SPECIFICATION

Submodel Templates of the Asset Administration Shell

**Submodel
TECHNICAL DATA**

- **Max. Rotation Speed = 5000 [1/min]**
- **Max. Torque = 200 [Nm]**
- **Cooling Type = BAB657**

**Submodel
OPERATIONAL DATA**

- **Rotation Speed = 4370 [1/min]**
- **Torque = 117.4 [Nm]**
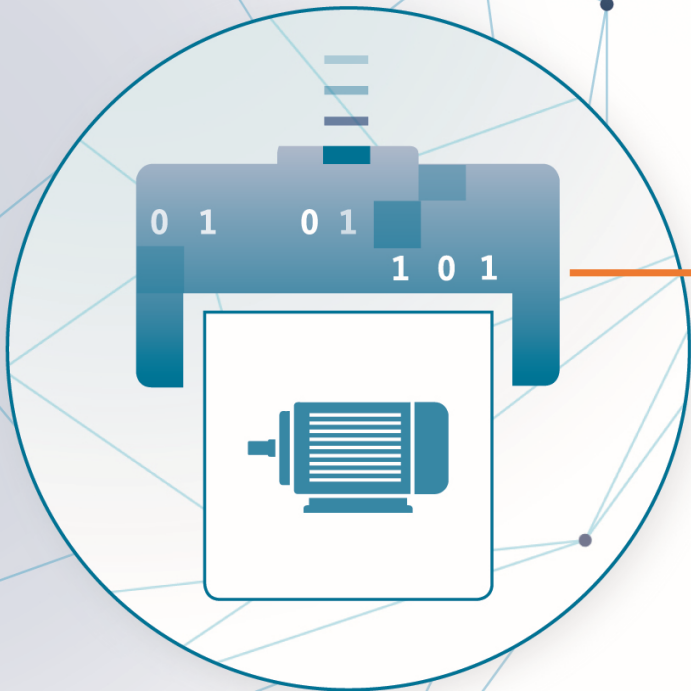
**Submodel
DOCUMENTATION**

- **Title = Operating Manual**
- **Digital File PDF →** /aasx/OperatingManual.PDF
- **Document Class ID = 03-02**
- **Document Class N...**

ZVEI Digital Nameplate

for industrial equipment (Version 1.0)

Imprint

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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 audience 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.

1.2 Scope of the Submodel

This Submodel template aims at interoperable provision of information describing the nameplate of the asset of the respective Asset Administration Shell. Central element is the provision of properties [7], ideally interoperable by the means of dictionaries such as ECLASS and IEC CDD (Common Data Dictionary). The purpose of this document is to make selected specifications of submodels in such manner that information about assets and their nameplate can be exchanged in a meaningful way between partners in a value creation network. It targets equipment for process industry and factory automation by defining standardized meta data.

The intended use-case is the provision of a standardized property structure within a digital nameplate, which enables the interoperability of digital nameplates from different manufacturers.

This concept can serve as a basis for standardizing the respective submodel. The conception is based on existing norms, directives and standards so that a far-reaching acceptance can be achieved.

Beside standardized submodel this template also introduces standardized SubmodelElementCollections (SMC) in order to improve the interoperability while modelling partial aspects within submodels. The standardized SMCs include address and asset product marking.

1.3 Relevant regulation for the Submodel template

The current version of the Submodel template is considered to meet the minimum requirement for nameplate information, hence it solely concentrates on the requirements specified by EU directive 2006/42/EC. Requirements specified by further regulations and directives will be taken into account in subsequent versions.

The EU directive 2006/42/EC aims to standardize the market entry requirements for machines in the European economic area and further related countries. In regard to nameplate the EU directive establishes the minimum requirements on information a nameplate should provide which state as follows:

- the business name and full address of the manufacturer and, where applicable, his authorised representative,
- designation of the machinery,
- the CE Marking,
- designation of series or type,
- serial number, if any,
- the year of construction, that is the year in which the manufacturing process is completed.

Further relevant basic requirements for nameplates are described in [8].

2 Information set for Submodel "Nameplate"

The Submodel template was motivated by the prior ZVEI project "Digital Nameplate". A brief introduction about the project is given in Annex C. While defining submodels the following three aspects must be considered as suggested in [5]:

Use and economic relevance

A nameplate contains identifying, descriptive and indicating information about an asset. Given the variety of requirements from national and global institutions, conventional nameplate have reached their limits of presenting mandatory content. The submodel "Nameplate" helps to standardize the information structure for modelling a nameplate in compliance with EU Machine Directive 2006/42/EC. As a result, a breakthrough of restrictions due to limited labeling field can be achieved. At the same time the availability of asset information is widened from local to global level enabling further partners along the value chain to have access to nameplate information. The machine readability can be realized without ambiguity with the help of semantic information.

Possible functions and interactions

The submodel "Nameplate" provides information from a nameplate. Customers or potential customers can use this submodel to acquire identifying, classifying information about an asset, such as the manufacturer name, model type or serial number and the provided product markings. Customers can also use this submodel to verify the asset with their order. Beside the customers public authorities and inter-trade organizations may also share interest in this submodel in order to examine the information integrity stipulated for a nameplate. Manufacturers use this submodel to fulfill the legal commitment on the one hand, on the other hand this submodel helps them to identify the right asset in case maintenance services or spare parts are needed.

In order to take regulations for nameplate from further standards or directives into account additional properties can be modelled with SMC "AssetSpecificProperties" and its child element SMC "GuidelineSpecificProperties" while reference to the additional standard document should be stored in the property "GuidelineForConformityDeclaration". A separate SMC "GuidelineSpecificProperties" needs to be created for each additional standard and all SMC "GuidelineSpecificProperties" should be placed under the parent node "AssetSpecificProperties".

Property specification

See clause 3 "Submodel and collections".

3 Submodel and collections

3.1 Properties of the Submodel "Nameplate"

Figure 1 shows the UML-diagram defining the relevant properties which need to be set. Table 1 describes the details of the submodel structure combined with examples.

Figure 1 UML-Diagram for submodel "Nameplate"

Table 1 Properties of submodel "Nameplate"

idShort:	Nameplate
	Note: the above idShort shall always be as stated.
Class:	Submodel
semanticId:	[IRI] https://admin-shell.io/zvei/nameplate/1/0/Nameplate
Explanation:	Contains the nameplate information attached to the product

[SME type]	semanticId = [idType]value		[valueType]	card.
idShort	Description@en		example	
[MLP] ManufacturerName	[IRDI] 0173-1#02-AAO677#002 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 Note: mandatory property according to EU Machine Directive 2006/42/EC.		[langString] Muster AG @DE	[1]
[MLP] ManufacturerProduct Designation	[IRDI] 0173-1#02-AAW338#001 Short description of the product (short text) Note: mandatory property according to EU Machine Directive 2006/42/EC.		[langString] ABC-123 @EN	[1]
[SubmodelElementCollection] Address	[IRDI] 0173-1#02-AAQ832#005 Address information of a business partner		n/a	[1]

	Note: mandatory property according to EU Machine Directive 2006/42/EC. See separate clause		
[MLP] ManufacturerProduct Family	[IRDI] 0173-1#02-AAU731#001 2nd level of a 3 level manufacturer specific product hierarchy Note: mandatory property according to EU Machine Directive 2006/42/EC.	[langString] Type ABC@EN	[1]
[Property] SerialNumber	[IRDI] 0173-1#02-AAM556#002 unique combination of numbers and letters used to identify the device once it has been manufactured	[String] 12345678	[0..1]
[Property] YearOfConstruction	[IRDI] 0173-1#02-AAP906#001 Year as completion date of object Note: mandatory property according to EU Machine Directive 2006/42/EC.	[String] 2020	[1]
[SubmodelElementCollection] Markings	[IRI] https://admin-shell.io/zvei/nameplate/1/0/ Nameplate/Markings Collection of product markings Note: CE marking is declared as mandatory according to EU Machine Directive 2006/42/EC. See separate clause	n/a	[0..1]
[SubmodelElementCollection] AssetSpecificProperties	[IRI] https://admin-shell.io/zvei/nameplate/1/0/ Nameplate/AssetSpecificProperties Collection of guideline specific properties See separate clause	n/a	[0..1]

3.2 Properties of the SMC "Address" for physical address

Figure 2 shows the UML-diagram defining the relevant properties which need to be set. Table 2 describes the details of the SMC structure combined with examples.
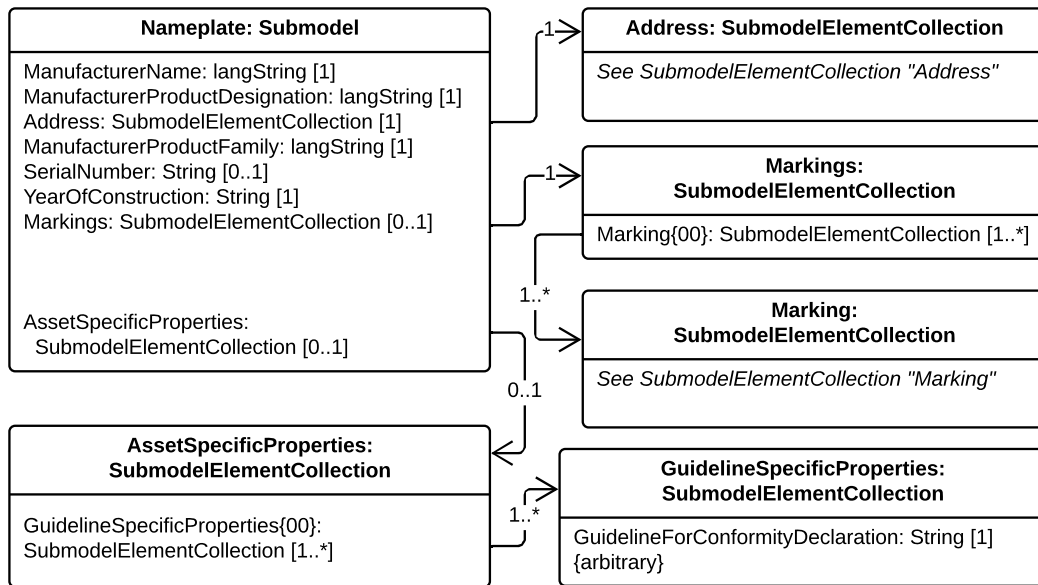
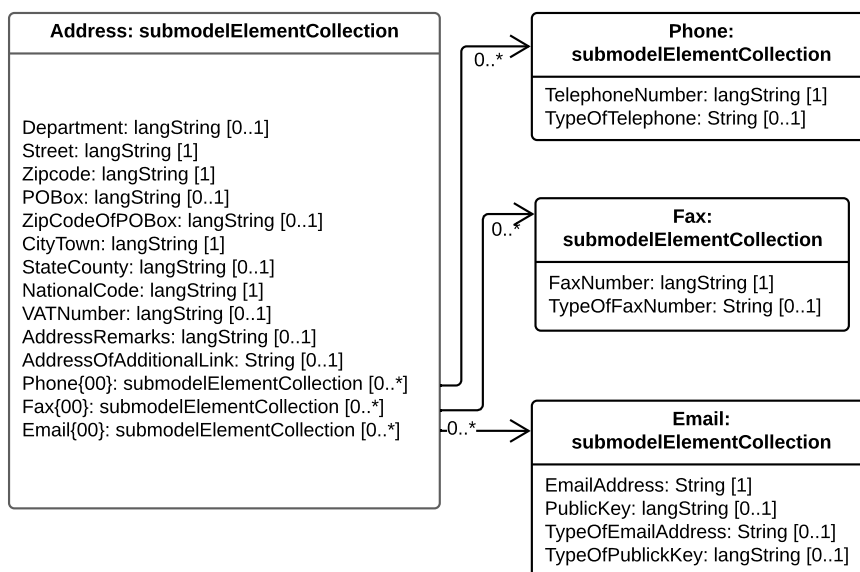**Figure 2 UML-Diagram for SMC "Address"**

Table 2 Properties of SMC "Address"

idShort:	Address
	Note: the above idShort shall always be as stated.
Class:	SubmodelElementCollection
semanticId:	[IRDI] 0173-1#02-AAQ832#005
Parent:	Submodel "Nameplate"
Explanation:	The standardized SMC Address contains information about address of a partner within the value chain.

[SME type]	semanticId = [idType]value	[valueType]	card.
idShort	Description@en	example	
[MLP] Department	[IRDI] 0173-1#02-AAO127#003 administrative section within an organisation where a business partner is located	[langString] Vertrieb@DE	[0..1]
[MLP] Street	[IRDI] 0173-1#02-AAO128#002 street name and house number Note: mandatory property according to EU Machine Directive 2006/42/EC.	[langString] Musterstraße 1@DE	[1]
[MLP] Zipcode	[IRDI] 0173-1#02-AAO129#002 ZIP code of address Note: mandatory property according to EU Machine Directive 2006/42/EC.	[langString] 12345@DE	[1]
[MLP] POBox	[IRDI] 0173-1#02-AAO130#002 P.O. box number	[langString] PF 1234@DE	[0..1]
[MLP] ZipCodeOfPOBox	[IRDI] 0173-1#02-AAO131#002 ZIP code of P.O. box address	[langString] 12345@DE	[0..1]
[MLP] CityTown	[IRDI] 0173-1#02-AAO132#002 town or city Note: mandatory property according to EU Machine Directive 2006/42/EC.	[langString] Musterstadt@DE	[1]
[MLP] StateCounty	[IRDI] 0173-1#02-AAO133#002 federal state a part of a state	[langString] Muster-Bundesland@DE	[0..1]
[MLP] NationalCode	[IRDI] 0173-1#02-AAO134#002 code of a country Note: Country codes defined accord. to DIN EN ISO 3166-1 Note: mandatory property according to EU Machine Directive 2006/42/EC.	[langString] DE@DE	[1]

[MLP] VATNumber	[IRDI] 0173-1#02-AAO135#002 VAT identification number of the business partner	[langString] DE123456789 @DE	[0..1]
[MLP] AddressRemarks	[IRDI] 0173-1#02-AAO202#003 plain text characterizing address information for which there is no property	[langString]	[0..1]
[Property] AddressOfAdditi onalLink	[IRDI] 0173-1#02-AAQ326#002 web site address where information about the product or contact is given	[String]	[0..1]
[SubmodelEleme ntCollection] Phone{00}	[IRDI] 0173-1#02-AAQ833#005 Phone number including type See separate clause	n/a	[0..*]
[SubmodelEleme ntCollection] Fax{00}	[IRDI] 0173-1#02-AAQ834#005 Fax number including type See separate clause	n/a	[0..*]
[SubmodelEleme ntCollection] Email{00}	[IRDI] 0173-1#02-AAQ836#005 E-mail address and encryption method See separate clause	n/a	[0..*]

The following example in Figure 3 shows a possible modelling of SMC "Address" in Submodel "Nameplate".

Figure 3 Example modelling of SMC "Address"
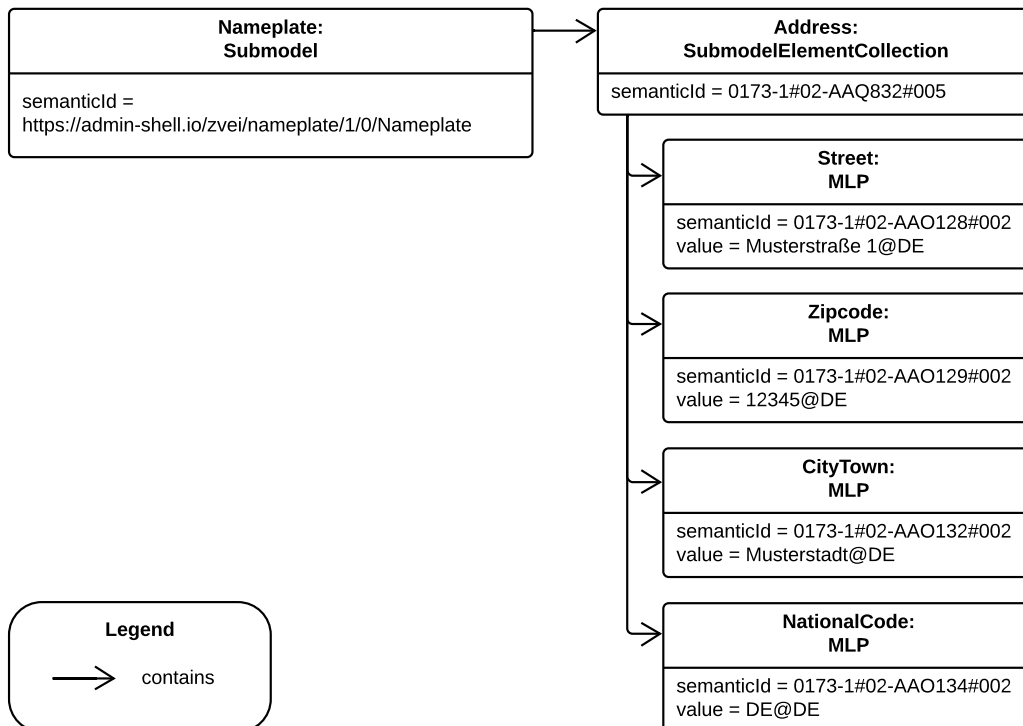
3.3 Properties of the SMC "Phone"

Figure 2 shows the UML-diagram defining the relevant properties which need to be set. Table 3 describes the details of the SMC structure combined with examples.

Table 3 Properties of SMC "Phone"

idShort:	Phone{00}		
Class:	SubmodelElementCollection		
semanticId:	[IRDI] 0173-1#02-AAQ833#005		
Parent:	SubmodelElementCollection "Address"		
Explanation:	Phone number including type		
[SME type]	**semanticId = [idType]value**	**[valueType]**	**card.**
idShort	**Description@en**	**example**	
[MLP] TelephoneNumber	[IRDI] 0173-1#02-AAO136#002 complete telephone number to be called to reach a business partner	[langString] +491234567890@ DE	[1]
[Property] TypeOfTelephone	[IRDI] 0173-1#02-AAO137#003 characterization of a telephone according to its location or usage enumeration: 1 (office, 0173-1#07-AAS754#001), 2 (office mobile, 0173-1#07-AAS755#001), 3 (secretary, 0173-1#07-AAS756#001), 4 (substitute, 0173-1#07-AAS757#001), 5 (home, 0173-1#07-AAS758#001), 6 (private mobile, 0173-1#07-AAS759#001)	[String] 1	[0..1]

3.4 Properties of the SMC "Fax"

Figure 2 shows the UML-diagram defining the relevant properties which need to be set. Table 4 describes the details of the SMC structure combined with examples.

Table 4 Properties of SMC "Fax"

idShort:	Fax{00}		
Class:	SubmodelElementCollection		
semanticId:	[IRDI] 0173-1#02-AAQ834#005		
Parent:	SubmodelElementCollection "Address"		
Explanation:	Fax number including type		
[SME type]	**semanticId = [idType]value**	**[valueType]**	**card.**
idShort	**Description@en**	**example**	
[MLP] FaxNumber	[IRDI] 0173-1#02-AAO195#002 complete telephone number to be called to reach a business partner's fax machine	[langString] +491234567890@ DE	[1]

| [Property]
TypeOfFaxNumber | [IRDI] 0173-1#02-AAO196#003

characterization of the fax according its location or usage

enumeration: 1 (office, 0173-1#07-AAS754#001), 3 (secretary, 0173-1#07-AAS756#001), 5 (home, 0173-1#07-AAS758#001) | [String]
1 | [0..1] |

3.5 Properties of the SMC "Email"

Figure 2 shows the UML-diagram defining the relevant properties which need to be set. Table 5 describes the details of the SMC structure combined with examples.

Table 5 Properties of SMC "Email"

idShort:	Email{00}		
Class:	SubmodelElementCollection		
semanticId:	[IRDI] 0173-1#02-AAQ836#005		
Parent:	SubmodelElementCollection "Address"		
Explanation:	E-mail address and encryption method		
[SME type]	**semanticId = [idType]value**	**[valueType]**	**card.**
idShort	**Description@en**	**example**	
[Property] EmailAddress	[IRDI] 0173-1#02-AAO198#002 electronic mail address of a business partner	[String] email@muster-ag.de	[1]
[MLP] PublicKey	[IRDI] 0173-1#02-AAO200#002 public part of an unsymmetrical key pair to sign or encrypt text or messages	[langString]	[0..1]
[Property] TypeOfEmailAddress	[IRDI] 0173-1#02-AAO199#003 characterization of an e-mail address according to its location or usage enumeration: 1 (office, 0173-1#07-AAS754#001), 3 (secretary, 0173-1#07-AAS756#001), 4 (substitute, 0173-1#07-AAS757#001), 5 (home, 0173-1#07-AAS758#001)	[String] 1	[0..1]
[MLP] TypeOfPublickKey	[IRDI] 0173-1#02-AAO201#002 characterization of a public key according to its encryption process	[langString]	[0..1]

3.6 Properties of the SMC "Markings"

Figure 1 shows the UML-diagram defining the relevant properties which need to be set. Table 6 describes the details of the SMC structure.

Table 6 Properties of SMC "Markings"

idShort:	Markings
Class:	SubmodelElementCollection

semanticId:	[IRI] https://admin-shell.io/zvei/nameplate/1/0/Nameplate/Markings		
Parent:	Submodel "Nameplate"		
Explanation:	Collection of product markings Note: CE marking is declared as mandatory according to EU Machine Directive 2006/42/EC.		
[SME type]	semanticId = [idType]value	[valueType]	card.
idShort	Description@en	example	
[SubmodelElementCollection] Marking{00}	[IRI] https://admin-shell.io/zvei/nameplate/1/0/Nameplate/Markings/Marking contains information about the marking labelled on the device Note: CE marking is declared as mandatory according to EU Machine Directive 2006/42/EC. See separate clause.	n/a	[1..*]

3.7 Properties of the SMC "Marking" for product marking

Figure 4 shows the UML-diagram defining the relevant properties which need to be set. Table 7 describes the details of the SMC structure combined with examples.
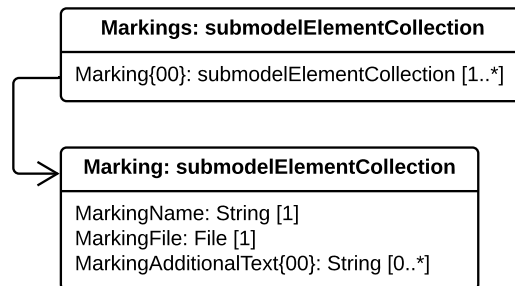
Figure 4 UML-Diagram for SMC "Marking"

Table 7 Properties of SMC "Marking"
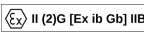
idShort:	Marking{00}		
Class:	SubmodelElementCollection		
semanticId:	[IRI] https://admin-shell.io/zvei/nameplate/0/1/Nameplate/Markings/Marking		
Parent:	SubmodelElementCollection "Markings"		
Explanation:	contains information about the marking labelled on the device		
[SME type]	semanticId = [idType]value	[valueType]	card.
idShort	Description@en	example	
[Property] MarkingName	[IRI] https://admin-shell.io/zvei/nameplate/1/0/ Nameplate/Markings/Marking/MarkingName common name of the marking	[String] valueId with ECLASS enumeration IRDI is preferable, e.g. [IRDI] 0173-1#07-DAA603#004 for CE.	[1]

	Note: CE marking is declared as mandatory according to EU Machine Directive 2006/42/EC.	If no IRDI available, string value can also be accepted. Samples for valueId from ECLASS are listed in Annex B	
[File] MarkingFile	[IRI] https://admin-shell.io/zvei/nameplate/1/0/ Nameplate/Markings/Marking/MarkingFile picture of the marking Note: CE marking is declared as mandatory according to EU Machine Directive 2006/42/EC.	[File] /aasx/Nameplate/marki ng_ce.png	[1]
[Property] MarkingAdditionalText{ 00}	[IRI] https://admin-shell.io/zvei/nameplate/1/0/ Nameplate/Markings/Marking/MarkingAdditionalText where applicable, additional information on the marking in plain text	[String] 0044	[0..*]

Regarding the property "MarkingName" the preferable solution is to provide a valueId in IRDI originating from ECLASS enumeration value list, e.g. "CE" (IRDI: 0173-1#07-DAA603#004). In case none of the existing ECLASS enumeration values matches, filling plain string text into the "value" field of the property "MarkingName" can be accepted alternatively. It needs to be pointed out that ECLASS also provides marking definitions in terms of boolean property, e.g. "CE- qualification present" (IRDI: 0173-1#02-BAF053#008). In this case users should instead use a matching ECLASS enumeration value or, if not provided as enumeration, fill in plain string text.

The following example illustrates how to model product marking in an AAS. On the left side there is a sample nameplate which contains three markings to be modelled: the CE marking, Ex marking and the WEEE marking with a crossed-out wheeled bin. Next to the nameplate a table lists all properties and their attributes.

Figure 5 Example modelling of SMC "Marking"

		CE	Ex	crossed-out wheeled bin (WEEE)
MarkingName	valueType	string	string	string
	value			WEEE
	valueId	[IRDI] 0173-1#07-DAA603#004	[IRDI] 0173-1#07-WAA094#003	[URI] https://eur-lex. europa.eu/aas/ 2012-19-EU/ crossed-out-wheeled-bin
MarkingFile	value	/aasx/Nameplate/ marking_ce.png	/aasx/Nameplate/ ex.png	/aasx/Nameplate/ WEEE.png
	mimeType	image/png	image/png	image/png
MarkingAddi- tionalText	valueType	string	string	string
	value	0123	II (2)G [Ex ib Gb] IIB	
	valueId			

3.8 Properties of the SMC "AssetSpecificProperties"

Figure 1 shows the UML-diagram defining the relevant properties which need to be set. Table 8 describes the details of the SMC structure.

Table 8 Properties of SMC "AssetSpecificProperties"

idShort:	AssetSpecificProperties		
Class:	SubmodelElementCollection		
semanticId:	[IRI] https://admin-shell.io/zvei/nameplate/1/0/Nameplate/AssetSpecificProperties		
Parent:	Submodel "Nameplate"		
Explanation:	Collection of guideline specific properties		
[SME type]	**semanticId = [idType]value**	**[valueType]**	**card.**
idShort	**Description@en**	**example**	
[SubmodelElementCollection] GuidelineSpecificProperties{00}	[IRI] https://admin-shell.io/zvei/nameplate/1/0/Nameplate/AssetSpecificProperties/GuidelineSpecificProperties Asset specific nameplate information required by guideline, stipulation or legislation. See separate clause	n/a	[1..*]

3.9 Properties of the SMC "GuidelineSpecificProperties"

Figure 1 shows the UML-diagram defining the relevant properties which need to be set. Table 9 describes the details of the SMC structure combined with examples.

**Table 9 Properties of SMC "GuidelineSpecificProperties"**

idShort:	GuidelineSpecificProperties{00}		
Class:	SubmodelElementCollection		
semanticId:	[IRI] https://admin-shell.io/zvei/nameplate/1/0/Nameplate/AssetSpecificProperties/GuidelineSpecificProperties		
Parent:	SMC "AssetSpecificProperties"		
Explanation:	Asset specific nameplate information required by guideline, stipulation or legislation.		
[SME type]	**semanticId = [idType]value**	**[valueType]**	**card.**
idShort	**Description@en**	**example**	
[Property] GuidelineForConformityDeclaration	[IRDI] 0173-1#02-AAO856#002 guideline, stipulation or legislation used for determining conformity	[String]	[1]
[Property] {arbitrary}	semanticId = {arbitrary, representing information required by further standards}	n/a	[1..*]

Beside the mentioned EU Machine Directive 2006/42/EC which this submodel template is compliant with, there might be further information required by further stipulations and regulations depending on different asset. The SMC

"AssetSpecificProperties" and its child SMC "GuidelineSpecificProperties" are therefore used to cover additional mandatory nameplate information while referencing the related stipulation or regulation.

In the following example a pressure equipment is addressed. Due to EU Directive 2014/68/EU the essential maximum/minimum allowable limits shall be provided for all pressure equipment. The example in Figure 6 shows a possible modelling of SMC "GuidelineSpecificProperties" in order to specify the minimum and maximum allowable pressure.

Figure 6 Example modelling of SMC "AssetSpecificProperties"
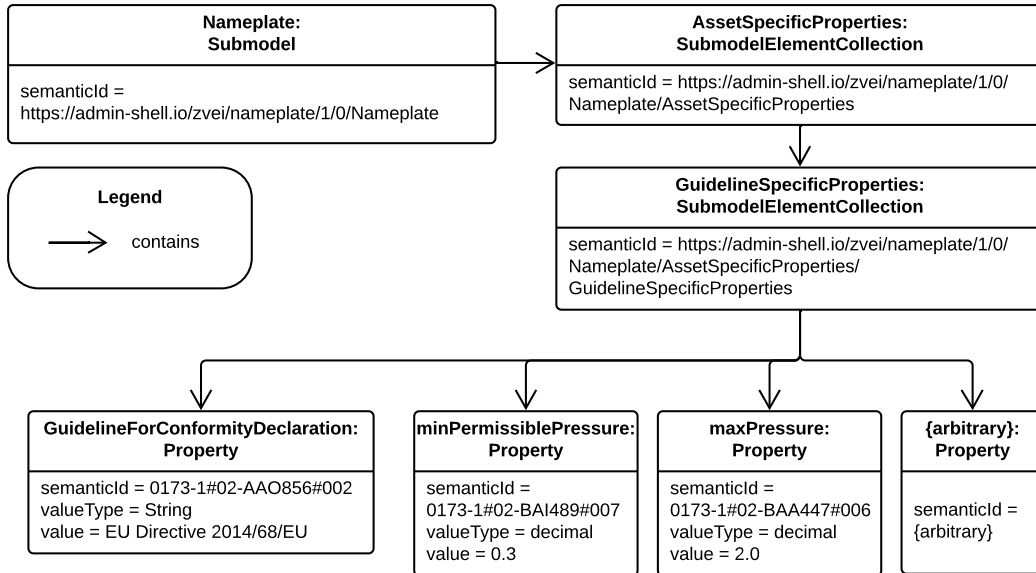
Annex A. Explanations on used table formats

1. 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 the following annex in form of an XML mapping of the Submodel template and its elements.

2. 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 parents 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 properties 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 ISO639 language code: example@EN.
- The [valueType] is only given for Properties.

Annex B. Sample ECLASS definitions for product marking

The following table provides sample ECLASS definitions for modelling product marking in SMC "Marking". Further values will be provided by ECLASS or other repositories.

Item	IRDI	preferredName@en
1	0173-1#07-AAB047#003	CCC
2	0173-1#07-DAA603#004	CE
3	0173-1#07-AAA555#001	CECC mark of conformity
4	0173-1#07-AAU119#001	DGRL
5	0173-1#07-ABC243#001	EAC
6	0173-1#07-WAA099#003	EEx ia
7	0173-1#07-WAA102#003	EExedIIC
8	0173-1#07-WAA101#003	EExmII
9	0173-1#07-WAA094#003	Explosion-proof
10	0173-1#07-AAA374#003	GS mark of conformity
11	0173-1#07-AAA375#001	TÜV sign
12	0173-1#07-AAA554#001	VDE mark of conformity

Annex C. ZVEI Project Digital Nameplate

The project "Digital Nameplate" was initiated by ZVEI management circle for Industry 4.0 mirror committee "Strategy and use cases". The project scope includes the conception of a digital nameplate based on AAS and the implementation as a demonstrator. The aim of the project is on the one hand to inform political decision-makers about the urgency to adjust legal boundaries for industrial product markings, on the other hand to save resources by replacing product documentation in paper format through digitalization while improving the service quality for customers at the same time.

The relevant results of the ZVEI project Digital Nameplate are transferred to this AAS submodel "Nameplate". The following functions are available within the project scope: the Digital Nameplate helps to identify the asset and its manufacturer. The Digital Nameplate can be accessed with common web browsers of diverse terminal equipments with display, e.g. smartphone, tablet or PC. An explicit programme or a mobile application shall not be mandatory for the usage of Digital Nameplate. The Digital Nameplate can be accessed by scanning the URL coded in a 2D code with an optical scan device such as a smartphone or a tablet. The following functions are available within the project scope:

- Nameplate information

User can browse through product information which is compliant with EU Machine Directive 2006/42/EC. The information includes but is not limited to manufacturer name, address, machine marking and machine type.

- Approval/ certificate information

User gets digital information about certificates and safety-related instructions that are compliant with VDI standard 2770. Beside the access to mandatory certificates, markings and safety-related information, user shall also have access to other optional certificates and markings.

- Service information

In case maintenance services are required, user can retrieve service information of the manufacturer. The information includes but is not limited to service hotline, service point, service contact, handbook for troubleshooting and maintenance guide. In addition, user can place orders for a product replacement, spare part or consumables from the manufacturer or a certified business partner. Relevant information for the order will be provided by appropriate submodels of the AAS.

- Identification

User can identify an asset by means of a Digital Nameplate uniquely. While defining submodels focus must be placed on the harmonization with existing models which are based on industry-wide consensus and listed as below:

- OPC UA Device Interface IEC 62451 Part 100 (OPC Foundation and "Field Level Communication", VDMA)
- Fieldbus e.g. Profibus and Profinet, SERCOS
- FDI (Field Device Integration) / FDT (Field Device Tool)
- NAMUR Core Model
- IO Link / IODD
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