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Industrial automation systems and integration — Parts library —

Part 35: Implementation resources: Spreadsheet interface for parts library

Systèmes d'automatisation industrielle et intégration — Bibliothèque de composants —

Partie 35: Ressources de mise en application: Interface de tableur pour bibliothèque de composants

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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ISO/TS 13584-35 was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

ISO 13584 consists of the following parts under the general title *Industrial automation systems and integration — Parts library*:

— *Part 1: Overview and fundamental principles*

— *Part 20: Logical resource: Logical model of expressions*

— *Part 24: Logical resource: Logical model of supplier library*

— *Part 25: Logical resource: Logical model of supplier library with aggregate values and explicit content*

— *Part 26: Logical resource: Information supplier identification*

— *Part 31: Implementation resources: Geometric programming interface*

— *Part 32: Implementation resources: OntoML: Product ontology markup language*

— *Part 35: Implementation resources: Spreadsheet interface for parts library* [Technical Specification]

— *Part 42: Description methodology: Methodology for structuring part families*

— *Part 101: Geometrical view exchange protocol by parametric program*

— *Part 102: View exchange protocol by ISO 10303 conforming specification*

— *Part 501: Reference dictionary for measuring instruments — Registration procedure*

— *Part 511: Mechanical systems and components for general use — Reference dictionary for fasteners*

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The structure of ISO 13584 is described in ISO 13584-1. The numbering of the parts of ISO 13584 reflects its structure:

— Parts 20 to 29 specify the logical resources;

— Parts 30 to 39 specify the implementation resources;

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— Parts 40 to 49 specify the description methodology;

— Parts 100 to 199 specify the view exchange protocol;

— Parts 500 to 599 specify the reference dictionaries.

A complete list of parts of ISO 13584 is available from the Internet:

<http://www.tc184-sc4.org/titles/PLIB_Titles.htm>

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Introduction

ISO 13584 is an International Standard for the computer-interpretable representation and exchange of parts library data. The objective is to provide a neutral mechanism capable of transferring parts library data, independent of any application that is using a parts library data system. The nature of this description makes it suitable not only for the exchange of files containing parts, but also as a basis for implementing and sharing databases of parts library data.

ISO 13584 is organized as a series of parts, each published separately. The parts of ISO 13584 fall into one of the following series: logical resources, implementation resources, description methodology, view exchange protocol, and reference dictionaries. The series are described in ISO 13584-1.

This part of ISO 13584 specifies the standard spreadsheet structure for parts library, used either for the definition and transfer of a reference dictionary, or for the definition and interchange of a set of instance data belonging to a class of a reference dictionary conforming to the ISO 13584 series of standards.

This part of ISO 13584 also establishes the standard mapping between the data carrying a reference dictionary represented in the spreadsheet format defined in this part of ISO 13584 and the data represented in the ISO 13584-25 compliant EXPRESS model for the exchange of reference dictionary.

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Industrial automation systems and integration — Parts library —

Part 35: Implementation resources: Spreadsheet interface for parts library

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1 Scope

This part of ISO 13584 specifies the standard spreadsheet interface structure for parts library, used either for the definition and exchange of a reference dictionary, or for the definition and exchange of the instance data belonging to a class of library.

This part of ISO 13584 also establishes the standard mapping between the data carrying a dictionary represented in the spreadsheet format conforming to this part of ISO 13584 and the data represented in the ISO 13584-25 compliant EXPRESS model for dictionary exchange. A set of spreadsheets whose semantics conform to the specification given in this part of ISO 13584, where the physical file structure of the spreadsheets is based on the CSV (Comma Separated Values) format, is typically used in a popular commercial spreadsheet application, or any other tabular formats compatible or convertible to the CSV format. Such a set of spreadsheets supporting a conformance class specified in this part of ISO 13584 may be used additionally for data translation between the CSV format and the ISO 10303-21 physical file structure based on the mapping specified in this part of ISO 13584.

The spreadsheet interface structure defined in this part of ISO 13584 contains the following:

— definition and specification of the basic structure and layout of the spreadsheet interface for parts library, independent of the data content carried by the structure;

— method of specification of instance data belonging to a class of reference dictionary described by a set of spreadsheets conformant to this part of ISO 13584;

— definition and specification of the meta-dictionary that enables the definition and transfer of a reference dictionary as a set of instance data conforming to the meta dictionary;

— specification of the mapping between the dictionary data expressed in the spreadsheet format and the EXPRESS model specified by ISO 13584-25;

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— description of the basic semantic mapping between the dictionary data expressed in the spreadsheet formats defined in this part of ISO 13584 and that of DIN 4002.

The following items are outside the scope of this part of ISO 13584:

— specification of the CSV format *per se*, used in a spreadsheet tool;

— specification of the presentation layout details, such as colouring and sizing of the spreadsheet interface, conformant to this part of ISO 13584;

— specification of the dictionary EXPRESS model conformant to the ISO 13584 series of standards;

— normative definition of the mappings between an ISO 13584 compliant dictionary and another that is based upon other standards;

— specification of the maintenance method of this part of ISO 13584.

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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.

ISO 639-1, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO 639-2, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 13584-25, *Industrial automation systems and integration — Parts library — Part 25: Logical resource: Logical model of supplier library with aggregate values and explicit content*

ISO 13584-42, *Industrial automation systems and integration — Parts library — Part 42: Description methodology: Methodology for structuring part families*

IEC 61360-2, *Standard data element types with associated classification scheme for electric components — Part 2: EXPRESS dictionary schema*

IEC 61360-4, *Standard data element types with associated classification scheme for electric components — Part 4: IEC reference collection of standard data element types and component classes*

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3 Terms and definitions

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

3.1
applicable property
a property that is defined for some family of parts and that shall apply to any part that belongs to this family of parts

EXAMPLE For a generic family of screws, the threaded diameter is an applicable property. This characteristic applies to any screw.

[ISO 13584-24:2003, definition 3.3]

3.2
application
use of software or a standard in an industrial domain

3.3
basic semantic unit
BSU
entity that provides an absolute and universally unique identification of a certain object of the application domain

EXAMPLE Classes, data element types.

[ISO 13584-42:—, definition 3.4]

3.4
common dictionary schema
CIID schema
information model for a reference dictionary based on the EXPRESS data model defined in IEC 61360-2 and ISO 13584-42

3.5
composite property
collection of properties that can be referenced from a class or classes as a single entity

[ISO 13584-501:2007, definition 3.8]

3.6
conjunctive parcels
parcel sheets that are used together to define a library or a reference dictionary

3.7
data
quantities, characters, or symbols on which operations are performed by computers and other automatic equipment, and which may be stored or transmitted in the form of electric signals, records on magnetic or magneto-optic medium, or pieces of paper, etc.

3.8
data element type
DET
unit of data for which the identification, description and value representation have been specified

NOTE In the ISO 13584 standard series, a property value is represented as a data element type.

[ISO 13584-42:—, definition 3.13]

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3.9
data type
representation, interpretation, and structure of values used in computer systems and other automatic equipment

3.10
dictionary
data dictionary
set of terms with respective identifiers formulated in a canonical syntax and with commonly accepted definitions designed to yield a lexical or taxonomical framework for knowledge representation in a computer interpretable form, which can be shared by different information systems and communities

3.11
dictionary data
dictionary represented as rows of data conforming to the schema collectively defined by a meta dictionary

3.12
dictionary element
set of attributes that constitutes the dictionary description of certain objects of the application domain

EXAMPLE 1 A dictionary compliant with this part of ISO 13584 provides for the description of classes, properties, information sources and datatypes.

EXAMPLE 2 A dictionary compliant with ISO 13584-24 provides for the description of classes, properties, information sources, datatypes, tables, documents and program libraries.

[ISO 13584-42:—, definition 3.15]

3.13
dictionary parcel
set of spreadsheets that are used to define in parts a reference dictionary as the instance of the class that each schema header section of the parcel sheet represents

3.14
dictionary parcel client
dictionary parcel client system
parcel client that can read or write parcel dictionaries, and that may have an optional capability to send them to, or receive them from a server system

3.15
dictionary parcel server
dictionary server
parcel server that can provide parcel dictionaries over the Internet

3.16
entity
a class of information defined by common properties.

[ISO 10303-11:2004, definition 3.3.6]

3.17
feature
an aspect of an item that can be captured by a class structure and set of properties and that cannot exist independently of the item

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EXAMPLE 1 A form feature is an aspect of a part that conforms to some preconceived shape stereotype associated to dimensioning properties. It may be represented as an instance of a class that captures this shape stereotype.

EXAMPLE 2 In a piping component, an outlet is an aspect of a part that conforms to some preconceived function stereotype that is associated with properties (e.g., its name, its role). It may be represented as a feature.

[ISO 13584-24:2003, definition 3.41]

3.18
globally unique identifier
ID

identifier for the global identification of the source of identifier information, and which provides a globally unique identification of a concept without recourse to the linguistic interpretation of the meaning of the letter sequence of the identifier

NOTE The globally unique identifier might or might not be based on ISO/IEC 6523.

3.19
instance

set of unary or n-ary values being identified as a distinct member of a class and conceptually characterized by the set of properties belonging to the class

3.20
international concept identifier
international concept ID
ICID

globally unique identifier that is used in the parcelling format for identifying each data concept

3.21
is-a relationship

the inheritance relationship defined in the object oriented paradigm

NOTE In ISO 13584 the is-a relationship holds between a family of parts and a generic family of parts to which the former family belongs.

[ISO 13584-24:2003, definition 3.61]

3.22
is-case-of relationship

a relationship providing a formal expression of the fact that an object conforms to the partial specification defined by another object

NOTE In ISO 13584, all the properties and data types visible or applicable for some family of parts may be imported by all the families of parts that declare to be case-of the former family. These properties and data types may then be used to describe the latter families.

[ISO 13584-24:2003, definition 3.62]

3.23
is-part-of

the aggregation part/whole relationship

NOTE In ISO 13584 the is-part-of relationship holds between a family of constituent parts and a family of assembled parts to which the constituent parts belongs.

[ISO 13584-24:2003, definition 3.63]

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3.24
item
thing that can be captured by a structure of class or by a structure of property

3.25
library
set of data composed of the full definition of a reference dictionary and the specification of a population of instances conforming to the dictionary, or part of such a set of data corresponding to some classes of a reference dictionary

3.26
library data supplier
supplier
an organization that delivers a library in the standard format defined in ISO 13584 and is responsible for its content

[ISO 13584-1:2001, definition 3.1.10]

3.27
library external file
a file, referenced from a library delivery file, that contributes to the definition of a supplier library

NOTE The structure and the format of a library external file is specified in the library delivery file that references it.

[ISO 13584-24:2003, definition 3.71]

3.28
library integrated information model
LIIM
an EXPRESS schema that integrates resource constructs from different EXPRESS schemas for representing supplier libraries for the purpose of exchange and that is associated with conformance requirements

NOTE Three library integrated information models are defined in this part of ISO 13584 for representing different kinds of supplier libraries.

[ISO 13584-24:2003, definition 3.72]

3.29
library parcel
set of spreadsheets that are used to define in parts a set of instances of a class that the header part of the parcel represents

3.30
library parcel client
parcel client that can read or write library parcels, and that may have an optional capability to send them to, or receive them from a server system

3.31
library parcel server
library parcel server system
server system that can provide library parcels over the Internet

3.32
meta-dictionary
set of meta-classes, each of which is characterized by a different set of properties called “meta-properties”, and as an instance of which a reference dictionary may be defined and specified

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3.33
meta object facility
metadata management framework, and a set of metadata services for the development and interoperability of model and metadata driven systems

3.34
meta-property
property that is used to characterize a meta-class and is used to define the syntactic structure of the meta-class

3.35
Office Open XML
set of XML vocabularies standardized as ISO/IEC 29500 and based on W3C XML Schema, for the representation of word-processing documents, spreadsheets and presentations

3.36
parcel editor
system that edits parcelling sheets, which may have a capability to send them or receive them over the Internet

3.37
parcel sheet
parcelling sheet
parcel
standardized use and specification of spreadsheets, used for data-dictionary or data-library specification, exchange, and registering, of objects at various meta modelling layers

3.38
parcel client
client system that can read or write parcelling sheets in general, and that may have an optional capability to send them to, or receive them from a server system

3.39
parcel server
server system that can provide parcelling sheets in general over the Internet

3.40
parcelling
act of defining, exchanging, or transmitting information using parcelling sheets defined in this part of ISO 13584

3.41
parcelling tool
tool that can process parcelling sheets in general, including PCL-clients, PCL-editors, and PCL-servers

3.42
part
a material or functional element that is intended to constitute a component of different products

[ISO 13584-1:2001, definition 3.1.16]

3.43
property
set of characteristic information that conceptually characterizes a class, the value of which may be actually supplied by a library supplier and used to characterize instances (parts) that belong to the class or its subclasses

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3.44
property of parts library
PLIB-property
kind of property that is used strictly in the sense of the property defined ISO 13584-42 when it is necessary to be differentiated from other uses of property, such as meta-properties or properties used to describe mapping between different data library or catalogue standards

3.45
reference dictionary
dictionary that is based on the ISO 13584/IEC 61360 data model

4 Use scenario for spreadsheet interface

4.1 Spreadsheet representation of dictionary or library

The spreadsheet interface structure defined in this part of ISO 13584 may be used either for expressing a dictionary or a library. Two interface formats for dictionary and library are in fact two different and specialized uses of the same spreadsheet format, whose underlying physical file structure is widely recognized and processible by many software applications. For the ease of identification of the two uses, and for the distinction of the specialized spreadsheets from those for general use, the one for dictionary representation of parts library shall be called “the dictionary parcelling format”, and the other for library representation of parts library shall be called “the library parcelling format”, in this part of ISO 13584. In the parcelling formats used either for dictionary or for library, several spreadsheets need to be compiled together, in order to represent a dictionary or a library. Hence, the word “parcelling” comes from the fact that both formats use a certain number of spreadsheets set together, and each of them represents semantically different content of EXPRESS entities in a syntactically similar unit of structure, which is called “parcel” in this part of ISO 13584. The whole use scenario of the spreadsheet interface for dictionary and library is illustrated in Figure 1.

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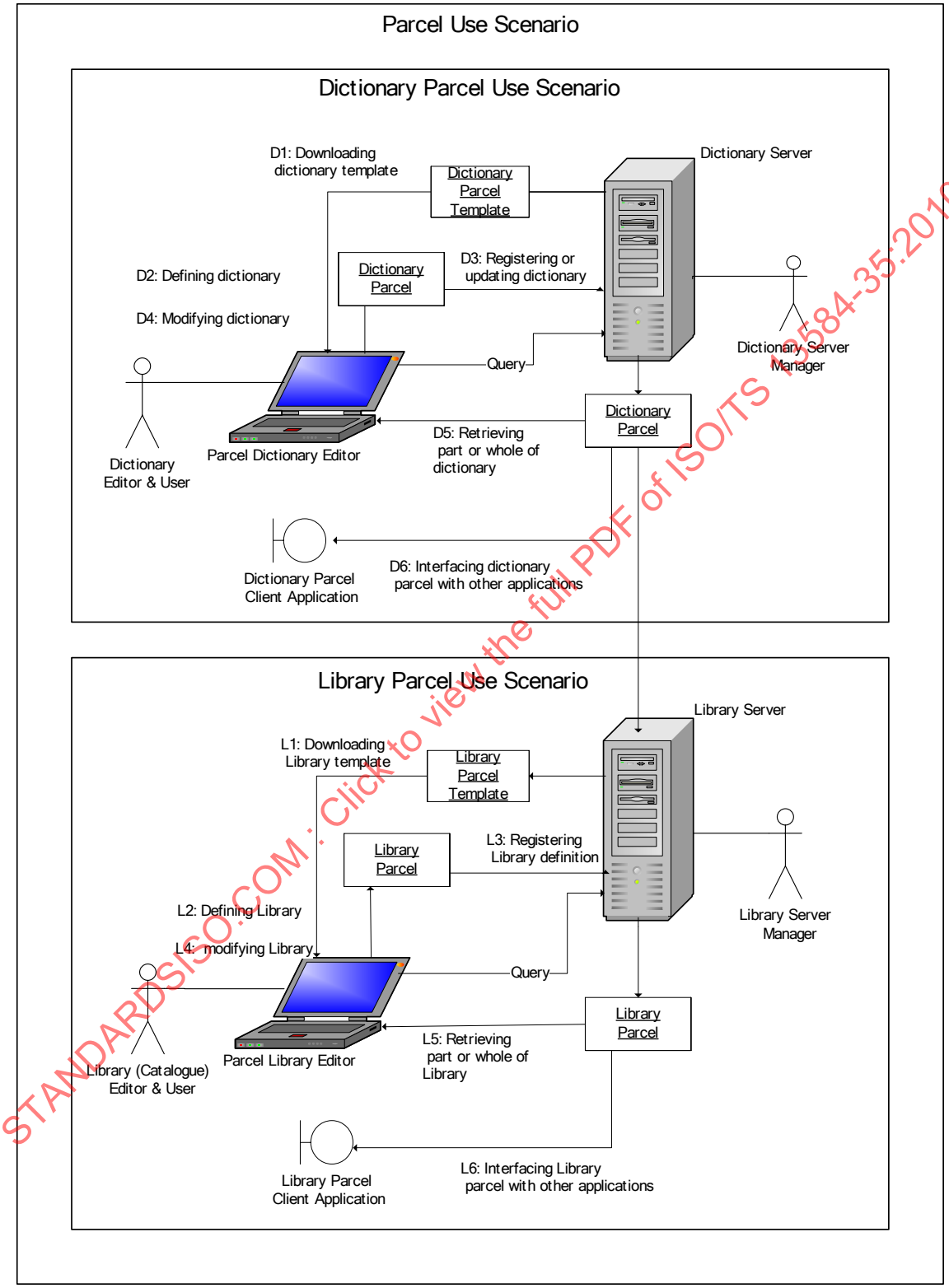

Figure 1 —Parcel use scenario

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4.2 Use scenario of dictionary parcelling format

The dictionary parcelling format may be used in the following use-cases as typical cases:

— D1: Retrieval of a set of blank dictionary parcels from a dictionary server as a dictionary template for defining a new reference dictionary;

— D2: Definition of the content of a reference dictionary;

— D3: Registering of the content of a reference dictionary in a dictionary server;

— D4: Modification of the content of a reference dictionary;

— D5: Retrieving part or whole of a reference dictionary from a dictionary server;

— D6: Interfacing dictionary parcel with other software applications or engineering tools.

Among the above cases, the use cases D1 through D3 are concerned with defining a new reference dictionary with a use of spreadsheet software, while the use cases D4 through D6 are for the reuse of information of a reference dictionary which has been registered previously. The interest of putting a reference dictionary into a set of spreadsheets, i.e., a tabular or matrix form is to make it easy for human readers to understand the content, while from an information processing view point, a spreadsheet format is quite close to the data forms suitable for interfacing with relational databases. In addition, the advantage of assigning a global identifier to each of the attributes of dictionary elements is that it becomes neutral to the change of names of the attributes, necessitated by an evolution of standard or merger of standards, and also it helps map between the attributes of two or more different dictionary standards. Furthermore, the parcelling format defined in this part of ISO 13584 provides a unique functionality called “alternate ID” that enables identification of an item by one another identifier, used temporally or locally. Annex G attached to this part of ISO 13584 may well be used to establish a mapping between this part of ISO 13584 and DIN 4002, with the help of alternate ID.

4.3 Use scenario of library parcelling format

The library parcelling format may be used in the following use-cases as typical ones:

— L1: Retrieval of a set of blank library parcels from a library server as a library template for defining a new library;

— L2: Definition of the content of a library;

— L3: Registering of the content of a library in a library server;

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— L4: Modification of the content of a library;

— L5: Retrieving part or whole of a library from a library server;

— L6: Interfacing library parcel with other software applications or engineering tools.

Among the above cases, as explained in L6 the uses for interfacing with other software applications such as DTP (Desk-Top Publishing) applications, PDM (Product Data Management) applications, or ERP (Engineering Resource Planning) systems, or other engineering applications that support spreadsheet formats for data input and output, are especially important. In fact, many commercial DTP, PDM and analytic engineering tools have a built-in spreadsheet input/output interface, and once the data are read into a commercial spreadsheet application commercially available on the market, conversion of data between one format (or use) and another on the spreadsheet is quite easy and can be almost intuitively done by a domain engineer, who has no special knowledge or prior training about information processing. This demarcates the parcelling format from other conventional exchange formats of parts library. In other words, the parcelling format may be used as an interface between a tool or application that reads and writes data in a spreadsheet format and another tool or application that processes conventional ISO 13584 dictionary or library data in ISO 10303-21 step physical file format. In this regard, it must be noted that any column which is not headed by a property ID of applicable property which is supposed to be in the class designated by the class ID of the parcel sheet shall be ignored by the system compliant to this part of ISO 13584. This feature is useful for a wide range of applications based on this part of ISO 13584, for information may be embedded in the parcel sheet for other processing, and the same spreadsheet may be used in multiple ways by different applications for their own specific purposes. Thus the parcelling formats serve not just for data exchange between ISO 13584 compliant systems, but also as an interface between an ISO 13584 compliant system and others that are compliant to other standards or protocols but may read and write spreadsheets for data input or output.

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5 Structure of the spreadsheet interface

5.1 Meta-dictionary approach

For flexibly modelling either a library or a dictionary on the same base spreadsheet structure, the spreadsheet interface defined in this part of ISO 13584 employs a “meta dictionary approach” with a special emphasis on separating the modelling layer of meta-dictionary from that of a reference dictionary. In other words, the syntactic meta-class as an observer language gives syntax to the meta-dictionary as the target language which defines the semantics of reference

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dictionaries, while the meta-dictionary as the observer language gives syntax to the reference dictionary as the target dictionary, which in its own turn defines the semantics of real world objects. This separation of syntactic modelling layer from semantic modelling layer is quite common in mathematical logic or formal metaphysics, but is relatively rare in data modelling. The advantage of taking this approach is that data model for the reference dictionary represented in this part of ISO 13584 may be flexibly updated or modified without changing the underlying base-structure, built on and represented with the spreadsheet. Since all the modelling constructs modelled as an EXPRESS entity in ISO 13584-42 with a specific name are reduced to a set of instance data of the meta-meta-class defining the meta-dictionary(depicted in the left-most box) where the meta-classes and meta-properties are identified by a globally unique identifier based on ISO/IEC 6523, most of the updates and changes in the data-model may be realized just as an addition or deletion of the instances, or modification of the values of those instances defined in the meta-meta-class.

The meta-dictionary approach explained above is schematically depicted in Figure 2 for the ease of intuitive understanding of the method.

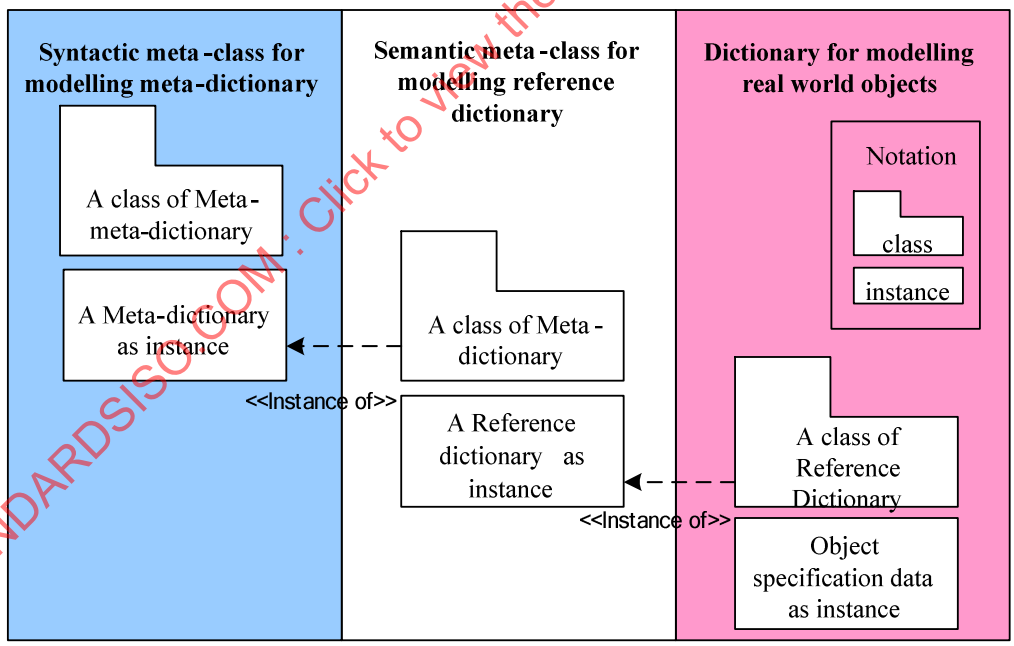

Figure 2 — Schematic diagram of meta-dictionary approach

5.2 Identification structure

This part of ISO 13584 references the ISO/IEC 11179 series of standards, in particular

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ISO/IEC 11179-3 and ISO/IEC 11179-5, as the basic framework for the identification of the types of concepts used to describe elements of data in a parcel sheet. Each data element plays a role similar to "administered item" defined in ISO/IEC 11179-3 as the identifier of a registered item. Hence, the parcel sheets defined in ISO 13584-35 may be used simply as a medium for gathering or collecting metadata, or data elements of a reference dictionary, to be registered into a registration authority based on the ISO/IEC 11179 series of standards. However, in this part of ISO 13584, such an identifier is also applied and assigned to each construct that structures metadata, and thus its function in the cases needs to be further differentiated from that of IRDI (International Registration Data Identifier) mechanism for the administered item described in ISO/IEC 11179-5.

In this part of ISO 13584, we refer to an element to be identified within a set of metadata or a metamodel as "concept element". Examples of the concept elements include not only the concepts of class and property, but their constituent key attributes, such as their name, ID, data type, unit of measurement, definition, symbol, note, and etc., regardless of their appellations. Conversely, such an identifier of the concept element is referred to in this part of ISO 13584 as "international concept identifier", or "concept identifier" for short, where the context is clear, and ICID by acronym. However, except for the cases of classifying and identifying the constructs of a metamodel, the function of ICID is identical to IRDI. So it is regarded as an extension of the IRDI.

In parcelling format, each ICID is unique across the boundary of organizations, and it has the following sequence:

ICID ::= RAI '#'DI'##'VI

where RAI stands for the registration authority identifier, DI for the data identifier, and VI for the version identifier as described in ISO/IEC 11179-5, and RAI, DI, and VI themselves may be composed of several data elements. Note that in this part of ISO 13584, two consecutive pound signs, i.e., "##" are used to separate DI and VI, while RAI and DI are separated by one single "#" character. This allows us a short hand notation of the concept identifier eliminating either RAI or VI, or both when and where the context for DI is clear.

Thus, "P501_P000170##000000001" means an identification of property whose property identification, so-called "property_BSU" in ISO 13584, is "P501_P000170" and its version is 1(one) whose information supplier shall be determined by the context, while "0120/1///13584_501_1#P501_P000170" means a property whose information supplier code is "0120/1///13584_501_1" and its property identification is "P501_P000170", while the version is to be determined by the context. This shorthand convention is extremely useful when a user does

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not know exactly the current version of a property or class in a reference dictionary maintained in a dictionary server for retrieving missing pieces of information.

5.3 Structure of a parcelling sheet

Figure 3 illustrates the general structure of a parcelling sheet which is independent of the type of data content, i.e., dictionary or library, carried by the parcelling sheets. For ease of illustration, both information supplier and version are omitted from the property ID .

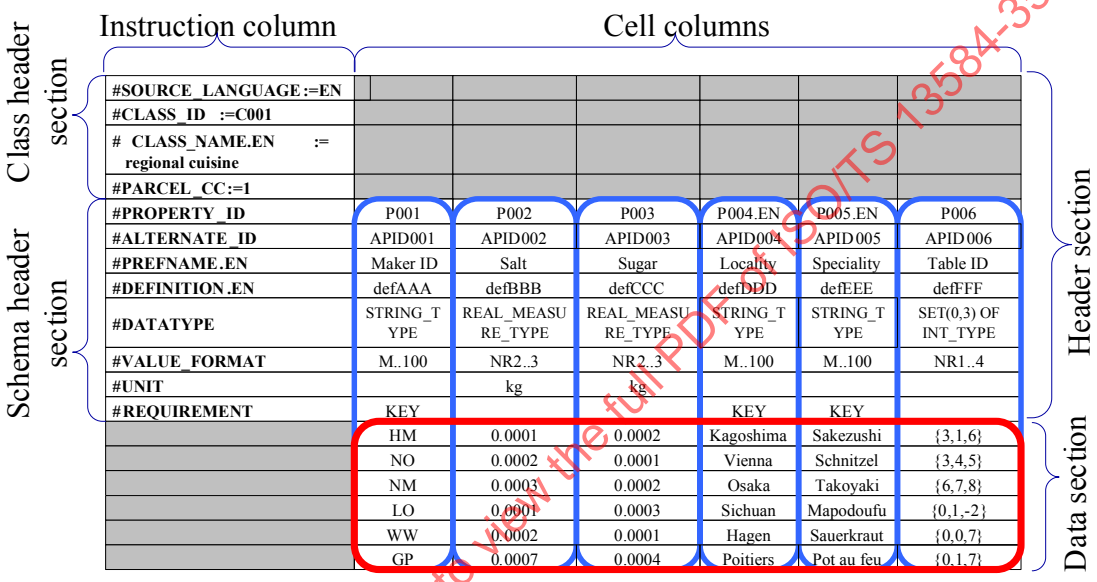

Figure 3 — Structure of a parcelling sheet

As you see from the figure, horizontally, a parcel sheet may be divided into two sections; a header section and a data section. Vertically, the parcel sheet may be divided into an instruction column, and a set of cell columns. As a further subdivision of the horizontal division, the header section may be divided into a class header section, and a schema header section. The class header section describes the information about this parcelling sheet, thus it may also be called the “class header”, while the schema header section describes the data schema of this spreadsheet as a class, thus it gives the “schema” of the instance data described in the data section of this parcelling sheet.

5.4 File name extension

When it is necessary to differentiate the parcelling format conforming to this part of ISO 13584 from a spreadsheet for general use, the file name of a file for library parcelling shall be terminated

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by a file name extension "**.pcl**", signifying the parcelling format for library. For the specification of dictionary, on the other hand, the extension "**.pcd**" shall be used.

5.5 Library use of parcelling format

The library use of the spreadsheet structure, or library parcelling format for short, shall consist of a set of parcelling sheets, each of which contains in its header section, a list of applicable properties that characterize a class of a given dictionary, and some rows of the instance data in data section that belong to this class. When some of those properties are of enumeration type, i.e., either non_quantitative_string type or non_quantitative_int type, then an additional parcelling sheet called "enumeration parcel" may accompany the parcel sheet as a library of instances, and it may list all the option codes and meanings for the enumeration types used in the library parcel. However, this accompaniment of enumeration parcel is not mandatory for the use of library parcel, because although the presence of such an enumeration sheet may help users to enter a precise option value into a property of enumeration type, it is not indispensable as long as the users know the enumerated values. In more typical cases, the sender and receiver will share the dictionary, prior to the library data exchange.

As noted earlier, in each parcelling sheet, there is a header section and a data section. The header section consists of lines each of which shall start with a pound sign "#" and then entail a reserved word. If the word is not recognized as a reserved word, then the line shall be simply treated as a comment line.

Data elements in each definition line are separated by a comma "**,**", and all the values for a property delimited by a pair of commas shall be arranged in a column. If a data value itself contains comma, then the data value shall be enclosed between a start and an end double-quotation mark, such as "**, "10,000",** " where 10,000 is a value and the outer-most pair of double quotation marks are just added for marking the quotation into this document.

It is also assumed that each line shall be terminated by a line feed code used in many popular spreadsheet software applications, i.e., "**0d0a**" in hexadecimal coding which is automatically added by most of the typical spreadsheet applications that are compatible with a leading spreadsheet software[1] commercially available on the market.

[1] One such software tool is MS-EXCEL® of the Microsoft® Corporation. It is an example of a suitable product available commercially. This information is given for the convenience of users of this part of ISO 13584 and does not constitute an endorsement by ISO of this product.

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5.6 Header section

5.6.1 Categories of instructions

Each line shall be interpreted using the semantic function described in the cell of the first column. As noted above, instructions to and from an information system conformant to this part of ISO 13584 which reads or writes a parcelling format file shall be started with a letter "#". There are four categories of instructions:

— Mandatory;

— Optional – functional;

— Optional – informative;

— Comment.

The words following the symbol "#" and designated in the above categories except the one for comment line shall be treated as reserved words, and shall not be used for other purposes.

5.6.2 Mandatory

Reserved words of this category following the letter "#" are mandatory, therefore, they shall be present in a library exchange file. They are required for any system conformant to this part of ISO 13584 for analyzing the property definitions specified by a user. Thus they are also functional in nature.

5.6.3 Optional - functional

If a reserved keyword of this category following the letter "#" is present in a file, the values of the cells in the line following the second element shall be processed according to the function implied by the keyword. Thus changing the description in the line may change the behaviour of the system which interprets the parcelling sheet. An instruction of this category may or may not exist in an exchange file.

5.6.4 Reserved - informative

If a reserved keyword of this category following the letter "#" is present in a file, the values of the cells in the line following the second element are provided to the users of this parcelling sheet just as informative messages by a system conformant to this part of ISO 13584. Since the instruction is informative, changing the information contained in the line would not change the behaviour of the system which interprets the parcelling sheet. An instruction of this category may or may not exist in an exchange file.

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5.6.5 Comment line

The line started with a letter "#" and not followed by a reserved word shall be interpreted as a comment line. It is used to note a comment within the line. This means an instruction of the categories of mandatory, optional - functional, and optional - informative may be commented out with an additional "#" inserted before the instruction word.

5.6.6 Reserved words

The reserved words of the categories specified in 5.6.1 are summarized in Table C.1 and Table C.2.

5.7 Instruction column

5.7.1 General rule

There are three general description rules that every keyword in the instruction column shall follow:

Rule 1 – comment out

Any line including line with a keyword may be commented out using "#" except it is mandatory.

Rule 2 – precedence of mandatory instructions

Mandatory instructions shall be described before the start of data section used for the description of instances, i.e., library data.

Rule 3 – precision for the description of keywords

Keyword shall be written exactly as specified in this document.

The following subclauses define the specific rules and meanings of each keyword.

5.7.2 Class ID

Keyword : #CLASS_ID

Name : Class identifier

Definition : globally unique identifier of the class based on ISO/IEC 6523, which is characterized by the properties described in the same parcel, and to which the instance data contained in the parcel belong

Note : Character sets used for the class_ID shall be in accordance with the class BSU specification defined in ISO 13584-42, in case the parcel is used for the exchange of dictionaries conformant to ISO 13584/IEC 61360 common dictionary schema.

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Category : mandatory

Format : The keyword "#CLASS_ID" shall be described in the first column and the class code shall be described after the keyword separated by the symbol ":=" (colon-equal). The cells in the second column and after shall be ignored.

Example 1 :

#CLASS_ID:=0112/1///13584_501_1#P501_C000001##000000001,

Example 2 :

#CLASS_ID:=0112/1///13584_501_1#P501_C000001,

5.7.3 Preferred name of the class

Keyword : #CLASS_NAME.<lang>

Name : Preferred name of the class

Definition : preferred name of the class specified by the class ID in the language optionally designated by a language code

Note : The information is optional and informative in a library parcelling format because by the specification of a class_ID already designates mandatory pieces of information about the class, including the preferred name(s). When an appropriate name is not available for the corresponding language, the cell may be kept open.

Category : optional - informative

Example : #CLASS_NAME.EN:=Environment measuring instrument,

5.7.4 Definition of the class

Keyword : #CLASS_DEFINITION.<lang>

Name : Definition of the class

Definition : statement about the meaning and concept of the class in the language designated by a language code

Note : The definition available in this field is informative, and supposed to be provided by a parcelling tool which holds the dictionary which the class belongs to. When an appropriate definition is not available in the corresponding language, the cell may be kept open.

Category : optional - informative

Example : #CLASS_DEFINITION.EN:=set of voltage amplifiers of which each amplifier can be described with the same group of data element types.,

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5.7.5 Note of the class

Keyword : #CLASS_NOTE

Name : Note for class

Definition : statement that provides additional information about the definition of the class that is essential for the understanding of the definition of the class designated by the class ID described in the same parcel

Note : This may be used for describing information useful for the interpretation of the definition of the class. The information is provided by a system conformant to this part of ISO 13584, and changing the value for this keyword shall not change the behaviour of the system.

Category : optional - informative

Format : string of alphanumeric characters of any length, excluding ":=" or "," as a constituent.

Example : #CLASS_NOTE.EN := This class corresponds to the class in IEC CDD

5.7.6 Alternate class ID

Keyword : #ALTERNATE_CLASS_ID

Name : Alternate class ID

Definition : alternate class identifier of the class specified by the class ID noted in the same parcel

Note : This may be used for mapping with an external system, a local identification system, another International Standard, or some other standard that uses a different identification scheme than that is used for class ID, for historical or domain specific reasons. A change of information may affect the behaviour of the system that processes this alternate ID, however shall not affect the behaviour of the parcelling tools conformant to this part of ISO 13584, for the alternate IDs are meaningful only for those systems which process the alternate IDs.

Category : optional - informative

Format : string of alphanumeric characters of any length, excluding ":=" or "," as a constituent.

Example : #ALTERNATE_CLASS_ID:=147/101001#XJA418,

5.7.7 Source language

Keyword : #SOURCE_LANGUAGE

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Name : Source language

Definition : designation of the source language in line with ISO 639, in which the text of dictionary definition was originally made

Category : optional - informative

Format : The keyword "#SOURCE_LANGUAGE" and its assigned value shall be described in the instruction column. The cells in and after the second column shall be ignored. The language code according to ISO 639 enables the identification of the language used as the original.

Mapping : It shall be mapped to the following entity of ISO 13584-42; "dictionary_element.administration\administrative_data.soruce_langauge".

Example 1 : #SOURCE_LANGUAGE:=EN-US,

Example 2 : #SOURCE_LANGUAGE:=FR,

Example 3 : #SOURCE_LANGUAGE:=JA,

5.7.8 Parcel identifier

Keyword : #PARCEL_ID

Name : Parcel identifier

Definition : designation of conjunctive parcels, i.e., the parcels that are used together in the same unit of exchange, and in parts they describe a dictionary or library.

Note : Conjunctive parcels are required to have the same alphanumeric letter sequence for this identifier. PARCEL_ID may include neither a comma nor a double quotation mark. When this ID is omitted for dictionary parcelling, the other parcels processed together shall be construed as conjunctive parcels. In case of library parcelling, it may be used to couple library instances with part of the relevant dictionary information, especially with an enumeration parcel, in order for an application to property display the meanings of option codes for non-quantitative (enumeration) type property values.

Category : optional - functional

Format : alphanumeric

Example : #PARCEL_ID:=2006-06-25 08:19:49,

5.7.9 Parcel conformance class identifier

Keyword : #PARCEL_CC

Name : Parcel conformance class identifier

Definition : Designation of the conformance class number according to ISO 13584-35 conformance class, for the data carried in the data section, in the parcel.

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Note: When there is a local extension, the value for parcel conformance class identifier must be clearly marked for such an extension.

Category : optional - informative

Format : An integer value between one (1) and ten (10) shall be used. Values outside of this range may be used for local extensions.

Example : #PARCEL_CC:=9,

5.7.10 Default supplier

Keyword: #DEFAULT_SUPPLIER

Name : Default supplier identifier

Definition : prefix to be added to the shorthand notations of class ID and property ID, with an aim to make a full identifier sequence

Note : This shorthand notation of IDs shall be used only in the header section and in the values of class_instance type properties in the data section. This short cut notation is allowed for definition purpose only, and it is assumed that the parcelling file containing the shorthand notation would be pre-processed to yield a full identifier notation, before it is actually sent to other systems compliant to this part of ISO 13584.

Category : optional - functional

Example : #DEFAULT_SUPPLIER:=0112/1///13584_501_1,

5.7.11 Property ID

Keyword : #PROPERTY_ID

Name : Property identifier

Definition : globally unique identifier of the property based on ISO 6023 referenced for the definition of instances in the data section of the same parcel

Note : This corresponds to the specification of the property BSU of a known applicable property that is used for library exchange in ISO 13584-25 in accordance with the common dictionary schema defined in ISO 13584-42 and IEC 61360-2.

When a property ID listed in the #PROPERTY_ID line is not recognizable as an applicable property of the class designated by the class ID described in the same parcel, all the information in the cells in the same column designated by the property ID shall be ignored as comments.

Category : mandatory

Format : The keyword “#PROPERTY_ID” is described in the first column. The ICDIs

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of properties are described in the columns in and after the second column. An property ID shall be encoded as in the following table.

Table 1 — Description of the property code

level	property code description
level 1	RAI+ ”#” + DI + “##”+ VI
level 2	supplier_bsu.code + sep_id + class_bsu.code + sep_cv + class_bsu.verison + sep_id + property_bsu.code + sep_cv + property_bsu.version
level 3	RAI + “#”+ DI
level 4	DI + ”##”+ VI
level 5	DI

NOTE1 If the data type of the property is level_type, a column is allocated for each level defined in the data type. Such property code is described as “property code” + “sep_id” + “levels”. The levels are identified by three-letter alphabets and are described as in the following way; “MIN”, “NOM”, “TYP”, “MAX”. Separator here means a dot, i.e.,“.”.

NOTE2 If the data type of the property is translatable_string, a column is allocated for each language. Such property code is described as “property code” + “sep_id” + “language code”. The language code identifies a language according to ISO 639. Values are e.g. “EN” for English in general, “FR” for French, “RU” for Russian, “DE” for German, “en GB” for UK English, “en US” for US English, etc…

NOTE3 For the use of level 4 and level 5 notations, default supplier ID shall be declared prior to the use of level 4 and level 5 types of property code description. See “#DEFAULT_SUPPLIER” for more detail.

NOTE4 level 2 should be used only for maintaining compatibility with the legacy dictionaries based on ISO 13584-42 edition 1, and IEC 61360-2 edition 1 and 2. For any other purposes, the use of level 2 is strictly prohibited.

Example : This example is described using the level 3 notation (i.e. the versions of property is omitted).

#PROPERTY_ID,0140/TOPAS#P000001,0140/TOPAS#P001089.MAX,
0140/TOPAS#P001089.MIN,0140/TOPAS#000894.EN,
0114/TOPAS#P000894.FR,

Also, it will be displayed by a usual spreadsheet application as in Figure 4.

#PROPERTY_ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN	0140/TOPAS# P000894.FR

Figure 4 — Display example of property ID

5.7.12 Preferred name of the property

Keyword : #PROPERTY_NAME.<lang>

Name : Preferred name of the property

Definition : preferred name of the property specified by the property ID in the language optionally designated by a language code

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Note : The information is provided by a parcel server, and any change of the information for this attribute by user shall not affect the behaviour of the systems. Language for the preferred name may be specified using ISO 639. Thus, a preferred name in English may be specified as "#PROPERTY_NAME.EN". When an appropriate name in the corresponding language is not available, the cell may be kept open. The keyword corresponds to the preferred_name of property specified in ISO 13584-42, when applied to the exchange of libraries based on the common dictionary schema. If the data type of the property is level_type or translatable_string_type, the preferred name is not needed for each level or each language code of the property.

Category : optional - informative

Format : The keyword "#PROPERTY_NAME.<lang>" is described in the first column. The extension "<lang>" means a two-letter language code defined in ISO639. The preferred names are described in the columns in and after the second column. Each preferred name relates to the property designated by the property ID code which is described in the line #PROPERTY_ID.

Example : #PROPERTY_NAME.EN,CONSORTIUM STANDARD,PH MEASURING,PH MEASURING,COMPANY NAME,COMPANY NAME, #PROPERTY_NAME.FR,NORME D'ASSOCIATION,MESURE PH, MESURE PH,NOM ENTREPRISE,NOM ENTREPRISE,

Spreadsheet view : It will be displayed by a usual spreadsheet software as in Figure 5.

#PROPERTY_ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN	0140/TOPAS# P000894.FR
#PROPERTY_ NAME.EN	CONSORTIUM STANDARD	PH MEASURING	PH MEASURING	COMPANY NAME	COMPANY NAME
#PROPERTY_ NAME.FR	NORME D'ASSOCIATION	MESURE PH	MESURE PH	NOM ENTREPRISE	NOM ENTREPRISE

Figure 5 — Display example of preferred name

5.7.13 Definition

Keyword : #DEFINITION.<lang>

Name : Definition

Definition : statement about the meaning of, or the concept of the property specified by the property ID, optionally in the language designated by a language code

Note : The information is provided by parcel severs, and any change of the

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information by user shall not affect the behaviour of the systems. Language for the definition may be specified using ISO 639. Thus, a definition in English may be specified as "#DEFINITION.EN". When an appropriate definition is not available in the corresponding language, the cell may be kept open.

Category : optional - informative

Format : The keyword "#DEFINITION.<lang>" is described in the first column. The extension "<lang>" means a two-letter language code defined in ISO639. The definitions are described in the columns in and after the second column. Each definition relates to the property designated by the property ID code which is described in the line #PROPERTY_ID.

Example : #DEFINITION,"referential standard of a consortium, association, or organization excluding international standard and national standard", "measuring span for pH measuring instrument", "measuring span for pH measuring instrument", "name of the company which manufactures the product",

Spreadsheet view : It will be displayed by a usual spreadsheet application as in Figure 6.

#PROPERTY_ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN
#PROPERTY_ NAME.EN	CONSORTIUM STANDARD	PH MEASURING	PH MEASURING	COMPANY NAME
#DEFINITION.EN	referential standard of a consortium, association, or organization excluding international standard and national standard	measuring span for pH measuring instrument	measuring span for pH measuring instrument	name of the company which manufactures the product

Figure 6 — Display example of definition

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5.7.14 Note

Keyword : #NOTE

Name : Note for the property

Definition : statement that provides additional information about the definition that is essential for the understanding of the latter

Category : optional - informative

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Format : The keyword "NOTE" shall be described in the first column. The note statements shall be described in the cells in and after the second column. Each note statement shall apply to the definition of the property specified by the value #PROPERTY_ID that is in the same column as the note statement.

Example : #NOTE,"referential standard of a consortium, association, or organization excluding international standard and national standard", "measuring span for pH measuring instrument", "measuring span for pH measuring instrument", "name of the company which manufactures the product",

5.7.15 Data type

Keyword : #DATATYPE

Name : Data type

Definition : attribute that designates the predefined classification of a unit of data for computer processing, of the property specified by the property ID

Note: The information is provided by the system that implements the parcelling spreadsheet structure, and any change of the information by user shall not affect the behaviour of the system.

Category : optional - informative

Format : The keyword "#DATATYPE" shall be described in the first column. The data types shall be described in the columns in and after the second column. Each data type shall correspond to the property of the property ID specified in the line of #PROPERTY_ID in the same column.

Example : #DATATYPE,STRING_TYPE,LEVEL(MIN,MAX) OF REAL_MEASURE_TYPE, LEVEL(MIN,MAX) OF REAL_MEASURE_TYPE, TRANSLATED_STRING, TRANSLATED_STRING,

Spreadsheet view : It will be displayed by a usual spreadsheet application as in Figure 7.

#PROPERTY_ID	0140/TOPAS#P000001	0140/TOPAS#P001089.MAX	0140/TOPAS#P001089.MIN	0140/TOPAS#P000894.EN	0140/TOPAS#P000894.FR
#DATATYPE	STRING_TYPE	LEVEL(MIN, MAX) OF REAL_MEASURE_TYPE	LEVEL(MIN, MAX) OF REAL_MEASURE_TYPE	TRANSLATED_STRING	TRANSLATED_STRING

Figure 7 — Display example of data type

NOTE Data types may be constructed from the primitive types. Examples of primitive types are shown in Annex D.

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5.7.16 Unit of measurement

Keyword : #UNIT

Name : Unit of measurement

Definition : information about the unit of measurement of the property specified by the property ID

Note : The information will be provided by the parcel servers with an aim to help user to understand the property specification, and any change of the information by user shall not affect the behaviour of the parcel servers.

Category : optional - informative

Format : The keyword "#UNIT" will be described in the first column. The units will be described in the cells corresponding to the second column and after. Each such unit corresponds to the property which is described in the #PROPERTY_**ID** line.

Example : #UNIT,,pH,pH,,,

Spreadsheet view : It will be displayed by a usual spreadsheet application as in Figure 8.

#PROPERTY_ ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN	0140/TOPAS# P000894.FR
#UNIT		pH	pH		

Figure 8 — Display example of unit of measurement

5.7.17 Requirement

Keyword : #REQUIREMENT

Name : Requirement

Definition : designation of the requisity of the value of the property in data section, where the corresponding cells may be either blank or one of the followings; "KEY", "NOT _NULL", "MANDATORY", or "OPTIONAL"

Note : When it is kept blank, it is equivalent to the designation as "OPTIONAL" while the values "MANDATORY" and "OPTIONAL" may be shorthanded as "MAND" and "OPT", respectively. NOT_NULL means that the value is mandatory and it shall not be null. A blank field must be equivalent to OPTIONAL, except the case when the requirements for the properties are not determined yet such as in a parcel template for determining the requirements.

Category : optional - functional

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Format : The keyword "#REQUIREMENT" shall be stated in the instruction column and the cases of the letters of the keyword shall be ignored. In the following cells a reserved word "KEY" shall be noted in every cell where the property corresponding to the property ID shall be treated as the key, or as an element of the (composite) key of the database to be created.

Example : #REQUIREMENT,KEY,,,,,

Spreadsheet view : It will be displayed by a spreadsheet application as in Figure 9.

#PROPERTY_ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN	0140/TOPAS# P000894.FR
#REQUIREMENT	KEY				MANDATORY

Figure 9 — Display example of key

5.7.18 Alternative units of measurement

Keyword : #ALTERNATIVE_UNITS

Name : Alternative units of measurement

Definition : information about other units of measurement that may be used for the property specified by the property ID

Note : The information will be provided by a parcel server with an aim to help a user to understand allowed units of the property, and any change of the information by the user shall not affect the behaviour of the parcel server.

Category : optional - informative

Format : The keyword "#ALTERNATIVE_UNITS" will be described in the first column. Lists of alternative units will be described in the cells corresponding to the second column and after. Each such list of alternative units corresponds to the property which is designated by an identifier in the #PROPERTY_ID line.

Even if there is only one alternative unit, the alternative should be placed in a set of parentheses, i.e., "(" and ")".

Spreadsheet view: It will be displayed by a spreadsheet application as in the following.

#PROPERTY_ ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN	0140/TOPAS# P000894.FR
#UNIT		Pa	Pa		
#ALTERNATIVE _UNITS		(bar, Torr)	(bar, Torr)		

Figure 10 — Display example of unit of measurement

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5.7.19 IDs of alternative units of measurement

Keyword : #ALTERNATIVE_UNIT_IDS

Name : IDs of alternative units of measurement

Definition : IDs of other units of measurement that may be used for the property specified by the property ID

Note : The information will be provided by a parcel server with an aim to help a user to understand allowed units of the property, and any change of the information by the user shall not affect the behaviour of the parcel server.

Category : optional - informative

Format : The keyword "#ALTERNATIVE_UNIT_IDS" will be described in the first column. Lists of alternative units will be described in the cells corresponding to the second column and after. Each such list of alternative units corresponds to the property which is designated by an identifier in the #PROPERTY_ID line.

Even if there is only one alternative unit, the alternative should be placed in a set of parentheses, i.e., "(" and ")".

Spreadsheet view: It will be displayed by a spreadsheet application as in the following.

#PROPERTY_ ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN
#UNIT		Pa	Pa
#ALTERNATIVE_UNITS		(bar, Torr)	(bar, Torr)
#ALTERNATIVE_UNIT_IDS		(uom0001, uom002)	(uom0001, uom002)

Figure 11 — Display example of unit of measurement

5.7.20 Alternate property ID

Keyword : #ALTERNATE_ID

Name : Alternate property ID

Definition : alternate property identifier of the property specified by the property **ID**, where the value of property designated by the alternate property ID shall be at least assignable to the property designated by the property **ID**, and additionally the value designated by the property **ID** may be assignable to the property designated by the alternate property ID

Note : This may be used for mapping with an external system, another International Standard, or other standard that uses a different identifier for properties for historical or domain specific reasons. A change of information may affect the behaviour of the system that processes the Alternate property ID, however shall not affect the behaviour of the parcelling tools conformant to this part of

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ISO 13584, for the alternate IDs are meaningful only for those systems which interpret the alternate IDs.

Category : optional - informative

Format : string of alphanumeric characters of any length, excluding ":=" or "," as a constituent.

Example : #PROPERTY_ID,MDC_P001_5,MDC_P002_1,MDC_P004_1.DE, MDC_P005.DE,
#ALTERNATE_ID,C01,C02,A01(DE),A04(DE),

Spreadsheet view : It will be displayed by a spreadsheet application as in Figure 12.

#PROPERTY_ID	MDC_P001_5	MDC_P002_1	MDC_P004_1.DE	MDC_P005.DE
#ALTERNATE_ID	C01	C02	A01(DE)	A04(DE)
#PROPERTY_NAME.EN	Code	Version	Preferred name	Definition

Figure 12 — Display example of alternate property ID

5.7.21 ID for the unit of measurement

Keyword : #UNIT_ID

Name : ID for the unit of measurement

Definition : identifier to uniquely reference the unit of measurement (UoM) used in a property, being specified by a UoM_ID listed in the #UNIT_ID line, noted in the same column as the property ID in a parcel

Note : The ID for the unit of measurement may be recognized as a globally unique identifier only by parcelling tools. Thus, it requires translation into the descriptions available in ISO 13584-42, when conversion into ISO 13584-25 is requested, by extracting the pieces of information stored in the fields named "unit structure", "unit in SGML" and "unit in text" in a UoM meta-class. Since there are multiple ways of describing the same unit in a string, an automated reverse mapping is not foreseeable for the current ISO 13584-42.

Category : optional - informative

Example : #UNIT_ID,,
0112/1///13584_35_1#Pxxx_PFU001,0112/1///13584_35_1#Pxxx_PFU001,,

Spreadsheet view : It will be displayed by a usual spreadsheet application as in Figure 13.

#PROPERTY_ID	0140/TOPAS#P000001	0140/TOPAS#P001089.MAX	0140/TOPAS#P001089.MIN	0140/TOPAS#000894.EN	0140/TOPAS#P000894.FR
#UNIT_ID		0112/1///13584_35_1#Pxxx_PFU001	0112/1///13584_35_1#Pxxx_PFU001		

Figure 13 — Display example of ID for the unit of measurement

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5.7.22 Property value format

Keyword : #VALUE_FORMAT

Name : Property value format

Definition : specification of the type and length of the representation of the value of a property, where it shall be interpreted as maximum value format for storage in a server system that generated the parcel

Note : The detailed specification of value format is explained in ISO 13584-42.

Category : optional - informative

Example : #VALUE_FORMAT,M..14,M..255,M..255,

Spreadsheet view : The following figure illustrates how the value format shall be described for each property specified by a respective property ID.

#PROPERTY_ID	MDC_P001_3	MDC_P001_4.EN	MDC_P001_4.DE
#PREFENAME.EN	CODE	PREFERRED NAME	PREFERRED NAME
#PREFENAME.DE	KENNUNG	BENENNUNG	BENENNUNG
#VALUE_FORMAT	M..14	M..255	M..255

Figure 14 — Display example of value format

5.7.23 Identifier encoding

Keyword : #ID_ENCODE

Name : Identifier encoding

Definition : specification of the property ID encoding method for property

Note : This is designed to allow for an external ID encoding method for each property other than BSU-based method defined in the ISO134584/IEC 61360 series of standards and its presentation is modified in this part of ISO 13584 as ICID. When this specification is omitted or the cell is blank, ICID is meant as default.

Category : optional - informative

Example : #ID_ENCODE, , ICID, ISO 29002

Spreadsheet view : The following figure illustrates how the ID encoding shall be displayed for each property specified by a respective property ID

#PROPERTY_ID	MDC_P001_5	0112/1#MDC_P002_1##1	0112-1#02-MDC_P004_1.DE#1
#ID_ENCODE		ICID	ISO 29002
#ALTERNATE_ID	C01	C02	A01(DE)
#PROPERTY_NAME.EN	Code	Version	Preferred name

Figure 15 — Display example of ID encoding specification

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5.7.24 Default ID encoding

Keyword : #DEFAULT_ID_ENCODE

Name : Default identifier encoding

Definition : specification of the global encoding method for the parcel for data element identification

Note : This is designed to inform about the global ID encoding method used in the parcel to display data elements or enter data instances. Even if this specification is missing, ICID is assumed as default method. The value of this specification and the method of identification used for library data in the data section shall be consistent.

Category : optional - informative

Example : #DEFAULT_ID_ENCODE := ISO 29002

Spreadsheet view : The following figure illustrates how the ID encoding shall be displayed for each property when #DEFAULT_ID_ENCODE is set to ISO 29002 and #ID_ENCODE is set to ICID for version, when a dictionary is the library content.

#PROPERTY_ID	MDC_P001_5	MDC_P002_1##1	0112-1#02-MDC_P004_1.DE#1
#ID_ENCODE	ICID	ICID	
#ALTERNATE_ID	C01	C02	A01(DE)
#PROPERTY_NAME.EN	Code	Version	Preferred name

Figure 16 — Display example of ID encoding specification

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5.8 Data section for instances

5.8.1 General

In this part of ISO 13584, each line in the data section designates a set of property values that collectively characterize an instance, i.e., a list of property-value pairs that one part or one product belonging to a class has. If in the first column of the line, namely on the instruction column within the data section, any "#" is marked at the head of a sequence of letters or values, the line shall be treated as a comment line. Users may insert as many comment lines as they wish. This functionality may also be used for commenting out some of the existing value instances.

This part of ISO 13584 uses the data type notations that are analogous to ISO 13584-42. The detailed comparison and correspondence between the data type notations, used in this part of ISO and in ISO 13584-42 are elucidated in Annex D.

The following subclauses explain how an instance value shall be described for each data type, by a human user, or by a parcelling tool.

5.8.2 Enumeration types, or non quantitative types

For such data types as **non_quantitative_code_type** and **non_quantitative_int_type**, only one value code within a list of the value codes predetermined for each of those data types shall be written in the data section as an instance value. In other words, the meaning of the code shall not be entered as the value.

Figure 17 gives a typical display example on a spreadsheet application.

#PROPERTY_ID	0140/TOPAS#P001	0140/TOPAS#P002	0140/TOPAS#P003	0140/TOPAS#P004
#PROPERTY_NAME	Colour of the wall	Colour of the roof	Type of the door	Type of the window
#DATA_TYPE	ENUM_CODE_ TYPE(EXX_001)	ENUM_CODE_ TYPE(EXX_001(red, blue, yellow))	ENUM_INT_TYPE (EXX_999)	ENUM_INT_TYPE (EXX_999(1, 2, 3))
	blue	red	2	1
	yellow	blue	3	2

Figure 17 — Display example of ENUM_INT_TYPE or ENUM_CODE_TYPE

NOTE For example, in the description "ENUM_CODE_TYPE(EXX_001(red, blue, yellow))", "EXX_001" is the ID for the enumeration list and "red", "blue", and "yellow" are the value codes available for selection. The value codes are listed just for information purpose, and they may be omitted in the "#DATA_TYPE" row, just like the expression, "ENUM_CODE_TYPE(EXX_001)".

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5.8.3 Level type

For each element of a level type (MIN., MAX., TYP., NOM.) to be used in a library exchange file, one column shall be used. If some of the elements are not used in all the instances of the file, the columns for those elements are not necessary. The elements of the level type are identified by a dot extension with a three-letter code added after the property ID codes aligned in the #PROPERTY_ID row.

Figure 18 gives a typical display example on a usual spreadsheet application, which uses only "**MIN.**" and "**MAX.**" among the four optional attributes of the level type.

#PROPERTY_ ID	0140/TOPAS# P000001	0140/TOPAS# P001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.EN	0140/TOPAS# P000894.FR
	JIS	1000	2000	JAPAN Corporation	JAPON SA
	CEN	20	23	FRENCH Ltd.	FRANÇAIS SA

Figure 18 — Display example of LEVEL_TYPE

NOTE JAPAN Corporation and FRENCH Ltd., and their equivalents in French language are used just as examples and their names are totally fictitious. Neither JAPAN Corporation nor FRENCH Ltd., exists in the real world.

5.8.4 String type

For each property of STRING_TYPE to be used in a library exchange file, one column shall be allocated. If the language to construe the meaning of the value of string type needs to be designated, it shall be done so by assigning a two-letter language code according to ISO 639 to #SOURCE_LANGUAGE, as described in 5.7.7 .

5.8.5 Translatable string type

For each language of a property of TRANSLATABLE_STRING_TYPE to be used in a library exchange file, one column shall be allocated. The language element of the TRANSLATABLE_STRING_TYPE is specified by a dot extension with a two-letter code added after property ID codes aligned in the #PROPERTY_ID row.

Figure 19 gives a typical display example on a usual spreadsheet application.

#PROPERTY_ ID	0140/TOPAS# P000001	0140/TOPAS#P 001089.MAX	0140/TOPAS# P001089.MIN	0140/TOPAS# P000894.**EN**	0140/TOPAS# P000894.**FR**
	JIS	1000	2000	JAPAN Corporation	JAPON SA
	CEN	20	23	FRENCH Ltd.	FRANÇAIS SA

Figure 19 — Display example of TRANSLATABLE_STRING_TYPE

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NOTE JAPAN Corporation and FRENCH Ltd., and their equivalents in French language are used just as examples and their names are totally imaginary. Neither JAPAN Corporation nor FRENCH Ltd., exists in the real world.

5.8.6 Boolean type

For a Boolean type property, either “TRUE” or “FALSE” is expected for its value.

Figure 20 gives a typical display example on a spreadsheet application.

#PROPERTY_ID	TOPAS_Pxxx
#PROPERTY_NAME.EN	Export restriction
#DEFINITION.EN	Presence of an export restriction on the product
#DATATYPE	BOOLEAN_TYPE
	TRUE

Figure 20 — Display example of BOOLEAN_TYPE

5.8.7 Class instance type (Class reference type)

In the library exchange file (noted in the following as “Main file”), an instance value of this data type shall contain only one class_ID and its reference conditions as a list of property-value pairs. Class instance type is also referred to as “class reference type” and may be specified instead of class_instance_type

Figure 21 gives a typical display example on a usual spreadsheet application.

#PROPERTY_ID	0140/TOPAS#P000001
#DATATYPE	CLASS_REFERENCE_TYPE(“0140/TOPAS#C000999”)
	0140/TOPAS#C000888, {(“0140/TOPAS# P000101”, “Colour”), (“0140/TOPAS# P000102”,“TRUE”), (“0140/TOPAS# P000103”, “200”)}
	0140/TOPAS#C000888, {(“0140/TOPAS# P000101”,“Red”), (“ 0140/TOPAS# P000102”,“FALSE”), (“0140/TOPAS# P000103”, “300”)}

Figure 21 — Display example of CLASS_INSTANCE_TYPE

NOTE1 In describing the reference mechanism by class_instance type, in the first place, the ICID of the referenced class is noted, and a list of property-value pairs follows the ICID, being placed within a pair of parentheses.

NOTE2 0140/TOPAS#C000888 is the ICID of one of the subclasses of the class whose ICID is 0140/TOPAS#C000999.

NOTE3 Shortcut for the notation of supplier_ID is available. Setting “#DEFAULT_SUPPLIER:= 0140/TOPAS/”, an ICID notation like “0140/TOPAS#C000999” may be reduced to “P501_C000999”.

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5.8.8 Aggregate type

Rules of description for aggregate types are summarized in the following:

— Data elements of aggregate types shall be inserted within "{ }" or "( )";

— A pair of brace "{ }" signifies that there is no specified order among the data elements. Thus it shall be applied to the data of SET or BAG types;

— A pair of parentheses "( )" signifies that there is a specified order among the data elements. Thus it shall be applied to the data of LIST or ARRAY data type;

— Data elements shall be separated by commas. Spaces before and between characters shall be interpreted as intended spaces for STRING type properties;

— If data elements themselves include "{", "}", "(", or ")" they shall be inserted within a pair of double quotation marks;

— If data elements of aggregate types include a double quotation, it shall be placed between a pair of double quotation marks.

Following are the examples of description compatible with the above notation rules including some of the above cases:

EXAMPLE 1 SET OF STRING_TYPE
Text definition of instructions in this part of ISO 13584 shall be as in the following:

#PROPERTY_ID,TOPAS_Pxxx,
#PROPERTY_NAME.EN,COLOR,
#DATATYPE, "SET(1,4) OF STRING_TYPE",
, "{red,white,blue,black}",

Figure 22 gives a display example of the EXAMPLE 1 on a spreadsheet application.

#PROPERTY_ID	TOPAS_Pxxx
#PROPERTY_NAME.EN	COLOR
#DATATYPE	SET(1,4) OF STRING_TYPE
	{red,white,blue,black}

Figure 22 — Display example of SET OF STRING_TYPE

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EXAMPLE 2 LIST OF STRING_TYPE

Text definition of instructions in this part of ISO 13584 shall be as in the following:

#PROPERTY_ID,TOPAS_Pxxx,
#PREFNEME.EN,COLOR,
#DATATYPE, “LIST(1,5) OF STRING_TYPE”,
, “{red,white,blue,black}”,

Figure 23 gives a typical display example of the EXAMPLE 2 on a spreadsheet application.

#PROPERTY_ID	TOPAS_Pxxx
#PROPERTY_NAME.EN	COLOR
#DATATYPE	LIST(1,4) OF STRING_TYPE
	(red,white,blue,black)
	:

Figure 23 — Display example of LIST OF STRING_TYPE

EXAMPLE 3 LIST OF TRANSLATED_STRING

Text definition of instructions in this part of ISO 13584 shall be as in the following:

#PROPERTY_ID,TOPAS_Pxxx.EN,TOPAS_Pxxx.JA,
#PREFNEME.EN,Traded product,Traded product,
#PROPERTY_NAME.FR,Produits treatés,Produits treatés,
#DATATYPE, “LIST(1,4) OF TRANSLATABLE_STRING”, “LIST(1,4) OF TRANSLATED_STRING”,
, “{motor, computer, display, memory }”, “{moteur, ordinateur, écran, mémoire }”,

Figure 24 gives a typical display example of the EXAMPLE 3 on a spreadsheet application.

#PROPERTY_ID	TOPAS_Pxxx.EN	TOPAS_Pxxx.FR
#PROPERTY_NAME.EN	Traded product	Traded product
#PROPERTY_NAME.FR	Produits treatés	Produits treatés
#DATATYPE	LIST(1,4) OF TRANSLATABLE_STRING	LIST(1,4) OF TRANSLATABLE_STRING
	{ motor, computer, display, memory }	**{moteur, ordinateur, écran, mémoire }**

Figure 24 — Display example of LIST OF TRANSLATABLE_STRING_TYPE

The order of the appearance of the elements shall be the same in the languages used.

Thus motor (EN) corresponds to moteur (FR), and so on, as in the following table.

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Table 2 — Example of correspondence within multiple languages

English	French
motor	moteur
computer	ordinateur
display	écran
memory	mémoire

EXAMPLE 4 SET OF LEVEL OF REAL_MEASURE_TYPE

In case that a set of 2 triplets, i.e., (Maximum input voltage 240V,Rated input voltage 120V,Minimum input voltage100V), and (Maximum input voltage 300V, Rated input voltage 200V, Minimum input voltage 110) need to be expressed, specification shall be as in the following.

Text definition of instructions in this part of ISO 13584 shall be as in the following:

#PROPERTY_ID,TOPAS_Pxxx,
#DATATYPE,"SET(1,3) OF LEVEL(MIN,NOM,MAX) OF INT_MEASURE_TYPE",
#UNIT,V,
, "{(100,120,240),(110,200,300)}",

Figure 25 gives a typical display example of the EXAMPLE 4 on a spreadsheet application.

#PROPERTY_ID	TOPAS_Pxxx
#DATATYPE	SET OF LEVEL(MIN,NOM,MAX) OF INT_MEASURE_TYPE
#UNIT	V
	{(100,120,240),(110,200,300)}
	:

Figure 25 — Display example of SET OF LEVEL OF INT_MEASURE_TYPE

NOTE The order of description shall be MIN, NOM, TYP,MAX. Any element in the order may be skipped.

EXAMPLE 5 SET OF SET OF STRING_TYPE

Text definition in this part of ISO 13584 shall be as in the following:

#PROPERTY_ID,TOPAS_Pxxx,
#PROPERTY_NAME.EN,COLOR,
#DATATYPE,"SET(1,2) OF SET(1,2) OF STRING_TYPE",
,"{{AAA,BBB},{AAA,XXX}}",

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Figure 26 gives a typical display example of the EXAMPLE 5 on a spreadsheet application.

#PROPERTY_ID	TOPAS_Pxxx
#PROPERTY_NAME.EN	COLOR
#DATATYPE	SET(1,2) OF SET(1,2) OF STRING_TYPE
	{{AAA,BBB},{AAA,XXX}}
	:

Figure 26 — Display example of SET OF SET OF STRING_TYPE

5.8.9 Named type

The named_type entity provides for referring to other types constructed or renamed using data_type_BSU. The actual construction or renaming shall be done using data type parcel, whose specification is given in Meta type meta class.

5.8.10 Entity instance type

Placement type is used to define geometric points in 2D or 3D environment. The following 3 types may be specified:

— Axis1_placement_type;

— Axis2_placement_2D_type;

— Axis2_placement_3D_type.

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5.9 Dictionary use of parcelling format

5.9.1 Dictionary as an instance of meta-dictionary

In case of ISO 13584-35 complaint spreadsheet structure, used for dictionary description, a dictionary conformant to ISO 13584-42 may be described as a set of instance data, of eight classes of a generic dictionary, which collectively define one complete reference dictionary.

Such a dictionary described as a set of instances of a generic dictionary, and may be transported as a payload of respective parcelling spreadsheet shall be called hereafter "dictionary data", while the generic dictionary that gives a syntax to the dictionary data shall be called hereafter a "meta-dictionary". Each class of the meta-dictionary shall be called in its own right, a "meta-class", when it needs to be distinguished from an ordinary class in a reference dictionary carried as a set of payload data of the meta-classes of meta-dictionary. Likewise, each property used by meta-classes to describe an attributes of a dictionary element of a reference dictionary shall be called a "meta-property", when a distinction is needed in appellation, between a property of a meta-class of a meta-dictionary and a property of a class of a reference dictionary. A spreadsheet that represents one of the eight meta-classes and has some meta-properties of the meta-class in the schema header section may be referenced in general as a "dictionary parcel". A typical configuration of the dictionary parcel is shown in Figure 27.

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Instruction column

Cell columns

Class header section

Schema header section

Data section

Header section

#SOURCE_LANGUAGE:=EN					
#CLASS_ID:=MDC_C002					
#CLASS_NAME.EN:= Class meta-class					
#CLASS_DEFINITION.EN:= Meta-class being characterized by meta-properties that are necessary to identify and specify each class in a reference dictionary					
#PROPERTY_ID	MDC_P001_5	MDC_P004_1.EN	MDC_P004_1.FR	MDC_P002_1	MDC_P002_2
#ALTERNATE_ID	CC	CP	CP	VE	RV
#PROPERTY_NAME.EN	Code	Preferred name	Preferred name	Version	Revision
#DEFINITION.FR	Code	Nom prefere	Nom prefere	Version	Revision
#DEFINITION.EN	identifier a characterization class of parts	name of the class	name of the class	version of class	revision of class
#DATATYPE	STRING_TYPE	TRANSLATABLE _ STRING_TYPE	TRANSLATABLE _ STRING_TYPE	STRING_TYPE	STRING_TYPE
#REQUIREMENT	KEY			KEY	
#VALUE_FORMAT	M..14	M..255	M..255	M..9	M..3
#UNIT					
	AAA000	IEC reference collection	Collection de reference CEI	001	01
	AAA001	Components	Composants	001	01
	AAA002	Electric/electronic components	Composants electriques /electroniques	002	01
	AAA003	Amplifiers	Amplificateurs	001	01
	AAA004	Low-frequency amplifiers	Amplificateurs basse friquence	001	01

Figure 27 — Configuration of a dictionary parcel

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Each row of the instance data in the data section of a dictionary parcel, where a value in each cell vertically aligned in a column corresponds to some of the meta-properties defined in the schema header section of the parcel, describes the attribute values of the dictionary elements of a reference dictionary. As noted earlier, a meta-dictionary consists of the following seven meta-classes into which or out of which each specialized spreadsheet, i.e., a partitive dictionary parcel is milled:

— Dictionary;

— Supplier;

— Class;

— Property;

— Enumeration;

— Document;

— Datatype (named_type).

In addition to the above seven normative meta-classes, the following meta-class may be supplied as an option:

— Object;

— UoM;

— Terminology.

Among the seven standardized parcelling sheets listed above, the first four parcels are mandatory for the exchange of a dictionary by means of the parcelling format. Moreover if a property parcel sheet includes so-called “enumeration type” properties, or to be exact, “non_quantitative” types as they are called in ISO 13584 series of standards, an enumeration parcel usually accompanies the property parcel, for clarifying the meaning of each enumeration code, namely, for the textual explanation of the option codes, used in those types of properties.

A parcel for object meta-class may be added to enable identification and specification of each row of data instance per se, as a data object, in the data section of a parcel. The content of this parcel will be further extended to enable tracing of the data provenance, in a future edition of this part of ISO 13584.

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A parcel for UoM (Unit of Measurement) meta-class may be supplemented by a user, pro re nata. This means, the set of meta-properties of the UoM meta-class are not standardized in this part of ISO 13584, but the appellation of the meta-class and the reference structure to the UoM parcel are. As long as it defines an identifier for each unit of measurement and it provides more information about the unit of measurement than the current ISO 13584-IEC 61360 data model requires, any UoM meta-class specification may fit the purpose. Note that the information about the unit of measurement in the header section below "#UNIT" in this part of ISO 13584 is only informative, and any omission of this information shall not change the behaviour of the system. This is because a property ID eventually determines all the specifications about a property including the unit of measurement. When a UoM parcel is provided by a user, the parcel shall include all the information necessary to fill the attributes related to the unit of measurement of property described in the property meta-class.

5.9.2 Identification of conjunctive parcels

When it is necessary to identify conjunctive parcels, i.e., parcelling sheets that collectively describe a reference dictionary as instances, it shall be done through identifying the parcel ID of each parcel. If the values of the parcel IDs noted in the respective parcels are the same, then the parcels are regarded as conjunctive. A parcel ID shall be an identifier of STRING_TYPE, where no double quotation nor comma shall appear in the letter sequence of the identifier. However, in difference to BSU, hyphens ("-") and colons (":") are allowed in the sequence, thus an ISO 8601 compliant time stamp such as "2006-06-25 08:19:49" may be used for the #PARCEL_ID.

5.9.3 Roles and definition of dictionary parcels

Roles and definitions of dictionary parcels are summarized in the following table. Note that the ICIDs of the meta-classes are normative part of the information defined by this part of ISO 13584.

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Table 3 — Meta-classes that constitute a meta-dictionary

(meta) Class ID	Preferred name in English	Definition
MDC_C001	Dictionary meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify the information about the owner of the dictionary in a reference dictionary
MDC_C002	Class meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each class in a reference dictionary
MDC_C003	Property meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each property in a reference dictionary
MDC_C004	Supplier meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each information supplier in a reference dictionary
MDC_C005	Enumeration meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each enumeration list of codes of an enumeration type property in a reference dictionary, such as non_quantitative_code or non_quantitative_int type properties used in the ISO 13584/IEC 61360 series of standards
MDC_C006	Datatype meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each named data-type in a reference dictionary.
MDC_C007	Document meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each external document in a reference dictionary
MDC_C008	Object meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each row of instance as data object, in the data section of a parcel
MDC_C009	UoM meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify each unit of measurement in a reference dictionary
MDC_C010	Terminology meta-class	meta-class being characterized by meta-properties that are necessary to identify and specify terms used in another parcel, in particular for a term that appears in an enumeration list identified and specified in an enumeration meta-class.

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5.9.4 Properties of meta-dictionary

5.9.4.1. Overview of meta-classes

In the following subclauses, the structure of a class of meta-dictionary, namely, the header section of each meta-class is explained. The corresponding tables in Annex E list the meta properties usable for defining the items in data section.

Note that what are defined in the data section of each meta-class are not the meta-properties, but data constructs that appear in an ontology standard, such as IEC 61360-2 or ISO 13584-42. Thus, for example, the class meta-class lists all the classes in a reference data dictionary, in its data section, while the property meta-class lists all the properties in the same dictionary.

5.9.4.2. Meta-properties of dictionary meta-class

Dictionary parcel defines the following list of attributes of ISO 13584 as the (meta-)properties of a (meta-)class defining a dictionary parcel:

— Dictionary Code;

— Version number;

— Revision number;

— Preferred name.<lang>;

— Synonymous name;

— Short name.<lang>;

— Name icon;

— Note.<lang>;

— Remark.<lang>;

— Supplier;

— LIIM source document identifier;

— LIIM status;

— LIIM name;

— LIIM date;

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— LIIM application;

— LIIM level;

— Global language;

— Source language.

The following attribute of a dictionary entity is not modelled in this parcel and is modelled as instances of the supplier parcel:

— Referred suppliers.

The following attribute of a dictionary entity is not modelled in this parcel and is modelled as instances of the class parcel:

— Contained classes.

The following attributes are not modelled in the spreadsheet structure, defined in this part of ISO 13584:

— Is complete;

— Updates;

— Update agreement;

— Referenced dictionaries;

— External file protocols;

— Base protocols;

— Supported vep;

— A posteriori semantic relationships.

Detailed specification of each meta-property of the parcel is summarized in Annex E.

5.9.4.3. Meta-properties of class meta-class

Class parcel defines the following list of attributes of ISO 13584 as the (meta-) properties of a (meta-) class defining a class parcel:

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— Code;

— Version number;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

— Synonymous name;

— Short name.<lang>;

— Name icon;

— Definition.<lang>;

— Source document of definition;

— Note.<lang>;

— Remark.<lang>;

— Simplified drawing;

— Superclass;

— Class type;

— Supplier;

— Is case of;

— Applicable properties;

— Applicable types;

— Applicable documents;

— Applicable tables;

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— Sub-class selection properties;

— Class value assignment;

— Imported properties;

— Imported types;

— Imported documents;

— Coded name.

The following attribute of a dictionary entity is not modelled in this parcel and is classif as instances of the property parcel:

— Visible properties.

The following attribute of a dictionary entity is not modelled in this parcel and is modelled as instances of the data type parcel:

— Visible types.

Detailed specification of each meta-property of the parcel is summarized in Annex E.

5.9.4.4. Meta-properties of property meta-class

Property parcel defines the following list of attributes of ISO 13584 as the (meta-) properties of a (meta-) class defining a property parcel:

— Code;

— Version number;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

— Synonymous name;

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— Short name.<lang>;

— Name icon;

— Definition.<lang>;

— Source document of definition;

— Note.<lang>;

— Remark.<lang>;

— Graphics;

— Property data element type;

— Definition class;

— Data type;

— Unit structure;

— Unit in text representation;

— Unit in SGML representation;

— Value format;

— Preferred letter symbol in text;

— Preferred letter symbol in SGML;

— Synonymous letter symbol;

— Property type classification;

— Formula in text;

— Formula in SGML;

— Condition;

— DET classification;

— Code for unit.

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Besides the attributes of properties defined in the common dictionary model, the following properties are added for the ease of database management:

— Not null constraint;

— Classification label for property.

Detailed specification of each meta-property of the parcel is summarized in Annex E.

5.9.4.5. Meta-properties of supplier meta-class

Supplier parcel defines the following list of attributes of ISO 13584 as the (meta-) properties of a (meta-) class defining a supplier parcel:

— Supplier code;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Organization id;

— Organization name;

— Organization description;

— Internal location;

— Street number;

— Street;

— Postal box;

— Town;

— Region;

— Postal code;

— Country;

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— Facsimile number;

— Telephone number;

— E-mail;

— Telex number.

Detailed specification of each meta-property of the parcel is summarized in Annex E.

5.9.4.6. Meta-properties of enumeration meta-class

Enumeration parcel defines the following list of attributes of IEC 61360 or ISO 13584 as the (meta-)properties of a (meta-)class defining a enumeration parcel:

— Enumeration code list;

— Source document of value.

In addition to the attributes defined in IEC 61360 or ISO 13584, the following attribute is additionally defined

— Code;

— Enumeration code list for presentation;

— Version number;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

— Synonymous name;

— Short name.<lang>;

— Name icon;

— Definition;

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— Note;

— Remark;

— Definition class.

The enumeration meta-class is mandatory, if an enumeration type is used in property meta-class.

Detailed specification of each meta-property of the parcel is summarized in the Annex E.

5.9.4.7. Meta-properties of data-type meta-class

Data-type parcel defines the following list of attributes of ISO 13584 as the (meta-) properties of a (meta-)class defining a data-type parcel:

— Code;

— Version number ;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

— Synonymous name;

— Short name.<lang>;

— Name icon;

— Definition class;

— Unit structure;

— Unit in text representation;

— Unit in SGML representation;

— Value format;

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— Code for unit.

Detailed specification of each meta-property of the parcel is summarized in the Annex E.

5.9.4.8. Meta-properties of document meta-class

Document parcel defines the following list of attributes of ISO 13584 as the (meta-) properties of a (meta-)class defining a document parcel:

— Code;

— Version number;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

— Synonymous name;

— Short name.<lang>;

— Name icon;

— Definition.<lang>;

— Remark.<lang>;

— Definition class;

— Document organization id;

— Document organization name;

— Document organization description;

— Remote location.<lang>;

— Character encoding.<lang>;

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— Main content file.<lang>;

— Main content encoding.<lang>;

— Main content mime.<lang>;

— Main content exchange format.<lang>;

— Main content format RFC.<lang>;

— Main content http file name.<lang>.

Detailed specification of each meta-property of the parcel is summarized in Annex E.

5.9.4.9. Meta-properties of object meta-class

When the object meta-class is provided, the following set of (meta-)properties shall be present in the meta-class to appropriately model the attributes characterizing each row of data instance in the data sections of dictionary and library parcels.

— Data object identifier ;

— Time stamp.

Detailed specification of each meta-property of the parcel is summarized in Annex F.

5.9.4.10. Meta-properties of UoM meta-class

When a UoM meta-class is provided, at least the following set of (meta-)properties shall be present in the meta-class to appropriately model the attributes concerning the unit of measurement of an object property:

— Code;

— Version number;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

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— Synonymous name;

— Short name.<lang>;

— Name icon;

— Definition.<lang>;

— Source document of definition;

— Note.<lang>;

— Remark.<lang>;

— Definition class;

— Unit structure;

— Unit in text representation;

— Unit in SGML representation.

Detailed specification of each meta-property of the parcel is summarized in Annex F.

5.9.4.11. Meta-properties of terminology meta-class

When a terminology meta-class is provided, the following set of (meta-) properties shall be present in the meta-class to appropriately model the specific terms that are used in a dictionary:

— Code;

— Version number;

— Revision number;

— Date of original definition;

— Date of current version;

— Date of current revision;

— Preferred name.<lang>;

— Synonymous name;

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— Short name.<lang>;

— Definition.<lang>;

— Source document of definition;

— Note.<lang>;

— Remark.<lang>;

— Definition class;

— Preferred letter symbol in text;

— Preferred letter symbol in SGML.

The aim of this structure is not to design a terminology exchange format but to provide a means to define terms used in a dictionary.

The terminology meta-class is mandatory, if the enumeration meta-class is present in conjunctive parcels.

Terms resemble properties, however differ in that they do not have instance values, but the terms themselves appear as instances in many places in a dictionary or in a document for similar objective.

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6 Mechanism for structural extension

6.1 General

The spreadsheet structure defined in this part of ISO 13584 has an intrinsic capability to add an extension to the standard data structure, known as the common dictionary schema

An implementer of this part of ISO 13584 may add a local instruction, or an attribute field to property, starting with a sharp letter "#" provided it is not followed by an "#" and it does not conflict with the reserved keywords standardized in this part of ISO 13584.
Such additional keywords and the data entries corresponding to the keywords in the same line shall be interpreted as comments by other systems conforming to this part of ISO 13584. When a local extension is included, it shall be clearly marked in the conformance class identifier.

6.2 Example

When it is necessary to specify the name of a relational database into which a library data shall be inserted, user may extend the format of standard library parcelling sheet by adding a customized instruction such as "#TARGET_TBL" or "#CONTENT_ID" to specify the name of a target relational table, such as "#TARGET_TBL := flash_memory001" or "#CONTENT_ID := motor001". Since any line starting with a "#" that does not conflict with keywords shall be understood as a comment line, other systems having the spreadsheet interface compliant with the specification of this part of ISO 13584 shall process the line as a comment and it shall not cause any problem to those systems. In this case, however, the conformance class for the spreadsheet shall be set to an appropriate integer value, such as two (2), with the following instruction; "#PARCEL_CC:=2", in order to allow the receiving system to check if any extension might conflict with its own local extension.

7 Conformance classes for parcelling spreadsheet

The spreadsheet interface defined in this part of ISO 13584 may define a spreadsheet structure used either for library data exchange or for dictionary data exchange. When it is used for library data exchange, the presumed conformance class for library exchange in ISO 13584-25 corresponds to the conformance class CC 11 with an extension that the class_extension entity is used for storing an ordered set of instances, instead of dic_class_instance.

When it is used for dictionary data exchange or definition, the expected conformance class for dictionary exchange in ISO 13584-25 is the conformance class (CC) 4. This corresponds to the conformance class (CC) 5 of this part of ISO 13584.

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The level of conformance class in accordance with this part of ISO 13584 shall be specified as the parcel conformance class, noted after the keyword “#PARCEL_CC”, in the header section.

The spreadsheet structure defined in this part of ISO 13584 has in total the following conformance classes (noted as CC in the table) summarized in Table 4.

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Table 4 — Conformance classes for ISO 13584-35

CC	Use of format	Local extension	Usage of conformance class (CC)
1	library	none	Use for ISO 13584 library, with no local attribute added to the standard data structure
2	library	yes	Use for ISO 13584 library, with some attributes added as a local extension to the standard data structure
3	library	none	Use for other than ISO 13584 standard with no local attribute added to the standard data structure
4	library	yes	Use for other than ISO 13584 standard with some attributes added as a local extension to the standard data structure
5	dictionary	none	Use for IEC 61360 or ISO 13584 dictionary, with no local attributes added to the standard data structure
6	dictionary	yes	Use for IEC 61360 or ISO 13584 dictionary, with some attributes added as a local extension to the standard data structure
7	dictionary	none	Use for other than IEC 61360 or ISO 13584 dictionary with no local attribute added to the standard data structure
8	dictionary	yes	Use for other than IEC 61360 or ISO 13584 dictionary with some attributes added as a local extension to the standard data structure
9	meta-dictionary	N/A	Use for defining an ISO 13584-35 dictionary
10	meta-dictionary	N/A	Use for defining a standard other than ISO 13584-35 dictionary

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Annex A
(normative)
Information object registration

A.1 Document identification

In order to provide for unambiguous identification of an information object in an open system, the object identifier;

{ iso standard 13584 part (35) version (1) }

is assigned to this part of ISO 13584. The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 13584-1.

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Annex B
(normative)
Meta-dictionary file

A physical file that contains the latest release of the meta-dictionary shall be available at the following address.

http://sp.tc184-sc4.org/SC4Projects/WG2/Shared%20Documents/Parts/ISO%2013584-035/

The above addresses may also contain associated human-readable documents that explain class and property definitions of the latest formal release of the dictionary.

The files from the above address shall be available after this part of ISO 13584 becomes an ISO-TS.

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Annex C
(normative)
Reserved words

The reserved words for parcels defined in this part of ISO 13584 are listed in the following.

Table C.1 — Key words for instruction in class header

Keywords	Category	Simplified description
#CLASS_ID	mandatory	Globally unique identifier of the class which is characterized by the properties described in the same parcel, and to which the instance data contained in the parcel belong
#ALTERNATE_ CLASS_ID	optional – informative	Alternate class identifier of the class specified by the #CLASS_ID noted in the same parcel. This may be used for mapping with an external system, and the information may provided by a user or by an ISO 13584-35 compliant system, and any change of the information by a user shall not affect the behaviour of the system. However, the external system that processes this ID may be affected by the change of this information.
#CLASS_NAME.<lang>	optional – informative	Preferred name of the class specified by the class ID in the language optionally designated by <lang> information
#CLASS_DEFINITION. <lang>	optional – informative	Textual definition in the language specified by <lang> of the class designated by the class ID in the instruction column
#CLASS_NOTE.<lang>	optional – informative	Statement that provides additional information about the definition of the class that is essential for the understanding of the definition of the class specified by the class ID described in the same parcel.
#SOURCE_ LANGUAGE	optional – informative	Information about the SOURCE_LANGUAGE specified in the dictionary. The information is provided by an ISO 13584-35compliant system, and any change of the information by user shall not affect the behaviour of the system.

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Table C.1 — Key words for instruction in class header (continued)

Keywords	Category	Simplified description
#PARCEL_ID	optional – functional	Designation of the conjunctive parcels, i.e., the parcels which describe a dictionary in part in the same unit of exchange, where the PARCEL_ID may include neither comma nor double quotation mark. Conjunctive parcels are required to have the same alphanumeric letter sequence for the identifier. When this ID is omitted for dictionary parcelling, the other parcels processed together shall be construed as conjunctive parcels.
#PARCEL_CC	optional – functional	Designation of the conformance class, defined in the ISO 13584-35, with respect to the data contained in the parcel sheet. When there is a local extension, the PARCEL_CC shall be clearly marked for such an extension.
#DEFAULT_SUPPLIER	optional – functional	Prefix to be added to the shorthand notations of the class ID and the property ID , with an aim to make a full identifier sequence for each of them.
#DEFAULT_ID_ENCODE	optional – functional	specification of the global encoding method used in the parcel to display data element identification

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Table C.2 — Key words for instruction in schema header

Keywords	Category	Simplified description
#PROPERTY_ID	mandatory	Globally unique identifier of the property based on ISO 6023 referenced for the definition of instances in the data section of the same parcel
# ALTERNATE_ID	optional - informative	This line provides information about the alternate ID of the properties listed in the # PROPETY_ID line. In brief, the instruction is reserved for mapping purpose with external systems. The IDs may be defined in another standard, or used locally within a system, whose property values are assignable to the properties listed in the #PROPETY_ID line. The information may be provided by an external system, and any change of the information by user shall not affect the behaviour of the ISO 13584-35 compliant systems. However, change of information may affect the behaviour of the external systems that process the parcel with ALTERNATE_IDs.
#PROPERTY_NAME.<lang>	optional - informative	Preferred name of the property specified by the property ID in the language optionally designated by the <lang> information
#DEFINITION.<lang>	optional - informative	This line provides information about the definition of the properties specified by the property IDs listed in the #PROPERTY_ID line. The information is provided by an ISO 13584-35 compliant system, and any change of the information by user shall not affect the behaviour of the system. If necessary, the language for the definition may be specified using ISO 639, by supplementing the <lang> field.
#NOTE.<lang>	optional - informative	Statement that provides additional information about the definition that is essential for the understanding of the latter

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Table C.2 — Key words for instruction in schema header (continued)

Keywords	Category	Simplified description
#DATATYPE	optional - informative	This line provides information about the data type of the property specified by the property ID in the #PROPERTY_ID line. The information is provided by an ISO 13584-35 compliant system, and any change of the information by user shall not affect the behaviour of the system.
#VALUE_FORMAT	optional - informative	Value format of the property value specified by the property ID.
#REQUIREMENT	optional - functional	The reserved word "key" in the line designates the key properties corresponding to the property IDs in the #PROPERTY_ID line.
#UNIT	optional - informative	Information about the unit of measurement of the property specified by the property ID.
#UNIT_ID	optional - informative	Identifier to uniquely reference the unit of measurement (UoM) used in a property, being specified by a UoM_ID listed in the #UNIT_ID line, noted in the same column as the property ID in a parcel.
#ALTERNATIVE_UNITS	optional – informative	information about other units of measurement by their names, that may be used for the property specified by the property ID
#ALTERNATIVE_UNIT_IDS	optional – informative	IDs of other units of measurement that may be used for the property specified by the property ID
#ID_ENCODE	optional – informative	Information about the encoding method of each property identifier

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Annex D
(normative)
Description examples of data types

Table D. 1 — Description examples of data types

Description in ISO 13584-25/ISO 13584-42	Description in ISO 13584-35
STRING_TYPE	STRING_TYPE
TRANSLATABLE_STRING_TYPE	TRANSLATABLE_STRING_TYPE
BOOLEAN_TYPE	BOOLEAN_TYPE
NUMBER_TYPE	NUMBER_TYPE
INT_TYPE	INT_TYPE
INT_MEASURE_TYPE	INT_MEASURE_TYPE
INT_CURRENCY_TYPE	INT_CURRENCY_TYPE
REAL_TYPE	REAL_TYPE
REAL_MEASURE_TYPE	REAL_MEASURE_TYPE
REAL_CURRENCY_TYPE	REAL_CURRENCY_TYPE
NON_QUANTITATIVE_CODE_TYPE	ENUM_CODE_TYPE(*enum_id*), *or* ENUM_TYPE(*enum_id(code1, code2, ...)*)
NON_QUANTITATIVE_INT_TYPE	ENUM_INT_TYPE (*enum_id(code1,code2, ...)*), *or* ENUM_INT_TYPE(*enum_id(code1, code2, ...)*)
LEVEL_TYPE	LEVEL(MIN,NOM,TYP,MAX)
CLASS_INSTANCE_TYPE (CLASS_REFERENCE_TYPE)	CLASS_INSTANCE_TYPE(*supplier_id.class_id*), *or* CLASS_REFERENCE_TYPE(*supplier_id.class_id*)
SET_TYPE	SET(*b1*, *b2*)
LIST_TYPE – uniqueness TRUE	UNIQUE_LIST(*b1*, *b2*)
LIST_TYPE – uniqueness FALSE	LIST(b*1*, *b2*)
ARRAY_TYPE – uniqueness TRUE – optional TRUE	UNIQUE_OPTIONAL_ARRAY(*b1*, *b2*)
ARRAY_TYPE – uniqueness TRUE – optional FALSE	UNIQUE_ARRAY(*b1*, *b2*)
ARRAY_TYPE – uniqueness FALSE – optional TRUE	OPTIONAL_ARRAY(*b1*, *b2*)
ARRAY_TYPE – uniqueness FALSE – optional FALSE	ARRAY(*b1*, *b2*)
BAG_TYPE	BAG(*b1*, *b2*)
SET_WITH_SUBSET_CONSTRAINT_VALUE	CONSTRAINED_SET(*b1*, *b2*, *cmn*, *cmx*)
NAMED_TYPE	NAMED_TYPE(*supplier_id.class_id.data_type_id*)

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Table D. 1 — Description examples of data types (concluded)

Description in ISO 13584-25/ISO 13584-42	Description in ISO 13584-35
AXIS1_PLACEMENT_TYPE	AXIS1_PLACEMENT
AXIS2_PLACEMENT_2D_TYPE	AXIS2_PLACEMENT_2D
AXIS2_PLACEMENT_3D_TYPE	AXIS2_PLACEMENT_3D

NOTE1 b1 is the value of attribute "bound_1" and b2 is the value of attribute "bound_2" of aggregate_type.

NOTE2 cmn is the value of attribute "cardinal_min" and cmx is the value of attribute "cardinal_max"

NOTE3 enum_id is a global ID for the enumeration list.

NOTE4 code1, code2, are value_codes of dic_value. They may appear in header section as for informative purpose.

NOTE5 If the data type is a complex type, then it connects to a simple type by using the keyword "OF".

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Annex E
(normative)
Meta-properties of normative meta-classes

The following tables summarize the meta-properties of normative meta-classes, of which meta-classes for dictionary, supplier, class, and property are mandatory. Namely, they shall all exist when a dictionary is exchanged based on the dictionary parcel format. For an updated and complete listing of meta-properties in a form of parcelling sheet, it is recommended that the readers reference the URL listed in Annex B.

Most of the properties of meta-classes are expressed using STRING type, thus wherever possible and necessary the length of the characters are indicated by value format (MDC_P024). For example, “M..0” signifies a string of any length while “M..14” signifies that the length of the string must be within 14 characters.

In case that the language used for the representation of a property needs to be specified using a “<lang>” extension, the extension shall be substituted by a two-letter ISO 639 code.

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Table E.1 — Meta-properties of dictionary meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_ P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_1	KEY	Dictionary code	globally unique identifier of the dictionary	The value must be described according to ICID	STRING_TYPE	M..255	dictionary. identified_by. code
MDC_ P002_1	OPT	Version number	version of an item that is updated when the update should influence the range of instances	The version shall be identical to VI element of the ICID described in the code.	STRING_TYPE	M..10	dictionary. identified_by. version
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances	STRING_TYPE	M..3	dictionary. identified_by. revision
MDC_ P004_1. <lang>	MAND	Preferred name	name of an item (in full length whenever possible) used for communication and understanding		TRANSLATABLE_ STRING_TYPE	M..255	dictionary. names. preferred_name

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Table E.1 — Meta-properties of dictionary meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P004_2	OPT	Synonymous name	synonyms to the preferred name provided to facilitate transition from the names used for local or historical reasons	The first element of the list describes a synonymous name and the second one describes its language code in ISO 639.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..255	dictionary. names. synonymous_ names
MDC_ P004_3	OPT	Short name	short name of an item for representation in a limited space		TRANSLATABLE_ STRING_TYPE	M..30	dictionary. names. short_name
MDC_ P004_4	OPT	Name icon	optional icon which graphically represents the description associated with a name	The value shall be described by an ICID of document. In some cases, supplier may be omitted.	STRING_TYPE	M..120	dictionary. names.icon\ referenced_ graphics. graphics_ reference

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Table E.1 — Meta-properties of dictionary meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P007_1. <lang>	OPT	Note	further information on any part of the terminological record, that is essential to the understanding of that record		TRANSLATABLE_ STRING_TYPE	M..0	dictionary.note
MDC_ P007_2. <lang>	OPT	Remark	explanatory text to further clarify the meaning of the usage of the item		TRANSLATABLE_ STRING_TYPE	M..0	dictionary. remark
MDC_ P012	OPT	Supplier	supplier defining this item	The value shall be supplier code.	STRING_TYPE	M..70	dictionary. identified_by. defined_by
MDC_ P071	OPT	LIIM source_docum ent_identifier	identifier of the document that contains the data specification		STRING_TYPE	M..0	dictionary. library_ structure. source_ document_ identifier

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Table E.1 — Meta-properties of dictionary meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P072	MAND	LIIM status	classification of the data specification with respect to its acceptance by the approving body of ISO 13584, possibly followed by an integer version and it may take the values: 'WD', 'CD', 'DIS', 'FDIS', 'IS', 'TS', 'PAS', 'ITA'		STRING_TYPE	M..0	dictionary. library_ structure.status
MDC_ P073	MAND	LIIM name	identifier of the data specification as defined in the corresponding part of ISO 13584		STRING_TYPE	M..0	dictionary. library_ structure.name
MDC_ P074	MAND	LIIM date	year when the corresponding part of ISO 13584 reached its status		INT_TYPE	NR1..4	dictionary. library_ structure.date

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Table E.1 — Meta-properties of dictionary meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007. EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirem ent**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P075	OPT	LIIM application	identifier possibly defined in the corresponding part of ISO 13584 to characterise an allowed functional subset of the complete data specification		STRING_TYPE	M..0	dictionary. library_structure. application
MDC_ P076	MAND	LIIM level	identifier possibly defined in the corresponding part of ISO 13584-24 that further characterises an allowed subset of the application subset		STRING_TYPE	M..0	dictionary. library_structure. level
MDC_ P080	OPT	Global language	language when the dictionary is defined only in one language	It requires language code defined in ISO 639.	STRING_TYPE	M..3	global_language_ assignment. language

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Table E.1 — Meta-properties of dictionary meta-class (concluded)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P081	MAND	Source language	source language when the dictionary is defined in plural languages	It requires language code defined in ISO 639.	STRING_TYPE	M..3	Currently not mapped. It will be mapped in the future edition of IEC 61360-2 or ISO 13584-42.

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Table E.2 — Meta-properties of class meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_5	KEY	Code	globally unique identifier of class in a reference dictionary	The value must be described according to ICID.	STRING_TYPE	M..255	class_bsu.code
MDC_ P002_1	OPT	Version number	version of an item that is updated when the update should influence the range of instances	The version shall be identical to VI element of the ICID described in the code.	STRING_TYPE	M..10	class_bsu.version
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances.	STRING_TYPE	M..3	item_class. revision
MDC_ P003_1	MAND	Date of original definition	date when an item was defined by its library data supplier and thus when it was declared as valid by this supplier	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	item_class. time_stamps. date_of_original_ definition

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P003_2	MAND	Date of current version	date when the current version was defined	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	item_class. time_stamps. date_of_current_ version
MDC_ P003_3	OPT	Date of current revision	date of the last revision number change	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	item_class. time_stamps. date_of_current_ revision
MDC_ P004_1. <lang>	MAND	Preferred name	name of an item (in full length whenever possible) used for communication and understanding		TRANSLATABLE_ STRING_TYPE	M..255	item_class.names. preferred_name
MDC_ P004_2	OPT	Synonymous name	synonyms to the preferred name provided to facilitate transition from the names used for local or historical reasons	The first element of the list describes a synonymous name and the second one describes its language code in ISO 639.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..255	item_class.names. synonymous_ names

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P004_3. <lang>	OPT	Short name	name of an item for representation in a limited space		TRANSLATABLE_ STRING_TYPE	M..30	item_class.names. short_name
MDC_ P004_4	OPT	Name icon	optional icon which graphically represents the description associated with a name	The value shall be described by an ICID of document. In some cases, supplier code may be omitted.	STRING_TYPE	M..120	item_class.names. icon. graphics_ reference
MDC_ P005. <lang>	MAND	Definition	description of the meaning of an item		TRANSLATABLE_ STRING_TYPE	M..0	item_class. definition
MDC_ P006_1	OPT	Source document of definition	reference to the source document from which the item definition was derived		STRING_TYPE	M..80	item_class. source_doc_of_ definition. document_ identifier

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P007_1. <lang>	OPT	Note	further information on any part of the terminological record, that is essential to the understanding of that record		TRANSLATABLE_ STRING_TYPE	M..0	item_class. note
MDC_ P007_2. <lang>	OPT	Remark	explanatory text to further clarify the meaning of the usage of the item		TRANSLATABLE_ STRING_TYPE	M..0	item_class. remark
MDC_ P008_1	OPT	Simplified drawing	code of a document file that contains the image of the class to provide a visualisation	The value shall be described by an ICID of document. In some cases, supplier code may be omitted.	STRING_TYPE	M..120	item_class. simplified_ drawing. graphics_ reference

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P010	OPT [a]	Superclass	class that is designated as the canonical parent class of the present class	The value shall be described by an ICID of class. In some cases, supplier code may be omitted.	STRING_TYPE	M..0	item_class. its_superclass
MDC_ P011	MAND	Class type	type of class	Possible value shall be either “ITEM_CLASS”, “COMPONENT_CLSS”, “MATERIAL_CLASS”, “FEATURE_CLASS”, “ITEM_CLASS_CASE_ OF”, “COMPONENT_CLASS_ CASE_OF”, “MATERIAL_CLASS_ CASE_OF”, or “FEATURE_CLASS_ CASE_OF”.	STRING_TYPE	M..0	TYPEOF (class)
MDC_ P012	OPT	Supplier	supplier defining this item	The value shall be supplier code.	STRING_TYPE	M..70	class_bsu. defined_by

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P013	OPTb	Is case of	set of referred classes from which some properties, types, and/or documents are imported	The element of the set shall be described by an ICID of class. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..0	item_class_ case_of. is_case_of
MDC_ P014	OPT	Applicable properties	properties that are newly specified as applicable for this class and for any of its sub-classes	The element of the set shall be described by an ICID of property. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class. described_by
MDC_ P015	OPT	Applicable types	types that are newly specified as applicable for this class and for any of its sub-classes	The element of the set shall be described by an ICID of data type. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class. defined_types
MDC_ P094	OPT	Applicable documents	documents that are newly specified as applicable for this class and for any of its sub-classes	The element of the set shall be described by an ICID of document. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	class_ document_ relationship. related_tokens

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P016	OPT	Sub-class selection properties	set of class valued properties which shall be assigned a value	The element of the set shall be described by an ICID of property. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class. sub_class_ properties
MDC_ P017	OPT	Class value assignment	set of combinations of a class valued property specified as Sub-class Selection and its assigned value in this class	The first element of the list describes an ICID of property and the second element describes its value code.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..120	item_class. class_ constant_ values
MDC_ P090	OPT	Imported properties	set of properties that are imported from the other class	The element of the set shall be described by an ICID of property. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class_ case_of. imported_ properties
MDC_ P091	OPT	Imported types	set of types that are imported from the other class	The element of the set shall be described by an ICID of data type. If default supplier is defined, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class_ case_of. imported_ types

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirem ent**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P017	OPT	Class value assignment	set of combinations of a class valued property specified as Sub-class Selection and its assigned value in this class	The first element of the list describes an ICID of property and the second element describes its value code.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..120	item_class. class_constant_ values
MDC_ P090	OPT	Imported properties	set of properties that are imported from the other class	The element of the set shall be described by an ICID of property. In some cases, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class_ case_of. imported_ properties
MDC_ P091	OPT	Imported types	set of types that are imported from the other class	The element of the set shall be described by an ICID of data type. If default supplier is defined, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class_ case_of. imported_types

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Table E.2 — Meta-properties of class meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require-ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P093	OPT	Imported documents	set of documents that are imported from the other class	The element of the set shall be described by an ICID of document. If default supplier is defined, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	item_class_ case_of. imported_ documents
MDC_ P018	OPT	Coded name	value domain of the Classifying DET of the superclass		STRING_TYPE	M..18	item_class. coded_name
MDC_ P096	OPT	Property classification	labelling of properties of a class by an integer value, originally designed to give a security index to each property	First element of the list stores property code, and the second element stores an integer value, and the last element stores the name or meaning of the index value, which is an extension of ISO 13584-24/ISO 13 584-25.	SET(0,?) OF LIST(3..3) OF STRING_TYPE	M..0	Property_classfi cation.classifica tion_value

a If it does not exist, the class has no superclass.

B The Mandatory if “MDC_P011 Class type” is XXX_CASE_OF.

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Table E.2 — Meta-properties of class meta-class (concluded)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require-ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P097	MAND	Requisity of properties	Requiredness of each property and its value	Represented as a list of ICID of the property and its requisity value. Possible value for each is one of “KEY”,”MAND”,“NOT NULL” “OPT” or “”, that is. Null. When the value is not specified it must be taken as “OPT”. Mandatory means the presence of property is required, but the property value might be null or unspecified (blank).	SET[0,?] OF LIS[2,2] OF STRING_TYPE	M..0	Not mapped
MDC_ P098	OPT	Identification method for parcel	method of global identification for identifiers in the parcel	This is to record the global identification method used for identifiers in the parcel, including data section.	STRING_TYPE	M..0	Not mapped

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Table E.3— Meta-properties of property meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirem ent**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_6	KEY	Code	globally unique identifier of property in a reference dictionary	The value must be described according to ICID.	STRING_TYPE	M..255	property_bsu. code
MDC_ P002_1	OPT	Version number	version of an item that is updated when the update should influence the range of instances	The version shall be identical to VI element of the ICID described in the code.	STRING_TYPE	M..10	property_bsu. version
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances	STRING_TYPE	M..3	property_det. revision
MDC_ P003_1	MAND	Date of original definition	date when an item was defined by its library data supplier and thus when it was declared as valid by this supplier	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	property_det. time_stamps. date_of_ original_ definition

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007. EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirem ent**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P003_2	MAND	Date of current version	date when the current version was defined	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	property_det. time_stamps. date_of_current_ version
MDC_ P003_3	OPT	Date of current revision	date of the last revision number change	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	property_det. time_stamps. date_of_current_ revision
MDC_ P004_1. <lang>	MAND	Preferred name	name of an item (in full length whenever possible) used for communication and understanding		TRANSLATABLE_ STRING_TYPE	M..255	property_det. names. preferred_name
MDC_ P004_2	OPT	Synonymou s name	synonyms to the preferred name provided to facilitate transition from the names used for local or historical reasons	The first element of the list describes a synonymous name and the second one describes its language code in ISO 639.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..255	property_det. names. synonymous_ names

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007. EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirem ent**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P004_3. <lang>	OPT	Short name	short name of an item for representation in a limited space		TRANSLATABLE_ STRING_TYPE	M..30	property_det. names. short_name
MDC_ P004_4	OPT	Name icon	optional icon which graphically represents the description associated with a name	The value shall be described by an ICID of document. If default supplier is defined, supplier code may be omitted.	STRING_TYPE	M..120	property_det. names.icon. graphics_ reference
MDC_ P005. <lang>	MAND	Definition	description of the meaning of an item		TRANSLATABLE_ STRING_TYPE	M..0	property_det. definition
MDC_ P006_1	OPT	Source document of definition	reference to the source document from which the item definition was derived		STRING_TYPE	M..80	property_det. source_doc_of_ definition. document_ identifier

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007. EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirem ent**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_P00 7_1. <lang>	OPT	Note	further information on any part of the terminological record, that is essential to the understanding of that record		TRANSLATABLE_ STRING_TYPE	M..0	property_det. note
MDC_P00 7_2. <lang>	OPT	Remark	explanatory text to further clarify the meaning of the usage of the item		TRANSLATABLE_ STRING_TYPE	M..0	property_det.re mark
MDC_P00 8_2	OPT	Graphics	code of a document file that contains the image of the property to provide a visualisation	The value shall be described by an ICID of document. If default supplier is defined, supplier code may be omitted.	STRING_TYPE	M..120	property_det.fig ure\referenced_ graphics.graphi cs_reference

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P020	MAND	Property data element type	type of property	Possible values shall be either "NON_DEPENDENT_ P_DET", "DEPENDENT_P_ DET" or "CONDITION_DET".	STRING_TYPE	M..0	TYPEOF(property_det)
MDC_ P021	KEY	Definition class	class in which the item is defined	The value shall be described by an ICID of class. If default supplier is defined, supplier code may be omitted.	STRING_TYPE	M..0	property_bsu. name_scope
MDC_ P022	MAND	Data type	data type of the property	See Table D. 1 in Annex D.	STRING_TYPE	M..0	property_det. domain
MDC_ P023	OPT [a]	Unit structure	unit in which the value of a quantitative property is expressed in structural decomposition		STRING_TYPE	M..0	property_det. domain. unit.structured_ representation

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P023_1	OPT [b]	Unit in text	unit in which the value of a quantitative property is expressed in text representation		STRING_TYPE	M..0	property_det. domain.unit. string_ representation. text_ representation
MDC_ P023_2	OPT	Unit in SGML	unit in which the value of a quantitative property is expressed in SGML representation		STRING_TYPE	M..0	property_det. domain.unit. string_ representation. sgml_ representation
MDC_ P024	OPT	Value format	specification of the type and length of the representation of the value of a property intended as a maximum value format for communication and database storage	The value format shall be conformant to ISO 9735 and ISO 6093.	STRING_TYPE	M..80	property_det. domain. value_format

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_P025_1	OPT [c]	Preferred letter symbol in text	shorter name of the property in text representation		STRING_TYPE	M..0	property_det. preferred_ symbol.text_ representation
MDC_P025_2	OPT	Preferred letter symbol in SGML	shorter name of the property in SGML representation		STRING_TYPE	M..0	property_det. preferred_ symbol.sgml_ representation
MDC_ P025_3	OPT	Synonymous letter symbols	set of combinations of the synonymous name and its SGML representation	The first element of the list describes the synonymous letter symbol in text and the second element describes the synonymous letter symbol in SGML.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..0	property_det. synonymous_ symbols
MDC_ P027_1	OPT [d]	Formula in text	rule or statement in mathematical form expressing semantics of a quantitative property described in text representation		STRING_TYPE	M..0	property_det. formula.text_ representation

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Table E.3— Meta-properties of property meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P027_2	OPT	Formula in SGML	rule or statement in mathematical form expressing semantics of a quantitative property described in SGML representation		STRING_TYPE	M..0	property_det. formula.sgml_ representation
MDC_ P028	OPT [e]	Condition	set of context parameters on which a context dependent characteristic depends	The element of the set shall be described by an ICID of property. If default supplier is defined, supplier code may be omitted.	SET(0,?) OF STRING_TYPE	M..120	dependent_p_ det.depends_on
MDC_ P040	OPT	DET classification	indexing of properties according to ISO31	This attribute is only used in IEC. Note that ISO 31 itself does not carry the index.	STRING_TYPE	M..3	property_det. det_ classification

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Table E.3— Meta-properties of property meta-class (concluded)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P041	OPT	Code for unit	reference by global ID to a UoM defined in the UoM meta class or elsewhere		STRING_TYPE	M..120	Currently not mapped
MDC_ P042	OPT	Codes for alternative units	reference by global IDs to alternative UoMs defined in the UoM meta class or elsewhere		SET (0,?) OF STRING_TYPE	M..0	Currently not mapped

[a] Mandatory for quantitative data.

[b] Mandatory if "MDC_P023_2 Unit in SGML" has a value.

[c] Mandatory if "MDC_P025_2 Preferred letter symbol in SGML" has a value.

[d] Mandatory if "MDC_P027_2 Formula in SGML " has a value.

[e] Mandatory for context dependent characteristics.

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Table E.4 — Meta-properties of supplier meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_2	KEY	Supplier code	globally unique identifier of information supplier in a reference dictionary and its ICID, based on ISO/IEC 6523	The value shall be described by supplier code. In case of supplier_BSU, defined in ISO 13584-26:2000/Amd 1:2007, it is up to 70 characters.	STRING_TYPE	M..0	In case it is mapped to BSU, then, it must be mapped to the following: supplier_bsu.code
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances	STRING_TYPE	M..3	supplier_ element. revision
MDC_ P003_1	MAND	Date of original definition	date when an item was defined by its library data supplier and thus when it was declared as valid by this supplier	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	supplier_ element.time_ stamps.date_of_ original_ definition

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Table E.4 — Meta-properties of supplier meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P003_2	MAND	Date of current version	date when the current version was defined	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	supplier_ element.time_ stamps.date_of_ current_version
MDC_ P003_3	OPT	Date of current revision	date of the last revision number change	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	supplier_ element.time_ stamps.date_of_ current_revision
MDC_ P050_1	OPT	Organization id	identifier that distinguishes the organization of the supplier		STRING_TYPE	M..0	supplier_ element.org.id
MDC_ P050_2	MAND	Organization name	label by which the organization of the supplier is known		STRING_TYPE	M..0	supplier_ element.org. name
MDC_ P050_3	OPT	Organization description	text that characterizes the organization of the supplier		STRING_TYPE	M..0	supplier_ element.org. description

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Table E.4 — Meta-properties of supplier meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P051_1	OPT [a]	Internal location	organization-defined address for internal mail delivery		STRING_TYPE	M..0	supplier_ element.addr. internal_ location
MDC_ P051_2	OPT [a]	Street number	number of a location on a street		STRING_TYPE	M..0	supplier_ element.addr. street_number
MDC_ P051_3	OPT [a]	Street	name of a street		STRING_TYPE	M..0	supplier_ element.addr. street
MDC_ P051_4	OPT [a]	Postal box	number of a postal box		STRING_TYPE	M..0	supplier_ element.addr. postal_box
MDC_ P051_5	OPT [a]	Town	name of a town		STRING_TYPE	M..0	supplier_ element.addr. town
MDC_ P051_6	OPT [a]	Region	name of a region		STRING_TYPE	M..0	supplier_ element.addr. region
MDC_ P051_7	OPT [a]	Postal code	code that is used by the country's postal service		STRING_TYPE	M..0	supplier_ element.addr. postal_code

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Table E.4 — Meta-properties of supplier meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P051_8	OPT [a]	Country	name of a country		STRING_TYPE	M..0	supplier_element. addr.country
MDC_ P051_9	OPT [a]	Facsimile number	number at which facsimiles may be received		STRING_TYPE	M..0	supplier_element. addr.facsimile_ number
MDC_ P051_10	OPT [a]	Telephone number	number at which telephone calls may be received		STRING_TYPE	M..0	supplier_element. addr.telephone_ number
MDC_ P051_11	OPT [a]	E-mail	electronic address at which electronic mail may be received		STRING_TYPE	M..0	supplier_element. addr.electronic_ mail_address
MDC_ P051_12	OPT [a]	Telex number	number at which telex messages may be received		STRING_TYPE	M..0	supplier_element. addr.telex_ number

[a] At least one attribute of address is mandatory.

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Table E.5 — Meta-properties of enumeration meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_12	KEY	Code	globally unique identifier assigned to the list of enumerated values	Sequence of the identifier and the enumeration code, combined by a dot "Identifier.code" shall give the global identification for each enumerated value.	STRING_TYPE	M..255	Currently not mapped
MDC_ P043	MAND	Enumerated list of terms	list of terms to be used for resolution of the meaning of the values in enumeration code list	Unique identifiers of the terms defined in a terminology meta-class must be used for definition of the list.	LIST(1,?) OF STRING_TYPE	M..255	value_domain. terms value_domain. its_value. meaning
MDC_ P044	MAND	Enumeration code list	list of codes to be displayed among which one is selected and assigned as the value of the property	Number of codes in the list shall correspond to the number of terms in the enumerated list of terms.	LIST(1,?) OF STRING_TYPE	M..18	value_domain. its_value. value_ code

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Table E.5 — Meta-properties of enumeration meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P002_1	OPT	Version number	version of an item that is updated when the update should influence the range of instances	The version shall be identical to VI element of the ICID described in the code.	STRING_TYPE	M..10	Currently not mapped
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances	STRING_TYPE	M..3	Currently not mapped
MDC_ P003_1	MAND	Date of original definition	date when an item was defined by its library data supplier and thus when it was declared as valid by this supplier	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	Currently not mapped
MDC_ P003_2	MAND	Date of current version	date when the current version was defined	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	Currently not mapped

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Table E.5 — Meta-properties of enumeration meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P003_3	OPT	Date of current revision	date of the last revision number change	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	Currently not mapped
MDC_P0 04_1. <lang>	MAND	Preferred name	name of an item (in full length whenever possible) used for communication and understanding		TRANSLATABLE_ STRING_TYPE	M..255	Currently not mapped
MDC_ P004_2	OPT	Synonymous name	synonyms to the preferred name provided to facilitate transition from the names used for local or historical reasons	The first element of the list describes a synonymous name and the second one describes its language code in ISO 639.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..255	Currently not mapped
MDC_ P004_3. <lang>	OPT	Short name	short name of an item for representation in a limited space		TRANSLATABLE_ STRING_TYPE	M..30	Currently not mapped

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Table E.5 — Meta-properties of enumeration meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P004_4	OPT	Name icon	optional icon which graphically represents the description associated with a name		STRING_TYPE	M..120	Currently not mapped
MDC_ P005. <lang>	MAND	Definition	description of the meaning of an item		TRANSLATABLE_ STRING_TYPE	M..0	Currently not mapped
MDC_ P006_1	OPT	Source document of definition	reference to the source document from which the item definition was derived		STRING_TYPE	M..80	value_domain. source_doc_ of_value_ domain
MDC_ P007_1. <lang>	OPT	Note	further information on any part of the terminological record, that is essential to the understanding of that record		TRANSLATABLE_ STRING_TYPE	M..0	Currently not mapped

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Table E.5 — Meta-properties of enumeration meta-class (concluded)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P007_2. <lang>	OPT	Remark	explanatory text to further clarify the meaning of the usage of the item		TRANSLATABLE_ STRING_TYPE	M..0	Currently not mapped
MDC_ P021	KEY	Definition class	class in which the item is defined.	The value shall be described by an ICID of class.	STRING_TYPE	M..0	Currently not mapped

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Table E.6 — Meta-properties of datatype meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_7	KEY	Code	globally unique identifier of data_type in a reference dictionary	The value must be described according to ICID.	STRING_TYPE	M..255	data_type_bsu. code
MDC_ P002_1	KEY	Version number	version of an item that is updated when the update should influence the range of instances	The version shall be identical to VI element of the ICID described in the code.	STRING_TYPE	M..10	data_type_bsu. version
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances	STRING_TYPE	M..3	data_type_ element. revision
MDC_ P003_1	MAND	Date of original definition	date when an item was defined by its library data supplier and thus when it was declared as valid by this supplier	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	data_type_ element.time_ stamps.date_of_ original_ definition

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Table E.6 — Meta-properties of datatype meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P003_2	MAND	Date of current version	date when the current version was defined	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	data_type_ element.time_ stamps.date_of_ current_version
MDC_ P003_3	OPT	Date of current revision	date of the last revision number change	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	data_type_ element.time_ stamps.date_of_ current_revision
MDC_ P004_1. <lang>	MAND	Preferred name	name of an item (in full length whenever possible) used for communication and understanding		TRANSLATABLE_ STRING_TYPE	M..255	data_type_ element.names. preferred_name
MDC_ P004_2	OPT	Synonymous name	synonyms to the preferred name provided to facilitate transition from the names used for local or historical reasons	The first element of the list describes a synonymous name and the second one describes its language code in ISO 639.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..255	data_type_ element.names. synonymous_ names

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Table E.6 — Meta-properties of datatype meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P004_3. <lang>	OPT	Short name	short name of an item for representation in a limited space		TRANSLATABLE_ STRING_TYPE	M..30	data_type_ element.names. short_name
MDC_ P004_4	OPT	Name icon	optional icon which graphically represents the description associated with a name	The value shall be described by an ICID of document.	STRING_TYPE	M..120	data_type_ element.names. icon.graphics_ reference
MDC_ P021	KEY	Definition class	class in which the item is defined and meaningful	The value shall be described by an ICID of class.	STRING_TYPE	M..0	data_type_bsu. name_scope
MDC_ P022	MAND	Data type	data type of the property	List of data types is available from ISO 13584-35.	STRING_TYPE	M..0	data_type_ element.type_ definition
MDC_ P023	OPT	Unit structure	unit in which the value of a quantitative property is expressed in structural composition		STRING_TYPE	M..0	data_type_ element.type_ definition.unit. structured_ representation

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Table E.6 — Meta-properties of datatype meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P023_1	OPT	Unit in text	unit in which the value of a quantitative property is expressed in text representation		STRING_TYPE	M..0	data_type_element. type_definition. unit.string_ representation. text_representation
MDC_ P023_2	OPT	Unit in SGML	unit in which the value of a quantitative property is expressed in SGML representation		STRING_TYPE	M..0	data_type_element. type_definition. unit.string_ representation. sgml_representation
MDC_ P024	OPT	Value format	specification of the type and length of the representation of the value of a property intended as a maximum value format for communication and database storage	The value format shall be defined according to ISO 9735 and ISO 6093.	STRING_TYPE	M..80	data_type_element. type_definition. value_format

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Table E.6 — Meta-properties of datatype meta-class (concluded)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P041	OPT	Code for unit	reference to a UoM defined in the UoM sheet or in another standard	The value must be described according to ICID.	STRING_TYPE	M..120	Currently not mapped
[a] Mandatory for quantitative data. [b] Mandatory if "MDC_P023_2 Unit in SGML" has a value.							

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Table E.7 — Meta-properties of document meta-class

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P001_8	KEY	Code	globally unique identifier of document in a reference dictionary	The value must be described according to ICID.	STRING_TYPE	M..255	document_bsu. code
MDC_ P002_1	OPT	Version number	version of an item that is updated when the update should influence the range of instances	The version shall be identical to VI element of the ICID described in the code.	STRING_TYPE	M..10	document_bsu. version
MDC_ P002_2	MAND	Revision number	revision of the same version of an item	Revision shall not affect the ranges of instances	STRING_TYPE	M..3	document_element. revision
MDC_ P002_3	MAND	Content revision	revision that characterises the updating of the information of contents file		STRING_TYPE	M..3	document_content. revision

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Table E.7 — Meta-properties of document meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P003_1	MAND	Date of original definition	date when an item was defined by its library data supplier and thus when it was declared as valid by this supplier	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	document_element. time_stamps. date_ of_original_ definition
MDC_ P003_2	MAND	Date of current version	date when the current version was defined	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	document_element. time_stamps. date_of_current_ version
MDC_ P003_3	OPT	Date of current revision	date of the last revision number change	The value shall be in accordance with ISO 8601.	STRING_TYPE	M..10	document_element. time_stamps. date_of_current_ revision
MDC_ P004_1. <lang>	MAND	Preferred name	name of an item (in full length whenever possible) used for communication and understanding		TRANSLATABLE_ STRING_TYPE	M..255	document_element. names. preferred_name

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Table E.7 — Meta-properties of document meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P004_2	OPT	Synonymous name	synonyms to the preferred name provided to facilitate transition from the names used for local or historical reasons	The first element of the list describes a synonymous name and the second one describes its language code in ISO 639.	SET(0,?) OF LIST(2,2) OF STRING_TYPE	M..255	document_element. names. synonymous_ names
MDC_ P004_3. <lang>	OPT	Short name	short name of an item for representation in a limited space		TRANSLATABLE_ STRING_TYPE	M..30	document_element. names. short_name
MDC_ P004_4	OPT	Name icon	optional icon which graphically represents the description associated with a name	The value shall be described by an ICID of document.	STRING_TYPE	M..120	document_element. names.icon. graphics_reference
MDC_ P005. <lang>	MAND	Definition	description of the meaning of an item		TRANSLATABLE_ STRING_TYPE	M..0	document_element. definition

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Table E.7 — Meta-properties of document meta-class (continued)

MMDC_ P001	MMDC _ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Require ment**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P007_1. <lang>	OPT	Note	further information on any part of the terminological record, that is essential to the understanding of that record		TRANSLATABLE_ STRING_TYPE	M..0	document_element. note
MDC_ P007_2. <lang>	OPT	Remark	explanatory text to further clarify the meaning of the usage of the item		TRANSLATABLE_ STRING_TYPE	M..0	document_element. remark
MDC_ P021	KEY	Definition Class	class in which the item is defined	The value shall be described by an ICID of class.	STRING_TYPE	M..0	document_bsu. name_scope
MDC_ P061_1	OPT	Document organization ID	identifier that designates the organization of the document		STRING_TYPE	M..0	document_element. publishing_ organisation.id
MDC_ P061_2	MAND	Document organization name	label by which the organization of the document is known		STRING_TYPE	M..0	document_element. publishing_ organisation.name

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Table E.7 — Meta-properties of document meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P061_3	OPT	Document organization description	text that characterizes the organization of the document		STRING_TYPE	M..0	document_element. publishing_ organisation. description
MDC_ P062. <lang>	OPT	Remote location	absolute URL that specifies the document locator		TRANSLATABLE_ STRING_TYPE	M..0	document_element_ with_translated_http_ access.remote_ locations
MDC_ P064. <lang>	OPT	Character encoding	particular character encoding used in all the external file that contain characters		TRANSLATABLE_ STRING_TYPE	M..0	document_content. content.consists_of[i]. character_encoding
MDC_ P065_2. <lang>	OPT	Main content file	library external file		TRANSLATABLE_ STRING_TYPE	M..18	document_content. content. consists_of[i]. content_file[1].file
MDC_ P065_3. <lang>	OPT	Main content encoding	encoding transformation performed on the content of the library external file, if present		TRANSLATABLE_ STRING_TYPE	M..0	document_content. content. consists_of[i]. content_file[1]. content_encoding

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Table E.7 — Meta-properties of document meta-class (continued)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_ P065_4. <lang>	OPT	Main content mime	MIME type of the http file		TRANSLATABLE_ STRING_TYPE	M..0	document_content. content.consists_of[i]. content_file[1].mime
MDC_ P065_5. <lang>	OPT	Main content exchange format	MIME subtype of the http file		TRANSLATABLE_ STRING_TYPE	M..0	document_content. content.consists_of[i]. content_file[1]. exchange_format
MDC_ P065_6. <lang>	OPT	Main content format RFC	possible IAB RFC that defines the MIME subtype		TRANSLATABLE_ STRING_TYPE	N..4	document_content. content.consists_of[i]. content_file[1]. format_rfc
MDC_ P065_7. <lang>	OPT	Main content http file name	file name to be assigned to the http file on the local Internet server		STRING_TYPE	M..0	document_content. content.consists_of[i]. content_file[1]. http_file_name
MDC_ P065_8. <lang>	OPT	Main content http directory	optional directory to be assigned to the http file on the local Internet server		STRING_TYPE	M..0	document_content. content.consists_of[i]. content_file[1]. http_directory.name

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Table E.7 — Meta-properties of document meta-class (concluded)

MMDC_ P001	MMDC_ P002	MMDC_ P004_1.EN	MMDC_P005.EN	MMDC_ P007.EN	MMDC_P008	MMDC_ P100	MMDC_P101
Property ID	**Requirement**	**Name in English**	**Definition in English**	**Note in English**	**Data type**	**Value format**	**Map to EXPRESS**
MDC_P065_9.<lang>	OPT	Main content remote access	possible absolute URL where the http file may be found on an Internet site		STRING_TYPE	M..0	document_content.content.consists_of[i].content_file[1].remote_access

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Annex F
(informative)
Meta-properties of optional meta-classes

The annex is intended as an example to show how the standard parcelling format may be extended to absorb various needs and necessities for elaboration and refinement of the ISO 13584-conformant standard data structure. Thus the instances of the UoM meta-class, as the data section of the UoM parcel, are not an integral part of the standard, but the extension mechanism of the parcelling format for a UoM parcel is.

In case that the language used for the representation of a property needs to be specified using a "<lang>" extension, the extension shall be substituted by a two-letter ISO 639 code.

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