



**International
Standard**

ISO 7533

**Technical product documentation
(TPD) — Identification of
specifications in the technical
product documentation (TPD)**

*Documentation technique de produits (DTP) — Identification des
spécifications dans la documentation technique de produits (DTP)*

**First edition
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 10, *Technical product documentations*, SC 1, *Basic conventions*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS F01, *Technical drawings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is a technical product documentation (TPD) standard and is a complementary standard.

Technical product specification (TPS) expresses the functional requirements, and is used by many stakeholders throughout a product's life cycle, including:

- functional specification;
- failure mode and effects analysis (FMEA);
- tolerance stack-up;
- design transfer;
- manufacturing execution system (MES);
- inspection report;
- concessions;
- failure investigations;
- engineering change requests;
- drawing change log.

In order to facilitate communication in these situations, it is essential to share the same identifier for each specification in the TPD. The purpose of this document is to give graphical symbols and rules for identifying specifications in the TPD.

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Technical product documentation (TPD) — Identification of specifications in the technical product documentation (TPD)

1 Scope

This document specifies rules to identify specifications in the technical product documentation (TPD). It is applicable, if needed, to facilitate communication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7499, *Technical product documentation (TPD) — Unique integral feature identification (UIFI)*

ISO 10209, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10209 apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 General

A unique identifier can be applied for all or part of the specifications in the TPD. However, all specifications of the entire TPD should be identified in order to take the full advantage of the identification. See [Annex A](#) for examples on how to use the specification identifiers.

A specification in the TPD can be a (non-exhaustive list):

- geometrical specification;
- size specification;
- surface texture specification;
- surface imperfection;
- edge of undefined shape;
- transition specification;
- appearance specification;
- material specification;
- process specification;

- assembly specification;
- moulding specification;
- welding specification;
- heat treatment specification.

Indications that do not define a specification may also be identified if needed.

NOTE The following indications do not define a specification (non-exhaustive list):

- theoretically exact dimensions (TEDs);
- auxiliary dimensions;
- flag notes.

In each TPD, each specification shall have a unique identifier.

The rules for identifying the specifications are given in [Clauses 5, 6 and 7](#). Specification indications are identified on the TPD by a specification indication identifier (see [Clause 5](#)).

In most cases, the specification indication defines one specification on one feature. Hence the specification identifier is identical to the specification indication identifier.

In some cases, the specification indication defines two or more specifications on two or more features. In those cases, specification identifiers are derived from the specification indication identifier (see [Clauses 6 and 7](#)).

[Figure 1](#) gives an overview of the terms and how they are related to each other.

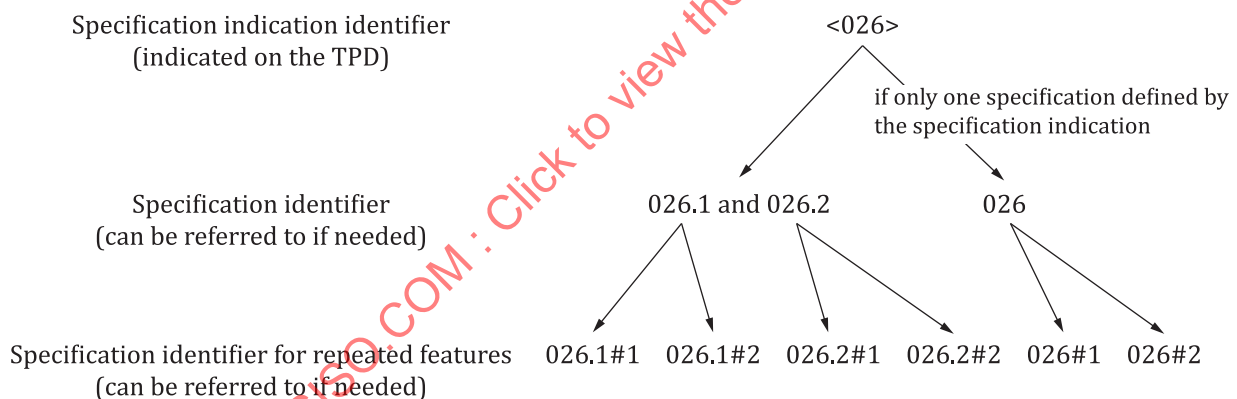


Figure 1 — Overview of the terms used in the document

A specification in the technical product specification (TPS) which is identified according to this document shall have:

- one TPD identifier;
- one specification identifier.

5 Specification indication identifiers

5.1 Rules for enumeration

The choice of the enumerating method remains the responsibility of the organization implementing it, e.g. on a drawing from the first view to the last view, left to right, top to bottom.

Complementary rules concerning the enumeration of specifications can be defined and should carefully consider the consequences in cases where (non-exhaustive list):

- a specification is modified;
- a new specification is added;
- a specification is removed.

See [Annex B](#) for recommendations.

Zeros should be added in front of numbers consisting of fewer digits than the longest one on the drawing.

EXAMPLE Searching for the number “2” can result in a list containing any identifier containing the digit 2, e.g. 2, 12, 21, 22, 23. Searching “002” would only give one hit.

5.2 Graphical symbol

Each specification indication shall be identified in TPD by a positive integer number placed between the “less than” character, <, and the “greater than” character, > (see ISO 3098-5:1997, character number 309 and 310), see [Figure 2](#).

The font of the indication shall be the same as the font of the specification indication.

NOTE In a model-based definition, the identifiers can be either in metadata or visible on the drawing, or both.

<12>

Figure 2 — Example of indication of the identifier of a specification, numbered “12”

5.3 Indication of the graphical symbol in the TPD

The indication shall be placed close to the specification as follows:

- in an inline adjacent (left or right) indication area for geometrical product specification (GPS) specifications (see [Figures 3](#) and [4](#));
- before or after the specification for texts (see EXAMPLE below).

When the beginning and end of the specification are not obvious (e.g. when the specification is integrated along with additional text), the specification and the identifier shall be placed together between the symbols < and >. See EXAMPLE.

EXAMPLE The part should be easily identifiable among other parts. < The part shall be painted blue. <45> >

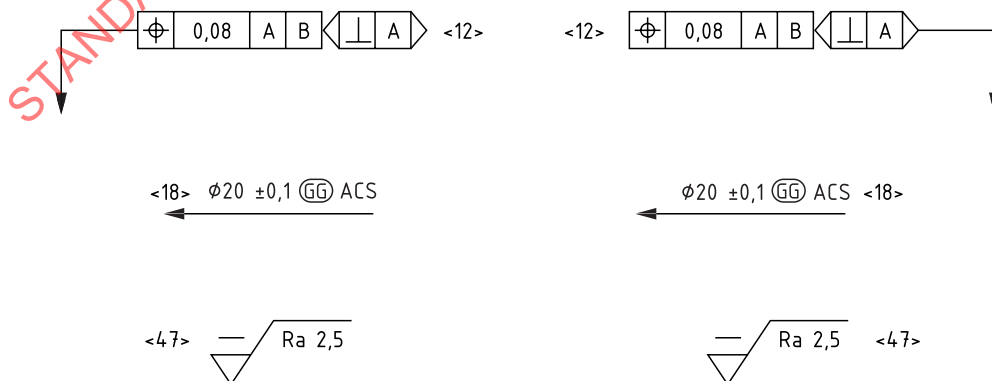


Figure 3 — Position of the indication of the identifier next to the GPS specification

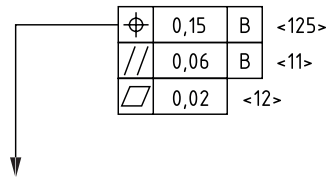


Figure 4 — Position of the indication of the identifier in the case of stacked GPS specifications

6 Specification identifiers

6.1 General

In most cases, the specification indication defines one specification on one feature. Hence the specification identifier is identical to the specification indication identifier.

When one specification indication defines two or more specifications, each specification can be referred to independently.

To reference the individual specifications, the specification indication identifier shall be extended with an index, i.e. a postfixed enumeration equivalent to the individual specification number.

The specifications shall be enumerated from the top to the bottom and from the left to the right, as follows: "specification indication identifier".X, with X being enumerated in succession of the individual specifications, see [Figures 5 to 7](#).

The postfixed specification identifier shall not be indicated together with the specification indication identifier in the TPD.

Rules are given for surface texture specifications (see [6.2](#)), size specifications (see [6.3](#)) and population specifications (see [6.4](#)).

6.2 Specification identifiers in the case of a surface texture specification

The qualitative requirements shall not be identified, see [Figure 5](#).

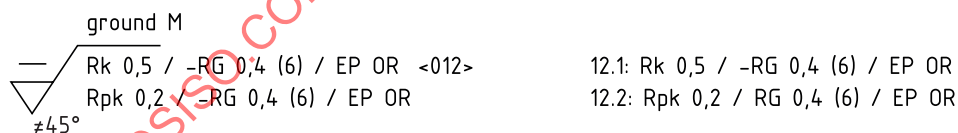


Figure 5 — Example of a surface texture specification indication that defines two specifications and the specification identifiers to be used when referred to

6.3 Specification identifiers in the case of a size specification

When one size specification indication defines different characteristics for the upper and lower specification limit, the upper limit shall be enumerated prior to the lower, see [Figure 6](#).



Figure 6 — Example of a size specification indication that defines two specifications and the specification identifiers to be used when referred to

6.4 Specification identifiers in the case of a population specification

If a population specification is indicated together with a size specification indication defining different characteristics for the upper and lower specification limit, the upper limit shall be enumerated prior to the lower, see 6.3.

NOTE Complex cases of population specifications with flag notes are out of the scope of this document.

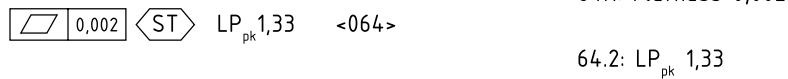


Figure 7 — Example of a population specification indication that defines two specifications and the specification identifiers to be used when referred to

7 Specification identifiers applied to repeated features and compound features

7.1 General

Specifications that are applied to more than one feature can be tracked individually for:

- production monitoring;
- validation of the manufacturing process;
- declarations of conformity and nonconformity.

When one specification indication defines two or more specifications for two or more repeated features, each specification can be referred to independently.

It is a precondition that each repeated feature is identified individually on the TPD in order to enable reference to the specifications for each repeated feature individually.

7.2 Specification identifiers for repeated features

There is no implicit rule in this document for the unique identification of the individual features for a specification of repeated features.

Each feature shall be uniquely identified by a feature indicator or an implicit enumeration in accordance with ISO 7499, or by other means, e.g. by referencing a document that defines the rules for unique identification of the individual repeated features.

The rules for enumerating features can be given by:

- simplified enumeration of repeated features according to ISO 7499;
- another International Standard, e.g. ISO 482:1977¹⁾;
- a company standard;
- a specific rule for one TPD.

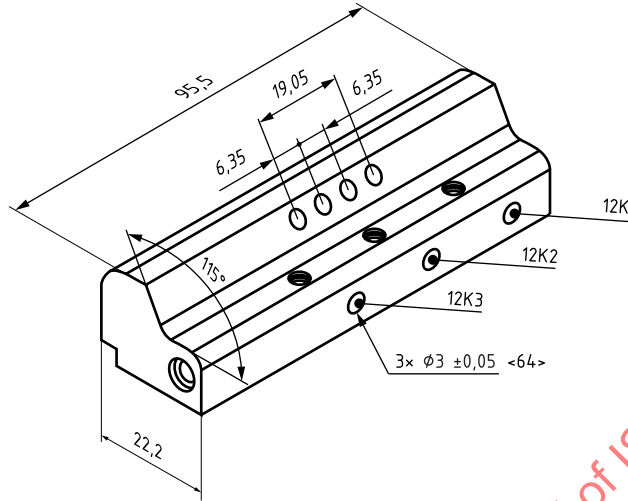
To reference an individual specification for a specific enumerated repeated feature, the specification identifier (which can be a postfixed specification identifier) shall be expanded by:

- a “number sign” character # (see ISO 3098-5:1997, character number 343);
- the number of the specific enumerated feature.

1) Withdrawn.

The expanded specification identifier with the feature identifier shall not be indicated together with the specification indication identifier on the TPD.

In the case where the simplified enumeration of repeated features in accordance with ISO 7499 is used on the TPD, the postfixed number of the unique integral feature identifier alone can be used after the “number sign” character, see [Figure 8](#).



NOTE Each independent specification is identified as following:

- 64#1 for $\varnothing 3 \pm 0,05$ on feature 12K1;
- 64#2 for $\varnothing 3 \pm 0,05$ on feature 12K2;
- 64#3 for $\varnothing 3 \pm 0,05$ on feature 12K3.

Figure 8 — Example when using unique integral feature identifications (UIFI) according to ISO 7499

7.3 Specification identifiers for compound features

A specification applied to similar features which are considered as a pattern, e.g. with a CZ symbol, shall be identified as a specification applied to a single feature.

Annex A

(informative)

Examples on how to use the specification identifiers

The specification identifiers are useful for many purposes.

They can be used to provide an index in the TPD, which helps to find the specifications, see [Tables A.1](#) to [A.5](#).

Table A.1 — With sheet numbers in a 2D definition

Specification identifier	Location
1	SH01 E9
2	SH02 A3
3	SH02 B7

Table A.2 — With sheet numbers and view names in a 2D definition

Specification identifier	Location
1	SH01 View A-A
2	SH02 Detail H
3	SH02 Front view

Table A.3 — With capture numbers in a 3D definition

Specification identifier	Location
1	Cap01
2	Cap02
3	Cap02

Table A.4 — With sheet numbers, view numbers and detail identifier in a 2D definition

Specification identifier	Sheet	View	Detail
1	02	05	-
2	02	05	C
3	03	06	-

Table A.5 — With reference indications (see ISO 128-3)

Specification identifier	Reference indication
1	A 7869/01.A3
2	A 7869/01.B2
3	B 7869/01.E9

They can be used to provide measurement results, see [Table A.6](#).

Table A.6 — Example of measurement results with specification identifiers

Specification identifier	Measurement result
15#1	0,084
15#2	0,092
15#3	0,111
16.1	22,40
16.2	22,68

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