European Plastics and Rubber Machinery

EUROMAP 101.2	Submodel Template of the Asset Administration Shell **Plastics and Rubber Moulds** Part 2: Engineering Data

Draft 1.0, January 2026
46 pages

EUROMAP 101.2 (Draft 1.0) is identical with
IDTA 02038-2 “Plastic and Rubber Moulds, Part 2: Engineering Data”
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History

Date	Changes
2026-01-13	*Start of IDTA review period.*

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1 General

1.1 About this document

This document is a part of a specification series. Each part specifies the contents of a Submodel template for the Asset Administration Shell (AAS). The AAS is described in [1], [2], [3] and [6]. First exemplary Submodel contents were described in [4], while the actual format of this document was derived by the "Administration Shell in Practice" [5]. The format aims to be very concise, giving only minimal necessary information for applying a Submodel template, while leaving deeper descriptions and specification of concepts, structures and mapping to the respective documents [1] to [6].

The target group of the specification are developers and editors of technical documentation and manufacturer information, which are describing assets in smart manufacturing by means of the Asset Administration Shell (AAS) and therefore need to create a Submodel instance with a hierarchy of SubmodelElements. This document especially details on the question, which SubmodelElements with which semantic identification shall be used for this purpose.

This document was developed by a Joint Working Group (JWG) consisting of members of IDTA and EUROMAP. This document is identical to EUROMAP 101.2.

EUROMAP is the European umbrella association of the plastics and rubber machinery industry which accounts for annual sales of around 13.5 billion euro and a 40 per cent share of worldwide production. Almost 75 per cent of its European output is shipped to worldwide destinations. With global exports of 10.0 billion euro, EUROMAP’s around 1,000 machinery manufacturers are market leaders with nearly half of all machines sold being supplied by EUROMAP members.

EUROMAP provides technical recommendations for plastics and rubber machines. These guidelines encompass standards for machine descriptions, dimensions, electrical interfaces and energy measurement. Additionally, they include Industry 4.0 standards such as OPC UA and AAS, ensuring high levels of machine compatibility.

1.2 Scope of the Submodel

This Submodel specifies the design-time engineering information of plastics and rubber moulds. Its purpose is to capture the assumptions and artefacts from the design and development phase and the resulting engineered characteristics of the mould. Typical contents include:

- Process definition and assumptions: the intended manufacturing process such as injection or compression moulding, assumed operating envelopes and constraints considered during design, and the design intent regarding cycle sequence.
- Target equipment assumptions: intended machine category and class, and assumed capabilities of the injection or compression machine and peripheral devices like hot-runner controllers, temperature control units, valve-gate controllers, robots and EOAT, and dosing or mixing equipment. These assumptions are represented in first-level SubmodelElementCollections (SMCs) such as MachineData and HotRunners.
- Article definition for which the mould was engineered: identifiers and names, references to 2D drawings and 3D geometry, and materials and colorants that were considered and verified during design. This information is grouped under the SMC Article with further structure for Materials and MaterialColors.
- Engineered mould characteristics (design result): descriptors such as number of cavities, gating or hot-runner concept and nozzle types, ejector concept, core-pull or slide units, and other properties that characterize the engineering outcome, encapsulated in the SMC MouldDescription. Cavity-level information aligns with OPC 40082-5 to enable an unambiguous mapping to OPC UA implementations where applicable.

Out of scope for this Submodel are dynamic process values and runtime measurements, which are handled via OPC UA, and lifecycle counters and operational maintenance data, which are managed by other SMTs in the mould series. The SMT family is designed to be modular, and EngineeringData may be deployed independently. However, Digital Nameplate and Part 1: Identification remain mandatory companions when applying mould SMTs.

1.3 Relevant standards for the Submodel template

Following standards are relevant for application of this Submodel template:

IDTA 02006-3-0: Digital Nameplate for Industrial Equipment

https://admin-shell.io/idta/nameplate/3/0/Nameplate

IDTA 02002-1-0: Submodel for Contact Information

https://admin-shell.io/zvei/nameplate/1/0/ContactInformations

IDTA 02038-1-0: Plastic and Rubber Moulds, Part 1: Identification

https://admin-shell.io/EUROMAP/Moulds/Identification/1/0/

OPC 40082-5: OPC UA interfaces for plastics and rubber machinery – Peripheral devices – Part 5: Moulds

(identical to EUROMAP 82.5 and VDMA 40082-5)

http://opcfoundation.org/UA/PlasticsRubber/Moulds

1.4 Use cases, requirements and design decisions

The use case of this submodel is to provide information about the engineering phase of the mould. Use cases include:

- Design handover from toolmaker to OEM or product owner:
  Transfer a concise package of assumptions and engineered descriptors, including article geometry references, materials and colors, and the hot-runner and ejector concepts, without depending on a powered mould controller.
- Pre-production feasibility and equipment selection:
  Validate that the target machine class and peripherals meet the design assumptions, using MachineData and HotRunners to check controller types, valve-gate arrangements, thermocouple placements, and expected operating envelopes.
- MES/PLM master data enrichment:
  Populate enterprise systems with stable engineering descriptors and article identifiers so that manufacturing and quality systems can reference the intended design without scraping runtime OPC UA tags.
- Cavity-level traceability and interoperability:
  Map cavity-related properties in MouldDescription to OPC 40082-5 to enable accurate cross-references between AAS and OPC UA models during commissioning or diagnostics.
- In-warehouse or out-of-machine retrieval:
  Access and search Engineering Data while the mould is stored or transported, supporting logistics, maintenance planning, and documentation updates without powering the controller.
- Regulatory and customer documentation
  Provide structured article and materials information, drawing references, and configuration descriptors that support audits or customer acceptance, with ownership details via Affiliation when the mould owner differs from the production site.

As this Submodel Template complements the Digital Nameplate, the Submodel 'IDTA 02006: Digital Nameplate for Industrial Equipment' as well as “IDTA 02038-1: Plastic and Rubber Moulds, Part 1: Identification” shall be deployed when applying this Submodel. Additionally, the Submodel 'IDTA 02004 Handover Documentation' should be deployed.

2 Submodel Identification

2.1 Approach

This Submodel Template was developed by the same joint working group that created OPC 40082-5 for moulds, ensuring conceptual continuity between OPC UA runtime interfaces and AAS static representations. Dynamic data like process values is handled through OPC UA. Static or lifecycle data such as counters and maintenance information is handled through the AAS, and both technologies are designed to be used independently. This separation means an AAS instance can be deployed even if the mould controller has no OPC UA server, and vice versa, with limited overlap in property definitions accepted by design.

To streamline revision and application, the working group defined multiple SMTs for moulds, including Identification, Engineering Data, Mould Configuration, Production Parameters, and Collaborative Condition Monitoring. Each SMT can be applied independently, but Digital Nameplate and Part 1: Identification shall always be used.

From an implementation viewpoint, the EngineeringData submodel organizes content into four first-level SMCs:

- Article — logical product definition, geometry and documentation links, and a structured Materials section with MaterialColors.
- MachineData — assumed machine class and relevant equipment capabilities used as design constraints.
- HotRunners — valve and nozzle concepts, geometry, and thermocouple configurations.
- MouldDescription — engineered outcome including cavity count, gating concept, ejector solution, core-pulls, slides, and additional drawings or references. Where cavity parameters are present, they are modelled to correspond to OPC 40082-5.

When filling the Submodel:

- Record assumptions in Article, MachineData, and HotRunners.
- Record engineered results in MouldDescription.
- Use the provided ConceptDescription IRIs and IRDIs for semanticIds to ensure interoperable exchange.

2.2 UML Diagrams of Submodel

Figure 1 shows the UML Diagram of the Submodel EngineeringData.

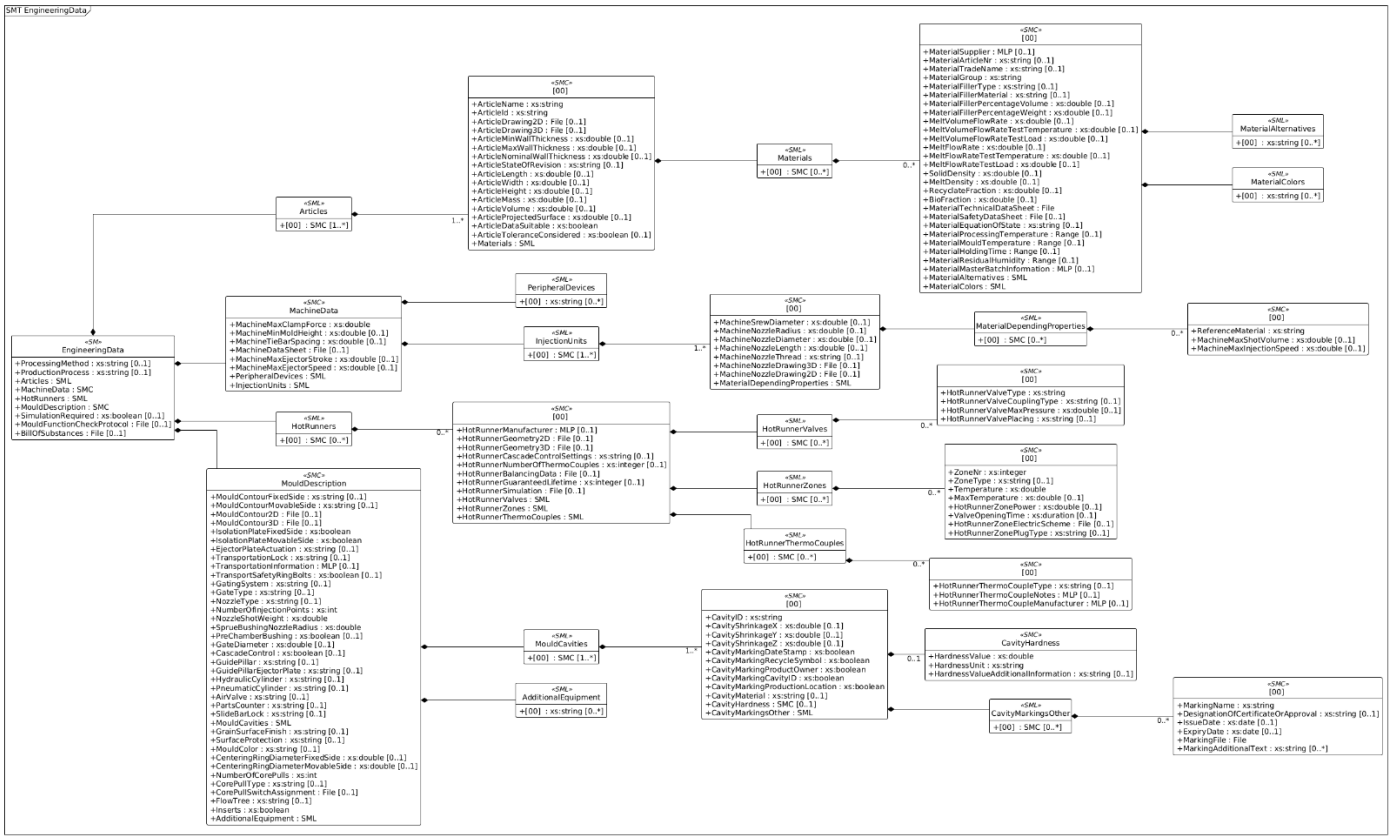

Figure 1: UML Diagram of SM EngineeringData

Figure 2 shows the UML Diagram of the Submodel EngineeringData with first-level child elements.

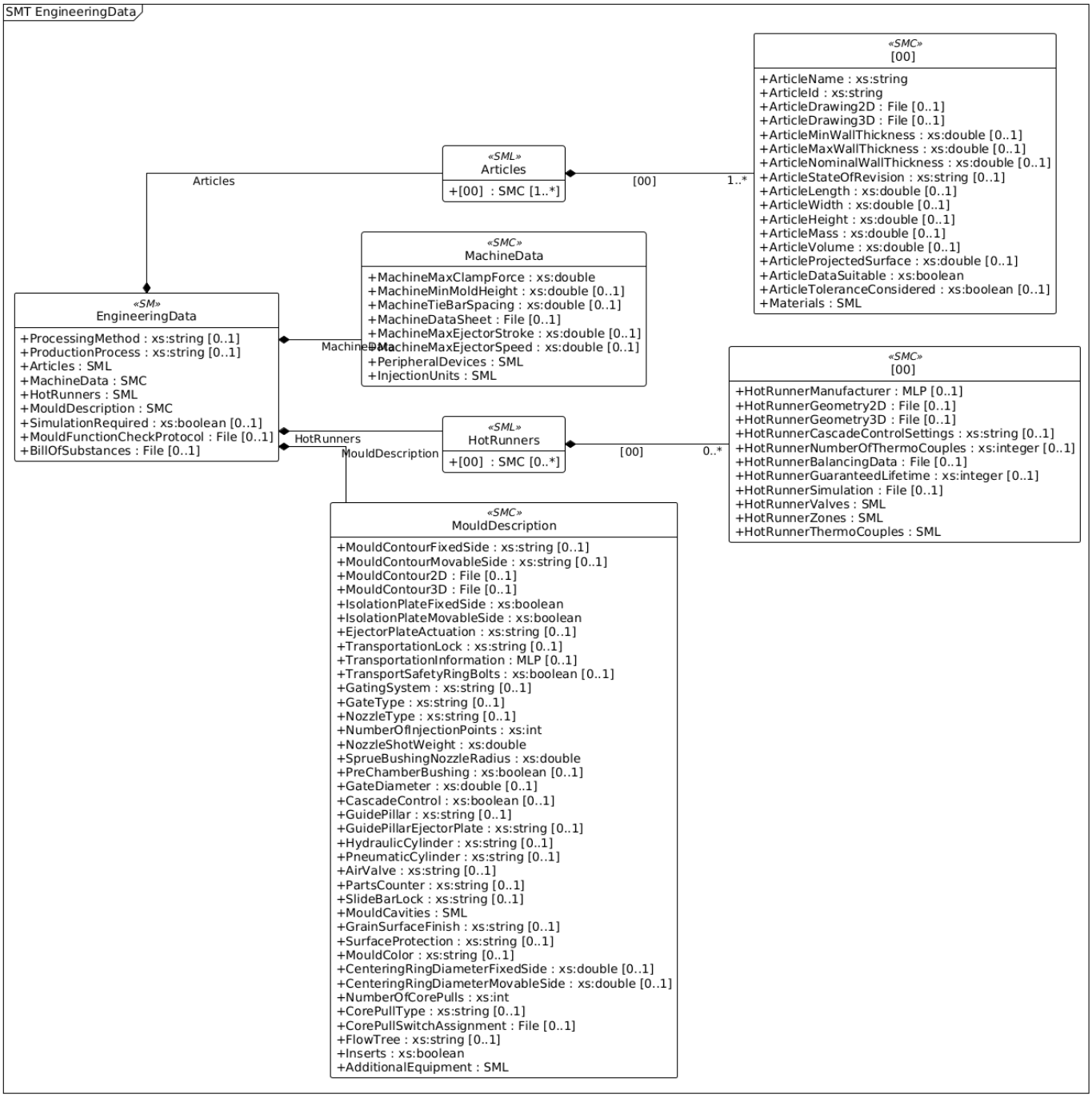

Figure 2: UML Diagram of SM EngineeringData with first-level child elements

Figure 3 shows the UML Diagram of the SMC Article with child elements, especially SMC Material.

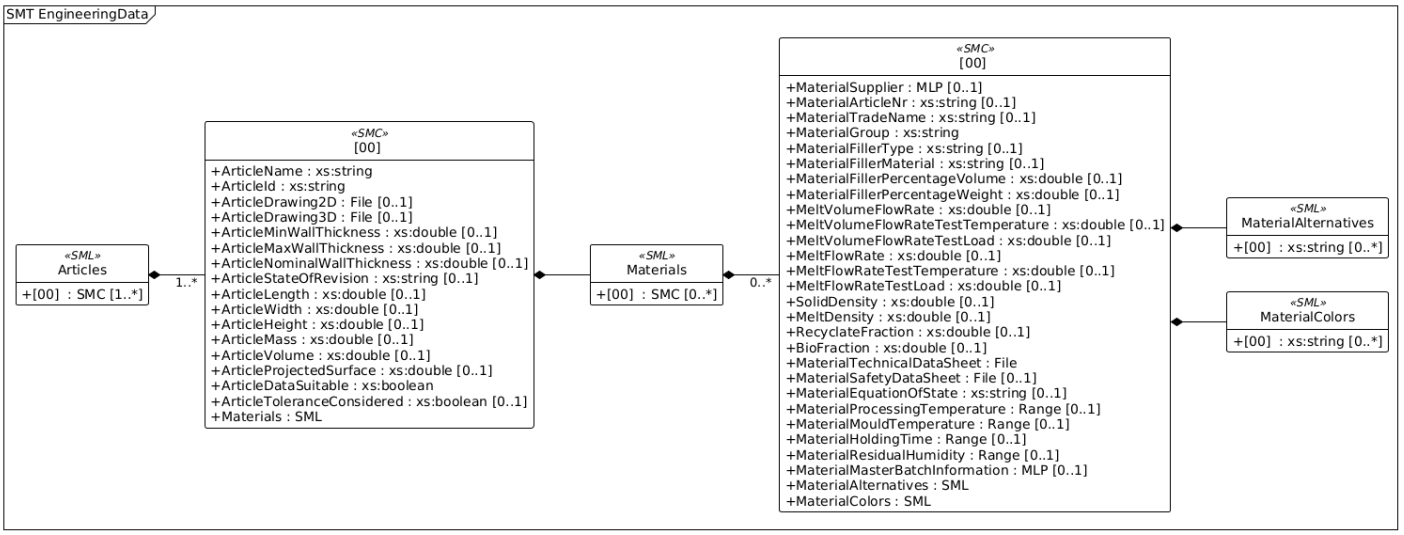

Figure 3: UML Diagram of SMC Article with child elements

Figure 4 shows the SMC MachineData with all child elements.

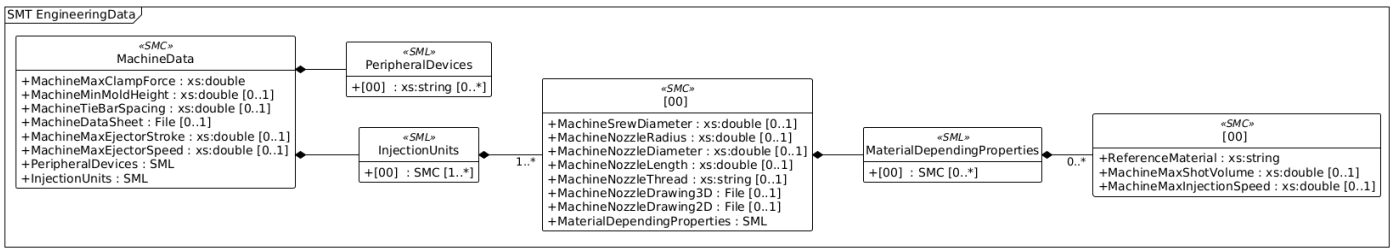

Figure 4: UML Diagram of SMC MachineData with child elements

Figure 5 shows the SMC HotRunner with all child elements.

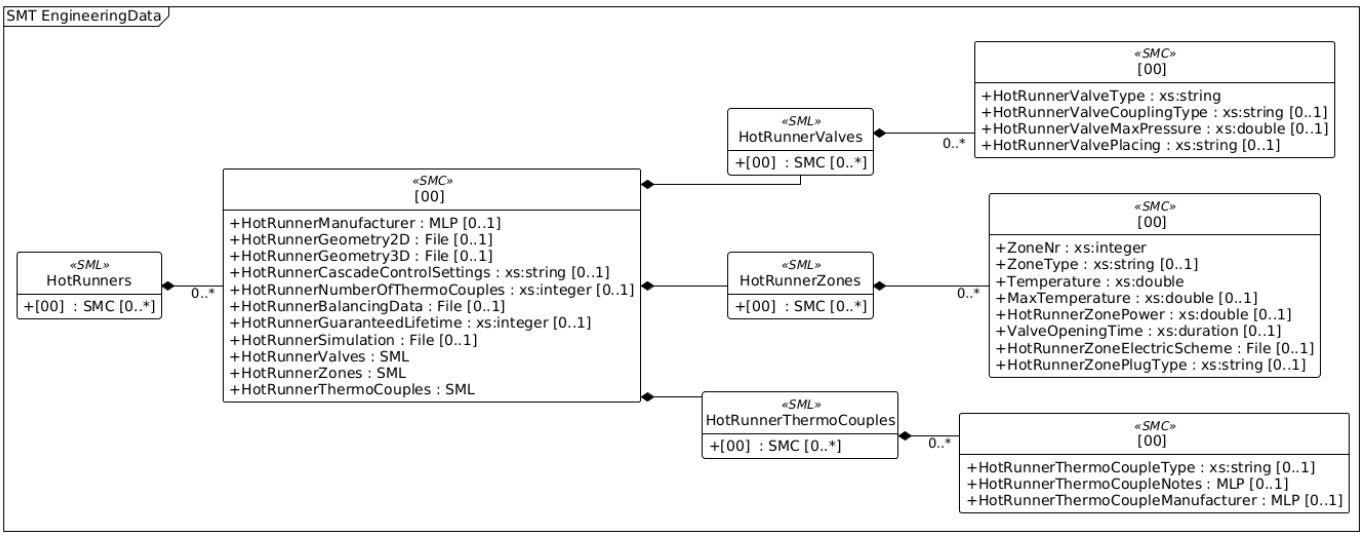

Figure 5: UML Diagram of SMC HotRunner with child elements

Figure 6 shows the SMC MouldDescription with all child elements.

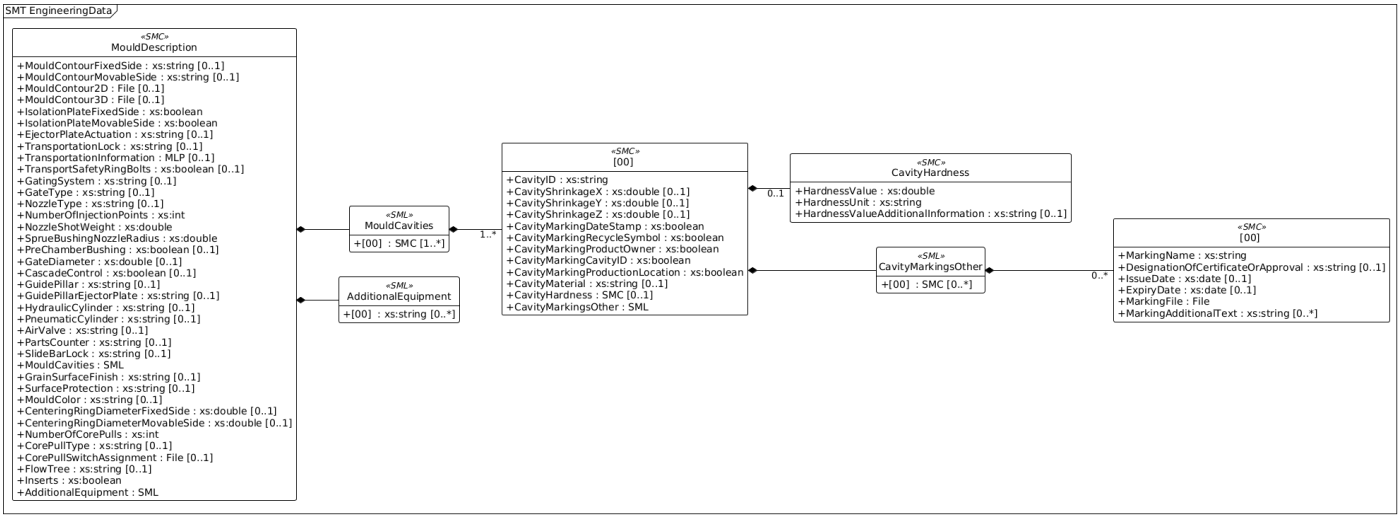

Figure 6: UML Diagram of SMC MouldDescription with child elements

2.3 Attributes for the Submodel “EngineeringData”

The following attributes need to be set for the Submodel instance.

Table 1: Attributes of the Submodel Instance

idShort:	EngineeringData		
Class:	Submodel		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/EngineeringData/1/0		
Parent:			
Explanation:	This Submodel contains data from the engineering/design phase of the mould.		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] ProcessingMethod	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ProcessingMethod/1/0 [processing method] description of the processing method	[String] -	0..1
[Prop] ProductionProcess	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ProductionProcess/1/0 [production process] description of the production process	[String] -	0..1
[SML] Articles	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Articles/1/0 [Articles] Provides a list of all articles, for which the mould was designed / which can be produced on the mould	[-] -	1
[SMC] MachineData	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineData/1/0 [machine data] The SMC MachineData contains information and files of the Machine, which was used for development of the mould	[-] -	1
[SML] HotRunners	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunners/1/0 [hot runners] Provides a list of hot runners which were considered during design of the mould	[-] -	1
[SMC] MouldDescriptio	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Mould	[-]	1

n	Description/1/0 [Mould description] Provides design information about the mould	-	
[Prop] SimulationRequired	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/SimulationRequired/1/0 [simulation required] Flag if simulation of the article / production process is required. Detailed Simulation data see Simulation Submodel	[Boolean] -	0..1
[File] MouldFunctionCheckProtocol	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldFunctionCheckProtocol/1/0 [mould function check protocol] Protocol of the mould function check	[-] -	0..1
[File] BillOfSubstances	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/BillOfSubstances/1/0 [bill of substances] Bill of substances. made by the customer of the article. part of the order process	[-] -	0..1

2.4 SML Articles

The following attributes need to be set for the Submodel Element List instance.

Table 2: Attributes of the SML Articles

idShort:	Articles		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Articles/1/0		
Parent:	EngineeringData		
Explanation:	Provides a list of all articles, for which the mould was designed / which can be produced on the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleData/1/0 [article data] The SMC ArticleData contains information and files of the Article, which was used for development of the mould	[-] -	1..*

For the child element SMC “Article”, the following attributes need to be set:

Table 3: Attributes of the SMC Article

idShort:			
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleData/1/0		
Parent:	Articles		
Explanation:	The SMC ArticleData contains information and files of the Article, which was used for development of the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] ArticleName	https://admin-shell.io/idta/euromap/Moulds/Identification/1/0/ArticleName [Article Name] Name of an Article	[String] -	1
[Prop] ArticleId	https://admin-shell.io/idta/euromap/Moulds/Identification/1/0/ArticleID [Article ID] ID of an Article	[String] -	1
[File] ArticleDrawing2D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleDrawing2D/1/0 [article drawing 2D] Drawing of a part - 2D	[-] -	0..1
[File] ArticleDrawing3D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleDrawing3D/1/0 [article drawing 3D] Drawing of a part -3D	[-] -	0..1
[Prop] ArticleMinWallThickness	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleMinWallThickness/1/0 [article minimum wall thickness] smallest wall thickness of the plastic part (construction)	[Double] m [0112/2///62720#UAA726#002]	0..1
[Prop] ArticleMaxWallThickness	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleMaxWallThickness/1/0 [article maximum wall thickness] largest wall thickness of the plastic part (construction)	[Double] m [0112/2///62720#UAA726#002]	0..1
[Prop] ArticleNominalWallThickness	0173-1#02-BAG269#007 [Wall thickness] For a general measurement, the smallest spatial expansion of a wall	[Double] m [0112/2///62720	0..1

		#UAA726#002]	
[Prop] ArticleStateOfRevision	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleStateOfRevision/1/0 [article state of revision] State of revision of the article, which is produced with the mould	[String] -	0..1
[Prop] ArticleLength	0173-1#02-BAA018#007 [length] for objects with orientation in preferred position during use the dimension perpendicular to diameter/height/width/depth	[Double] m [0173-1#05-AAA551#003]	0..1
[Prop] ArticleWidth	0173-1#02-BAA019#005 [Width] For objects with fixed orientation (preferred position during use) the dimension perpendicular to height and length/depth	[Double] m [0173-1#05-AAA551#003]	0..1
[Prop] ArticleHeight	0173-1#02-BAA020#010 [height] for objects with orientation in preferred position during use the dimension perpendicular to diameter/length/width/depth	[Double] m [0173-1#05-AAA551#003]	0..1
[Prop] ArticleMass	0173-1#02-AAF199#002 [Weight] Mass of weight without packaging and transport unit	[Double] kg [0173-1#05-AAA731#005]	0..1
[Prop] ArticleVolume	0173-1#02-BAI759#003 [Effective volume] Volume resulting from the effective measurements	[Double] cm³ [0112/2///62720#UAA385],[0173-1#05-AAA100#005]	0..1
[Prop] ArticleProjectedSurface	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleProjectedSurface/1/0 [projected surface] Projected Surface of an object	[Double] m² [0112/2///62720#UAA744],[0173-1#05-AAA078#005]	0..1
[Prop] ArticleDataSuitable	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleDataSuitable/1/0 [Article Data Suitable] Flag to show if the article data is suitable for the mould	[Boolean] -	1
[Prop] ArticleToleranceConsidered	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ArticleToleranceConsidered/1/0	[Boolean] -	0..1

	[article tolerance considered] Information, if the article tolerance was considered during construction		
[SML] Materials	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Materials/1/0 [Materials] Provides a list of the materials, which can be used for the production of the respective article	[-] -	1

2.4.1 SML Materials

The following attributes need to be set for the Submodel Element List instance.

Table 4: Attributes of the SML Materials

idShort:	Materials		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Materials/1/0		
Parent:			
Explanation:	Provides a list of the materials, which can be used for the production of the respective article		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialData/1/0 [Material data] The SMC MaterialData contains information of the Article Material, which was used for development of the mould	[-] -	0..*

For the child element SMC “Material data”, the following attributes need to be set:

Table 5: Attributes of the SMC Material data

idShort:	
Class:	SubmodelElementCollection
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialData/1/0
Parent:	Materials
Explanation:	The SMC MaterialData contains information of the Article Material, which was used for development of the mould

[SME type] idShort	semanticId [preferred name] definition@en	[valueType] unit [unitId]	card.
[MLP] MaterialSupplier	0173-1#02-AAO677#002 [ManufacturerName] legally valid designation of the natural or judicial person which is directly responsible for the design, production, packaging and labeling of a product in respect to its being brought into circulation	[-] -	0..1
[Prop] MaterialArticleNr	0173-1#02-AAO736#006 [product article number of supplier] unique product order identifier of the supplier	[String] -	0..1
[Prop] MaterialTradeName	0173-1#02-AAO057#002 [Product Type] Characteristic to differentiate between different products of a product family or special variants	[String] -	0..1
[Prop] MaterialGroup	0173-1#02-BAB168#005 [Material group] Collective terms for materials with specific common properties	[String] -	1
[Prop] MaterialFillerType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialFillerType/1/0 [Material filler type] Type of material used as filler	[String] -	0..1
[Prop] MaterialFillerMaterial	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialFillerMaterial/1/0 [Filler material] Material used as filler (glass, carbon fiber, mineral...)	[String] -	0..1
[Prop] MaterialFillerPercentageVolume	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialFillerPercentageVolume/1/0 [volume fraction of filler material] ratio of the volume of the filler material to the sum of the volumes of all materials constituting the total composite.	[Double] % [0173-1#05-AAA129#005]	0..1
[Prop] MaterialFillerPercentageWeight	0173-1#02-AAO317#004 [fraction of material] ratio of the mass of the material to the sum of all masses of the materials constituting the total fluid	[Double] % [0173-1#05-AAA129#005]	0..1
[Prop] MeltVolumeFlowRate	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltVolumeFlowRate/1/0	[Double] cm³/min [0173-1#05-	0..1

	[melt volume flow rate] The MVR (melt volume-flow rate) is the extruded material volume per unit of time and is typically indicated in cm3/10 min. For reference reasons, the unit in this case is set to cm³/min. It is calculated from the distance the piston travels per unit of time.	AAA222#005]	
[Prop] MeltVolumeFlowRateTestTemperature	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltVolumeFlowRateTestTemperature/1/0 [melt volume flow rate test temperature] Temperature of the melt volume flow, at which the melt volume flow rate test is performed.	[Double] °C [0173-1#05-AAA567#006]	0..1
[Prop] MeltVolumeFlowRateTestLoad	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltVolumeFlowRateTestLoad/1/0 [melt volume flow rate test load] weight of the test load, which is applied to the molten polymer during the melt volume flow rate test	[Double] kg [0173-1#05-AAA731#005]	0..1
[Prop] MeltFlowRate	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltFlowRate/1/0 [melt flow rate] The Melt Flow Index (MFI) is a measure of the ease of flow of the melt of a thermoplastic polymer. It is defined as the mass of polymer, in grams, flowing in ten minutes through a capillary of a specific diameter and length by a pressure applied via prescribed alternative gravimetric weights for alternative prescribed temperatures. For reference reasons, the unit in this case is set to g/min.	[Double] g/min [0173-1#05-AAA521#005]	0..1
[Prop] MeltFlowRateTestTemperature	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltFlowRateTestTemperature/1/0 [melt flow rate test temperature] Temperature of the melt flow, at which the melt flow rate test is performed.	[Double] °C [0173-1#05-AAA567#006]	0..1
[Prop] MeltFlowRateTestLoad	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltFlowRateTestLoad/1/0 [melt flow rate test load] weight of the test load, which is applied to the molten polymer during the melt flow rate test	[Double] kg [0173-1#05-AAA731#005]	0..1
[Prop] SolidDensity	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/SolidDensity/1/0 [solid density] Density of plastic material in solid state at room temperature	[Double] g/cm³ [0173-1#05-AAA485#005]	0..1
[Prop] MeltDensity	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MeltDe	[Double]	0..1

	nsity/1/0 [melt density] Density of plastic material in molten state at operation temperature	g/cm³ [0173-1#05-AAA485#005]	
[Prop] RecyclateFraction	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/RecyclateFraction/1/0 [recyclate fraction] Gravimetric fraction of recycling material in plastic material batch	[Double] kg/kg [0173-1#05-AAA062#005]	0..1
[Prop] BioFraction	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/BioFraction/1/0 [bio fraction] Gravimetric fraction of bio-material in plastic material batch	[Double] kg/kg [0173-1#05-AAA062#005]	0..1
[File] MaterialTechnicalDataSheet	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialTechnicalDataSheet/1/0 [material technical data sheet] Technical Data Sheet of the Material	[-] -	1
[File] MaterialSafetyDataSheet	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialSafetyDataSheet/1/0 [material safety data sheet] Safety Data Sheet of a material	[-] -	0..1
[Prop] MaterialEquationOfState	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialEquationOfState/1/0 [material equation of state] Information about the material model (e.g. pvT-Tait-Model) and coefficients of the material	[String] -	0..1
[Range] MaterialProcessingTemperature	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialProcessingTemperature/1/0 [material processing temperature] Temperature, at which the material is processed	[-] °C [0173-1#05-AAA567#006]	0..1
[Range] MaterialMouldTemperature	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialMouldTemperature/1/0 [material mould temperature] Temperature of the mould while the material is processed	[-] °C [0173-1#05-AAA567#006]	0..1
[Range] MaterialHoldingTime	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialHoldingTime/1/0	[-] s [0173-1#05-	0..1

	[material holding time] allowed holding time of the material in the mould	AAA203#005]	
[Range] MaterialResidualHumidity	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialResidualHumidity/1/0 [material residual humidity] allowed residual relative humidity in the material	[-] % [0173-1#05-AAA129#005]	0..1
[MLP] MaterialMasterBatchInformation	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialMasterBatchInformation/1/0 [material master batch information] Information about the master batch	[-] -	0..1
[SML] MaterialAlternatives	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialAlternatives/1/0 [material alternatives] Provides a list of materials, which can be used as an alternative or substitute to the specified material	[-] -	1
[SML] MaterialColors	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialColors/1/0 [material colors] List of usable material colors in the context of the article	[-] -	1

SML MaterialAlternatives

The following attributes need to be set for the Submodel Element List instance.

Table 6: Attributes of the SML MaterialAlternatives

idShort:	MaterialAlternatives		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialAlternatives/1/0		
Parent:			
Explanation:	Provides a list of materials, which can be used as an alternative or substitute to the specified material		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop]	0173-1#02-AAO057#002 [Product Type] Characteristic to differentiate between different products of a product	[String] -	0..*

	family or special variants		

SML MaterialColors

The following attributes need to be set for the Submodel Element List instance.

Table 7: Attributes of the SML MaterialColors

idShort:	MaterialColors		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialColors/1/0		
Parent:			
Explanation:	List of usable material colors in the context of the article		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop]	0173-1#02-BAC469#014 [Basic color of product] Main standardized color of the product, i.e. white, black, brown, etc.	[String] -	0..*

2.5 SMC MachineData

The following attributes need to be set for the Submodel Element Collection instance.

Table 8: Attributes of the SMC MachineData

idShort:	MachineData		
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineData/1/0		
Parent:	EngineeringData		
Explanation:	The SMC MachineData contains information and files of the Machine, which was used for development of the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] MachineMaxClampForce	0173-1#02-AAJ507#002 [max. clamping force] maximal unit of the clamping force	[Double] kN [0173-1#05-AAA737#005]	1
[Prop] MachineMinMoldHeight	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineMinMoldHeight/1/0	[Double] mm	0..1

	[machine minimum mould height] minimum mold height required by the machine	[0173-1#05-AAA480#005]	
[Prop] MachineTieBarSpacing	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineTieBarSpacing/1/0 [machine tie bar spacing] Tie bar spacing of the machine	[Double] mm [0173-1#05-AAA480#005]	0..1
[File] MachineDataSheet	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineDataSheet/1/0 [machine data sheet] Data sheet of the machine for which the mould was designed	[-] -	0..1
[Prop] MachineMaxEjectorStroke	0173-1#02-ABL634#001 [maximum ejector stroke] distance of the ejectors in the mold during demolding	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] MachineMaxEjectorSpeed	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineMaxEjectorSpeed/1/0 [machine maximum ejector speed] maximum ejector speed of the machine for which the mould was designed	[Double] mm/s [0173-1#05-AAA068#005]	0..1
[SML] PeripheralDevices	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/PeripheralDevices/1/0 [peripheral devices] A list of peripheral devices intended to be active on or interacting with the production machine during production with the mould.	[-] -	1
[SML] InjectionUnits	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/InjectionUnits/1/0 [injection units] A list of possible injection units, which can be used for production with the mould	[-] -	1

2.5.1 SML PeripheralDevices

The following attributes need to be set for the Submodel Element List instance.

Table 9: Attributes of the SML PeripheralDevices

idShort:	PeripheralDevices
Class:	SubmodelElementList

semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/PeripheralDevices/1/0		
Parent:	MachineData		
Explanation:	A list of peripheral devices intended to be active on or interacting with the production machine during production with the mould.		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachinePeripheralDevice/1/0 [machine peripheral device] peripheral device mounted on the machine	[String] -	0..*

2.5.2 SML InjectionUnits

The following attributes need to be set for the Submodel Element List instance.

Table 10: Attributes of the SML InjectionUnits

idShort:	InjectionUnits		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/InjectionUnits/1/0		
Parent:	MachineData		
Explanation:	A list of possible injection units, which can be used for production with the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/InjectionUnit/1/0 [injection unit] The SMC InjcetionUnit contains information about the injection unit of the machine for which the mould was designed	[-] -	1..*

For the child element SMC “InjectionUnit”, the following attributes need to be set:

Table 11: Attributes of the SMC InjectionUnit

idShort:	
Class:	SubmodelElementCollection
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/InjectionUnit/1/0
Parent:	InjectionUnits

Explanation:	The SMC InjcetionUnit contains information about the injection unit of the machine for which the mould was designed		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] MachineSrewDiameter	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineScrewDiameter/1/0 [machine screw diameter] Screw diameter of the machine	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] MachineNozzleRadius	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineNozzleRadius/1/0 [machine nozzle radius] Radius of nozzle tip	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] MachineNozzleDiameter	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineNozzleDiameter/1/0 [machine nozzle diameter] Diameter of nozzle	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] MachineNozzleLength	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineNozzleLength/1/0 [machine nozzle length] Length of machine nozzle	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] MachineNozzleThread	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineNozzleThread/1/0 [machine nozzle thread] Dimensions of the nozzle thread, usually consisting of thread diameter and thread length in mixed units, e.g. G1/4" x 16 mm	[String] -	0..1
[File] MachineNozzleDrawing3D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineNozzleDrawing3D/1/0 [machine nozzle drawing 3D] 3D drawing of the (injection moulding) machine nozzle	[-] -	0..1
[File] MachineNozzleDrawing2D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineNozzleDrawing2D/1/0 [machine nozzle drawing 2D] 2D drawing of the (injection moulding) machine nozzle	[-] -	0..1
[SML] MaterialDependi	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Materia	[-]	1

ngProperties	IDependingProperties/1/0 [material depending properties] A List of material depending properties. Each SMC represents one material.	-	

SML MaterialDependingProperties

The following attributes need to be set for the Submodel Element List instance.

Table 12: Attributes of the SML MaterialDependingProperties

idShort:	MaterialDependingProperties		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialDependingProperties/1/0		
Parent:			
Explanation:	A List of material depending properties. Each SMC represents one material.		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC] -	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialDependingProperty/1/0 [material depending property] Contains one material and material depending properties in the context of the respective injection unit	[-] -	0..*

For the child element SMC “MaterialDependingProperty”, the following attributes need to be set:

Table 13: Attributes of the SMC MaterialDependingProperty

idShort:	-		
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MaterialDependingProperty/1/0		
Parent:	MaterialDependingProperties		
Explanation:	Contains one material and material depending properties in the context of the respective injection unit		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] ReferenceMaterial	0173-1#02-BAB168#005 [Material group]	[String] -	1

	Collective terms for materials with specific common properties		
[Prop] MachineMaxShotVolume	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MachineMaxShotVolume/1/0 [machine max shot volume] Maximum shot volume of the machine	[Double] cm³ [0173-1#05-AAA100#005]	0..1
[Prop] MachineMaxInjectionSpeed	0173-1#02-ABL648#001 [maximum injection speed] maximum injection speed of the machine	[Double] mm/s [0173-1#05-AAA068#005]	0..1

2.6 SML HotRunners

The following attributes need to be set for the Submodel Element List instance.

Table 14: Attributes of the SML HotRunners

idShort:	HotRunners		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunners/1/0		
Parent:	EngineeringData		
Explanation:	Provides a list of hot runners which were considered during design of the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerData/1/0 [hot runner data] The SMC HotRunnerData contains information (relevant for the engineering process) about the hot runner	[-] -	0..*

For the child element SMC “HotRunnerData”, the following attributes need to be set:

Table 15: Attributes of the SMC HotRunnerData

idShort:	
Class:	SubmodelElementCollection
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerData/1/0
Parent:	HotRunners
Explanation:	The SMC HotRunnerData contains information (relevant for the engineering process) about the hot

[SME type] idShort	runner semanticId [preferred name] definition@en	[valueType] unit [unitId]	card.
[MLP] HotRunnerManufacturer	0173-1#02-AAO677#002 [ManufacturerName] legally valid designation of the natural or judicial person which is directly responsible for the design, production, packaging and labeling of a product in respect to its being brought into circulation	[-] -	0..1
[File] HotRunnerGeometry2D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerDrawing/1/0 [hot runner 2D geometry] technical 2D drawing of the hot runner	[-] -	0..1
[File] HotRunnerGeometry3D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerGeometry3D/1/0 [hot runner 3D geometry] technical 3D drawing of the hot runner	[-] -	0..1
[Prop] HotRunnerCascadeControlSettings	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerCascadeControlSettings/1/0 [hot runner cascade control settings] settings of the hot runner cascade control in a not-specified format	[String] -	0..1
[Prop] HotRunnerNumberOfThermoCouples	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerNumberOfSensors/1/0 [hot runner number of thermocouples] Number of temperature sensors in the hot runner	[Integer] -	0..1
[File] HotRunnerBalancingData	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerBalancingData/1/0 [Hot runner balancing data] balancing data to achieve homogenious material flow	[-] -	0..1
[Prop] HotRunnerGuaranteedLifetime	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerGuaranteedLifetime/1/0 [Hot runner guaranteed liefetime] Guaranteed Lifetime of hot runner gives as number of shots	[Integer] -	0..1
[File] HotRunnerSimulation	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerSimulation/1/0	[-] -	0..1

	[hot runner simulation] result file of hot runner simulation		
[SML] HotRunnerValves	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValves/1/0 [hot runner valves] Provides a list of valves of the hot runner and their properties	[-] -	1
[SML] HotRunnerZones	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZones/1/0 [hot runner zones] Provides a list of zones of the hot runner and their properties	[-] -	1
[SML] HotRunnerThermoCouples	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerThermocouples/1/0 [hot runner thermocouples] Provides a list of Thermocouples installed on the hot runner	[-] -	1

2.6.1 SML HotRunnerValves

The following attributes need to be set for the Submodel Element List instance.

Table 16: Attributes of the SML HotRunnerValves

idShort:	HotRunnerValves		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValves/1/0		
Parent:			
Explanation:	Provides a list of valves of the hot runner and their properties		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC] -	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValve/1/0 [hot runner valve] Provides information about one hot runner valve	[-] -	0..*

For the child element SMC “HotRunnerValve”, the following attributes need to be set:

Table 17: Attributes of the SMC HotRunnerValve

idShort:	-

Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValve/1/0		
Parent:	HotRunnerValves		
Explanation:	Provides information about one hot runner valve		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] HotRunnerValveType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValveType/1/0 [hot runner valve type] type of valve used in the hot runner	[String] -	1
[Prop] HotRunnerValveCouplingType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValveCouplingType/1/0 [hot runner valve coupling type] Information about the valve coupling of the hot runner	[String] -	0..1
[Prop] HotRunnerValveMaxPressure	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValveMaxPressure/1/0 [maximum hot runner valve pressure] maximum actuation pressure of valve used in the hot runner	[Double] bar [0173-1#05-AAA044#004]	0..1
[Prop] HotRunnerValvePlacing	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerValvePlacing/1/0 [hot runner valve placing] Information about the placing of the hot runner valves	[String] -	0..1

2.6.2 SML HotRunnerZones

The following attributes need to be set for the Submodel Element List instance.

Table 18: Attributes of the SML HotRunnerZones

idShort:	HotRunnerZones
Class:	SubmodelElementList
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZones/1/0
Parent:	
Explanation:	Provides a list of zones of the hot runner and their properties

[SME type] idShort	semanticId [preferred name] definition@en	[valueType] unit [unitId]	card.
[SMC]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZone/1/0 [hot runner zone] This SMC contains properties of one hot runner zone	[-] -	0..*

For the child element SMC “HotRunnerZone”, the following attributes need to be set:

Table 19: Attributes of the SMC HotRunnerZone

idShort:			
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZone/1/0		
Parent:	HotRunnerZones		
Explanation:	This SMC contains properties of one hot runner zone		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] ZoneNr	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZoneNr/1/0 [Hot runner zone number] In the scope of the hot runner device unique identifier to identify the hot runner zone	[Integer] -	1
[Prop] ZoneType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZoneType/1/0 [hot runner zone type] provides additional information about the hot runner zone type	[String] -	0..1
[Prop] Temperature	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZoneTemperature/1/0 [hot runner zone temperature] Provides the temperature of the hot runner zone for which the mold and article were designed	[Double] °C [0173-1#05-AAA567#006]	1
[Prop] MaxTemperature	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZoneMaxTemperature/1/0 [maximum hot runner zone temperature] Defines the maximum working temperature of the hot runner zone	[Double] °C [0173-1#05-AAA567#006]	0..1

[Prop] HotRunnerZonePower	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZonePower/1/0 [Hot runner zone power] Power value, defines the heating capacity of the hot runner with the rated voltage	[Double] kW [0173-1#05-AAA756#005]	0..1
[Prop] ValveOpeningTime	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/ValveOpeningTime/1/0 [valve opening time] Duration required for full opening of the hot runner zone valve	[Duration] ms [0173-1#05-AAA114#005]	0..1
[File] HotRunnerZoneElectricScheme	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZoneElectricScheme/1/0 [hot runner zone electric scheme] Electric Scheme of the Hot runner zone	[-] -	0..1
[Prop] HotRunnerZonePlugType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZonePlugType/1/0 [hot runner zone plug type] description of the plug used for the hot runner zone	[String] -	0..1

2.6.3 SML HotRunnerThermoCouples

The following attributes need to be set for the Submodel Element List instance.

Table 20: Attributes of the SML HotRunnerThermoCouples

idShort:	HotRunnerThermoCouples		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerThermocouples/1/0		
Parent:			
Explanation:	Provides a list of Thermocouples installed on the hot runner		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC] -	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerThermocouple/1/0 [hot runner thermocouple] This SMC contains properties of one hot runner thermocouple	[-] -	0..*

For the child element SMC “HotRunnerThermoCouple”, the following attributes need to be set:

Table 21: Attributes of the SMC HotRunnerThermoCouple

idShort:			
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerZone/1/0		
Parent:	HotRunnerZones		
Explanation:	This SMC contains properties of one hot runner zone		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] HotRunnerThermoCoupleType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerSensorType/1/0 [Hot runner thermocouple type] Type of hot runner temperature sensor	[String] -	0..1
[MLP] HotRunnerThermoCoupleNotes	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HotRunnerSensorNote/1/0 [Hot runner thermocouple notes] Important notes regarding the hot runner temperature sensor	[-] -	0..1
[MLP] HotRunnerThermoCoupleManufacturer	0173-1#02-AAO677#002 [ManufacturerName] legally valid designation of the natural or judicial person which is directly responsible for the design, production, packaging and labeling of a product in respect to its being brought into circulation	[-] -	0..1

2.7 SMC MouldDescription

The following attributes need to be set for the Submodel Element Collection instance.

Table 22: Attributes of the SMC MouldDescription

idShort:	MouldDescription		
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldDescription/1/0		
Parent:	EngineeringData		
Explanation:	The SMC MouldDescription contains general information (relevant for the engineering process) about the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**

[Prop] MouldContourFixedSide	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldContourFixedSide/1/0 [mould contour fixed side] Mould Contour of fixed side	[String] -	0..1
[Prop] MouldContourMovableSide	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldContourMovableSide/1/0 [mould contour movable side] Mould Contour of movable side	[String] -	0..1
[File] MouldContour2D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldContour2D/1/0 [mould contour 2D] 2D Drawing of the Mould Contour. Shall include the cavity ID so that the cavity ID can be assigned to the corresponding cavity on the drawing.	[-] -	0..1
[File] MouldContour3D	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldContour3D/1/0 [mould contour 3D] 3D Drawing of the Mould Contour. Shall include the cavity ID so that the cavity ID can be assigned to the corresponding cavity on the drawing.	[-] -	0..1
[Prop] IsolationPlateFixedSide	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/IsolationPlateFixedSide/1/0 [isolation plate on fixed side] flag to indicate if an isolation plate is installed on the fixed side	[Boolean] -	1
[Prop] IsolationPlateMovableSide	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/IsolationPlateMovableSide/1/0 [isolation plate movable side] Flag to indicate if an isolation plate is installed on the movable side	[Boolean] -	1
[Prop] EjectorPlateActuation	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/EjectorPlateActuation/1/0 [ejector plate acutation] Type of actuation of the ejector plate	[String] -	0..1
[Prop] TransportationLock	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/TransportationLock/1/0 [transportation lock] Type of Transportation Lock	[String] -	0..1
[MLP]	https://admin-	[-]	0..1

TransportationInformation	shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/TransportationInformation/1/0 [transportation information] General information regarding the transport	-	
[Prop] TransportSafetyRingBolts	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/TransportSafetyRingBolts/1/0 [transport safety ring bolts] Flag to indicate, if safety ring bolts can be installed for transport	[Boolean] -	0..1
[Prop] GatingSystem	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/GatingSystem/1/0 [gating system] Type of gating system / hot runner	[String] -	0..1
[Prop] GateType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/GateType/1/0 [type of gating] Type of gating	[String] -	0..1
[Prop] NozzleType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/NozzleType/1/0 [nozzle type] Type of nozzle	[String] -	0..1
[Prop] NumberOfInjectionPoints	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/NumberOfInjectionPoints/1/0 [number of injection points] Total Number of Injection Points in the mould	[Int] -	1
[Prop] NozzleShotWeight	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/NozzleShotWeight/1/0 [nozzle shot weight] Shot weight of each nozzle	[Double] g [0173-1#05-AAA728#005]	1
[Prop] SprueBushingNozzleRadius	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldNozzleRadius/1/0 [radius of nozzle sprue bushing] Nozzle radius sprue bushing on the mould side	[Double] mm [0173-1#05-AAA480#005]	1
[Prop] PreChamberBushing	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/PreChamberBushing/1/0	[Boolean] -	0..1

	[pre-chamber bushing] Flag to indicate the presence of a pre-chamber bushing		
[Prop] GateDiameter	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/GateDiameter/1/0 [gate diameter] diameter of gating	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] CascadeControl	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CascadeControl/1/0 [cascade control] Flag to indicate if the control is a cascade control	[Boolean] -	0..1
[Prop] GuidePillar	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/GuidePillar/1/0 [type of guide pillar] Type of guide pillar used in the mould	[String] -	0..1
[Prop] GuidePillarEjectorPlate	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/GuidePillarEjectorPlate/1/0 [type of ejector plate guide pillar] Guide pillar used on the ejector plate of the mould	[String] -	0..1
[Prop] HydraulicCylinder	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HydraulicCylinder/1/0 [type of hydraulic cylinder] Type description of the hydraulic cylinders used in the mould	[String] -	0..1
[Prop] PneumaticCylinder	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/PneumaticCylinder/1/0 [type of pneumatic cylinder] Type description of the pneumatc cylinders used in the mould	[String] -	0..1
[Prop] AirValve	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/AirValve/1/0 [type of air valve] Type of air valve used in the mould	[String] -	0..1
[Prop] PartsCounter	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/PartsCounter/1/0 [type of parts counter] Type Description of the parts counter used in the mould	[String] -	0..1

[Prop] SlideBarLock	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/SlideBarLock/1/0 [type of slide bar lock] Type Description of the slide bar / slide lock used in the mould	[String] -	0..1
[SML] MouldCavities	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldCavities/1/0 [mould cavities] Provides a list of all cavities of the mould	[-] -	1
[Prop] GrainSurfaceFinish	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/GrainSurfaceFinish/1/0 [grain surface finish] Description of the grain / surface finish	[String] -	0..1
[Prop] SurfaceProtection	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/SurfaceProtection/1/0 [surface protection] Description of the surface protection	[String] -	0..1
[Prop] MouldColor	0173-1#02-BAC469#014 [Basic color of product] Main standardized color of the product, i.e. white, black, brown, etc.	[String] -	0..1
[Prop] CenteringRingDiameterFixedSide	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CenteringRingDiameterFixedSide/1/0 [centering ring diameter fixed side] Diameter of the centering ring on the fixed side of the mould	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] CenteringRingDiameterMovableSide	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CenteringRingDiameterMovableSide/1/0 [centering ring diameter movable side] Diameter of the centering ring on the movable side of the mould	[Double] mm [0173-1#05-AAA480#005]	0..1
[Prop] NumberOfCorePulls	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/NumberOfCorePulls/1/0 [number of core pulls] Total number of core pulls of the mould	[Int] -	1
[Prop] CorePullType	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CorePullType/1/0 [core pull type]	[String] -	0..1

	Description of the core pull type		
[File] CorePullSwitchAssignment	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CorePullSwitchAssignment/1/0 [core pull switch assignment] Description of the switch type and switch assignment of the core pulls	[-] -	0..1
[Prop] FlowTree	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/FlowTree/1/0 [flow tree description] Description of the flow tree in text form. e.g. gate->manifold->hot runner->nozzles->sensor->sensor	[String] -	0..1
[Prop] Inserts	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Inserts/1/0 [insert neccessary] Indication if Inserts are neccessary or not	[Boolean] -	1
[SML] AdditionalEquipment	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/AdditionalEquipmentList/1/0 [additional equipment list] Provides a list of additional equipment to be used with the mould	[-] -	1

2.7.1 SML MouldCavities

The following attributes need to be set for the Submodel Element List instance.

Table 23: Attributes of the SML MouldCavities

idShort:	MouldCavities		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldCavities/1/0		
Parent:	MouldDescription		
Explanation:	Provides a list of all cavities of the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldCavity/1/0 [mould cavity] The SMC MouldCavity lists information about each cavity in the mould	[-] -	1..*

For the child element SMC “MouldCavity”, the following attributes need to be set:

Table 24: Attributes of the SMC MouldCavity

idShort:			
Class:	SubmodelElementCollection		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/MouldCavity/1/0		
Parent:	MouldCavities		
Explanation:	The SMC MouldCavity lists information about each cavity in the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] CavityID	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityID/1/0 [Cavity ID] unique (in scope of the mould) ID of the cavity	[String] -	1
[Prop] CavityShrinkageX	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityShrinkageX/1/0 [cavity shrinkage X] Shrinkage applied - X direction	[Double] % [0173-1#05-AAA129#005]	0..1
[Prop] CavityShrinkageY	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityShrinkageY/1/0 [cavity shrinkage Y] Shrinkage applied - Y direction	[Double] % [0173-1#05-AAA129#005]	0..1
[Prop] CavityShrinkageZ	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityShrinkageZ/1/0 [cavity shrinkage Z] Shrinkage applied - Z direction	[Double] % [0173-1#05-AAA129#005]	0..1
[Prop] CavityMarkingDateStamp	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingDateStamp/1/0 [cavity marking date stamp] Date stamp applied in cavity yes/no	[Boolean] -	1
[Prop] CavityMarkingRecycleSymbol	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingRecycleSymbol/1/0 [cavity marking recycling symbol] Recycle Symbol applied in cavity yes/no	[Boolean] -	1

[Prop] CavityMarkingProductOwner	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingProductOwner/1/0 [cavity marking product owner] Product owner marking applied in cavity yes/no	[Boolean] -	1
[Prop] CavityMarkingCavityID	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingCavityID/1/0 [cavity marking cavity id] Number / ID of the cavity marked in the cavity yes/no	[Boolean] -	1
[Prop] CavityMarkingProductionLocation	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingProductionLocation/1/0 [cavity marking production location] marking of production location applied in the cavity yes/no	[Boolean] -	1
[Prop] CavityMaterial	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMaterial/1/0 [cavity material] Material used for the cavity	[String] -	0..1
[SMC] CavityHardness	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Hardness/1/0 [hardness] Provides value, unit and additional information corresponding to the hardness of the material. Value, unit and additional information are given as separate properties to allow the specification of different hardness scales.	[-] -	0..1
[SML] CavityMarkingsOther	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingsOther/1/0 [other cavity markings] Provides a list of other markings in the cavity	[-] -	1

SMC CavityHardness

The following attributes need to be set for the Submodel Element Collection instance.

Table 25: Attributes of the SMC CavityHardness

idShort:	CavityHardness
Class:	SubmodelElementCollection
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/Hardness/1/0
Parent:	

Explanation:	The SMC CavityHardness provides value, unit and additional information corresponding to the hardness of the cavity. Value, unit and additional information are given as separate properties to allow the specification of different hardness scales.		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop] HardnessValue	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityHardness/1/0 [hardness value] Hardness value of the material. Since hardness can be given in different or without units, the unit is specified in a separate variable.	[Double] -	1
[Prop] HardnessUnit	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HardnessUnit/1/0 [hardness unit] Unit corresponding to the hardness value	[String] -	1
[Prop] HardnessValueAdditionalInformation	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/HardnessValueAdditionalInformation/1/0 [hardness value additional information] Additional information corresponding to the hardness value and unit. In addition to the hardness value and unit, the method used, the ball diameter, test force and testing time are often specified. Example: 210 HBW 5/10/60	[String] -	0..1

SML CavityMarkingsOther

The following attributes need to be set for the Submodel Element List instance.

Table 26: Attributes of the SML CavityMarkingsOther

idShort:	CavityMarkingsOther		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/CavityMarkingsOther/1/0		
Parent:			
Explanation:	Provides a list of other markings in the cavity		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[SMC]	0112/2///61360_7#AAS009#001 [Marking] Single marking information	[-] -	0..*

2.7.2 SML AdditionalEquipment

The following attributes need to be set for the Submodel Element List instance.

Table 27: Attributes of the SML AdditionalEquipment

idShort:	AdditionalEquipment		
Class:	SubmodelElementList		
semanticId:	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/AdditionalEquipmentList/1/0		
Parent:	MouldDescription		
Explanation:	Provides a list of additional equipment to be used with the mould		
[SME type] idShort	**semanticId [preferred name] definition@en**	**[valueType] unit [unitId]**	**card.**
[Prop]	https://admin-shell.io/idta/euromap/SubmodelTemplate/MouldsEngineeringData/AdditionalEquipment/1/0 [additional equipment description] Description of additional equipment used in the mould	[String] -	0..*

Explanations on used table formats

General

The used tables in this document try to outline information as concise as possible. They do not convey all information on Submodels and SubmodelElements. For this purpose, the definitive definitions are given by a separate file in form of an AASX file of the Submodel template and its elements.

Tables on Submodels and SubmodelElements

For clarity and brevity, a set of rules is used for the tables for describing Submodels and SubmodelElements.

- The tables follow in principle the same conventions as in [5].
- The table heads abbreviate 'cardinality' with 'card'.
- The tables often place two informations in different rows of the same table cell. In this case, the first information is marked out by sharp brackets [] form the second information. A special case are the semanticIds, which are marked out by the format: (type)(local)[idType]value.
- The types of SubmodelElements are abbreviated:

SME type	SubmodelElement type
Property	Property
MLP	MultiLanguageProperty
Range	Range
File	File
Blob	Blob
Ref	ReferenceElement
Rel	RelationshipElement
SMC	SubmodelElementCollection

- If an idShort ends with '__00__', this indicates a suffix of the respective length (here: 2) of decimal digits, in order to make the idShort unique. A different idShort might be choosen, as long as it is unique in the parent's context.
- The Keys of semanticId in the main section feature only idType and value, such as: [IRI]https://admin-shell.io/vdi/2770/1/0/DocumentId/Id. The attributes "type" and "local" (typically "ConceptDescription" and "(local)" or "GlobalReference" and (no-local)") need to be set accordingly; see [6].
- If a table does not contain a column with "parent" heading, all represented attributes share the same parent. This parent is denoted in the head of the table.
- Multi-language strings are represented by the text value, followed by '@'-character and the ISO 639 language code: example@EN.
- The [valueType] is only given for Properties.

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