INTERNATIONAL STANDARD

ISO 14583

First edition 2001-09-01

Hexalobular socket pan head screws

Vis à métaux à tête cylindrique bombée à six lobes internes



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Foreword

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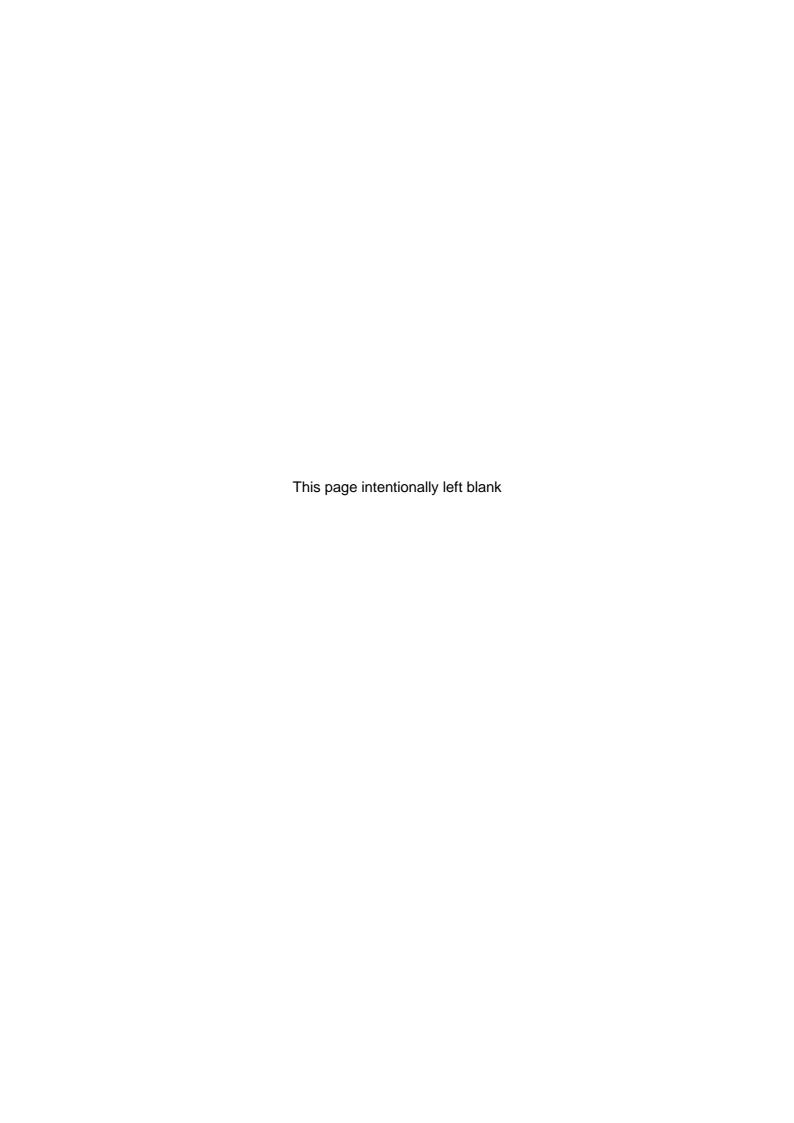
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International Standard ISO 14583 was prepared by Technical Committee ISO/TC 2, Fasteners.

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Hexalobular socket pan head screws

1 Scope

This International Standard specifies the characteristics of hexalobular socket pan head screws in product grades A and with thread sizes from M2 up to and including M10.

If, in special cases, specifications other than those listed in this International Standard are required, they should be selected from existing International Standards, for example ISO 261, ISO 888, ISO 898-1, ISO 965-2, ISO 3506-1, ISO 4759-1.

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 225:1983, Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions

ISO 261:1998, ISO general-purpose metric screw threads — General plan

ISO 888:1976, Bolts, screws and study — Nominal lengths, and thread lengths for general purpose bolts

ISO 898-1:1999, Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs

ISO 965-2:1998, ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality

ISO 3269:2000, Fasteners — Acceptance inspection

ISO 3506-1:1997, Mechanical properties of corrosion-resistant stainless-steel fasteners — Part 1: Bolts, screws and studs

ISO 4042:1999, Fasteners — Electroplated coatings

ISO 4759-1:2000, Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C

ISO 6157-1:1988, Fasteners — Surface discontinuities — Part 1: Bolts, screws and studs for general requirements

ISO 8839:1986, Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals

ISO 8992:1986, Fasteners — General requirements for bolts, screws, studs and nuts

ISO 10664:1999, Hexalobular internal driving feature for bolts and screws

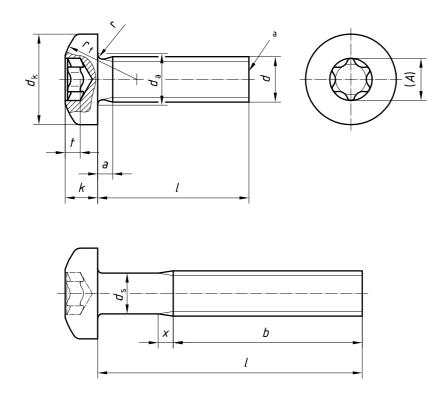
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ISO 10683:2000, Fasteners — Non-electrolytically applied zinc flake coatings

3 Dimensions

See Figure 1 and Table 1.

Symbols and designations of dimensions, except dimension A, are specified in ISO 225.



NOTE Shank diameter d_s is approximately equal to pitch diameter or equal to major thread diameter.

a As-rolled end

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

P b max. 0,4 0,45 0,5 0,6 0,7 0,8 1,0 1,25 1,5 a max. 0,8 0,9 1 1,2 1,4 1,6 2 2,5 3 b min. 25 25 25 36 38 38 38 38 38 38 d _a max. 2,6 3,1 3,6 4,1 4,7 5,7 6,8 9,2 11,2 d _k mom. = max 4,0 5,0 5,6 7,00 8,00 9,50 12,00 16,00 20,00 min. 3,7 4,7 5,3 6,64 7,64 9,14 11,57 15,57 19,48 nom. = max 1,60 2,10 2,40 2,60 3,10 3,70 4,6 6,0 7,50 min. 1,46 1,96 2,26 2,46 2,92 3,52 4,3 5,7 7,14 r max. 0,1 0,1 0,1 0,1 0,1 0,2 0,2 0,25 0,4 0,4 r max. 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 Mexalobular Socket No. 6 8 10 15 20 25 30 45 50 max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 mom. a max. 0,18 0,346 0,346 0,544 1,30 1,30 1,30 1,30 max. max. 0,78 0,336 1,30 1,30 1,30 1,30 1,30 max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 nom. a max. 0,77 0,48 0,270 0,77 0,78 8,075 max. 0,77 0,48 0,346 0,544 1,30 1,40 1,40 1,40 1,40 1,40 1,40 1,40 1,40 1,40 1,40 min. max. 0,77 0,48 0,346 0,584 0,891 1,30 1,50 1,50 1,50 1,50	Thread a	!		M2	M2,5	М3	(M3,5) a	M4	M5	M6	M8	M10
b min. 25 25 25 38	$_P$ b			0,4	0,45	0,5	0,6	0,7	0,8	1,0	1,25	1,5
da max. 2,6 3,1 3,6 4,1 4,7 5,7 6,8 9,2 11,2 dk nom. = max. 4,0 5,0 5,6 7,00 8,00 9,50 12,00 16,00 20,00 k mom. = max. 1,60 2,10 2,40 2,60 3,10 3,70 4,6 6,0 7,50 r min. 1,46 1,96 2,26 2,40 2,60 3,10 3,70 4,6 6,0 7,50 r max. 0,1 0,1 0,1 0,1 0,1 0,2 0,2 0,25 0,4 0,4 r ₁ max. 0,1 0,1 0,1 0,1 0,2 0,2 0,25 0,4 0,4 r ₁ max. 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 socket nom. a max. 0,77 1,04 1,27 1,33 1,66 1,91 </th <th colspan="2">a max.</th> <th>0,8</th> <th>0,9</th> <th>1</th> <th>1,2</th> <th>1,4</th> <th>1,6</th> <th>2</th> <th>2,5</th> <th>3</th>	a max.		0,8	0,9	1	1,2	1,4	1,6	2	2,5	3	
dk nom. = max. min. 4,0 5,0 5,6 7,00 8,00 9,50 12,00 16,00 20,00 k nom. = max. max. min. 1,60 2,10 2,40 2,60 3,10 3,70 4,6 6,0 7,50 r max. 0,1 0,1 0,1 0,1 0,1 0,1 0,2 0,2 0,25 0,4 0,1 r max. 0,1 0,1 0,1 0,1 0,1 0,2 0,2 0,25 0,4 0,1 x max. 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 x max. 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 x max. 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 x p.1 max. 0,77 1,04 1,27 1,33 1,66	b		min.	25	25	25	38	38	38	38	38	38
min. max.	d_{a}		max.	2,6	3,1	3,6	4,1	4,7	5,7	6,8	9,2	11,2
Max Max	d.	nom. :		4,0	5,0	5,6	7,00	8,00	9,50	12,00	16,00	20,00
min. 1,46 1,96 2,26 2,46 2,92 3,52 4,3 5,7 7,14 r max. 0,1 0,1 0,1 0,1 0,2 0,2 0,25 0,4 0,4 r ₁ ≈ 3,2 4 5 6 6,5 8 10 13 16 x max 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 Socket No. 6 8 10 15 20 25 30 45 50 Min. max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 nom. a min. max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 nom. a min. max. 0,376 0,386 0,544	^α K		min.	3,7	4,7	5,3	6,64	7,64	9,14	11,57	15,57	19,48
min. 1,46 1,96 2,26 2,46 2,92 3,52 4,3 5,7 7,14 r			nom. = max.	1,60	2,10	2,40	2,60	3,10	3,70	4,6	6,0	7,50
Recommendation Rec	K	κ		1,46	1,96	2,26	2,46	2,92	3,52	4,3	5,7	7,14
max. 1,0 1,1 1,25 1,5 1,75 2,0 2,5 3,2 3,8 Hexalobular socket 2 2 2 3 2 3,8 5 5 A ref. 1,75 2,4 2,8 3,35 3,95 4,5 5,6 7,95 8,95 socket r max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 nom. a min. max. 0,63 0,91 1,01 1,07 1,27 1,52 2,02 2,79 3,62 nom. a min. max. Approximate mass of carbon steels screws, in kilograms per 1 000 pieces (ρ = 7,85 kg/dm³) (for information only) 1 1 1,02 2,02 2,79 3,62 4 3,76 4,24 0,196 0,366 0,544	r		max.	0,1	0,1	0,1	0,1	0,2	0,2	0,25	0,4	0,4
Hexalobular socket A ref. 1,75 2,4 2,8 3,35 3,95 4,5 5,6 7,95 8,95	r_{f}		≈	3,2	4	5	6	6,5	8	10	13	16
Hexalobular socket A	x	x max.		1,0	1,1	1,25	1,5	1,75	2,0	2,5	3,2	3,8
max. 0,77 1,04 1,27 1,33 1,66 1,91 2,42 3,18 4,02 min. 0,63 0,91 1,01 1,07 1,27 1,52 2,02 2,79 3,62		<u>;</u>	Socket No.	6	8	10	15	20	25	30	45	50
mom. a min. max.		ılar <u>4</u>	4 ref.	1,75	2,4	2,8	3,35	3,95	4,5	5,6	7,95	8,95
min. 0,63 0,91 1,01 1,07 1,27 1,52 2,02 2,79 3,62 nom. a min. Approximate mass of carbon steel screws, in kilograms per 1 000 pieces $(\rho = 7,85 \text{ kg/dm}^3)$ (for information only) 3 2,8 3,2 0,178 0,336 Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Image: Colspan="6">Approximate mass of carbon steel screws, in kilograms per 1 000 pieces $(\rho = 7,85 \text{ kg/dm}^3)$ (for information only) 3 2,8 3,2 0,178 0,336 Image: Colspan="6">Image: Colspan="6" Colspan="6" Colspan="6" Colspan="6" Colspan="6" Colspan="6" Colspan="6" Colspan=	socket	i		0,77	1,04	1,27	1,33	1,66	1,91	2,42	3,18	4,02
nom. a min. max. (ρ = 7,85 kg/dm³) (for information only) 3 2,8 3,2 0,178 0,336		•		0,63	0,91	1,01	1,07	1,27	1,52	2,02	2,79	3,62
nom. a min. max. (for information only) 3 2,8 3,2 0,178 0,336 <	l c											
4 3,76 4,24 0,196 0,366 0,544	nom. ^a	min.	max.									
5 4,76 5,24 0,215 0,396 0,588 0,891 1,30 232 333 34,26 0,632 0,951 1,38 2,32 336 336 337 337 338 2,32 337 337 338 33,23 339 339 339 339 339 339 339 339 339 339 339 339 339 339 339 339 339 339 339 344 339 344 348 349 349 349	3	2,8	3,2	0,178	0,336							
6 5,76 6,24 0,233 0,426 0,632 0,951 1,38 2,32 8 7,71 8,29 0,270 0,486 0,720 1,07 1,53 2,57 4,37 10 9,71 10,29 0,307 0,546 0,808 1,19 1,69 2,81 4,72 9,96 12 11,65 12,35 0,344 0,606 0,896 1,31 1,84 3,06 5,07 10,6 19,8 (14) 13,65 14,35 0,381 0,666 0,984 1,43 2,00 3,31 5,42 11,2 20,5 16 15,65 16,35 0,418 0,726 1,07 1,55 2,15 3,56 5,78 11,9 21,8 20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67	4	3,76	4,24	0,196	0,366	0,544						
8 7,71 8,29 0,270 0,486 0,720 1,07 1,53 2,57 4,37 4,37 10 9,71 10,29 0,307 0,546 0,808 1,19 1,69 2,81 4,72 9,96 12 11,65 12,35 0,344 0,606 0,896 1,31 1,84 3,06 5,07 10,6 19,8 (14) 13,65 14,35 0,381 0,666 0,984 1,43 2,00 3,31 5,42 11,2 20,5 16 15,65 16,35 0,418 0,726 1,07 1,55 2,15 3,56 5,78 11,9 21,8 20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39<	5	4,76	5,24	0,215	0,396	0,588	0,891	1,30				
10 9,71 10,29 0,307 0,546 0,808 1,19 1,69 2,81 4,72 9,96 12 11,65 12,35 0,344 0,606 0,896 1,31 1,84 3,06 5,07 10,6 19,8 (14) 13,65 14,35 0,381 0,666 0,984 1,43 2,00 3,31 5,42 11,2 20,5 16 15,65 16,35 0,418 0,726 1,07 1,55 2,15 3,56 5,78 11,9 21,8 20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,	6	5,76	6,24	0,233	0,426	0,632	0,951	1,38	2,32			
12 11,65 12,35 0,344 0,606 0,896 1,31 1,84 3,06 5,07 10,6 19,8 (14) 13,65 14,35 0,381 0,666 0,984 1,43 2,00 3,31 5,42 11,2 20,5 16 15,65 16,35 0,418 0,726 1,07 1,55 2,15 3,56 5,78 11,9 21,8 20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,74 10,9 21,2	8	7,71	8,29	0,270	0,486	0,720	1,07	1,53	2,57	4,37		
(14) 13,65 14,35 0,381 0,666 0,984 1,43 2,00 3,31 5,42 11,2 20,5 16 15,65 16,35 0,418 0,726 1,07 1,55 2,15 3,56 5,78 11,9 21,8 20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 40,5 40,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6	10	9,71	10,29	0,307	0,546	0,808	1,19	1,69	2,81	4,72	9,96	
16 15,65 16,35 0,418 0,726 1,07 1,55 2,15 3,56 5,78 11,9 21,8 20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,74 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	12	11,65	12,35	0,344	0,606	0,896	1,31	1,84	3,06	5,07	10,6	19,8
20 19,58 20,42 0,492 0,846 1,25 1,79 2,46 4,05 6,48 13,2 23,8 25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,14 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	(14)	13,65	14,35	0,381	0,666	0,984	1,43	2,00	3,31	5,42	11,2	20,5
25 24,58 25,42 0,996 1,47 2,09 2,85 4,67 7,36 14,8 26,3 30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,14 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	16	15,65	16,35	0,418	0,726	1,07	1,55	2,15	3,56	5,78	11,9	21,8
30 29,58 30,42 1,69 2,39 3,23 5,29 8,24 16,4 28,8 35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,14 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	20	19,58	20,42	0,492	0,846	1,25	1,79	2,46	4,05	6,48	13,2	23,8
35 34,5 35,5 2,68 3,62 5,91 9,12 18,0 31,3 40 39,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,14 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	25	24,58	25,42		0,996	1,47	2,09	2,85	4,67	7,36	14,8	26,3
40 39,5 40,5 4,01 6,52 10,0 19,6 33,9 45 44,5 45,5 7,14 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	30	29,58	30,42			1,69	2,39	3,23	5,29	8,24	16,4	28,8
45 44,5 45,5 7,14 10,9 21,2 36,4 50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	35	34,5	35,5				2,68	3,62	5,91	9,12	18,0	31,3
50 49,5 50,5 7,76 11,8 22,8 38,9 (55) 54,4 55,6 12,6 24,4 41,4	40	39,5	40,5					4,01	6,52	10,0	19,6	33,9
(55) 54,4 55,6 12,6 24,4 41,4	45	44,5	45,5]		7,14	10,9	21,2	36,4
	50	49,5	50,5						7,76	11,8	22,8	38,9
60 59,4 60,6 13,5 26,0 43,9	(55)	54,4	55,6							12,6	24,4	41,4
	60	59,4	60,6						_	13,5	26,0	43,9

NOTE Commercial lengths are the ones between the bold stepped lines.

^a Sizes in parentheses should be avoided if possible.

b *P* pitch of the thread.

Screws with nominal lengths above the dashed stepped line are threaded up to the head (b = l - a). See ISO 888.

4 Specifications and reference International Standards

See Table 2.

Table 2 — Specification and reference International Standards

Material		Steel	Stainless steel	Non-ferrous metal				
General International requirements Standard		ISO 8992						
	Tolerance	6g						
Thread	International Standards	ISO 261, ISO 965-2						
Mechanical	Property class	4.8	A2-70 A3-70	As agreed				
properties	International Standards	ISO 898-1	ISO 3506-1	ISO 8839				
	Product grade	A						
Tolerances	International Standard	ISO 4759-1						
Hexalobular socket	International Standard	ISO 10664						
		As processed	Plain	Plain				
		Requirements for electroplating are covered in ISO 4042.	_	Requirements for electroplating are covered in ISO 4042.				
Finish		Requirements for non-electrolytically applied zinc flake coatings are covered in ISO 10683.						
Surface discontinu	uities	Limits for surface discontinuities are covered in ISO 6157-1.	_	_				
Acceptability		For acceptance procedure, see ISO 3269.						

5 Designation

EXAMPLE A hexalobular socket pan head screw with thread M5, nominal length l = 20 mm and property class 4.8 is designated as follows:

Hexalobular socked pan head screw ISO 14583 - M5 \times 20 - 4.8