
**Bonded abrasive products — Limit
deviations and run-out tolerances**

*Produits abrasifs agglomérés — Écartes limites et tolérances de
battement*



This document is a preview generated by EMS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	1
5 General	2
6 Straight grinding wheels, recessed, relieved and hubbed wheels	2
6.1 Relevant shape types according to ISO 525	2
6.2 Straight grinding wheels for general applications	7
6.2.1 Limit deviations T_D of the outside diameter, axial run-out tolerance T_{PL} and radial run-out tolerances T_{RL}	7
6.2.2 Limit deviations T_H of the hole diameter	7
6.2.3 Limit deviations T_P of the recess diameter and assignment of radii R	8
6.2.4 Limit deviations T_T, T_U of grinding wheel thickness dimensions	8
6.2.5 Limit deviations T_E of thickness at bore	9
6.3 Straight grinding wheels for other applications not specified in 6.2	9
6.3.1 Examples of application	9
6.3.2 Limit deviations T_D of the outside diameter, axial run-out tolerance T_{PL} and radial run-out tolerance T_{RL}	10
6.3.3 Limit deviations T_H of the hole diameter	10
6.3.4 Limit deviations T_P of the recess diameters and assignment of radii R	10
6.3.5 Limit deviations T_T of the grinding wheel thickness	10
6.3.6 Limit deviations T_E of thickness at bore	11
6.4 Grinding wheels for high-pressure grinding	11
6.5 Straight grinding wheels used in sets	11
6.5.1 General	11
6.5.2 Limit deviations T_D of the outside diameter	12
6.5.3 Limit deviations T_T of the grinding wheel thickness	12
6.6 Cemented or clamped cylinder wheels and disc wheels	12
6.6.1 Relevant shape types according to ISO 525	12
6.6.2 Limit deviations T_D of the outside diameter, axial run-out tolerance T_{PL} and radial run-out tolerance T_{RL}	13
6.6.3 Limit deviations T_H of the hole diameter	14
6.6.4 Limit deviations T_W of the wall thickness	14
6.6.5 Limit deviations T_D of the outside diameter of grinding wheel sets	14
6.6.6 Limit deviations T_T of the grinding wheel thickness	14
7 Dish and cup wheels	15
7.1 Relevant shape types according to ISO 525	15
7.2 Dish and cup wheels for general applications	16
7.3 Dish and cup wheels for tool and cutter grinding	16
8 Grinding and cutting-off wheels	16
8.1 Relevant shape types according to ISO 525	16
8.2 Limit deviations T_D of the outside diameter, axial run-out tolerance T_{PL} , and the radial run-out tolerance T_{RL}	18
8.3 Limit deviations T_H of the hole diameter	18
8.4 Limit deviations T_T and T_U of the grinding wheel thickness	19
9 Segments	19
10 Cones and plugs with threaded insert	21
11 Honing stones and superfinishing stones	24
12 Hand finishing sticks	24

13 Spindle mounted points and wheels	24
Bibliography	27

This document is a preview generated by EVS

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 5, *Grinding wheels and abrasives*.

This second edition cancels and replaces the first edition (ISO 13942:2000), which has been technically revised. The main changes compared to the previous edition are as follows:

- Figures added for the following shape types: 2, 3, 4, 13, 16, 17, 17R, 18, 18B, 18P, 18R, 19, 19R, 20, 21, 22, 23, 24, 25, 26, 28, 29, 31A, 31B, 31C, 31D, 31E, 31F, 31G, 35, 36, 37, 39, 40, 52, 54 and 90; geometric tolerancing symbols for simple run-out (T_{PL} and T_{RL}) and the related datum are indicated on the drawings where values for these exist in this document;
- drawings for types 5, 7, 27, 38, 39 and 41 amended to show the geometric tolerancing symbols;
- new symbols for elevation of depressed centre (M), spindle diameter (S_d), spindle length (L_2) of mounted wheels and points, and internal radius of a segment (R_1) added;
- in [Table 18](#), a new row for the outside diameter $D > 1\,800$ mm added giving the corresponding limit deviations and run-out tolerances;
- in [Table 20](#), the limit deviations of grinding wheel thickness for wheels with $T, U \leq 1,6$ mm changed;
- [Clause 5](#) added for general statements and requirements and [Clause 13](#) added for mounted wheels and mounted points;
- normative reference to ISO 603 changed to be informative.

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.

Bonded abrasive products — Limit deviations and run-out tolerances

1 Scope

This document specifies the essential limit deviations and run-out tolerances for bonded abrasive products.

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 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits*

ISO 286-2, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 286-1 apply.

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

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

4 Symbols and abbreviated terms

For symbols of dimensions, limit deviation and tolerances see [Table 1](#).

Table 1 — Symbols and designations

Symbol of dimension	Designation	Symbol of limit deviation or tolerance
<i>A</i>	Smallest width of a trapezoidal segment	T_A
<i>B</i>	Width of a segment, stick or stone	T_B
<i>C</i>	Thickness of a segment, stick or stone	T_C
<i>D</i>	Outside diameter of abrasive products	T_D
<i>E</i>	Thickness at bore of cup, dish, recessed and relieved wheels	T_E
<i>F</i>	Depth of the 1st recess	—
<i>G</i>	Depth of the 2nd recess	—
<i>H</i>	Abrasive product bore diameter, thread diameter of wheels with threaded insert	T_H
H_1	Diameter of counterbore	T_{H_1}