SLOVENSKI STANDARD
SIST EN ISO 4545-4:2018

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Nadomešča:

SIST EN ISO 4545-4:2006

Kovinski materiali - Preskus trdote po Knoopu - 4. del: Tabela za določanje trdote (ISO 4545-4:2017)

Metallic materials - Knoop hardness test - Part 4: Table of hardness values (ISO 4545-4:2017)

Metallische Werkstoffe - Härteprüfung nach Knoop - Teil 4: Tabelle zur Bestimmung der Härtewerte (ISO 4545-4:2017)

Matériaux métalliques - Essai de dureté Knoop - Partie 4 : Tableau des valeurs de dureté (ISO 4545-4:2017)

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Metallic materials - Knoop hardness test - Part 4: Table of hardness values (ISO 4545-4:2017)

Matériaux métalliques - Essai de dureté Knoop - Partie 4: Tableau des valeurs de dureté (ISO 4545-4:2017)

Metallische Werkstoffe - Härteprüfung nach Knoop - Teil 4: Tabelle zur Bestimmung der Härtewerte (ISO 4545-4:2017)

This European Standard was approved by CEN on 1 January 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN ISO 4545-4:2018) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 101 "Test methods for steel (other than chemical analysis)" the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 4545-4:2005.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 4545-4:2017 has been approved by CEN as EN ISO 4545-4:2018 without any modification.

INTERNATIONAL STANDARD

ISO 4545-4

Second edition
2017-12

Metallic materials — Knoop hardness test —

Part 4: Table of hardness values

Matériaux métalliques — Essai de dureté Knoop —

Partie 4: Tableau des valeurs de dureté

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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 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).

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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 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*.

This second edition cancels and replaces the first edition (ISO 4545-4:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

— in Table 1, the data for indentations using forces 0,009 807 N (HK 0,001), 0,019 61 N (HK 0,002), 0,049 03 N (HK 0,005) and 19,613 N (HK 2) have been added;

— the calculation clause has been removed.

A list of all parts in the ISO 4545 series can be found on the ISO website.

Metallic materials — Knoop hardness test —

Part 4: Table of hardness values

1 Scope

This document gives a table for the calculation of Knoop hardness values for use in tests carried out in accordance with ISO 4545-1.

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 4545-1, *Metallic materials — Knoop hardness test — Part 1: Test method*

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Table of Knoop hardness values

The values given in Table 1 were calculated from the Knoop hardness formula in accordance with ISO 4545-1.

Table 1 — Knoop hardness values

Indentation diagonal *d* mm	Test force N												
	0,009 807	0,019 61	0,049 03	0,098 07	0,196 13	0,245 17	0,490 33	0,980 7	1,961 3	2,942 0	4,903 3	9,807	19,613
	Knoop hardness												
	HK 0,001	HK 0,002	HK 0,005	HK 0,01	HK 0,02	HK 0,025	HK 0,05	HK 0,1	HK 0,2	HK 0,3	HK 0,5	HK 1	HK 2
0,020 0	35,57	71,14	177,9	355,7	711,4	889,3	1 779	3 557					
0,020 2	34,87	69,74	174,4	348,7	697,4	871,8	1 744	3 487					
0,020 4	34,19	68,38	171,0	341,9	683,8	854,8	1 710	3 419					
0,020 6	33,53	67,06	167,7	335,3	670,6	838,3	1 677	3 353					
0,020 8	32,89	65,78	164,4	328,9	657,8	822,2	1 644	3 289					
0,021 0	32,26	64,53	161,3	322,6	645,3	806,6	1 613	3 226					
0,021 2	31,66	63,32	158,3	316,6	633,2	791,5	1 583	3 166					
0,021 4	31,07	62,14	155,3	310,7	621,4	776,7	1 553	3 107					
0,021 6	30,50	60,99	152,5	305,0	609,9	762,4	1 525	3 050					
0,021 8	29,94	59,88	149,7	299,4	598,8	748,5	1 497	2 994					
0,022 0	29,40	58,80	147,0	294,0	588,0	735,0	1 470	2 940					
0,022 2	28,87	57,74	144,4	288,7	577,4	721,8	1 444	2 887					
0,022 4	28,36	56,72	141,8	283,6	567,2	708,9	1 418	2 836					
0,022 6	27,86	55,72	139,3	278,6	557,2	696,5	1 393	2 786					
0,022 8	27,37	54,74	136,9	273,7	547,4	684,3	1 369	2 737					
0,023 0	26,90	53,80	134,5	269,0	538,0	672,4	1 345	2 690					
0,023 2	26,44	52,87	132,2	264,4	528,7	660,9	1 322	2 644					
0,023 4	25,99	51,97	129,9	259,9	519,7	649,6	1 299	2 599					
0,023 6	25,55	51,09	127,7	255,5	510,9	638,7	1 277	2 555					
0,023 8	25,12	50,24	125,6	251,2	502,4	628,0	1 256	2 512					
0,024 0	24,70	49,41	123,5	247,0	494,1	617,6	1 235	2 470					
0,024 2	24,30	48,59	121,5	243,0	485,9	607,4	1 215	2 430					
0,024 4	23,90	47,80	119,5	239,0	478,0	597,5	1 195	2 390					
0,024 6	23,51	47,02	117,6	235,1	470,2	587,8	1 176	2 351					
0,024 8	23,13	46,27	115,7	231,3	462,7	578,4	1 157	2 313					
0,025 0	22,77	45,53	113,8	227,7	455,3	569,2	1 138	2 277					
0,025 2	22,41	44,81	112,0	224,1	448,1	560,2	1 120	2 241					
0,025 4	22,05	44,11	110,3	220,5	441,1	551,4	1 103	2 205					
0,025 6	21,71	43,42	108,6	217,1	434,2	542,8	1 086	2 171					
0,025 8	21,38	42,75	106,9	213,8	427,5	534,4	1 069	2 138					
0,026 0	21,05	42,10	105,2	210,5	421,0	526,2	1 052	2 105					
0,026 2	20,73	41,46	103,6	207,3	414,6	518,2	1 036	2 073					
0,026 4	20,42	40,83	102,1	204,2	408,3	510,4	1 021	2 042					
0,026 6	20,11	40,22	100,5	201,1	402,2	502,7	1 005	2 011					
0,026 8	19,81	39,62	99,05	198,1	396,2	495,3	990,5	1 981	3 962				