

Geometrical Product Specifications (GPS)
 Indication of surface texture in technical
 product documentation
 (ISO 1302 : 2002)
 English version of DIN EN ISO 1302

DIN
 EN ISO 1302

ICS 01.100.01; 17.040.20

Supersedes DIN ISO 1302,
 December 1993 edition.

Geometrische Produktspezifikation (GPS) – Angabe der
 Oberflächenbeschaffenheit in der technischen Produktdokumentation
 (ISO 1302 : 2002)

European Standard EN ISO 1302 : 2002 has the status of a DIN Standard.

A comma is used as the decimal marker.

National foreword

This standard has been published in accordance with a decision taken by CEN/TC 290 to adopt, without alteration, International Standard ISO 1302 as a European Standard.

The responsible German body involved in its preparation was the *Normenausschuss Technische Grundlagen* (Fundamentals in Technology Standards Committee), Technical Committee *Geometrische Produktspezifikation und -prüfung*.

The DIN Standards corresponding to the International Standards referred to in clause 2 and in the bibliography of the EN are as follows:

ISO Standard(s)	DIN Standard(s)
ISO 129 and ISO 129-1*)	DIN 406-10 to DIN 406-12
ISO 1101	DIN ISO 1101
ISO 3098-2	DIN EN ISO 3098-2
ISO 3274	DIN EN ISO 3274
ISO 4287	DIN EN ISO 4287
ISO 4288	DIN EN ISO 4288
ISO 5436-1	DIN EN ISO 5436-1
ISO 5436-2	DIN EN ISO 5436-2
ISO 8785	DIN EN ISO 8785
ISO 10209-1	DIN 199-1
ISO 11562	DIN EN ISO 11562
ISO 12085	DIN EN ISO 12085
ISO 12179	DIN EN ISO 12179
ISO 13565-1	DIN EN ISO 13565-1
ISO 13565-2	DIN EN ISO 13565-2
ISO 13565-3	DIN EN ISO 13565-3
ISO 14253-1	DIN EN ISO 14253-1
ISO/TR 14638	DIN V 32950
ISO 14660-1	DIN EN ISO 14660-1
ISO 81714-1	DIN EN ISO 81714-1

*) Currently at draft stage.

Continued overleaf.
 EN comprises 49 pages.

Amendments

ISO 1302 having been adopted as a European Standard, the status of the corresponding DIN Standard (DIN ISO 1302) has been changed accordingly.

Previous editions

DIN 140-1: 1921-02, 1931-10; DIN 140-2: 1922-12, 1931x-10; DIN 140-3: 1931-10; DIN 140-4: 1931x-10;
DIN 140-5: 1931-10; DIN 140-6: 1931-10; DIN 140-7: 1952-11, 1960-12, 1961-09, 1966-05;
DIN 200-1: 1924-03; DIN 200-2: 1924-04; DIN 3142: 1960-03; DIN ISO 1302: 1977-07, 1980-06, 1993-12.

National Annex NA

Standards referred to

(and not included in **Normative references** and **Bibliography**)

DIN 199-1	Terminology associated with drawings and item lists – Drawings
DIN 406-10	Engineering drawing practice – Dimensioning – Concepts and general principles
DIN 406-11	Engineering drawing practice – Dimensioning – Principles of application
DIN 406-12	Engineering drawing practice – Dimensioning – Tolerancing of linear and angular dimensions (ISO 406 : 1987, modified)
DIN V 32950	Geometrical product specifications (GPS) – Masterplan (ISO/TR 14638 : 1995)
DIN EN ISO 3098-2	Technical product documentation – Lettering – Part 2: Latin alphabet, numerals and marks (ISO 3098-2 : 2000)
DIN EN ISO 3274	GPS – Surface texture: Profile method – Nominal characteristics of contact (stylus) instruments (ISO 3274 : 1996)
DIN EN ISO 4287	GPS – Surface texture: Profile method – Terms, definitions and surface texture parameters (ISO 4287 : 1997)
DIN EN ISO 4288	GPS – Surface texture: Profile method – Rules and procedures for the assessment of surface texture (ISO 4288 : 1996)
DIN EN ISO 5436-1	GPS – Surface texture: Profile method – Measurement standards – Part 1: Material measures (ISO 5436-1 : 2000)
DIN EN ISO 5436-2	GPS – Surface texture: Profile method – Measurement standards – Part 2: Software measurement standards (ISO 5436-2 : 2001)
DIN EN ISO 8785	Geometrical Product Specifications (GPS) – Surface imperfections – Terms, definitions and parameters (ISO 8785 : 1998)
DIN EN ISO 11562	GPS – Surface texture: Profile method – Metrological characteristics of phase correct filters (ISO 11562 : 1996)
DIN EN ISO 12085	GPS – Surface texture: Profile method – Motif parameters (ISO 12085 : 1996)
DIN EN ISO 12179	GPS – Surface texture: Profile method – Calibration of contact (stylus) instruments (ISO 12179 : 2000)
DIN EN ISO 13565-1	GPS – Surface texture: Profile method – Surfaces having stratified functional properties – Part 1: Filtering and general measurement conditions (ISO 13565-1 : 1996)
DIN EN ISO 13565-2	GPS – Surface texture: Profile method – Surfaces having stratified functional properties – Part 2: Height characterization using the linear material ratio (ISO 13565-2 : 1996)
DIN EN ISO 13565-3	GPS – Surface texture: Profile method – Surfaces having stratified functional properties – Part 3: Height characterization using the material probability curve (ISO 13565-3 : 1998)
DIN EN ISO 14253-1	Geometrical product specifications (GPS) – Inspection by measurement of workpieces and measuring equipment – Part 1: Decision rules for proving conformance or non-conformance with specifications (ISO 14253-1 : 1998)
DIN EN ISO 14660-1	Geometrical product specifications (GPS) – Geometrical features – Part 1: General terms and definitions (ISO 14660-1 : 1999)
DIN EN ISO 81714-1	Design of graphical symbols for use in the technical documentation of products – Part 1: Basic rules (ISO 81714-1 : 1999)

ICS 01.100.20; 17.040.20

English version

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

Spécification géométrique des
produits (GPS) – Indication des états
de surface dans la documentation
technique de produits
(ISO 1302 : 2002)

Geometrische Produktspezifikation
(GPS) – Angabe der Oberflächen-
beschaffenheit in der technischen
Produktdokumentation
(ISO 1302 : 2002)

This European Standard was approved by CEN on 2002-01-17.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

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

Management Centre: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

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

which was prepared by ISO/TC 213 'Dimensional and geometrical product specifications and verification' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 290 'Dimensional and geometrical product specification and verification', the Secretariat of which is held by AFNOR, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by August 2002 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 1302 : 2002 was approved by CEN as a European Standard without any modification.

Contents

Page

Foreword	2
Introduction	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	5
4 Graphical symbols for the indication of surface texture	6
5 Composition of complete graphical symbol for surface texture	8
6 Indication of surface texture parameters	9
7 Indication of manufacturing method or related information	14
8 Indication of the surface lay	15
9 Indication of machining allowance	17
10 Summarizing of indications of surface texture requirements and their values	17
11 Position on drawings and other technical product documentation	17
Annex A (normative) Proportions and dimensions of graphical symbols	23
Annex B (informative) Synoptive tables	26
Annex C (informative) Examples of indication of surface texture requirements	29
Annex D (informative) Minimum indications for unambiguous control of surface functions	33
Annex E (informative) Surface texture parameter designations	36
Annex F (informative) Evaluation length, l_n	39
Annex G (informative) Transmission band and sampling length	40
Annex H (informative) Consequences of new ISO surface texture standards	42
Annex I (informative) Former practice	44
Annex J (informative) Relation to the GPS matrix model	47
Bibliography	49

Introduction

This International Standard is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences link 1 of the chain of standards on roughness, waviness and primary profile.

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

This edition of ISO 1302 has been developed for use together with the new editions of the surface texture standards issued in 1996 and 1997, which introduce many radical changes compared with the content of the former surface texture standards issued in the 1980s. The changes are so radical that the drawing indications in some instances have a completely new interpretation. Annex H gives detailed information on these changes.

Drawing indications applied on technical drawings according to former editions of this International Standard refer to the rules given in the surface texture standards issued at the time of issue and can only be interpreted according to those surface texture standards. Annex I provides information on former practices.

The drawing indications given in this edition are to be used for the unambiguous reference to the new surface texture standards issued in 1996 and 1997.

Textual indications in this edition of ISO 1302 are under continuous development within ISO/TC 213 and a separate, detailed standard on this issue is under preparation. Consequently, the textual indications given may change in future editions of ISO 1302.

1 Scope

This International Standard specifies the rules for the indication of surface texture in technical product documentation (e.g. drawings, specifications, contracts, reports) by means of graphical symbols and textual indications.

It is applicable to the indication of requirements for surfaces by means of

- a) profile parameters, according to ISO 4287, related to the
 - *R*-profile (roughness parameters),
 - *W*-profile (waviness parameters), and
 - *P*-profile (structural parameters),
- b) motif parameters, according to ISO 12085, related to the
 - roughness motif, and
 - waviness motif,
- c) parameters related to the material ratio curve according to ISO 13565-2 and ISO 13565-3.

NOTE For the indication of requirements for surface imperfections (pores, scratches etc.), which cannot be specified using surface texture parameters, reference is made to ISO 8785, which covers surface imperfections.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 1101:—²⁾, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerancing of form, orientation, location and run-out*

1) To be published. (Revision of ISO 129:1985)

2) To be published. (Revision of ISO 1101:1983)