

Hexagon socket set screws with dog point

The European Standard EN ISO 4028:2003 has the status of a
British Standard

ICS 21.060.10

Confirmed
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National foreword

This British Standard is the official English language version of EN ISO 4028:2003. It is identical with ISO 4028:2003. It supersedes BS 4168-4:1994 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee FME/9, Nuts, bolts and accessories, to Subcommittee FME/9/8, Hexagon socket screws, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii and iii, a blank page, pages 1 to 4, an inside back cover and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

ICS 21.060.10

English version

Hexagon socket set screws with dog point (ISO 4028:2003)

Vis sans tête à six pans creux, à téton (ISO 4028:2003)

Gewindestifte mit Innensechskant mit Zapfen (ISO 4028:2003)

This European Standard was approved by CEN on 4 November 2003.

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

Foreword

This document (EN ISO 4028:2003) has been prepared by Technical Committee ISO/TC 2 "Fasteners" in collaboration with Technical Committee CEN/TC 185 "Threaded and non-threaded mechanical fasteners and accessories", 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of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

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NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of ISO 4028:2003 has been approved by CEN as EN ISO 4028:2003 without any modifications.

INTERNATIONAL
STANDARD

ISO
4028

Third edition
2003-12-01

Hexagon socket set screws with dog point

Vis sans tête à six pans creux, à téton



Reference number
ISO 4028:2003(E)

Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 4028 was prepared by Technical Committee ISO/TC 2, *Fasteners*.

This third edition cancels and replaces the second edition (ISO 4028:1993), which has been technically revised.

Hexagon socket set screws with dog point

1 Scope

This International Standard specifies the characteristics of hexagon socket set screws with dog point and threads from M1,6 up to and including M24 and of product grade A.

If, in special cases, specifications other than those listed in this International Standard are required, they should be selected from existing International Standards, e.g. ISO 261, ISO 898-5, ISO 965-2, ISO 3506-3 and ISO 4759-1.

2 Normative references

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.

ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions*

ISO 261, *ISO general-purpose metric screw threads — General plan*

ISO 898-5, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 5: Set screws and similar threaded fasteners not under tensile stresses*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-3, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-3, *Mechanical properties of corrosion-resistant stainless-steel fasteners — Part 3: Set screws and similar fasteners not under tensile stress*

ISO 4042, *Fasteners — Electroplated coatings*

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C*

ISO 6157-1, *Fasteners — Surface discontinuities — Part 1: Bolts, screws and studs for general requirements*

ISO 8839, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals*

ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings*

ISO 23429, *Gauging of hexagon sockets*

Table 1 — Dimensions

Dimensions in millimetres

Thread (<i>d</i>)			M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
<i>P</i> ^a			0,35	0,4	0,45	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2,5	3
<i>d_p</i>	max.		0,80	1,00	1,50	2,00	2,50	3,5	4,0	5,5	7,00	8,50	12,00	15,00	18,00
	min.		0,55	0,75	1,25	1,75	2,25	3,2	3,7	5,2	6,64	8,14	11,57	14,57	17,57
<i>d_f</i>	min.		≈ Minor thread diameter												
<i>e</i> ^{b, c}			0,809	1,011	1,454	1,733	2,303	2,873	3,443	4,583	5,723	6,863	9,149	11,429	13,716
<i>s</i> ^c	nom.		0,7	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10	12
	max.		0,724	0,913	1,300	1,58	2,08	2,58	3,08	4,095	5,14	6,14	8,175	10,175	12,212
	min.		0,710	0,887	1,275	1,52	2,02	2,52	3,02	4,020	5,02	6,02	8,025	10,025	12,032
<i>t</i>	min.	^d	0,7	0,8	1,2	1,2	1,5	2	2	3	4	4,8	6,4	8	10
		^e	1,5	1,7	2	2	2,5	3	3,5	5	6	8	10	12	15
<i>z</i>	short dog point ^d	max.	0,65	0,75	0,88	1,00	1,25	1,50	1,75	2,25	2,75	3,25	4,3	5,3	6,3
		min.	0,40	0,50	0,63	0,75	1,00	1,25	1,50	2,00	2,50	3,00	4,0	5,0	6,0
	long dog point ^e	max.	1,05	1,25	1,50	1,75	2,25	2,75	3,25	4,3	5,3	6,3	8,36	10,36	12,43
		min.	0,80	1,00	1,25	1,50	2,00	2,50	3,00	4,0	5,0	6,0	8,00	10,00	12,00
<i>l</i>			Approximate mass, in kilograms per 1 000 pieces ($\rho = 7,85 \text{ kg/dm}^3$) (for information only)												
nom.	min.	max.													
2	1,8	2,2	0,024												
2,5	2,3	2,7	0,028	0,046											
3	2,8	3,2	0,029	0,053	0,085										
4	3,76	4,24	0,037	0,059	0,11	0,12									
5	4,76	5,24	0,046	0,074	0,125	0,161	0,239								
6	5,76	6,24	0,054	0,089	0,15	0,186	0,319	0,528							
8	7,71	8,29	0,07	0,119	0,199	0,266	0,442	0,708	1,07	1,68					
10	9,71	10,29		0,148	0,249	0,346	0,602	0,948	1,29	2,31	3,6				
12	11,65	12,35			0,299	0,427	0,763	1,19	1,63	2,68	4,78	6,06			
16	15,65	16,35				0,586	1,08	1,67	2,31	3,94	6,05	8,94	15		
20	19,58	20,42					1,4	2,15	2,99	5,2	8,02	11	20,3	28,3	
25	24,58	25,42						2,75	3,84	6,78	10,5	14,6	25,1	38,6	55,4
30	29,58	30,42							4,69	8,35	13	18,2	31,7	45,5	69,9
35	34,5	35,5								9,93	15,5	21,8	38,3	55,8	78,4
40	39,5	40,5								11,5	18	25,4	44,9	66,1	92,9
45	44,5	45,5									20,5	29	51,5	76,4	107
50	49,5	50,5									23	32,6	58,1	86,7	122
55	54,4	55,6										36,2	64,7	97	136
60	59,4	60,6										39,8	71,3	107	151

NOTE Commercial lengths are those between the bold stepped lines.

^a *P* is the pitch of the thread.^b $e_{\min} = 1,14 s_{\min}$.^c Combined gauging of socket dimensions *e* and *s*, see ISO 23429.^d For screws with nominal lengths in the shaded areas.^e For screws with nominal lengths below the shaded areas.

4 Requirements and reference International Standards

See Table 2.

Table 2 — Specifications and reference International Standards

Material		Steel	Stainless steel	Non-ferrous metal
General requirements	International Standard	ISO 8992		
	Tolerance	6g		
Thread	International Standards	ISO 261, ISO 965-2, ISO 965-3		
	Property class	45H	A1-12H, A2-21H, A3-21H, A4-21H, A5-21H	As agreed
Mechanical properties	International Standards	ISO 898-5	ISO 3506-3	ISO 8839
	Product grade	A		
Tolerances	International Standard	ISO 4759-1		
	Finish	As processed Requirements for electroplating are covered in ISO 4042. Requirements for non-electrolytically applied zinc flake coatings are covered in ISO 10683.	Plain	Plain Requirements for electroplating are covered in ISO 4042.
Surface discontinuities		Limits for surface discontinuities are covered in ISO 6157-1.	—	—
Acceptability		For acceptance procedure, see ISO 3269.		

5 Designation

EXAMPLE A hexagon socket set screw with dog point, thread M6, nominal length $l = 12$ mm and of property class 45H, is designated as follows:

Hexagon socket set screw ISO 4028 - M6×12 - 45H

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