IEC 62569-1

Edition 1.0   2017-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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

**Spécification générique d'informations sur des produits au moyen de propriétés –
Partie 1: Principes et méthodes**

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - webstore.iec.ch/advsearchform
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org
Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC 62569-1

Edition 1.0   2017-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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

**Spécification générique d'informations sur des produits au moyen de propriétés –
Partie 1: Principes et méthodes**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

GENERIC SPECIFICATION OF INFORMATION ON PRODUCTS BY PROPERTIES –

Part 1: Principles and methods

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62569-1 has been prepared by IEC technical committee 3: Information structures and elements, identification and marking principles, documentation and graphical symbols.

This first edition cancels and replaces IEC PAS 62569-1:2009. This edition constitutes a technical revision.

This bilingual version (2018-02) corresponds to the monolingual English version, published in 2017-07.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
3/1310/FDIS	3/1314/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

Terms which are defined in Clause 3 are *italicized* when they occur in definitions of other terms in Clause 3.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This document establishes general principles and methods required for all parts of IEC 62569, to manage the product-related information as described in the following parts along the life cycle of an object, e.g. a product during its operational use.

IEC 62569-2 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 objects. Due to its generic type, particular issues referring to specific product groups are excluded. These need to be obtained from the specific product descriptions within product standards.

IEC 62569-3 provides a collection of generally applicable object properties used in conjunction with the predefined structure in IEC 62569-2, being the basis for, for example, 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.

Figure 1 provides an overview of the intention of this standard. The generic specification for information of objects represents an overall approach for those mainly technical information issues which are generally required by users of an object, and being independent of any specific product class, such as identification, classification or accessibility information for logical or physical interconnection to other products. It provides sets of object properties which may contain quantitative, non-quantitative or conditional types, containing predefined value sets for the non-quantitative, or units for the quantitative types.

The next step is the application of the available generic information on a specific product class such as motor, transformer or resistor. In this step the previously available generic information is aggregated by additional information focusing on that information which is typically applicable for the considered specific class. The result is applicable only for that considered class, and named product-class-specific blank detail specification. For each further class, such a step is repeated. The object properties contained in a blank detail specification for a specific product class are either of the quantitative or non-quantitative type and also foreseen with predefined value sets for the non-quantitative, or units for the quantitative types.

These blank detail specifications should be made available (e.g. as a web-based collection), allowing users to establish the detail specifications (instantiate or populate with data) for automated and controlled use by industry in the business process.

The next step is the application of blank detail specifications in daily practice in industry, when a user populates the object properties of the blank detail specification with required values for his specific application. Depending on the needs, further object properties may be added, marked as not applicable or complemented by qualifiers, etc.

The result may be used, for example, as a functional specification for a specific object within a system or plant, or used for an inquiry.

From this perspective it is easy to deduce that a prerequisite for an economic implementation of the above specifications is the existence of an internationally available data dictionary with public access, providing internationally standardized collections of (dictionary) properties following common methods as defined in the IEC 61360 series.

Referring from object descriptions to previously defined standardized semantic (dictionary) property descriptions is the key issue of an effective, reliable and secure electronic business. For the relations among (dictionary) properties, the associated data dictionary and the different specifications, see Figure 1.

Within this document two main concepts are differentiated:

A. a specification concept for "real or abstract" objects;

B. a data dictionary containing predefined information elements, each described by a rigorous set of attributes and unambiguously identified, so that its information elements can be used as a reference when preparing the concept A. Such a data dictionary is an optional tool to make the descriptions for concept A. It is of course a "real world" object but a quite different one and separated from the "real world" intended to be described.

For concept A, the term object property and set of object properties will be applied. For issues relating to concept B, the term (dictionary) property and set of (dictionary) properties will be applied to indicate that here a property or set of properties residing in a data dictionary is meant.

The purpose of this document is to describe how real world specifications or descriptions are to be prepared by making use of the data dictionary defined in IEC 61360.

The IEC 62569 series is a companion standard providing methods of expanding the use of existing standardized (dictionary) properties as provided in the IEC CDD (Common Data Dictionary) along the life cycle periods without the need to define additional (dictionary) properties or to redefine such supporting economic engineering and data management.
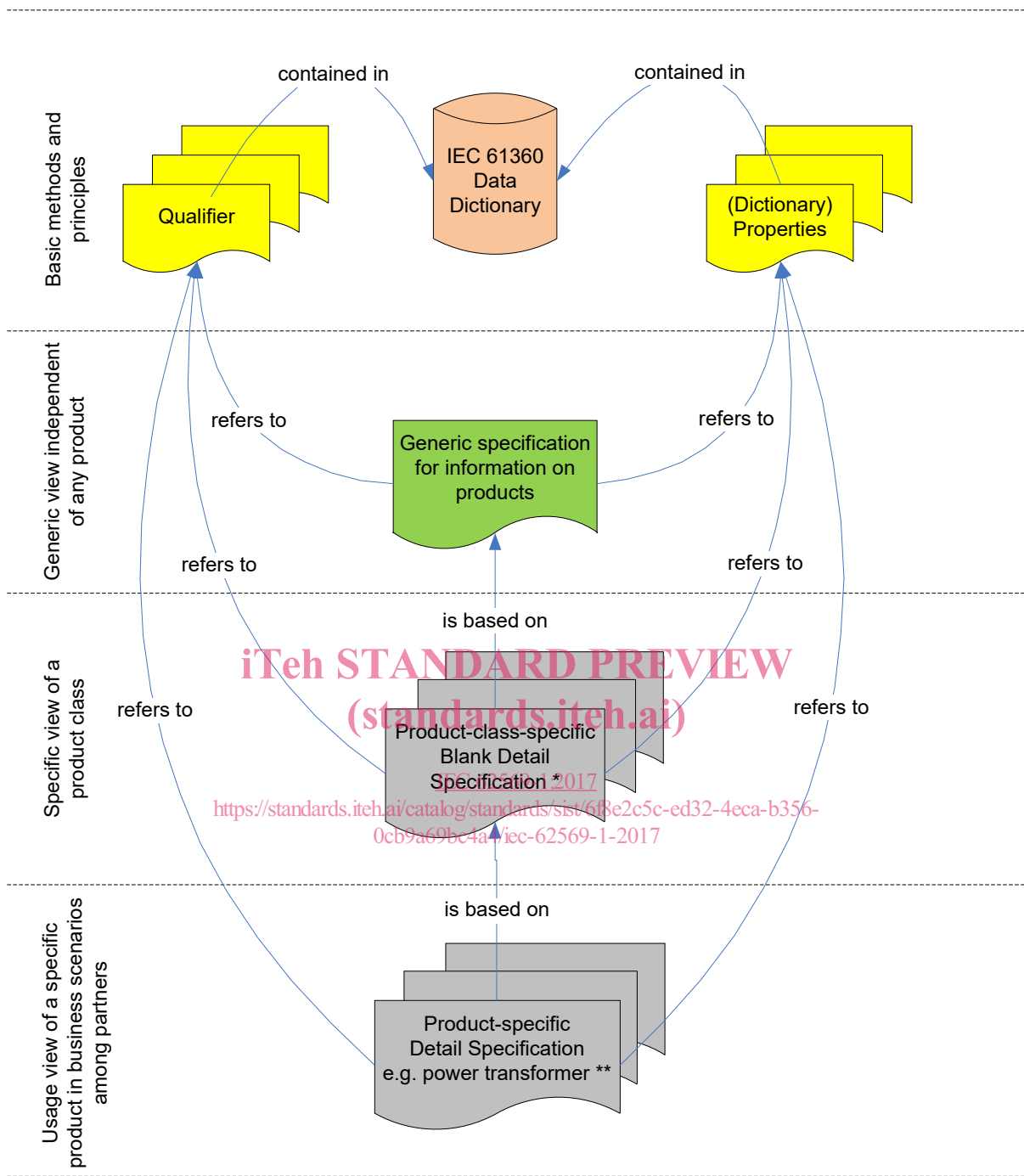
NOTE 1   As the referred data dictionary of IEC 61360 is quite different from a dictionary, the term "data dictionary" is consistently used within this document.

NOTE 2   Such a data dictionary is available as a data base application to be found under http://std.iec.ch/iec61360 [retrieved 2016-05-03].

Figure 1 – Context of generic specification for information on products

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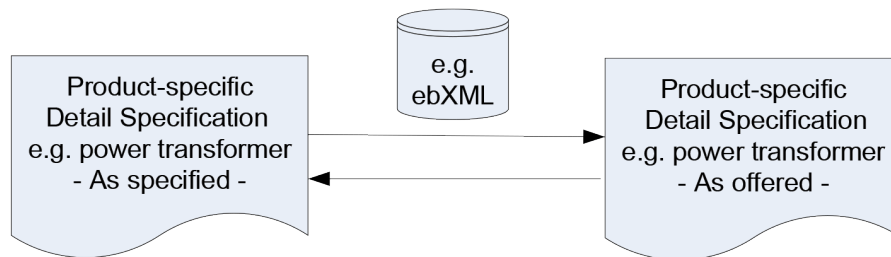
Figure 2 – Business scenario between parties

If a specification for information in the form of an electronic template is associated with a schema for data exchange, for example 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.

Conversely, detail specifications can be generated to export data using a predefined template based on the generic specification for information on products.
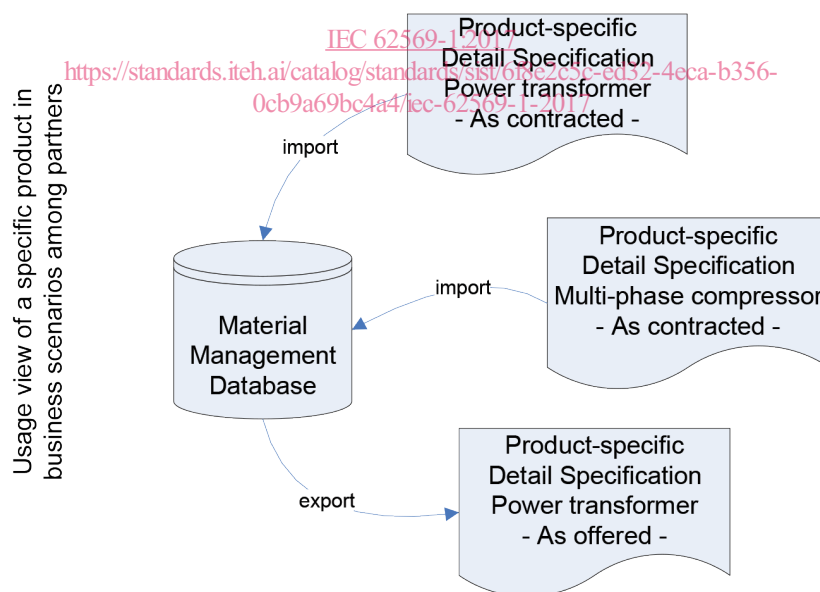
Figure 3 – Import and export possibilities using tagged formats

GENERIC SPECIFICATION OF INFORMATION
ON PRODUCTS BY PROPERTIES –

Part 1: Principles and methods

1   Scope

The IEC 62569 series defines principles and methods for the specification of objects by object properties, for example in data sheets, by utilizing predefined and internationally standardized (dictionary) properties residing in the data dictionary of IEC 61360.

The IEC 62569 series is being developed to transfer the former paper-based applications of blank detail specifications or product descriptions towards supporting electronic business allowing the evaluation and management of described items by computers.

This part of IEC 62569 specifies several qualifiers to be used with object or (dictionary) properties and their values indicating life cycle and other aspects of the property. It is a prerequisite for the usage of the other parts of IEC 62569.

2   Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 61360-1:—[1], *Standard data element types with associated classification scheme for electric components – Part 1: Definitions, principles and methods*

IEC TS 62720, *Identification of units of measurement for computer-based processing*

3   Terms, definitions and abbreviated terms

3.1   Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/

- ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1
attribute
data element for the computer-sensible description of a property, a relation or a class

Note 1 to entry: An attribute describes only one single detail of a property, of a class or of a relation.

_____

[1]   Under preparation. Stage at time of publication: IEC CDV 61360-1:2016.

EXAMPLE   The names of a property, the code of a class, the measure unit in which values of a property are provided.

[SOURCE: ISO/IEC Guide 77-2:2008, 2.2, modified – Editorial correction in the example.]

3.1.2
class
abstraction of a set of similar *products*

[SOURCE: ISO/IEC Guide 77-2:2008, 2.3, modified – The second preferred term "class of products" is omitted.]

3.1.3
enumeration
list of named constants called enumerator

Note 1 to entry: Within an enumeration the names of the enumerators shall be unique.

[SOURCE: IEC 61360-1:—, 3.1.13]

3.1.4
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 final disposal

[SOURCE: ISO 14040:2006, 3.1, modified – Specific context information is added.]

3.1.5
life cycle
<of a *product type*> consecutive and interlinked stages of a *product type* from conception to phasing out

3.1.6
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

Note 1 to entry: The life cycle concept in this document is focused on the period of the operational use of a product.

3.1.7
object
entity treated in a process of development, implementation, usage and disposal

Note 1 to entry: The object may refer to a physical or non-physical "thing", i.e. anything that might exist, exists or did exist.

Note 2 to entry: The object has information associated to it.

[SOURCE: IEC 81346-1:2009, 3.1]

3.1.8
occurrence
use of an object type for a specific function, as a specific component, or in a specific location within a plant or system

Note 1 to entry: This definition is taken from IEC 81346-1:2009, 4.8.

3.1.9
product
result of labour or of a natural or industrial process

[SOURCE: IEC 61360-1:—, 3.1.23]

3.1.10
product specimen
product instance
physical implementation of a *product type*

3.1.11
product type
result of a specific development process for a range of *products* belonging to the same *product class*

3.1.12
product standard
standard that specifies requirements to be fulfilled by a *product* or group of *products* to establish its fitness for purpose

Note 1 to entry: 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 to entry: 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.

Note 3 to entry: This definition is taken from ISO/IEC Guide 2:2004.

3.1.13
property
data element type
defined parameter suitable for the description and differentiation of objects

Note 1 to entry: A property describes one characteristic of a given object.

Note 2 to entry: A property can have attributes such as code, version, and revision.

Note 3 to entry: The specification of a property can include predefined choices of values.

[SOURCE: ISO/IEC Guide 77-2:2008, 2.18, modified – Note 4 is omitted.]

3.1.14
quantitative property
property with a numerical *value* representing a physical quantity, a quantity of information or a count of *objects*

[SOURCE: IEC 61360-2:2012, 3.40, modified – The previous term data element type is replaced by the term property.]

3.1.15
non-quantitative property
property that identifies or describes an *object* by means of codes, abbreviations, names, references or descriptions

Note 1 to entry: Typical information content of non-quantitative properties is items such as codes, abbreviations, names, references, or descriptions.

[SOURCE: IEC 61360-2:2012, 3.28, modified – The previous term data element type is replaced by the term property.]

3.1.16
condition property
property information object that affects the value of another *property*

Note 1 to entry: A condition property has only a meaning when it is used in combination with another property.

Note 2 to entry: Within a specification there is normally a set of conditions (general or overall conditions) whose values are considered constant throughout the specification and which need to be considered, unless a property value is locally overwritten. Such set of conditions is normally provided in the header section of a specification.

Note 3 to entry: The value of a specific property may depend on one or many other property values; the latter ones serving as conditions influencing the value of the referred property. This kind of condition may appear throughout a specification and is independently managed from those conditions as described under Note 2.

Note 4 to entry: This definition is taken from IEC 61360-2:2012, 5.9.5.1.

3.1.17
dependent condition property
property whose value depends explicitly on the value(s) of some condition(s)

Note 1 to entry: This definition is taken from IEC 61360-2:2012, 5.9.5.2

3.1.18
(object) property
information element used to describe the characteristics of an object of interest

Note 1 to entry: The term information element is within this document understood in a generic sense providing information about something which is considered relevant, not limited for example to the strict description of an attribute of a property or conditions, etc., as is used for data modelling in IEC 61360-1.

3.1.19
(dictionary) property
predefined and standardized information element residing in a data dictionary, each described by a rigorous set of *attributes* and unambiguously identified, so that it can be referenced

3.1.20
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* or service shall possess

3.1.21
generic blank detail specification
object class independent *specification* of the *properties* of an *object* by the use of *(dictionary) properties*

3.1.22
blank detail specification
generic blank detail specification adapted to a specific *product class*

Note 1 to entry: 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.

3.1.23
product-type blank detail specification
blank detail information adapted to a specific *product type*

3.1.24
detail specification
product-class-specific or product-type-specific specification with filled in *values* of the *properties*