SLOVENSKI STANDARD
SIST EN ISO 10135:2009

01-april-2009

Geometrijske specifikacije proizvodov - Oznake za formane dele v risbah za tehnično dokumentacijo proizvodov (ISO 10135:2007)

Geometrical product specifications (GPS) - Drawing indications for moulded parts in technical product documentation (TPD) (ISO 10135:2007)

Geometrische Produktspezifikation (GPS) - Zeichnungsangaben für Formteile in der technischen Produktdokumentation (TPD) (ISO 10135:2007)

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Spécification géométrique des produits (GPS) - Indications sur les dessins pour pièces moulées dans la documentation technique de produits (TPD) (ISO 10135:2007)

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Ta slovenski standard je istoveten z: **EN ISO 10135:2009**

ICS:

01.100.20	Konstrukcijske risbe	Mechanical engineering drawings
01.110	Tehnična dokumentacija za izdelke	Technical product documentation

SIST EN ISO 10135:2009 **en**

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EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

Geometrical product specifications (GPS) - Drawing indications for moulded parts in technical product documentation (TPD) (ISO 10135:2007)

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SIST EN ISO 10135:2009

Foreword

The text of ISO 10135:2007 has been prepared by Technical Committee ISO/TC 213 “Dimensional and geometrical product specifications and verification” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10135:2009 by Technical Committee CEN/TC 190 “Foundry technology” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2009, and conflicting national standards shall be withdrawn at the latest by July 2009.

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INTERNATIONAL STANDARD

ISO 10135

Second edition
2007-11-15

Geometrical product specifications (GPS) — Drawing indications for moulded parts in technical product documentation (TPD)

Spécification géométrique des produits (GPS) — Indications sur les dessins pour pièces moulées dans la documentation technique de produits (TPD)

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ISO 10135 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

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This second edition cancels and replaces the first edition (ISO 10135:1994), which has been technically revised.

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Introduction

This International Standard is a technical product documentation (TPD) standard (as prepared by ISO/TC 10), but also serves as a geometrical product specification (GPS) standard (as prepared by ISO/TC 213) and is to be regarded as a complementary process specific tolerance GPS standard (see ISO/TR 14638). It influences links 1 and 2 of the chain of standards on mouldings.

For more detailed information of the relation of this International Standard to other standards and the GPS matrix model, see Annex B.

Materials that are moulded to produce parts may exist in a solid, doughy or liquid form.

In order to produce parts by moulding, it is recognized that special consideration has to be made concerning the moulding process and the designs of the mould, which influence the design of the part.

It is often necessary to slightly change the intended geometry of a part in order to avoid surface imperfections (e.g. caused by sinks due to thermal contraction of material) and in order to enable the removal of the part from the mould. Different necessary mould components such as parting surfaces, gates, risers, vents, ejectors etc. can also produce undesired, but inevitable surface imperfections. Therefore, the resulting moulded part will exhibit deviations from the ideal geometric form. To control these deviations in order to achieve the intended function and to ensure that the moulded part can be reproduced when a mould shall be replaced (e.g. due to breakdown), it is necessary that such permissible deviations be able to be indicated and specified on technical drawings.

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Moulded parts, cast parts and forged parts are parts produced by the use of a mould, e.g. by blowing, injection, casting or forging. For convenience, the use of the term "moulded part" in the text of this International Standard covers moulded or cast or forged parts.

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The tolerance specified for a casting may determine the casting method. It is therefore recommended, before the design or the order is finalized, that the customer liaise with the foundry to discuss:

a) the proposed casting design and accuracy required;

b) machining requirements;

c) method of casting;

d) the number of castings to be manufactured;

e) the casting equipment involved;

f) datum target system according to ISO 5459;

g) casting alloy;

h) any special requirements, for instance, individual dimensional and geometrical tolerances, fillet radii tolerances and individual machining allowances.

Although the figures in this International Standard are presented in first angle projection, they could equally well have been presented using third angle projection.

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Geometrical product specifications (GPS) — Drawing indications for moulded parts in technical product documentation (TPD)

1 Scope

This International Standard specifies rules and conventions for the indications of requirements for moulded parts on technical product documentation. It also specifies the proportions and dimensions of the graphical symbols used for this representation.

NOTE The figures in this International Standard merely illustrate the text and are not intended to reflect actual application. Consequently, the figures are simplified and are not fully dimensioned and toleranced, showing only the relevant general principles applicable in any technical area.

2 Normative references

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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.

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ISO 128-22:1999, *Technical drawings — General principles of presentation — Part 22: Basic conventions and applications for leader lines and reference lines*

ISO 128-24:1999, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*

ISO 129-1:2004, *Technical drawings — Indication of dimensions and tolerances — Part 1: General principles*

ISO 406:1987, *Technical drawings — Tolerancing of linear and angular dimensions*

ISO 1101:2004, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerancing of form, orientation, location and run-out*

ISO 1302:2002, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

ISO 2692:2006, *Geometrical product specifications (GPS) — Geometrical tolerancing — Maximum material requirement (MMR), least material requirement (LMR) and reciprocity requirement (RPR)*

ISO 5459:—[1)], *Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum-systems*

ISO 7083:1983, *Technical drawings — Symbols for geometrical tolerancing — Proportions and dimensions*

ISO 8062-1:2007, *Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts — Part 1: Vocabulary*

1) To be published. (Revision of ISO 5459:1981)

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ISO 8785:1998, *Geometrical product specifications (GPS) — Surface imperfections — Terms, definitions and parameters*

ISO 13715:2000, *Technical drawings — Edges of undefined shape — Vocabulary and indications*

ISO/TR 14638:1995, *Geometrical Product Specifications (GPS) — Masterplan*

ISO 14660-1:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 1: General terms and definitions*

ISO 14660-2:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 2: Extracted median line of a cylinder and a cone, extracted median surface, local size of an extracted feature*

ISO 81714-1:1999, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8062-1, ISO 14660-1 and ISO 14660-2 and the following apply.

3.1
global specification
specification that applies to all features concerned

3.2
partial specification
specification which applies to a limited group of features concerned

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4 Letter Symbols

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For the purposes of this International Standard, the letter symbols given in Table 1 apply.

Table 1 — Letter Symbols

Letter symbol	Interpretation	Reference
C	Core	6.1
E	Ejector	6.2
FL	Flash	6.5
FLF	Flash free	6.5.3
G	Gate	6.2
H	Heat dissipation (chill markings)	6.2
M	Main	6.1
PRD	Part removal direction	6.9
R	Riser	6.2
S	Slider (side core)	6.1
SMI	Surface mismatch	6.4
TF	Taper (draft) to fit	6.7.5
TM	Taper –	6.7.3
TMD	Tool motion direction	6.8
TP	Taper +	6.7.3
V	Vent	6.2

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5 Line conventions

Line types and line widths shall be in accordance with ISO 128-24:1999 (see also Table 2). Rules for the presentation of graphical symbols are given in Annex A.

Table 2 — Lines

Line type representation	Line type No. according to ISO 128-24	Application
———	01.2	Parting line of moulds in views
—·—·—	04.2	Parting lines of moulds in sections
		Indication of restricted area
—··—··—	05.1	Initial outlines prior to forming
		Outlines of the finished part within blanks
		Framing of particular fields/areas

6 Drawing indications for moulded parts

6.1 Parting surface

The parting surface between two shaping mould components is represented by the graphical symbol shown in Figure 1 a). Identification of fixed as well as movable mould parts is performed by filling in the particular half of the parting surface symbol as shown in Figure 1 b). The filled half represents the fixed mould part and the other half represents the movable part. For details of the symbol, see Figure A.1.

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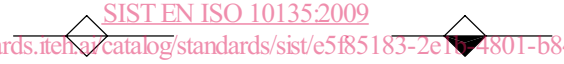


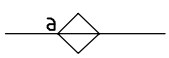
a) **b)**

Figure 1 — Graphical symbol for parting surface

Outside to the left of the upper half of the graphical symbol representing the parting surface a letter symbol may be added to indicate the type of parting surface as shown in Table 3, Figure 2 and Figure 3. For details of the symbol, see Figures A.1 and A.2.

Table 3 — Letter symbol for types of parting surface

Letter symbol	Application
C	Parting surface for cores
M	Main parting surface of moulds
S	Parting surface for sliders



Key

a Position of the letter symbol for types of parting surface.

Figure 2 — Position of the letter symbol on the graphical symbol for parting surface

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