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PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD

Generic specification of information on products –
Part 1: Principles and methods

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

GENERIC SPECIFICATION OF INFORMATION ON PRODUCTS –

Part 1: Principles and methods

FOREWORD

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A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

IEC/PAS 62569-1 has been prepared by technical committee 3: Information structures, documentation and graphical symbols.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
3/940/PAS	3/944/RVD

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned may transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of 3 years starting from the publication date. The validity may be extended for a single 3-year period, following which it shall be revised to become another type of normative document, or shall be withdrawn.

A list of all parts of IEC 62569 series, under the general title *Generic specification of information on products*, can be found on the IEC website.

INTRODUCTION

This PAS is intended as the first part of a standard series defining methods and guidelines for the establishing of generic electronic specifications of information for products (including plants, systems, equipment or components, in the following all called products), along its life cycle for later use e.g. in the procurement, operating and maintenance.

This series is prepared to transfer the former paper-based applications of blank detail specifications or product descriptions towards supporting the electronic business allowing the evaluation and management of described items by computers.

This PAS establishes general principles required for the other parts of this series. It specifies the infrastructure required to manage the product-related information as described in the following parts along the life cycle.

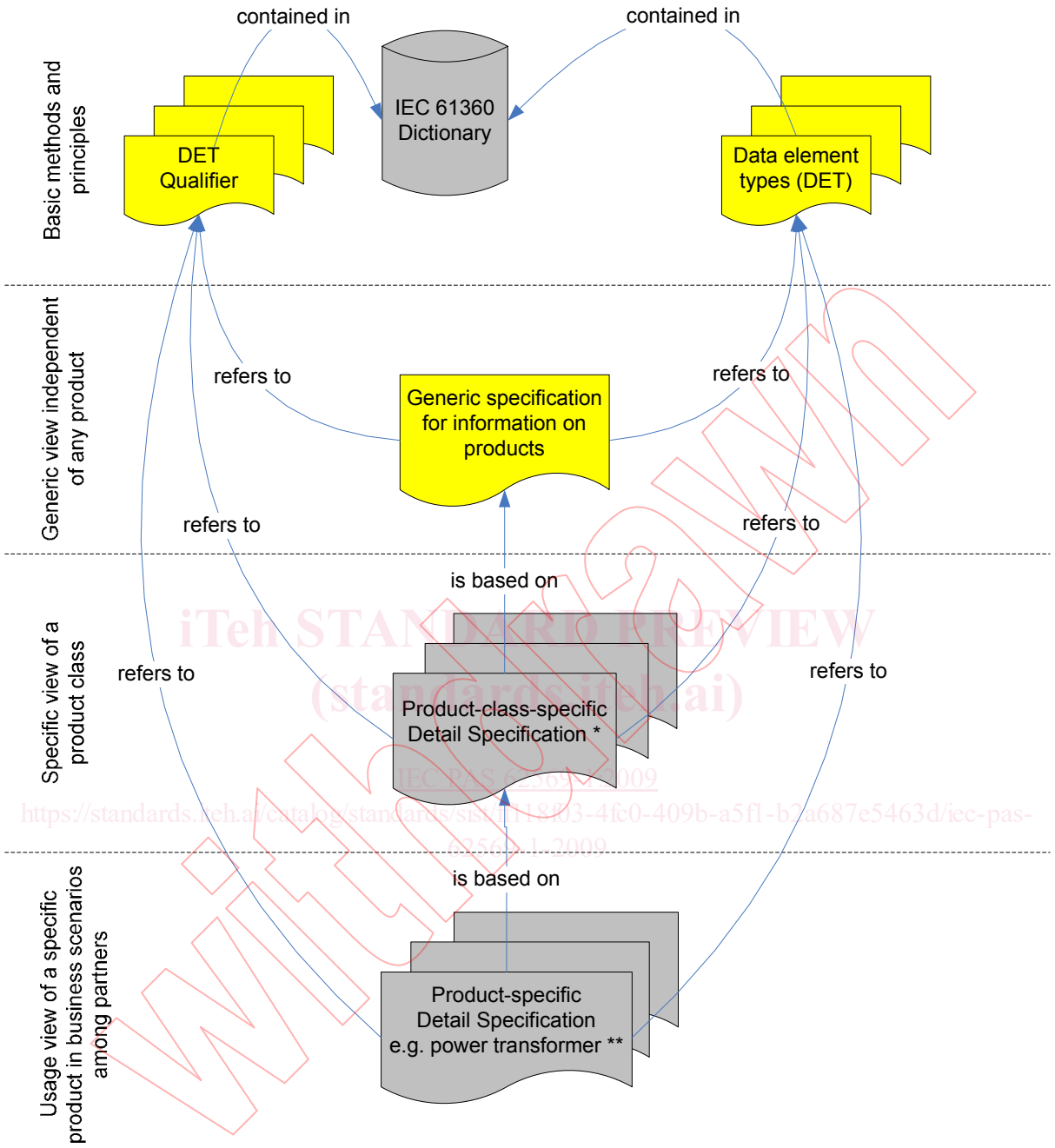
Part 2 provides a generally applicable structure of a generic specification of information on products presenting those common clauses which are independent of any specific equipment, component and device. It serves as a guide for the preparation of technical specifications for various items. Due to its generic type, particular issues referring to specific product classes are excluded. These need to be obtained from the specific product descriptions within product standards.

Part 2 is the basis for an XML based electronic template, serving as generic template for the development of product-specific specifications of information by product committees within IEC and ISO, industrial consortia or other industrial organizations.

The result of such product-specific blank detail specifications may be made available as a web-based collection of product-specific specifications for information, allowing users and technical committees to upload and/or download detail specifications for industrial use in the business process.

A prerequisite of the above series is the existence of an international available data dictionary, providing collections of data element types following common methods as defined in the IEC 61360 series.

Referring from product descriptions to previously defined semantic data element type descriptions is the key issue of an effective and secure electronic business. For the relations among data element types, the associated data dictionary and the different specifications see Figure 1.



* Developped by Product Committees, Consortia or other Organizations, e.g. for lifting cranes, capacitors, resistors, power transformers

** Filled with product specific data at a specified time in the life cycle process of a power transformer; used in a defined business scenario among industrial partners, e.g. seller,buyer

Figure 1 – Context of generic specification for information on products

NOTE 1 Such a dictionary is available as a data base application to be found under http://std.iec.ch/iec61360

NOTE 2 A test version of the above data base can be found under http://std.iec.ch/test/61360.nsf

NOTE 3 As web sites may change along time, the previously given URLs may not be found under the given URL.

Figure 2 shows a business scenario about the usage of a detail specification (based on the generic specification) for information on products between business partners.

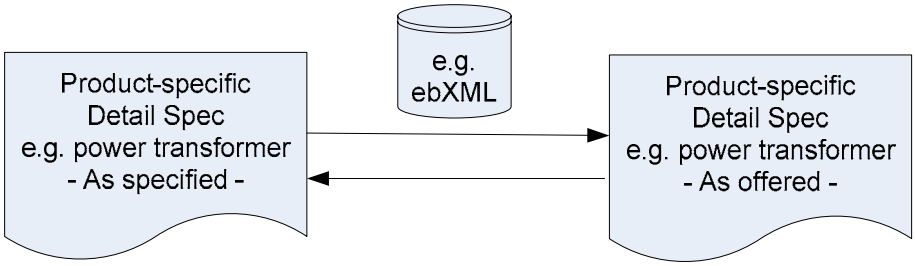


Figure 2 – Business scenario between partners

If a specification for information in the form of an electronic template is associated with a schema for data exchange, e.g. an XML schema or any other tagged electronic file format, the content of the product-specific detail specification can be easily used for import and export of data values in conjunction with data bases for material management systems. See Figure 3.

A specification template can also be imported for the setting up of the internal structures within a data base without having the need to import associated values.

Vice versa detail specifications can be generated to export data using a predefined template based on the generic specification for information on products.

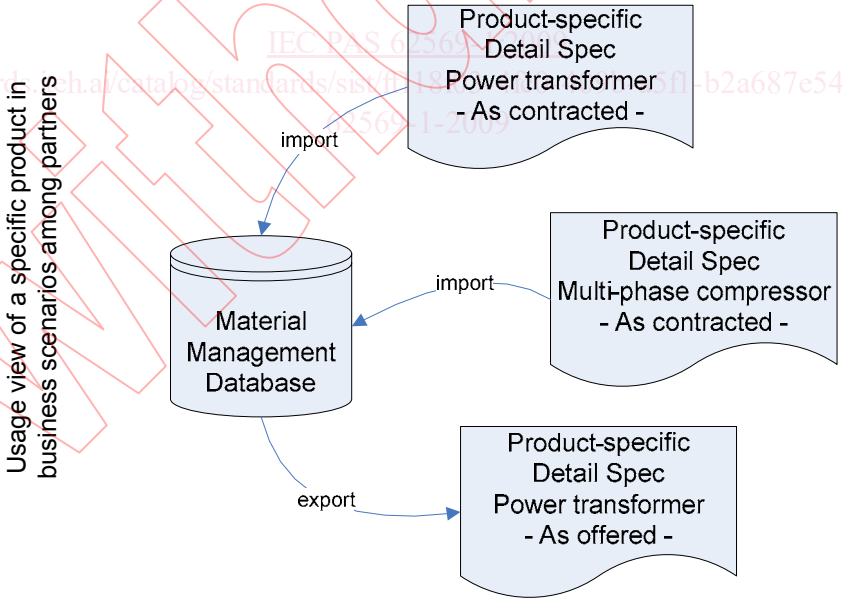


Figure 3 – Import/export possibilities using tagged formats

GENERIC SPECIFICATION OF INFORMATION ON PRODUCTS –

Part 1: Principles and methods

1 Scope

The IEC 62569 series of publications will provide principles and methods for the specification of products by properties, e.g. in data sheets. It uses data element types defined in the data dictionary of IEC 61360.

This PAS provides qualifiers to be used in addition to the properties considering life cycle and other aspects. It is a prerequisite for the other parts of this series.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 61360-1: 2004, *Standard data element types with associated classification scheme for electric components Part 1: Definitions. Principles and methods*

IEC 81346-1, *Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations*

ISO 31-0:1992, *Quantities and units - Part 0: General principles*

ISO 1000: 1992, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 80000 (all parts), *Quantities and units*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Definitions taken from other standards (issued or in preparation) are not necessarily literally cited, but the form is adapted.

3.1.1
product
result of labour or of a natural or industrial process

[IEC 61360-1, 2.11]

3.1.2
class
<of *products*> abstraction of a set of similar *products*

[ISO/IEC Guide 77-2]

3.1.3
product (characterization) class
class of products that fulfill the same function and that share common *properties*

[ISO/IEC Guide 77-2]

3.1.4
product type
result of a specific development process for a range of *products* belonging to the same *product class*

3.1.5
product specimen
product instance
physical implementation of a *product type*

3.1.6
property
defined parameter suitable for the description and differentiation of *objects*

[ISO/IEC Guide 77-2, modified]

NOTE The term *property* used in this standard is **not** identical with the term *data element type* used in IEC 61360. A *data element type* is a unit of data for which the identification, description and value representation have been specified **in the context of a dictionary**, while the term *property* is used for an **occurrence** of such a *data element type* **in the context of a specification of an object**. This distinction makes it possible to qualify a property in an object specification and still refer to the same data element type definition in the dictionary.

3.1.7
specification
document that states requirements, functionally related characteristics, processes, or rules related to a unique quality that an in-process part, a finished part, or a *product* shall possess

[IEC 62079, modified]

3.1.8
generic specification of information on products
product class independent *specification* of the *properties* of a *product* by the use of *data element types*

3.1.9
product-class-specific specification (of information)
generic specification of information on products adapted to a specific *product class*

NOTE A product-class-specific specification is often used as a basis for the development of templates for use in engineering activities. Depending on the tools in use different templates can be developed for the same purpose.

3.1.10
product-type-specific specification (of information)
product-class-specific specification of information adapted to a specific *product type*

3.1.11
detail specification
product-class-specific or *product-type-specific specification* with filled in *values* of the *properties*

3.1.12
life cycle
<of a *product specimen*> consecutive and interlinked stages of a *product* or system, from raw material acquisition or generation of natural resources to the final disposal

[ISO 14040]

3.1.13
life cycle
<of a *product type*> consecutive and interlinked stages of a *product type* from conception to phasing out

3.1.14
life cycle
<of a *component* occurrence in a *product*> consecutive and interlinked stages of a *component* occurrence in a *product* or system from identification of need over implementation with a *product specimen*, replacement, etc., to final disposition

3.1.15
product standard
standard that specifies requirements to be fulfilled by a *product* or group of *products* to establish its fitness for purpose

NOTE 1 A product standard may include, in addition to the fitness-for-purpose requirements, directly or by reference, aspects such as terminology, sampling, testing, packaging and labelling and, sometimes, processing requirements.

NOTE 2 A product standard can either be complete or not, according to whether it specifies all or only a part of the necessary requirements. In this respect, one may differentiate between standards such as dimensional, material and technical delivery standards.

[ISO/IEC Guide 2]

3.1.16
data element type
unit of data for which the identification, description and *value* representation have been specified

[IEC 61360-1, 2.3]

3.1.17
quantitative data element type
data element type with a numerical *value* representing a measurable *physical quantity*, a *quantity* of information or a count of *products*

[IEC 61360-1, 2.5]

3.1.18
non-quantitative data element type
data element type which identifies or describes a *product* by means of codes, abbreviations, names, references or descriptions

[IEC 61360-1, 2.6]

3.1.19
condition data element type
kind of *data element type* whose *value* affects the *value* of another *data element type*

NOTE 1 A condition data element type has only a meaning when it is used in combination with another data element type.

NOTE 2 A condition data element type does not form part of the classification tree and can be used on every level of the classification.

[IEC 61360-1, 2.7]

3.1.20
(physical) quantity
(measurable) quantity
attribute of a phenomenon, body or substance that may be distinguished qualitatively and determined quantitatively

NOTE 1 The term quantity may refer to a quantity in a general sense (examples: length, time, mass, temperature, electrical resistance, amount-of-substance concentration) or to a particular quantity (examples: length of a given rod, electrical resistance of a given specimen of wire, amount-of-substance concentration of ethanol C_2H_5OH in a given sample of wine).

NOTE 2 Quantities that can be placed in order of magnitude relative to one another are called quantities of the same kind.

NOTE 3 Quantities of the same kind may be grouped together into categories of quantities, for example: work, heat, energy, thickness, circumference, wave length.

[IEV 111-11-01]

3.1.21
base quantity
one of the *quantities* which, in a set of *quantities*, are by convention accepted as independent of one another

[IEV 111-11-03]

3.1.22
derived quantity
quantity which, in a set of *quantities*, is related to the *base quantities* by a quantity equation

[IEV 111-11-04]

3.1.23
value (of a *quantity*)
magnitude of a particular *quantity* generally expressed as a *unit of measurement* multiplied by a number

NOTE 1 The value of a quantity may be positive, negative or zero.

NOTE 2 The value of a quantity may be expressed in more than one way. Examples: length of a rod: 5,34 m or 534 cm; mass of a body: 0,152 kg or 152 g; amount of substance of a sample of water (H_2O): 0,012 mol or 12 mmol.

NOTE 3 The values of quantities of dimension one are generally expressed as numbers.

NOTE 4 A quantity that cannot be expressed as a unit of measurement multiplied by a number may be expressed by reference to a conventional reference scale or to a measurement procedure or to both.

[IEV 111-11-22]

3.1.24
unit (of measurement)
particular *quantity*, defined and adopted by convention, with which other *quantities* of the same kind are compared in order to express their magnitudes relative to that *quantity*

NOTE 1 Units of measurement have conventionally assigned names and symbols.

NOTE 2 Units of quantities of the same dimension may have the same names and symbols even when the quantities are not of the same kind.

[IEV 111-11-08]

3.1.25
base unit
unit of measurement of a *base quantity* in a given system of *quantities*

[IEV 111-11-09]