

Standard data element types with associated classification scheme for electric components —

Part 1: Definitions — Principles and methods

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National foreword

This British Standard has been prepared by Technical Committee GEL/3 and is the English language version of EN 61360-1:1995 *Standard data element types with associated classification scheme for electric components —*

Part 1: Definitions — Principles and methods, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 1360-1:1995 published by the International Electrotechnical Commission (IEC).

Cross-references

Publication referred to	Corresponding British Standard
IEC 148:1969	BS 3363:1980 <i>Specification for letter symbols for semiconductor devices and integrated microcircuits</i>
ISO 31-0:1992	BS 5775 <i>Specification for quantities, units and symbols: General principles</i> Part 0:1993 <i>General principles</i>
ISO 2382-2:1976	BS ISO 2382 <i>Information technology — Vocabulary</i> Part 2:1976 <i>Arithmetic and logic operations</i>
ISO 6093:1985	BS 6727:1987 <i>Specification for representation of numerical values in character strings for information interchange</i>
ISO 9735:1988	BS EN 29735:1992 <i>Electronic data interchange for administration, commerce and transport (EDIFACT) — Application level syntax rules</i>
ISO/IEC 646:1991	BS ISO/IEC 646:1991 <i>Information technology — ISO 7-bit coded character set for information interchange</i>
ISO/IEC 6429:1992	BS ISO/IEC 6429:1992 <i>Information technology — Control functions for coded character sets</i>
ISO/IEC 10646-1:1993	BS ISO/IEC 10646 <i>Information technology — Universal Multiple-Octet Coded Character Set (UCS)</i> Part 1:1993 <i>Architecture and Basic Multilingual Plane</i>

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 48, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

ICS 29.100.20; 31.020

Descriptors: Classification, electric component, description, data, data element type

English version

Standard data element types with associated classification
scheme for electric components
Part 1: Definitions
Principles and methods

(IEC 1360-1:1995)

Types normalisés d'éléments de données avec
plan de classification pour composants
électriques
Partie 1: Définitions
Principes et méthodes
(CEI 1360-1:1995)

Genormte Datenelementtypen mit
Klassifikationsschema für elektrische Bauteile
Teil 1: Definitionen
Regeln und Methoden
(IEC 1360-1:1995)

This European Standard was approved by CENELEC on 1995-07-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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Foreword

The text of document 3D(CO)5, future edition 1 of IEC 1360-1, prepared by SC 3D, Data sets for libraries of electric component data, of IEC TC 3, Documentation and graphical symbols, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61360-1 on 1995-07-04.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-04-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, Annex A, Annex B, Annex C and Annex ZA are normative and Annex D is informative.

Annex ZA has been added by CENELEC.

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1 General

1.1 Scope and object

This part of IEC 1360 specifies the principles to be used for defining technical data element types with associated classification schemes needed to describe fully electric components, including electronic and electromechanical components and materials used in electro-technical equipment and systems.

The object of this standard is to specify principles to be used for defining and the methods required for implementing:

- a) a set of uniquely defined data element types required to describe electric components each having an unambiguously defined meaning and a defined value domain in a prescribed format.
- b) a classification scheme of components whereby sets of relevant and valid data element types are assigned to describe the various classes of components.

NOTE The goal of this classification scheme of components is to arrange the data element types in an unambiguous structured way. The selected classification scheme shows one possibility; a subset may be used and the scheme may also be extended.

Any user is free to define other classification schemes for his own purposes.

Both a) and b) are meant for use in computerized systems for component selection and management, parts list processing, and computer-aided design, manufacturing and testing.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 1360. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 1360 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 27, *Letter symbols to be used in electrical technology*.

IEC 148:1969, *Letter symbols for semiconductor devices and integrated microcircuits*.

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

ISO/R843:1968, *International system for the transliteration of Greek characters into Latin characters*.

ISO 2382, *Data processing — Vocabulary*.

ISO 6093:1985, *Information processing — Representation of numerical values in character strings for information interchange*.

ISO 9735:1988, *Electronic data interchange for administration, commerce and transport (EDIFACT) — Application level syntax rules¹⁾*.

ISO/IEC 6429:1992, *Information technology — Control functions for coded character sets*.

ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*.

ISO/IEC 10646-1:1993, *Information technology — Universal Multiple-Octet Coded Character set (UCS) — Part 1: Architecture and Basic Multilingual Plane*.

ISO/IEC 11179-3:1994, *Information technology — Specification and standardization of data elements — Basic attributes of data elements*.

2 Definitions

For the purpose of this part of IEC 1360 the following definitions apply:

2.1

entity

any concrete or abstract object of interest, including associations among things

2.2

association

observed connection between **entities**

¹⁾ This normative reference is based on the Trade Data Elements Directory (TD ED) of the United Nations Economic Commission for Europe (UNECE), Trade Facilitation.

2.3

data element type

unit of data for which the identification, description and value representation have been specified

2.4

attribute

any one of the properties of an **entity**, possibly involving one or more other **entities**, used in the description of a **data element type**

2.5

product

result of labour or of a natural or industrial process

2.6

component

industrial **product** which serves a specific function or functions, which is not decomposable or physically divisible and which is intended for use in a higher order assembled **product**

2.7

electric component

component with conductive terminals through which voltages or currents may be applied or delivered

NOTE Electronic components and electric transducers are included in this definition.

2.8

component class

set of **components** of which each **component** can be described by the same group of data element types

2.9

quantitative data element type

data element type with a numerical value representing a physical quantity, a quantity of information or a count of objects

2.10

non-quantitative data element type

data element type which identifies or describes an object by means of codes, abbreviations, names, references or descriptions

2.11

condition data element type

data element type that affects the value of another **data element type**

2.12

classifying data element type

data element type valid for a particular **component class**, addressing a single elementary **attribute** of that **component** and having a homogeneous complementary value domain, whose values define the component subclasses

2.13

data element type class

class of similar data element types

2.14

classification

systematic division of a set of items into subsets according to their difference in some predetermined characteristics

2.15

term

conventional symbol for a concept, consisting of a word or a phrase

3 Data element type specification attributes

In this clause the various attributes of data element types as encountered in the specifications are explained. An overview is given in Figure 1 and Figure 2. These attributes are related to identification, description, and value of data element types and to relationships between data element types.

For the representation of the attributes of the data element types, in general upper-case letters and lower-case letters are used according to the existing International Standards from which the attributes are taken. When no standard exists, the commonly used IEC methodology is followed (IEC 27 and IEC 148). Characters are taken from the character set ISO/IEC 10646-1, unless otherwise specified.

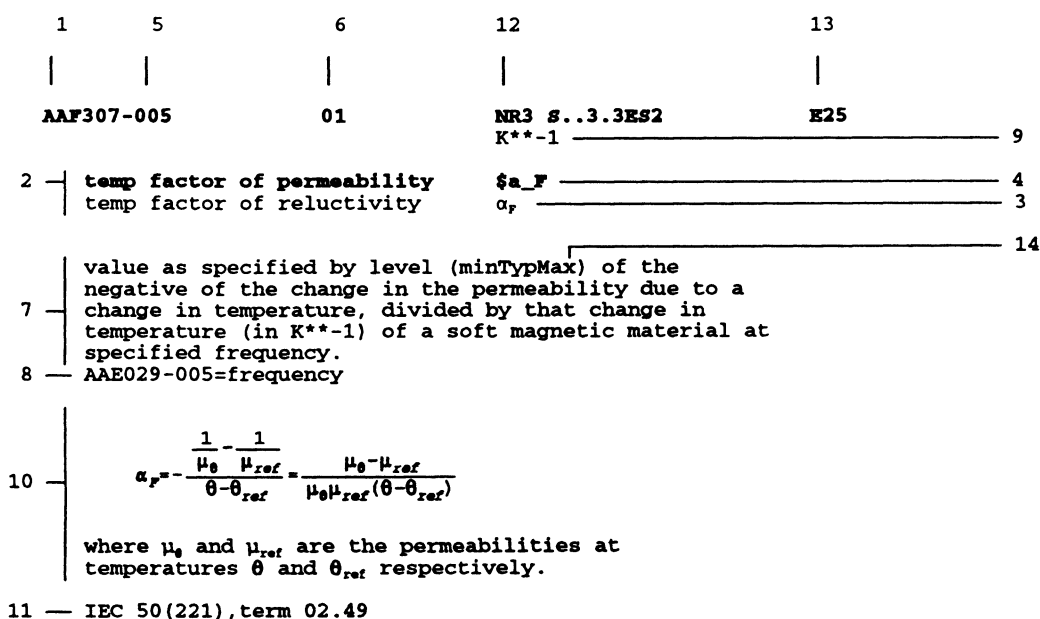


Figure 1 — Quantitative data element type specification attributes

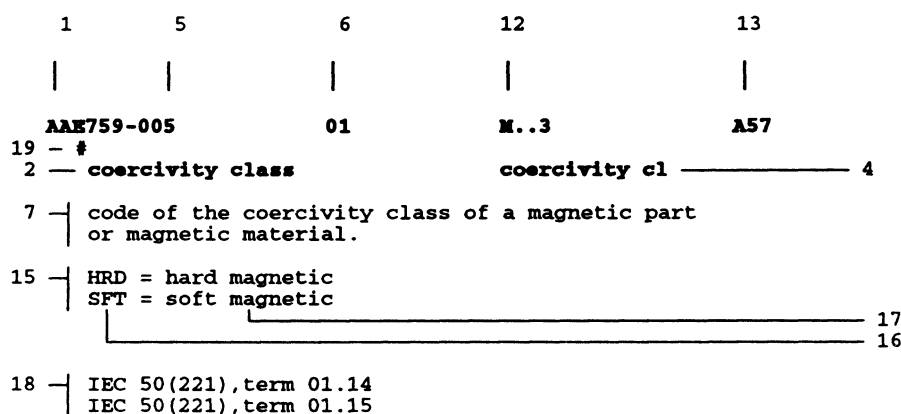


Figure 2 — Non-quantitative data element type specification attributes

- | | | | |
|----|--|----|---|
| 1 | Code (3.2.1) | 11 | Source document of data element type definition (3.3.6) |
| 2 | Preferred name/synonymous name (3.2.2/3.2.3) | 12 | Value format (3.4.1) |
| 3 | Preferred letter symbol/synonymous letter symbol (3.2.4/3.2.5) | 13 | Data element type class (3.5.2) |
| 4 | Short name (3.2.6) | 14 | Level (3.4.5) |
| 5 | Version number (3.2.7) | 15 | Values (3.4.6) forming a value domain (3.4.2) |
| 6 | Revision number (3.2.8) | 16 | Value code (3.4.7) |
| 7 | Definition (3.3.1) | 17 | Value meaning (3.4.8) |
| 8 | Condition(s) (3.5.3) | 18 | Source document(s) of value(s) (3.4.4) |
| 9 | Unit of measure (3.4.3) | 19 | Mark that indicates this data element type is a classifying data element type |
| 10 | Formula (3.3.5) | | |

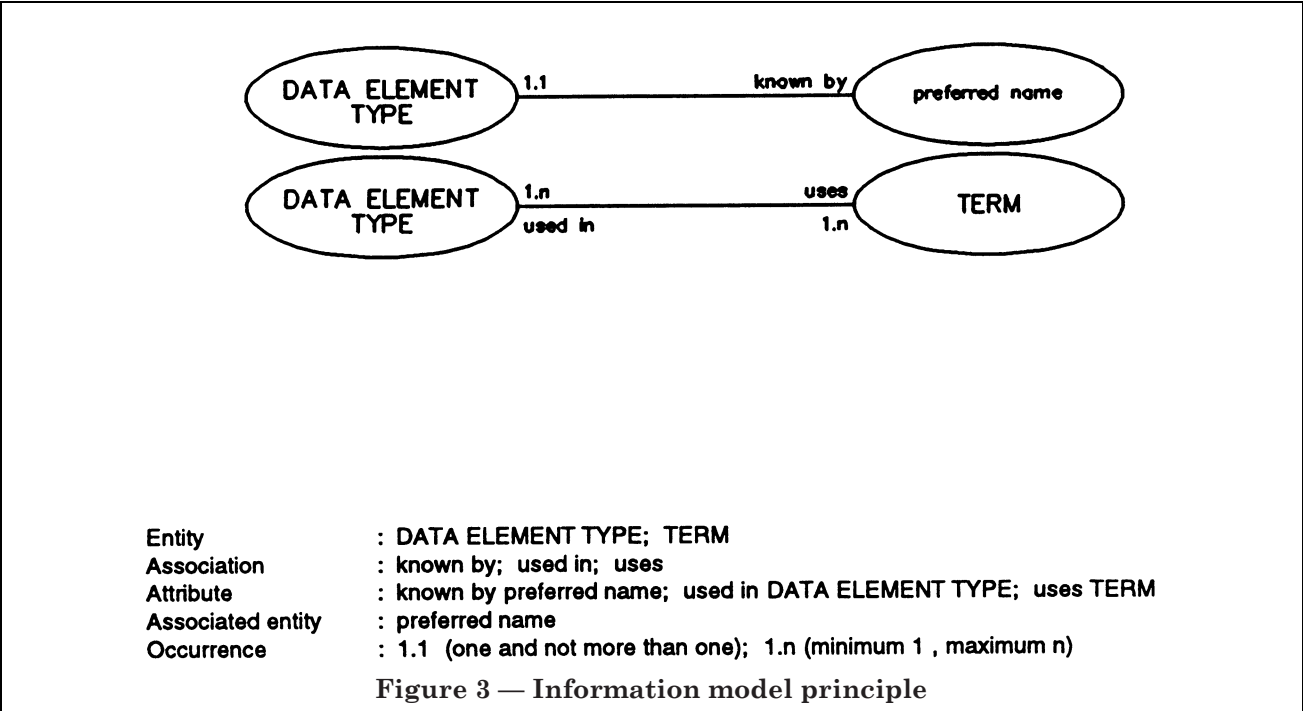
3.1 Information model of a data element type

Based on the principles as described in ISO/IEC 11179-3, the attributes of a data element type are split up into four main groups:

- identifying attributes;
- semantic attributes;
- value attributes;
- relationship attributes.

The sub-information models (entity-association diagrams), given in Figure 4, Figure 5, Figure 6, Figure 7 and Figure 8, of a data element type shall be read as follows:

- from inside outwards starting with the “data element type”;
- the (associated) entities are indicated by ellipses;
- the association between an entity and an (associated) entity is indicated by the line between those ellipses;
- the text accompanying the line between an entity and an (associated) entity describes the association;
- the combination of an association and an entity type constitutes the attribute of a data element type;
- the two figures separated by a dot indicate the occurrence of the attribute: the first digit indicates the minimum number of occurrences, the second one, the maximum number of occurrences;
- associations and the corresponding occurrence indications are on the same side of the association-line positioned.



3.2 Identifying attributes

Data element types shall be identified by codes, names and possibly letter symbols.

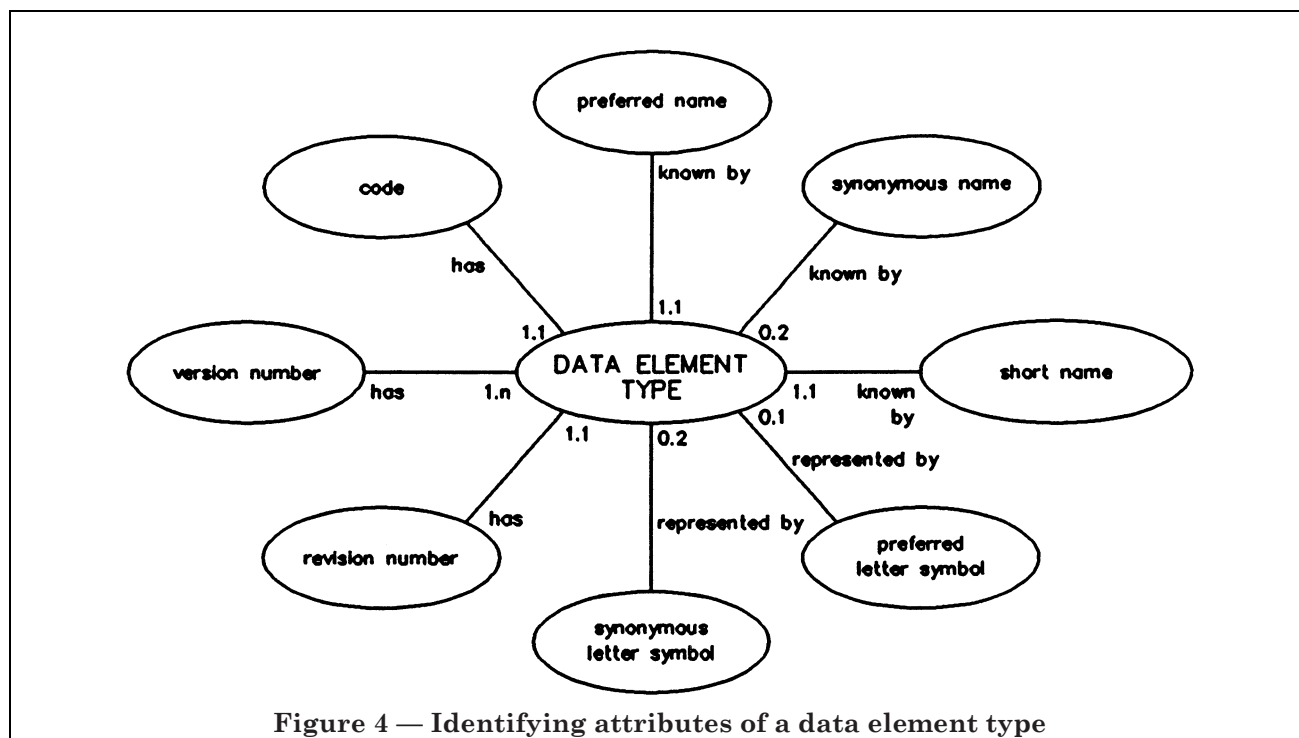


Figure 4 — Identifying attributes of a data element type

3.2.1 Code

Attribute name	: code
Attribute definition	: unique six-character code of a data element type.
Obligation	: mandatory
Character type of values	: upper-case latin letters A through Z (to avoid misunderstanding, the upper-case Latin letters O and I shall not be used) digits 0 through 9
Comments	: The first three characters shall be alphabetic, the last three numeric (format AAANN). The character “X” shall not be used as first ^a character. The codes are issued chronologically and should not have any relationship with the meaning of the data element types. A new (other) data element type, having a new code, shall be generated if at least one attribute of the data element type, which affects the meaning of the data element type is changed. Such attributes are: — definition; — unit of measure; — condition; — format. — value code ^b ;

^a For local use all codes starting with XAA up to and including codes starting with XZZ may be used and are therefore excluded from the set of standard data element types.

^b Whether the code should be changed, so that a new data element type is generated, or whether the version number of a data element type should be changed, shall be determined for each case separately. The decision will depend on whether or not the change affects the data communication.
See also note 4.

3.2.2 Preferred name

Attribute name	: preferred name
Attribute definition	: single-word or multi-word designation assigned to a data element type
Obligation	: mandatory
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A
Comments	: The preferred name of a data element type shall be identical to the name as used in International Standards, if available. For pragmatic reasons, the length of the preferred name shall be limited to 30 characters.

3.2.3 Synonymous name

Attribute name	: synonymous name
Attribute definition	: single-word or multi-word designation that differs from the given preferred name but represents the same data element type concept
Obligation	: optional
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A
Comments	: For pragmatic reasons, the number of synonymous names shall be limited to two. For pragmatic reasons, the length of the synonymous name shall be limited to 30 characters.

3.2.4 Preferred letter symbol

Attribute name	: preferred letter symbol
Attribute definition	: mark or character used as a sign for expressing some object, for example the characters standing for chemical elements in the periodic system (Ag = silver) or the characters standing for electrical concepts (V = voltage)
Obligation	: optional
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A
Comments	: The preferred letter symbol of a data element type shall be identical to the letter symbol of IEC 27 or IEC 148. The first character of the preferred letter symbol of a condition data element type shall be a “@”. The abbreviations recommended to be used as subscripts in letter symbols are given in Annex D.

3.2.5 Synonymous letter symbol

Attribute name	: synonymous letter symbol
Attribute definition	: mark or character used as a sign for expressing some object that differs from the preferred letter symbol but represents the same data element type concept
Obligation	: optional
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A
Comments	: Synonymous letter symbols are sometimes inevitable for historical reasons. For pragmatic reasons, the number of synonymous letter symbols shall be limited to two. The first character of the synonymous letter symbol of a condition data element type shall be a “@”. The abbreviations recommended to be used as subscripts in letter symbols are given in Annex D.

3.2.6 Short name

Attribute name	: short name
Attribute definition	: shortened representation of the name of the data element type
Obligation	: mandatory
Character type of values	: conforming with the character set of ISO/IEC 646

Comments	: The first character of the short name shall be a letter, an “@” for a condition data element type or a “\$” when defining a specific Greek letter (if applicable the “@” sign precedes the “\$” sign). For quantitative data element types, the short name shall be derived from the preferred letter symbol in compliance with the following rules: — Greek letters that are graphically identical to Latin letters are not converted; — according to ISO/R843, specific Greek letters shall be represented by a single Latin letter preceded by a dollar “\$” character; — according to ISO/R843, superscripts shall be indicated by Latin letter(s) preceded by an asterisk “*” character; — According to ISO/R843, subscripts shall be indicated by Latin letter(s) preceded by an underline “_” character; Example: letter symbol: λ_{peak} ----->> short name: \$l_peak. For pragmatic reasons, the length of the short name of a data element type shall be limited to 15 characters. This short name shall be unique within each component class.
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3.2.7 Version number

Attribute name	: version number								
Attribute definition	: number used to indicate the different versions of a data element type during its life cycle								
Obligation	: mandatory								
Character type of values	: digits 0 through 9								
Comments	: The version number of a data element type shall consist of three numerical characters. Consecutive version numbers shall be issued in ascending order. A new version of the data element type shall be generated if at least one attribute of the data element type is changed which influences the use (communication, data base definition etc.) but which does not affect the meaning of that data element type. Example: <table border="0"> <tr> <td>— preferred name</td><td>— short name</td></tr> <tr> <td>— preferred letter symbol</td><td>— preferred name of condition data</td></tr> <tr> <td>— component class</td><td>element type</td></tr> <tr> <td>— value meaning</td><td>— value code^a</td></tr> </table>	— preferred name	— short name	— preferred letter symbol	— preferred name of condition data	— component class	element type	— value meaning	— value code ^a
— preferred name	— short name								
— preferred letter symbol	— preferred name of condition data								
— component class	element type								
— value meaning	— value code ^a								

^a Whether the code should be changed, so that a new data element type is generated, or whether the version number of a data element type should be changed, shall be determined for each case separately. The decision will depend on whether the change affects the data communication.
See also note 3.

3.2.8 Revision number

Attribute name	: revision number
Attribute definition	: number used for administrative control of a data element type
Obligation	: mandatory
Character type of values	: digits 0 through 9
Comments	: The revision number of a data element type occurrence shall consist of two numerical characters. Consecutive revision numbers shall be issued in ascending order. Per data element type, unique by its identifier, only one revision number is current at any moment. A new revision number of a data element type shall be generated if an attribute of the data element type is changed which neither influences the use (communication, data base definitions etc.) nor the meaning of the data element type, or when editorial changes of typing and spelling errors have been implemented.

- Example:
- synonymous name

— synonymous letter symbol

— remark

— data element type class

— source document of definition

— source document of value

— spelling error in the text of the definition

3.2.9 Identifier

- Attribute name : identifier
- Attribute definition : language independent combination of characters used to identify a data element type uniquely within a data element type dictionary
- Obligation : optional
- Character type of values : upper-case Latin letters A through Z (to avoid misunderstanding, the upper-case Latin letters O and I shall not be used)
digits 0 through 9 and the hyphen
- Comments : The identifier of a data element type shall consist of the combination of the six-character data element type code, followed by a hyphen followed by the three-digit version number of the data element type. The identifier shall be used for the identification of different occurrences of the same data element type code.

3.3 Semantic attributes

The following attributes are related to the definition of the meaning of a data element type.

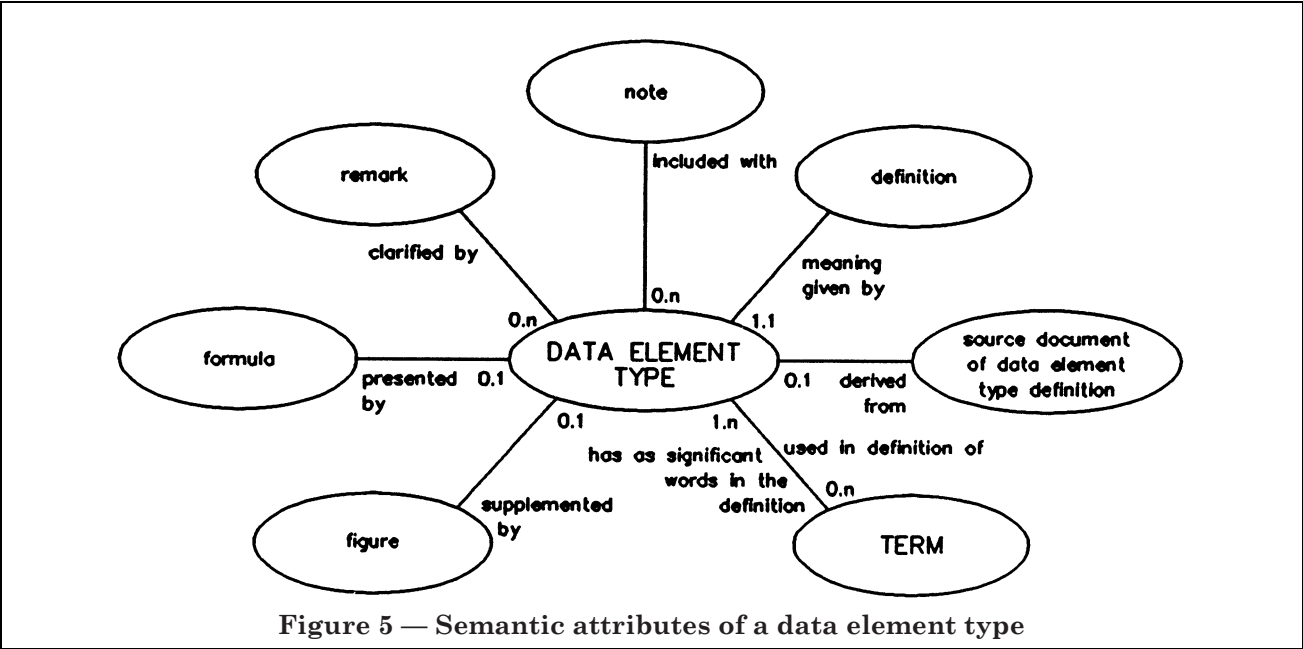


Figure 5 — Semantic attributes of a data element type

3.3.1 Definition

- Attribute name : definition
- Attribute definition : statement that describes the meaning of a data element type and permits its differentiation from all other data element types
- Obligation : mandatory
- Character type of values : those characters from the character set of ISO/IEC 10646-1, as defined in Annex A

Comments	: The definition of a data element type shall be based on the original IEC or ISO definition, if available. It shall be a definition in the sense that it shall be complete and unambiguous. Because condition data element types may be added to the definition and references to relevant component classes are made, the related documentation originating from IEC or ISO standards may differ. All significant words shall be free from homonymy and synonymy and shall be defined as terms. The name of the component class to which the data element type applies and the unit of measure (if present) in which the value of the data element type is expressed shall always be included in the definition.
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3.3.2 Note

Attribute name	: note
Attribute definition	: statement which provides further information on any part of the terminological record, which is essential to the understanding of that record
Obligation	: optional
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A
Comments	: Notes shall be copied from the definition in the source document into the definition of the (derived) data element type.

3.3.3 Remark

Attribute name	: remark
Attribute definition	: explanatory text to further clarify the meaning of a terminological record
Obligation	: optional
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A
Comments	: Remarks shall not influence the meaning of a record.

3.3.4 Figure

Attribute name	: figure
Attribute definition	: illustration added to the definition of a data element type to clarify the meaning of that definition
Obligation	: optional
Comments	: A figure shall not change any essential information of the meaning of that definition.

3.3.5 Formula

Attribute name	: formula
Attribute definition	: rule or statement in mathematical form expressing semantics of a quantitative data element type
Obligation	: optional
Character type of values	: those characters from the character set of ISO/IEC 10646-1, as defined in Annex A The control functions are taken from the document which will be included in the next revision of IEC/ISO 6429.
Comments	: A formula shall not change any essential information of the meaning of that definition.