element is active, the optional attribute 'config' further restricts the choice of the configuration.	
Type	xs:string	
Properties	content: simple	
Used by	Element xmleschema:compressorStation	
Source	<pre> <xs:attribute name="config" type="xs:string"> <xs:annotation> <xs:documentation>When the element is active, the optional attribute 'config' further restricts the choice of the configuration.</xs:documentation> </xs:annotation> </xs:attribute></pre>	

Attribute xmleschema:decision / @fullName

Namespace	No namespace	
Annotations	Full name of the decision	
Type	xs:string	
Properties	default:	

Used by	Element	xmlschema:decision
Source		<pre><xsd:attribute name="fullName" type="xs:string" default=""> <xsd:annotation> <xsd:documentation>Full name of the decision</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute nodeType / @id

Namespace	No namespace	
Annotations	A unique ID.	
Type	identifier	
Properties	use: required	
Facets	minLength	1
	maxLength	160
	pattern	(\i\c*) & ([\i-[:]][\c-[:]]*) & ([a-zA-Z]{1}[a-zA-Z0-9_]*)
Used by	Complex Type	nodeType
Source	<pre><xsd:attribute name="id" type="framework:identifier" use="required"> <xsd:annotation> <xsd:documentation>A unique ID.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute nodeType / @alias

Namespace	No namespace	
Annotations	An alias (optional, default="").	
Type	xsd:string	
Properties	default:	
Used by	Complex Type	nodeType
Source	<pre><xsd:attribute default="" name="alias" type="xsd:string"> <xsd:annotation> <xsd:documentation>An alias (optional, default="").</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute nodeType / @x

Namespace	No namespace	
Annotations	X-coordinate (optional, default=0.0).	
Type	xsd:decimal	
Properties	default: 0	
Used by	Complex Type	nodeType
Source	<pre><xsd:attribute default="0" name="x" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>X-coordinate (optional, default=0.0).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute nodeType / @y

Namespace	No namespace	
Annotations	Y-coordinate (optional, default=0.0).	
Type	xsd:decimal	
Properties	default: 0	
Used by	Complex Type	nodeType

Source	<pre><xsd:attribute default="0" name="Y" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>Y-coordinate (optional, default=0.0).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute connectionType / @id

Namespace	No namespace	
Annotations	A unique ID.	
Type	identifier	
Properties	use: required	
Facets	minLength	1
	maxLength	160
	pattern	(\i\c*) & ([\i-[:]][\c-[:]]*) & ([a-zA-Z]{1}[a-zA-Z0-9_]*)
Used by	Complex Type	connectionType
Source	<pre><xsd:attribute name="id" type="framework:identifier" use="required"> <xsd:annotation> <xsd:documentation>A unique ID.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute connectionType / @alias

Namespace	No namespace	
Annotations	An alias (optional, default="").	
Type	xsd:string	
Properties	default:	
Used by	Complex Type	connectionType
Source	<pre><xsd:attribute default="" name="alias" type="xsd:string"> <xsd:annotation> <xsd:documentation>An alias (optional, default="").</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute connectionType / @from

Namespace	No namespace	
Annotations	Tail of arc.	
Type	xsd:string	
Properties	use: required	
Used by	Complex Type	connectionType
Source	<pre><xsd:attribute name="from" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>Tail of arc.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute connectionType / @to

Namespace	No namespace	
Annotations	Head of arc.	
Type	xsd:string	
Properties	use: required	
Used by	Complex Type	connectionType
Source	<pre><xsd:attribute name="to" type="xsd:string" use="required"></pre>	

	<pre> <xsd:annotation> <xsd:documentation>Head of arc.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute lengthType / @unit

Namespace	No namespace	
Annotations	A length unit (default = meter).	
Type	lengthUnit	
Properties	default: m	
Facets	enumeration mm	
	enumeration cm	
	enumeration m	
	enumeration km	
Used by	Complex Type	lengthType
Source	<pre> <xsd:attribute default="m" name="unit" type="framework:lengthUnit"> <xsd:annotation> <xsd:documentation>A length unit (default = meter).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute lengthType / @value

Namespace	No namespace	
Annotations	Length value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	lengthType
Source	<pre> <xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Length value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute massType / @unit

Namespace	No namespace	
Annotations	A mass unit (default = kilogram).	
Type	massUnit	
Properties	default: kg	
Facets	enumeration kg	Kilogram.
	enumeration g	Gram.
	enumeration mg	Milligram.
Used by	Complex Type	massType
Source	<pre> <xsd:attribute default="kg" name="unit" type="framework:massUnit"> <xsd:annotation> <xsd:documentation>A mass unit (default = kilogram).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute massType / @value

Namespace	No namespace	
Annotations	Mass value.	
Type	xsd:double	
Properties	use: required	

Used by	Complex Type	massType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Mass value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute pressureType / @unit

Namespace	No namespace							
Annotations	A pressure unit (default = barg).							
Type	pressureUnit							
Properties	default: barg							
Facets	<table border="1"> <tr> <td>enumeration</td> <td>bar</td> </tr> <tr> <td>enumeration</td> <td>barg</td> </tr> <tr> <td>enumeration</td> <td>Pa</td> </tr> </table>		enumeration	bar	enumeration	barg	enumeration	Pa
enumeration	bar							
enumeration	barg							
enumeration	Pa							
Used by	Complex Type	pressureType						
Source	<pre><xsd:attribute default="barg" name="unit" type="framework:pressureUnit"> <xsd:annotation> <xsd:documentation>A pressure unit (default = barg).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>							

Attribute pressureType / @value

Namespace	No namespace	
Annotations	Pressure value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	pressureType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Pressure value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute flowType / @unit

Namespace	No namespace							
Annotations	A flow unit (default = cubic meters per second).							
Type	flowUnit							
Properties	default: 1000m_cube_per_hour							
Facets	<table border="1"> <tr> <td>enumeration</td> <td>m_cube_per_s</td> </tr> <tr> <td>enumeration</td> <td>m_cube_per_hour</td> </tr> <tr> <td>enumeration</td> <td>1000m_cube_per_hour</td> </tr> </table>		enumeration	m_cube_per_s	enumeration	m_cube_per_hour	enumeration	1000m_cube_per_hour
enumeration	m_cube_per_s							
enumeration	m_cube_per_hour							
enumeration	1000m_cube_per_hour							
Used by	Complex Type	flowType						
Source	<pre><xsd:attribute default="1000m_cube_per_hour" name="unit" type="framework:flowUnit"> <xsd:annotation> <xsd:documentation>A flow unit (default = cubic meters per second).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>							

Attribute flowType / @value

Namespace	No namespace	
Annotations	Flow value.	
Type	xsd:double	

Properties	use:	required
Used by	Complex Type	flowType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Flow value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute powerType / @unit

Namespace	No namespace	
Annotations	A power unit (default = kilowatt).	
Type	powerUnit	
Properties	default: kW	
Facets	enumeration	W Watt.
	enumeration	kW Kilowatt.
	enumeration	MW Megawatt.
	enumeration	mW Milliwatt.
Used by	Complex Type	powerType
Source	<pre><xsd:attribute default="kW" name="unit" type="framework:powerUnit"> <xsd:annotation> <xsd:documentation>A power unit (default = kilowatt).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute powerType / @value

Namespace	No namespace	
Annotations	Power value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	powerType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Power value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute densityType / @unit

Namespace	No namespace	
Annotations	A density unit (default = kilogramm per cubicmeter).	
Type	densityUnit	
Properties	default: kg_per_m_cube	
Facets	enumeration	kg_per_m_cube Kilogram per cubic meter.
Used by	Complex Type	densityType
Source	<pre><xsd:attribute default="kg_per_m_cube" name="unit" type="framework:densityUnit"> <xsd:annotation> <xsd:documentation>A density unit (default = kilogramm per cubicmeter).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute densityType / @value

Namespace	No namespace	
Annotations	Density value.	
Type	xsd:double	

Properties	use:	required
Used by	Complex Type	densityType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Density value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute velocityType / @unit

Namespace	No namespace	
Annotations	A velocity unit (default = meter per second).	
Type	velocityUnit	
Properties	default:	m_per_s
Facets	enumeration	m_per_s Meter per second.
Used by	Complex Type	velocityType
Source	<pre><xsd:attribute default="m_per_s" name="unit" type="framework:velocityUnit"> <xsd:annotation> <xsd:documentation>A velocity unit (default = meter per second).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute velocityType / @value

Namespace	No namespace	
Annotations	Velocity value.	
Type	xsd:double	
Properties	use:	required
Used by	Complex Type	velocityType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Velocity value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute areaType / @unit

Namespace	No namespace	
Annotations	An area unit (default = square meters).	
Type	areaUnit	
Properties	default:	m_square
Facets	enumeration	mm_square
	enumeration	cm_square
	enumeration	m_square
	enumeration	km_square
Used by	Complex Type	areaType
Source	<pre><xsd:attribute default="m_square" name="unit" type="framework:areaUnit"> <xsd:annotation> <xsd:documentation>An area unit (default = square meters).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute areaType / @value

Namespace	No namespace	
Annotations	Area value.	
Type	xsd:double	

Properties	use:	required
Used by	Complex Type	areaType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Area value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute volumeType / @unit

Namespace	No namespace	
Annotations	A volume unit (default = cubic meter).	
Type	volumeUnit	
Properties	default: m_cube	
Facets	enumeration	m_cube
	enumeration	mm_cube
	enumeration	cm_cube
	enumeration	m_cube
	enumeration	km_cube
Used by	Complex Type	volumeType
Source	<pre><xsd:attribute default="m_cube" name="unit" type="framework:volumeUnit"> <xsd:annotation> <xsd:documentation>A volume unit (default = cubic meter).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute volumeType / @value

Namespace	No namespace	
Annotations	Volume value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	volumeType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Volume value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute electricalCurrentType / @unit

Namespace	No namespace	
Annotations	An electric current unit (default = ampere).	
Type	electricalCurrentUnit	
Properties	default: A	
Facets	enumeration	A Ampere.
	enumeration	mA Milliampere.
	enumeration	kA Kiloampere.
Used by	Complex Type	electricalCurrentType
Source	<pre><xsd:attribute default="A" name="unit" type="framework:electricalCurrentUnit"> <xsd:annotation> <xsd:documentation>An electric current unit (default = ampere).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute electricalCurrentType / @value

Namespace	No namespace
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Annotations	Electric current value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	electricalCurrentType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Electric current value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute amountOfSubstanceType / @unit

Namespace	No namespace	
Annotations	An amount of substance unit (default = mol).	
Type	amountOfSubstanceUnit	
Properties	default: mol	
Facets	enumeration	mol Mol.
Used by	Complex Type	amountOfSubstanceType
Source	<pre><xsd:attribute default="mol" name="unit" type="framework:amountOfSubstanceUnit"> <xsd:annotation> <xsd:documentation>An amount of substance unit (default = mol).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute amountOfSubstanceType / @value

Namespace	No namespace	
Annotations	Amount of substance value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	amountOfSubstanceType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Amount of substance value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute luminousIntensityType / @unit

Namespace	No namespace	
Annotations	A luminous intensity unit (default = candela).	
Type	luminousIntensityUnit	
Properties	default: cd	
Facets	enumeration	cd Candela.
Used by	Complex Type	luminousIntensityType
Source	<pre><xsd:attribute default="cd" name="unit" type="framework:luminousIntensityUnit"> <xsd:annotation> <xsd:documentation>A luminous intensity unit (default = candela).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute luminousIntensityType / @value

Namespace	No namespace	
Annotations	Luminous intensity value.	
Type	xsd:double	
Properties	use: required	

Used by	Complex Type	luminousIntensityType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Luminous intensity value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute timeType / @unit

Namespace	No namespace										
Annotations	A time unit (default = second).										
Type	timeUnit										
Properties	default: s										
Facets	<table> <tr> <td>enumeration</td> <td>s</td> <td>Second.</td> </tr> <tr> <td>enumeration</td> <td>min</td> <td>Minute.</td> </tr> <tr> <td>enumeration</td> <td>hour</td> <td>Hour.</td> </tr> </table>		enumeration	s	Second.	enumeration	min	Minute.	enumeration	hour	Hour.
enumeration	s	Second.									
enumeration	min	Minute.									
enumeration	hour	Hour.									
Used by	Complex Type	timeType									
Source	<pre><xsd:attribute default="s" name="unit" type="framework:timeUnit"> <xsd:annotation> <xsd:documentation>A time unit (default = second).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>										

Attribute timeType / @value

Namespace	No namespace	
Annotations	Time value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	timeType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Time value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute pressureDifferenceType / @unit

Namespace	No namespace					
Annotations	A pressure difference unit (default = bar).					
Type	pressureDifferenceUnit					
Properties	default: bar					
Facets	<table> <tr> <td>enumeration</td> <td>bar</td> </tr> <tr> <td>enumeration</td> <td>Pa</td> </tr> </table>		enumeration	bar	enumeration	Pa
enumeration	bar					
enumeration	Pa					
Used by	Complex Type	pressureDifferenceType				
Source	<pre><xsd:attribute default="bar" name="unit" type="framework:pressureDifferenceUnit"> <xsd:annotation> <xsd:documentation>A pressure difference unit (default = bar).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>					

Attribute pressureDifferenceType / @value

Namespace	No namespace	
Annotations	Pressure value.	
Type	xsd:double	
Properties	use: required	

Used by	Complex Type	pressureDifferenceType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Pressure value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute heatTransferType / @unit

Namespace	No namespace	
Annotations	A heat transfer unit (default = watt per square meters per Kelvin).	
Type	heatTransferUnit	
Properties	default: W_per_m_square_per_K	
Facets	enumeration W_per_m_square_per_K	
Used by	Complex Type	heatTransferType
Source	<pre><xsd:attribute default="W_per_m_square_per_K" name="unit" type="framework:heatTransferUnit"> <xsd:annotation> <xsd:documentation>A heat transfer unit (default = watt per square meters per Kelvin).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute heatTransferType / @value

Namespace	No namespace	
Annotations	Heat transfer value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	heatTransferType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Heat transfer value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute calorificValueType / @unit

Namespace	No namespace	
Annotations	unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.	
Type	MJ_per_m_cubeUnit	
Properties	default: MJ_per_m_cube	
Facets	enumeration MJ_per_m_cube	
Used by	Complex Type	calorificValueType
Source	<pre><xsd:attribute default="MJ_per_m_cube" name="unit" type="MJ_per_m_cubeUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the calorific value of the gas. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute calorificValueType / @value

Namespace	No namespace	
Annotations	value is the value of the calorific value of the gas. Unit is specified by type.	
Type	double	
Properties	use: required	
Used by	Complex Type	calorificValueType

Source	<pre><xsd:attribute name="value" type="double" use="required"> <xsd:annotation> <xsd:documentation>value is the value of the calorific value of the gas. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute stateType / @value

Namespace	No namespace					
Annotations	Discrete state.					
Type	onOffPattern					
Properties	use: required					
Facets	<table border="1"> <tr> <td>enumeration</td> <td>on</td> </tr> <tr> <td>enumeration</td> <td>off</td> </tr> </table>		enumeration	on	enumeration	off
enumeration	on					
enumeration	off					
Used by	Complex Type	stateType				
Source	<pre><xsd:attribute name="value" type="framework:onOffPattern" use="required"> <xsd:annotation> <xsd:documentation>Discrete state.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>					

Attribute costType / @unit

Namespace	No namespace							
Annotations	Cost unit in currency: EUR.							
Type	costUnit							
Properties	default: MEUR							
Facets	<table border="1"> <tr> <td>enumeration</td> <td>EUR</td> <td>EUR.</td> </tr> <tr> <td>enumeration</td> <td>MEUR</td> <td>Mio EUR.</td> </tr> </table>		enumeration	EUR	EUR.	enumeration	MEUR	Mio EUR.
enumeration	EUR	EUR.						
enumeration	MEUR	Mio EUR.						
Used by	Complex Type	costType						
Source	<pre><xsd:attribute name="unit" type="framework:costUnit" default="MEUR"> <xsd:annotation> <xsd:documentation>Cost unit in currency: EUR.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>							

Attribute costType / @value

Namespace	No namespace	
Annotations	Cost value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	costType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Cost value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute costFactorType / @unit

Namespace	No namespace				
Annotations	Cost in EUR per meter.				
Type	costFactorUnit				
Properties	use: required				
Facets	<table border="1"> <tr> <td>enumeration</td> <td>EUR_per_m</td> <td>EUR per meter.</td> </tr> </table>		enumeration	EUR_per_m	EUR per meter.
enumeration	EUR_per_m	EUR per meter.			

Used by	Complex Type	costFactorType
Source	<pre><xsd:attribute name="unit" type="framework:costFactorUnit" use="required"> <xsd:annotation> <xsd:documentation>Cost in EUR per meter.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute costFactorType / @value

Namespace	No namespace	
Annotations	Cost factor value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	costFactorType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Cost factor value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute speedType / @unit

Namespace	No namespace	
Annotations	A speed unit (default = 1/min).	
Type	speedUnit	
Properties	default: per_min	
Facets	enumeration	per_min 1/min.
Used by	Complex Type	speedType
Source	<pre><xsd:attribute default="per_min" name="unit" type="framework:speedUnit"> <xsd:annotation> <xsd:documentation>A speed unit (default = 1/min).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute speedType / @value

Namespace	No namespace	
Annotations	speed value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	speedType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>speed value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute noType / @value

Namespace	No namespace	
Annotations	Value.	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	noType
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Value.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

<pre></xsd:attribute></pre>

Attribute molarMassType / @unit

Namespace	No namespace	
Annotations	unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.	
Type	kg_per_kmolUnit	
Properties	default: kg_per_kmol	
Facets	enumeration	kg_per_kmol
Used by	Complex Type	molarMassType
Source	<pre><xsd:attribute default="kg_per_kmol" name="unit" type="kg_per_kmolUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the molar mass of the gas. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute molarMassType / @value

Namespace	No namespace	
Annotations	value is the value of the molar mass of the gas. Unit is specified by type.	
Type	double	
Properties	use: required	
Used by	Complex Type	molarMassType
Source	<pre><xsd:attribute name="value" type="double" use="required"> <xsd:annotation> <xsd:documentation>value is the value of the molar mass of the gas. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:scenarioProbabilityType / @value

Namespace	No namespace	
Annotations	The probability of the scenario given as value in [0,1]	
Type	gas:probability	
Properties	use: required	
Facets	maxInclusive	1.0
	minInclusive	0.0
Used by	Complex Type	gas:scenarioProbabilityType
Source	<pre><xsd:attribute name="value" type="gas:probability" use="required"> <xsd:annotation> <xsd:documentation>The probability of the scenario given as value in [0,1]</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:contractDateType / @value

Namespace	No namespace	
Annotations	Date of the underlying contract	
Type	xsd:date	
Properties	use: required	
Used by	Complex Type	gas:contractDateType
Source	<pre><xsd:attribute name="value" type="xsd:date" use="required"> <xsd:annotation> <xsd:documentation>Date of the underlying contract</xsd:documentation></pre>	

	<pre></xsd:annotation> </xsd:attribute></pre>
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Attribute gas:dataDateType / @value

Namespace	No namespace	
Annotations	Date of scenario data	
Type	xsd:date	
Properties	use:	required
Used by	Complex Type	gas:dataDateType
Source	<pre><xsd:attribute name="value" type="xsd:date" use="required"> <xsd:annotation> <xsd:documentation>Date of scenario data</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:usesInterruptibleCapType / @value

Namespace	No namespace	
Annotations	Indicates whether interruptible capacities are used	
Type	xsd:boolean	
Properties	use:	required
Used by	Complex Type	gas:usesInterruptibleCapType
Source	<pre><xsd:attribute name="value" type="xsd:boolean" use="required"> <xsd:annotation> <xsd:documentation>Indicates whether interruptible capacities are used</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:reducedMunicipalUtilityType / @value

Namespace	No namespace	
Annotations	Indicates whether municipal utilities are involved	
Type	xsd:boolean	
Properties	use:	required
Used by	Complex Type	gas:reducedMunicipalUtilityType
Source	<pre><xsd:attribute name="value" type="xsd:boolean" use="required"> <xsd:annotation> <xsd:documentation>Indicates whether municipal utilities are involved</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:pressure_type / @bound

Namespace	No namespace	
Annotations	Indicates what type of bound is given (lower, upper or both)	
Type	gas:resbound	
Properties	use:	required
Facets	enumeration	lower
	enumeration	upper
	enumeration	both
Used by	Complex Type	gas:pressure_type
Source	<pre><xsd:attribute name="bound" type="gas:resbound" use="required"> <xsd:annotation> <xsd:documentation>Indicates what type of bound is given (lower, upper or both)</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:pressure_type / @unit

Namespace	No namespace	
Annotations	Unit of the given pressure value	
Type	pressureUnit	
Properties	default: barg	
Facets	enumeration	bar
	enumeration	barg
	enumeration	Pa
Used by	Complex Type	gas:pressure_type
Source	<pre><xsd:attribute name="unit" type="framework:pressureUnit" default="barg"> <xsd:annotation> <xsd:documentation>Unit of the given pressure value</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:pressure_type / @value

Namespace	No namespace	
Annotations	Pressure value of the bound	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	gas:pressure_type
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Pressure value of the bound</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:flow_type / @bound

Namespace	No namespace	
Annotations	Indicates what type of bound is given (lower, upper or both)	
Type	gas:resbound	
Properties	use: required	
Facets	enumeration	lower
	enumeration	upper
	enumeration	both
Used by	Complex Type	gas:flow_type
Source	<pre><xsd:attribute name="bound" type="gas:resbound" use="required"> <xsd:annotation> <xsd:documentation>Indicates what type of bound is given (lower, upper or both)</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:flow_type / @unit

Namespace	No namespace	
Annotations	Unit of the given flow value	
Type	flowUnit	
Properties	default: m_cube_per_s	
Facets	enumeration	m_cube_per_s
	enumeration	m_cube_per_hour
	enumeration	1000m_cube_per_hour

Used by	Complex Type	gas:flow_type
Source	<pre><xsd:attribute name="unit" type="framework:flowUnit" default="m_cube_per_s"> <xsd:annotation> <xsd:documentation>Unit of the given flow value</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:flow_type / @value

Namespace	No namespace	
Annotations	Flow value of the bound	
Type	xsd:double	
Properties	use: required	
Used by	Complex Type	gas:flow_type
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Flow value of the bound</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:power_type / @bound

Namespace	No namespace							
Annotations	Indicates what type of bound is given (lower, upper or both)							
Type	gas:resbound							
Properties	use: required							
Facets	<table> <tr> <td>enumeration</td> <td>lower</td> </tr> <tr> <td>enumeration</td> <td>upper</td> </tr> <tr> <td>enumeration</td> <td>both</td> </tr> </table>		enumeration	lower	enumeration	upper	enumeration	both
enumeration	lower							
enumeration	upper							
enumeration	both							
Used by	Complex Type	gas:power_type						
Source	<pre><xsd:attribute name="bound" type="gas:resbound" use="required"> <xsd:annotation> <xsd:documentation>Indicates what type of bound is given (lower, upper or both)</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>							

Attribute gas:power_type / @unit

Namespace	No namespace													
Annotations	Unit of the given power value													
Type	powerUnit													
Properties	default: kW													
Facets	<table> <tr> <td>enumeration</td> <td>W</td> <td>Watt.</td> </tr> <tr> <td>enumeration</td> <td>kW</td> <td>Kilowatt.</td> </tr> <tr> <td>enumeration</td> <td>MW</td> <td>Megawatt.</td> </tr> <tr> <td>enumeration</td> <td>mW</td> <td>Milliwatt.</td> </tr> </table>		enumeration	W	Watt.	enumeration	kW	Kilowatt.	enumeration	MW	Megawatt.	enumeration	mW	Milliwatt.
enumeration	W	Watt.												
enumeration	kW	Kilowatt.												
enumeration	MW	Megawatt.												
enumeration	mW	Milliwatt.												
Used by	Complex Type	gas:power_type												
Source	<pre><xsd:attribute name="unit" type="framework:powerUnit" default="kW"> <xsd:annotation> <xsd:documentation>Unit of the given power value</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>													

Attribute gas:power_type / @value

Namespace	No namespace
Annotations	Power value of the bound

Type	xsd:double	
Properties	use:	required
Used by	Complex Type	gas:power_type
Source	<pre><xsd:attribute name="value" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>Power value of the bound</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:activeContractType / @id

Namespace	No namespace	
Annotations	Identifier of the contract	
Type	ambiguousIdentifier	
Properties	use: required	
Facets	minLength	1
	maxLength	160
	pattern	[a-zA-Z]{1}[a-zA-Z0-9_]*
Used by	Complex Type	gas:activeContractType
Source	<pre><xsd:attribute name="id" use="required" type="framework:ambiguousIdentifier"> <xsd:annotation> <xsd:documentation>Identifier of the contract</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:activeContractType / @type

Namespace	No namespace	
Annotations	Type of contract	
Type	xsd:string	
Properties	use: required	
Used by	Complex Type	gas:activeContractType
Source	<pre><xsd:attribute name="type" use="required" type="xsd:string"> <xsd:annotation> <xsd:documentation>Type of contract</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:boundaryValue / gas:scenario / gas:node / @type

Namespace	No namespace	
Annotations	The type of the node.	
Type	gas:nodetype	
Properties	use: required	
Facets	enumeration	exit
	enumeration	entry
Used by	Element	gas:boundaryValue/gas:scenario/gas:node
Source	<pre><xsd:attribute name="type" type="gas:nodetype" use="required"> <xsd:annotation> <xsd:documentation>The type of the node.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute gas:boundaryValue / gas:scenario / gas:node / @id

Namespace	No namespace	
Annotations	The ID of the node.	

Type	xsd:string
Properties	use: required
Used by	Element gas:boundaryValue/gas:scenario/gas:node
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the node.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / gas:innode / @id

Namespace	No namespace
Annotations	The ID of the node.
Type	xsd:string
Properties	use: required
Used by	Element gas:boundaryValue/gas:scenario/gas:innode
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the node.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / gas:pipe / @id

Namespace	No namespace
Annotations	The ID of the pipe.
Type	xsd:string
Properties	use: required
Used by	Element gas:boundaryValue/gas:scenario/gas:pipe
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the pipe.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / gas:controlValve / @id

Namespace	No namespace
Annotations	The ID of the pipe.
Type	xsd:string
Properties	use: required
Used by	Element gas:boundaryValue/gas:scenario/gas:controlValve
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the pipe.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / gas:controlValve / @gasPreheaterExisting

Namespace	No namespace
Annotations	gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.
Type	xsd:boolean
Properties	default: 0
Used by	Element gas:boundaryValue/gas:scenario/gas:controlValve

Source	<pre><xsd:attribute name="gasPreheaterExisting" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute gas:boundaryValue / gas:scenario / gas:compressorStation / @id

Namespace	No namespace
Annotations	The ID of the compressor station.
Type	xsd:string
Properties	use: required
Used by	Element gas:boundaryValue/gas:scenario/gas:compressorStation
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The ID of the compressor station.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / gas:compressorStation / @gasCoolerExisting

Namespace	No namespace
Annotations	gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).
Type	xsd:boolean
Properties	default: 0
Used by	Element gas:boundaryValue/gas:scenario/gas:compressorStation
Source	<pre><xsd:attribute name="gasCoolerExisting" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / gas:compressorStation / @saveBypass

Namespace	No namespace
Annotations	is valve separating uncontrolled areas in network
Type	xsd:boolean
Properties	default: 0
Used by	Element gas:boundaryValue/gas:scenario/gas:compressorStation
Source	<pre><xsd:attribute name="saveBypass" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>is valve separating uncontrolled areas in network</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute gas:boundaryValue / gas:scenario / @id

Namespace	No namespace
Annotations	The ID of the scenario.
Type	xsd:string
Properties	default: scenario
Used by	Element gas:boundaryValue/gas:scenario

Source	<pre><xsd:attribute name="id" type="xsd:string" default="scenario"> <xsd:annotation> <xsd:documentation>The ID of the scenario.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute gas:boundaryValue / gas:scenario / @defaultPowerAndFlowZero

Namespace	No namespace
Annotations	If the value of this attribute is 1 (true) then the flow and power values of all sources and sinks, which are present in the network but not specified in the scenario are set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in the scenario are set to the values given in the net file. This attribute is optional with default value 0 (false).
Type	boolean
Properties	default: 0
Used by	Element gas:boundaryValue/gas:scenario
Source	<pre><xsd:attribute name="defaultPowerAndFlowZero" type="framework:boolean" default="0"> <xsd:annotation> <xsd:documentation>If the value of this attribute is 1 (true) then the flow and power values of all sources and sinks, which are present in the network but not specified in the scenario are set to 0. Otherwise the flow and power bounds for sources and sinks which are not specified in the scenario are set to the values given in the net file. This attribute is optional with default value 0 (false).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:speedType / @unit

Namespace	No namespace
Annotations	Unit of speed
Type	per_minUnit
Properties	default: per_min
Facets	enumeration per_min
Used by	Complex Type cs:speedType
Source	<pre><xsd:attribute default="per_min" name="unit" type="gas:per_minUnit"> <xsd:annotation> <xsd:documentation>Unit of speed</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:speedType / @value

Namespace	No namespace
Annotations	Value of speed
Type	double
Properties	use: required
Used by	Complex Type cs:speedType
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>Value of speed</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:compressorType / @id

Namespace	No namespace
Annotations	The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.
Type	xsd:string
Properties	use: required

Used by	Complex Type	cs:compressorType
Source		<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The compressor id used to identify the compressor. The pair (station-id, compressor-id) is unique.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:compressorType / @drive

Namespace	No namespace	
Annotations	The corresponding drive to the compressor	
Type	xsd:string	
Properties	use: required	
Used by	Complex Type	cs:compressorType
Source	<pre><xsd:attribute name="drive" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The corresponding drive to the compressor</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute cs:tc_measurementType / cs:adiabaticHead / @unit

Namespace	No namespace	
Annotations	The unit of the adiabatic head	
Type	string	
Properties	default: kJ_per_kg	
Used by	Element	cs:tc_measurementType/cs:adiabaticHead
Source	<pre><xsd:attribute default="kJ_per_kg" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the adiabatic head</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute cs:tc_measurementType / cs:adiabaticHead / @value

Namespace	No namespace	
Annotations	The value of the adiabatic head	
Type	double	
Properties	use: required	
Used by	Element	cs:tc_measurementType/cs:adiabaticHead
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the adiabatic head</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute cs:tc_measurementType / cs:volumetricFlowrate / @unit

Namespace	No namespace	
Annotations	The unit of the volumetric flowrate	
Type	string	
Properties	default: m_cube_per_s	
Used by	Element	cs:tc_measurementType/cs:volumetricFlowrate
Source	<pre><xsd:attribute default="m_cube_per_s" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the volumetric flowrate</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute cs:tc_measurementType / cs:volumetricFlowrate / @value

Namespace	No namespace
Annotations	The value of the volumetric flowrate
Type	double
Properties	use: required
Used by	Element cs:tc_measurementType/cs:volumetricFlowrate
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the volumetric flowrate</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:turboCompressorType / cs:characteristicDiagramMeasurements / cs:adiabaticEfficiency / @value

Namespace	No namespace
Annotations	Defines the adiabatic efficiency for all measurements in this context
Type	xsd:string
Properties	use: required
Used by	Element cs:turboCompressorType/cs:characteristicDiagramMeasurements/cs:adiabaticEfficiency
Source	<pre><xsd:attribute name="value" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>Defines the adiabatic efficiency for all measurements in this context</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:turboCompressorType / @chokelineMode

Namespace	No namespace						
Type	cs:chokelineModeType						
Properties	content: simple						
Facets	<table> <tr> <td>enumeration</td> <td>chokeline</td> </tr> <tr> <td>enumeration</td> <td>maxSpeedIsoline</td> </tr> <tr> <td>enumeration</td> <td>constMaxVolFlow</td> </tr> </table>	enumeration	chokeline	enumeration	maxSpeedIsoline	enumeration	constMaxVolFlow
enumeration	chokeline						
enumeration	maxSpeedIsoline						
enumeration	constMaxVolFlow						
Used by	Complex Type cs:turboCompressorType						
Source	<pre><xsd:attribute name="chokelineMode" type="cs:chokelineModeType"/></pre>						

Attribute cs:turboCompressorType / @surgeLineMode

Namespace	No namespace				
Type	cs:surgeLineModeType				
Properties	content: simple				
Facets	<table> <tr> <td>enumeration</td> <td>surgeLine</td> </tr> <tr> <td>enumeration</td> <td>maxSpeedIsoline</td> </tr> </table>	enumeration	surgeLine	enumeration	maxSpeedIsoline
enumeration	surgeLine				
enumeration	maxSpeedIsoline				
Used by	Complex Type cs:turboCompressorType				
Source	<pre><xsd:attribute name="surgeLineMode" type="cs:surgeLineModeType"/></pre>				

Attribute cs:torqueType / @unit

Namespace	No namespace
Annotations	Unit of the torque
Type	cs:kNmUnit

Properties	default:	kNm
Facets	enumeration	kNm
Used by	Complex Type	cs:torqueType
Source	<pre><xsd:attribute default="kNm" name="unit" type="cs:kNmUnit"> <xsd:annotation> <xsd:documentation>Unit of the torque</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute cs:torqueType / @value

Namespace	No namespace
Annotations	Value of the torque
Type	double
Properties	use: required
Used by	Complex Type cs:torqueType
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>Value of the torque</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:driveType / @id

Namespace	No namespace
Annotations	The drive id used to identify the drive. The pair (station-id, drive-id) is unique.
Type	xsd:string
Properties	use: required
Used by	Complex Type cs:driveType
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The drive id used to identify the drive. The pair (station-id, drive-id) is unique.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:SEC_MeasurementsType / cs:measurement / cs:compressorPower / @unit

Namespace	No namespace
Annotations	The unit of the compressor power
Type	string
Properties	default: kW
Used by	Element cs:SEC_MeasurementsType/cs:measurement/cs:compressorPower
Source	<pre><xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:SEC_MeasurementsType / cs:measurement / cs:compressorPower / @value

Namespace	No namespace
Annotations	The unit of the compressor power
Type	double
Properties	use: required
Used by	Element cs:SEC_MeasurementsType/cs:measurement/cs:compressorPower
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation></pre>

	<pre><xsd:documentation>The unit of the compressor power</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute cs:SEC_MeasurementsType / cs:measurement / cs:fuelConsumption / @unit

Namespace	No namespace
Annotations	The unit of the fuel consumption
Type	string
Properties	default: kW
Used by	Element cs:SEC_MeasurementsType/cs:measurement/cs:fuelConsumption
Source	<pre><xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:SEC_MeasurementsType / cs:measurement / cs:fuelConsumption / @value

Namespace	No namespace
Annotations	The value of the fuel consumption
Type	double
Properties	use: required
Used by	Element cs:SEC_MeasurementsType/cs:measurement/cs:fuelConsumption
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the fuel consumption</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:mp_measurementType / cs:maximalPower / @unit

Namespace	No namespace
Annotations	The unit of the maximal power
Type	string
Properties	default: kW
Used by	Element cs:mp_measurementType/cs:maximalPower
Source	<pre><xsd:attribute default="kW" name="unit" type="framework:string"> <xsd:annotation> <xsd:documentation>The unit of the maximal power</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:mp_measurementType / cs:maximalPower / @value

Namespace	No namespace
Annotations	The value of the maximal power
Type	double
Properties	use: required
Used by	Element cs:mp_measurementType/cs:maximalPower
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the maximal power</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:gasTurbineType / cs:maximalPowerMeasurements / cs:ambientTemperature / @value

Namespace	No namespace
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Annotations	The value of the ambient temperature
Type	double
Properties	use: required
Used by	Element cs:gasTurbineType/cs:maximalPowerMeasurements/cs:ambientTemperature
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:gasTurbineType / cs:maximalPowerMeasurements / cs:ambientTemperature / @unit

Namespace	No namespace						
Annotations	The unit of the ambient temperature						
Type	temperatureUnit						
Properties	default: K						
Facets	<table> <tr> <td>enumeration</td> <td>Celsius</td> </tr> <tr> <td>enumeration</td> <td>Fahrenheit</td> </tr> <tr> <td>enumeration</td> <td>K</td> </tr> </table>	enumeration	Celsius	enumeration	Fahrenheit	enumeration	K
enumeration	Celsius						
enumeration	Fahrenheit						
enumeration	K						
Used by	Element cs:gasTurbineType/cs:maximalPowerMeasurements/cs:ambientTemperature						
Source	<pre><xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>The unit of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>						

Attribute cs:electricMotorType / cs:maximalPowerMeasurements / cs:ambientTemperature / @value

Namespace	No namespace
Annotations	The value of the ambient temperature
Type	double
Properties	use: required
Used by	Element cs:electricMotorType/cs:maximalPowerMeasurements/cs:ambientTemperature
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>The value of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:electricMotorType / cs:maximalPowerMeasurements / cs:ambientTemperature / @unit

Namespace	No namespace						
Annotations	The unit of the ambient temperature						
Type	temperatureUnit						
Properties	default: K						
Facets	<table> <tr> <td>enumeration</td> <td>Celsius</td> </tr> <tr> <td>enumeration</td> <td>Fahrenheit</td> </tr> <tr> <td>enumeration</td> <td>K</td> </tr> </table>	enumeration	Celsius	enumeration	Fahrenheit	enumeration	K
enumeration	Celsius						
enumeration	Fahrenheit						
enumeration	K						
Used by	Element cs:electricMotorType/cs:maximalPowerMeasurements/cs:ambientTemperature						
Source	<pre><xsd:attribute default="K" name="unit" type="framework:temperatureUnit"> <xsd:annotation> <xsd:documentation>The unit of the ambient temperature</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>						

<pre></xsd:annotation> </xsd:attribute></pre>

Attribute cs:steamTurbineType / @explicit

Namespace	No namespace
Annotations	Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.
Type	xsd:boolean
Properties	use: required
Used by	Complex Type cs:steamTurbineType
Source	<pre><xsd:attribute name="explicit" type="xsd:boolean" use="required"> <xsd:annotation> <xsd:documentation>Let F be the fuel consumption and P be the power of the steam turbine. Depending on the value of this attribute, the interpretation of the given coefficients change. If explicit=true, we have $F(P) = a1 + a2*P + a3*P^2$, which means fuel consumption is expressed in terms of power, which is explicit. Else, we have $P(F) = b1 + b2*F + b3*F^2$, that is fuel consumption is implicitly given as solution of a quadratic function.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:configurationType / cs:stage / cs:compressor / @id

Namespace	No namespace
Annotations	The compressor id of the compressor belonging in this stage
Type	xsd:string
Properties	use: required
Used by	Element cs:configurationType/cs:stage/cs:compressor
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The compressor id of the compressor belonging in this stage</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:configurationType / cs:stage / cs:compressor / @nominalSpeed

Namespace	No namespace
Annotations	The nominal speed of the compressor
Type	xsd:double
Properties	use: required
Used by	Element cs:configurationType/cs:stage/cs:compressor
Source	<pre><xsd:attribute name="nominalSpeed" type="xsd:double" use="required"> <xsd:annotation> <xsd:documentation>The nominal speed of the compressor</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:configurationType / cs:stage / @stageNr

Namespace	No namespace
Annotations	The number of this stage. The first stage has the number "1".
Type	xsd:positiveInteger
Properties	use: required
Used by	Element cs:configurationType/cs:stage

Source	<pre><xsd:attribute name="stageNr" type="xsd:positiveInteger" use="required"> <xsd:annotation> <xsd:documentation>The number of this stage. The first stage has the number "1".</ xsd:documentation> </xsd:annotation> </xsd:attribute></pre>
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Attribute cs:configurationType / cs:stage / @nrOfParallelUnits

Namespace	No namespace
Annotations	The number of compressors working in parallel in this stage.
Type	xsd:positiveInteger
Properties	use: required
Used by	Element cs:configurationType/cs:stage
Source	<pre><xsd:attribute name="nrOfParallelUnits" type="xsd:positiveInteger" use="required"> <xsd:annotation> <xsd:documentation>The number of compressors working in parallel in this stage.</ xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:configurationType / @confId

Namespace	No namespace
Annotations	The configuration id used to identify the configuration. The pair (station-id, configuration-id) is unique.
Type	xsd:string
Properties	use: required
Used by	Complex Type cs:configurationType
Source	<pre><xsd:attribute name="confId" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The configuration id used to identify the configuration. The pair (station- id, configuration-id) is unique.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:configurationType / @nrOfSerialStages

Namespace	No namespace
Annotations	The number of stages working in serial in this configuration.
Type	xsd:positiveInteger
Properties	use: required
Used by	Complex Type cs:configurationType
Source	<pre><xsd:attribute name="nrOfSerialStages" type="xsd:positiveInteger" use="required"> <xsd:annotation> <xsd:documentation>The number of stages working in serial in this configuration.</ xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:compressorStationsType / cs:compressorStation / @id

Namespace	No namespace
Annotations	The id of the station
Type	xsd:string
Properties	use: required
Used by	Element cs:compressorStationsType/cs:compressorStation
Source	<pre><xsd:attribute name="id" type="xsd:string" use="required"> <xsd:annotation> <xsd:documentation>The id of the station</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

<pre></xsd:attribute></pre>

Attribute cs:compressorStationsType / cs:compressorStation / @buildingCost

Namespace	No namespace
Annotations	The building cost of the station
Type	xsd:decimal
Properties	use: optional default: 0.0
Used by	Element cs:compressorStationsType/cs:compressorStation
Source	<pre><xsd:attribute name="buildingCost" type="xsd:decimal" use="optional" default="0.0"> <xsd:annotation> <xsd:documentation>The building cost of the station</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute cs:compressorStationsType / cs:compressorStation / @upgradeCost

Namespace	No namespace
Annotations	The upgrade cost for adding station to an existing station
Type	xsd:decimal
Properties	use: optional default: 0.0
Used by	Element cs:compressorStationsType/cs:compressorStation
Source	<pre><xsd:attribute name="upgradeCost" type="xsd:decimal" use="optional" default="0.0"> <xsd:annotation> <xsd:documentation>The upgrade cost for adding station to an existing station</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute speedType / @unit

Namespace	No namespace
Annotations	unit is the unit of the speed of the gas flow. Unit is specified by type. Default value is specified by default.
Type	per_minUnit
Properties	default: per_min
Facets	enumeration per_min
Used by	Complex Type speedType
Source	<pre><xsd:attribute default="per_min" name="unit" type="per_minUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the speed of the gas flow. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute speedType / @value

Namespace	No namespace
Annotations	value is the value of the speed of the gas flow. Unit is specified by type.
Type	double
Properties	use: required
Used by	Complex Type speedType
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>value is the value of the speed of the gas flow. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

<pre></xsd:annotation> </xsd:attribute></pre>

Attribute specificFuelConsumptionType / @unit

Namespace	No namespace	
Annotations	unit is the unit of the specific fuel consumption of a compressor. Unit is specified by type. Default value is specified by default.	
Type	MJ_per_kWhUnit	
Properties	default: MJ_per_kWh	
Facets	enumeration	MJ_per_kWh
Used by	Complex Type	specificFuelConsumptionType
Source	<pre><xsd:attribute default="MJ_per_kWh" name="unit" type="MJ_per_kWhUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the specific fuel consumption of a compressor. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute specificFuelConsumptionType / @value

Namespace	No namespace	
Annotations	value is the value of the specific fuel consumption of a compressor. Unit is specified by type.	
Type	double	
Properties	use: required	
Used by	Complex Type	specificFuelConsumptionType
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation> <xsd:documentation>value is the value of the specific fuel consumption of a compressor. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute efficiencyType / @unit

Namespace	No namespace	
Annotations	unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default.	
Type	noUnit	
Properties	content: simple	
Facets	enumeration	
Used by	Complex Type	efficiencyType
Source	<pre><xsd:attribute name="unit" type="noUnit"> <xsd:annotation> <xsd:documentation>unit is the unit of the efficiency of a compressor. Unit is specified by type. Default value is specified by default.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>	

Attribute efficiencyType / @value

Namespace	No namespace	
Annotations	value is the value of the efficiency of a compressor. Unit is specified by type.	
Type	double	
Properties	use: required	
Used by	Complex Type	efficiencyType
Source	<pre><xsd:attribute name="value" type="framework:double" use="required"> <xsd:annotation></pre>	

	<pre><xsd:documentation>value is the value of the efficiency of a compressor. Unit is specified by type.</xsd:documentation> <xsd:annotation> </xsd:attribute></pre>
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Attribute nodeType / @geoGKRight

Namespace	No namespace
Type	xsd:decimal
Properties	default: 0
Used by	Complex Type nodeType
Source	<pre><xsd:attribute default="0" name="geoGKRight" type="xsd:decimal"/></pre>

Attribute nodeType / @geoGKUp

Namespace	No namespace
Type	xsd:decimal
Properties	default: 0
Used by	Complex Type nodeType
Source	<pre><xsd:attribute default="0" name="geoGKUp" type="xsd:decimal"/></pre>

Attribute nodeType / @geoWGS84Long

Namespace	No namespace
Annotations	geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.
Type	xsd:decimal
Properties	default: 0
Used by	Complex Type nodeType
Source	<pre><xsd:attribute default="0" name="geoWGS84Long" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute nodeType / @geoWGS84Lat

Namespace	No namespace
Annotations	geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.
Type	xsd:decimal
Properties	default: 0
Used by	Complex Type nodeType
Source	<pre><xsd:attribute default="0" name="geoWGS84Lat" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute pipeType / path / node / @geoGKRight

Namespace	No namespace
Type	xsd:decimal
Properties	default: 0
Used by	Element pipeType/path/node
Source	<pre><xsd:attribute default="0" name="geoGKRight" type="xsd:decimal"/></pre>

Attribute pipeType / path / node / @geoGKUp

Namespace	No namespace
Type	xsd:decimal
Properties	default: 0
Used by	Element pipeType/path/node
Source	<pre><xsd:attribute default="0" name="geoGKUp" type="xsd:decimal"/></pre>

Attribute pipeType / path / node / @geoWGS84Long

Namespace	No namespace
Annotations	geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.
Type	xsd:decimal
Properties	default: 0
Used by	Element pipeType/path/node
Source	<pre><xsd:attribute default="0" name="geoWGS84Long" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Long is the longitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute pipeType / path / node / @geoWGS84Lat

Namespace	No namespace
Annotations	geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.
Type	xsd:decimal
Properties	default: 0
Used by	Element pipeType/path/node
Source	<pre><xsd:attribute default="0" name="geoWGS84Lat" type="xsd:decimal"> <xsd:annotation> <xsd:documentation>geoWGS84Lat is the latitude coordinate of the intermediate node in the WGS84 system. Unit is specified by type.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute controlValveType / @gasPreheaterExisting

Namespace	No namespace
Annotations	gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.
Type	xsd:boolean
Properties	default: 0
Used by	Complex Type controlValveType
Source	<pre><xsd:attribute name="gasPreheaterExisting" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>gasPreheaterExisting is a boolean (0/1) flag to specify if the pressure regulator has a gas preheater (=1) or not (=0). If this value is 1, then the increasedOutputTemperature should also be specified. Per default, it is set to 0.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute controlValveType / @internalBypassRequired

Namespace	No namespace
Annotations	internalBypassRequired is a boolean (0/1) flag to specify if the pressure regulator can internally be bypassed (=1) or not (=0). The value should be

	set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.
Type	xsd:boolean
Properties	default: 1
Used by	Complex Type controlValveType
Source	<pre><xsd:attribute name="internalBypassRequired" default="1" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>internalBypassRequired is a boolean (0/1) flag to specify if the pressure regulator can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute compressorStationType / @fuelGasVertex

Namespace	No namespace
Annotations	fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.
Type	xsd:string
Properties	content: simple
Used by	Complex Type compressorStationType
Source	<pre><xsd:attribute name="fuelGasVertex" type="xsd:string"> <xsd:annotation> <xsd:documentation>fuelGasVertex specifies the node ID where the fuel gas for the compressor station is taken from.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute compressorStationType / @gasCoolerExisting

Namespace	No namespace
Annotations	gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).
Type	xsd:boolean
Properties	default: 0
Used by	Complex Type compressorStationType
Source	<pre><xsd:attribute name="gasCoolerExisting" default="0" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>gasCoolerExisting is a boolean (0/1) flag to specify if a gas cooler exists after the gas compression. This attribute is optional; if it is set to 1, then the cooledOutputTemperature should also be specified. Per default there is no gas cooler (=0).</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>

Attribute compressorStationType / @internalBypassRequired

Namespace	No namespace
Annotations	internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.
Type	xsd:boolean
Properties	default: 1
Used by	Complex Type compressorStationType
Source	<pre><xsd:attribute name="internalBypassRequired" default="1" type="xsd:boolean"> <xsd:annotation> <xsd:documentation>internalBypassRequired is a boolean (0/1) flag to specify if the compressor station can internally be bypassed (=1) or not (=0). The value should be set to 0, if an external bypass is explicitly given in the network. Per default, it is set to 1.</xsd:documentation> </xsd:annotation> </xsd:attribute></pre>