
**Precision superabrasives — Limit
deviations and run-out tolerances
for grinding wheels with diamond or
cubic boron nitride**

*Superabrasifs de précision — Écarts limites et tolérances de
battement pour les meules à base de diamant et de nitrure de bore*

Sample Document

get full document from standards.iteh.ai



Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Limit deviations and run-out tolerance abbreviations	2
5 Straight, recessed, tapered and hubbed grinding wheels	3
5.1 Grinding wheels for peripheral grinding	3
5.1.1 Designations	3
5.1.2 Limit deviations and run-out tolerances for grinding wheels for peripheral grinding	4
5.2 Grinding wheels for face grinding	8
5.2.1 Designations	8
5.2.2 Limit deviations and run-out tolerances for grinding wheels for face grinding	10
6 Mounted points	13
6.1 Designation	13
6.2 Limit deviations and circular run-out tolerances	14
6.2.1 Limit deviations of the outside diameter, T_D , of the thickness, T_T , of the depth of superabrasive section, T_X , and circular run-out tolerance, axial, T_{RL}	14
6.2.2 Limit deviations of the spindle diameter, T_{Sd} , and of the reduced diameter of spindle, T_{S1}	14
6.2.3 Limit deviations of the overall length, T_L , and of the reduced length of spindle, T_{L4}	14
7 Superabrasives with metal core for hand-held grinding	15
7.1 Designation	15
7.2 Limit deviations and run-out tolerances	15
7.2.1 Limit deviations of the outside diameter, T_D , of the overall thickness, T_T , circular run-out tolerance, axial, T_{PL} , and circular run-out tolerance, radial, T_{RL}	15
7.2.2 Limit deviations of the bore diameter, T_H	15
7.2.3 Limit deviations of the depth of superabrasive section, T_X	16
7.2.4 Limit deviations of the rim width, T_W	16
7.2.5 Limit deviations of the thickness at bore, T_E	16
7.2.6 Limit deviations of the contact surface diameter, T_J , and of the recess diameter, T_K	17

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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 5, *Grinding wheels and abrasives*.

This second edition cancels and replaces the first edition (ISO 22917:2004), which has been technically revised with the following changes:

- a) form E added;
- b) dimensions for $d_{\min}$ revised;
- c) dimensions for l_1 partly revised.

Precision superabrasives — Limit deviations and run-out tolerances for grinding wheels with diamond or cubic boron nitride

1 Scope

This International Standard applies to all rotating grinding precision tools with diamond or cubic boron nitride with metal, vitrified or resinoid bonded cores, and circular bores for mounting the grinding tool on a clamping flange as well as to grinding points with cylindrical spindle for mounting in collets. It contains the significant limit deviations and run-out tolerances of these grinding tools.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 286-2:2010, *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 in ISO 286-1 and the following apply.

NOTE Some of the terms are defined in a more restricted sense than in common usage.

3.1 size

number expressing, in a particular unit, the numerical value of a linear dimension

3.1.1 basic size nominal size

size from which the *limits of size* (3.1.3) are derived by the application of the upper and lower *deviations* (3.2)

3.1.2 actual size

size of a feature, obtained by measurements

3.1.3 limits of size

two extreme permissible sizes of a feature, between which the *actual size* (3.1.2) should lie, the limits of size being included

3.1.3.1 maximum limit of size

greatest permissible size of a feature

3.1.3.2

minimum limit of size

smallest permissible size of a feature

3.2

deviation

algebraic difference between a *size* (3.1) (actual size, limit of size, etc.) and the corresponding *basic size* (3.1.1)

3.2.1

limit deviations

upper deviation and lower deviation

3.2.1.1

upper deviation

algebraic difference between the *maximum limit of size* (3.1.3.1) and the corresponding basic size

3.2.1.2

lower deviation

algebraic difference between the *minimum limit of size* (3.1.3.2) and the corresponding basic size

3.3

size tolerance

difference between the *maximum limit of size* (3.1.3.1) and the *minimum limit of size* (3.1.3.2), i.e. the difference between the *upper deviation* (3.2.1.1) and the *lower deviation* (3.2.1.2)

Note 1 to entry: The tolerance is an absolute value without sign.

4 Limit deviations and run-out tolerance abbreviations

See Table 1.

Table 1 — Limit deviations and run-out tolerance abbreviations

Symbol	Designation	
	Abrasive product	Mounted points
T_D	Limit deviations of outside diameter	Limit deviations of outside diameter
T_E	Limit deviations of thickness at bore	
T_H	Limit deviations of bore diameter	
T_J	Limit deviations of contact surface diameter	
T_K	Limit deviations of recess diameter	
T_L		Limit deviations of overall length
T_{L4}		Limit deviations of reduced length of spindle
T_{PL}	Limit deviations of circular run-out tolerance, axial	
T_R	Limit deviations of the radii	
T_{RL}	Limit deviations of circular run-out tolerance, radial	Limit deviations of circular run-out tolerance, radial
T_{Sd}		Limit deviations of spindle diameter
T_{S1}		Limit deviations of reduced diameter of spindle
T_T	Limit deviations of overall thickness	Limit deviations of thickness
T_U	Limit deviations of thickness of superabrasive section	

Table 1 (continued)

Symbol	Designation	
	Abrasive product	Mounted points
T_W	Limit deviations of rim width	
T_X	Limit deviations of depth of superabrasive section	Limit deviations of depth of superabrasive section
T_α	Limit deviations of angles	

5 Straight, recessed, tapered and hubbed grinding wheels

5.1 Grinding wheels for peripheral grinding

5.1.1 Designations

See Table 2.

Table 2 — Designations for grinding wheels for peripheral grinding

Designation	Sketch	Basic core shape
Straight peripheral wheel		1
Single hubbed wheel		3
Wheel tapered one side		4