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Slotted Countersunk (Flat) Head Screws for Fine Mechanics M 0.4 to M 1.4

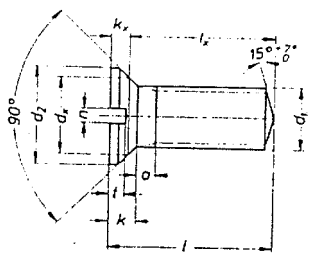
DIN 8245

Senkschrauben mit Schlitz für die Feinwerktechnik, M 0,4 bis M 1,4

Dimensions in mm

Designation of a countersunk (flat) head screw with thread d_1 = M 0.7, length l = 1.4 mm and strength category 5.8:

Countersunk (flat) head screw
M 0.7 x 1.4 DIN 8245 - 5.8



d_1		M0,4	M0,5	M0,6	M0,7	M0,8	M0,9	M1	M1,2	M1,4
a	max.	0,2	0,25	0,3	0,35	0,4	0,45	0,5	0,5	0,6
d_2	h10 [2]	0,7	0,8	0,9	1,1	1,2	1,4	1,6	1,9	2,3
k	max.	0,2	0,25	0,25	0,3	0,35	0,4	0,45	0,5	0,6
n		0,14	0,14	0,14	0,16	0,16	0,2	0,2	0,2	0,25
	perm. var.	H9					C12			
t	min.	0,08	0,09	0,09	0,12	0,14	0,16	0,18	0,2	0,24
	max.	0,12	0,14	0,14	0,18	0,21	0,24	0,27	0,3	0,35
d_x [1]		0,60	0,70	0,80	1,00	1,00	1,20	1,40	1,60	2,00
k_x [1]		0,1	0,15	0,15	0,15	0,25	0,25	0,25	0,30	0,30
	perm. var.	h10 [2]	h11 [2]							
l	max.	l_x [1] perm. var. for $l_x < 1$ = h11 [2] for $l_x \geq 1$ = h12								
0,6		0,5								
0,7		0,6	0,55							
0,8		0,7	0,65	0,65						
1		0,9	0,85	0,85	0,85					
1,2		1,1	1,05	1,05	1,05	0,95				
1,4		1,3	1,25	1,25	1,25	1,15	1,15	1,15		
1,6			1,45	1,45	1,45	1,35	1,35	1,35	1,3	1,3
1,8			1,65	1,65	1,65	1,55	1,55	1,55	1,5	1,5
2				1,85	1,85	1,75	1,75	1,75	1,7	1,7
2,2				2,05	2,05	1,95	1,95	1,95	1,9	1,9
2,5				2,35	2,35	2,25	2,25	2,25	2,2	2,2
3					2,85	2,75	2,75	2,75	2,7	2,7
4						3,75	3,75	3,75	3,7	3,7
5							4,75	4,75	4,7	4,7
6								5,75	5,7	5,7

[1] [2] See Explanations

[3] The basic tolerances and tolerance zones given for the nominal dimension range from 1 to 3 mm also apply provisionally to the nominal dimension range under 1 mm until a corresponding DIN standard dealing with tolerances for this range is available.

The standard sizes lie within the two stepped lines. Intermediate lengths are permitted, but should be avoided where possible.

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Technical conditions of delivery according to DIN 267

Strength category or material:

5.8 according to DIN 267 Sheet 3
A2 according to DIN 267 Sheet 11
Other materials subject to agreement

Finish:

f (fine) according to DIN 267 Sheet 6 (at present circulating as draft)

If surface protection is required, the designation must be augmented according to DIN 267 Sheet 9, e.g.:

Designation of the screw quoted in the example, but with electrodeposited copper-nickel coating galCu 3 Ni 5 bk (Code G 3 E):

Countersunk (flat) head screw M 0.7 × 1.4 DIN 8245 - 5.8 - G 3 E

Explanations

a) Widening of coverage

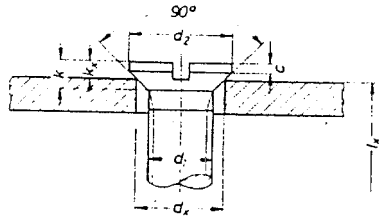
The June 1947 Issue of DIN 8245 contained countersunk head screws for watch and clock-making. Revision of the earlier version had become necessary because it no longer met present-day requirements in certain important respects. In the course of this work it was found that DIN 8245 has found application not solely in watch and clock-making, but also in the field of fine mechanics. The diameter range has therefore been extended to include M 1.4, so that most of the screws needed for fine mechanics are now covered.

b) Superseding of DIN 8246 and DIN 8251

During the time that the first draft (Issue of September 1969) of the new issue of DIN 8245 was circulating for comment, it was found that the draft in question superseded DIN 8246 "Clocks and clockwork precision mechanics, countersunk head screws for bottom balance caps" and DIN 8251 "Clocks and clockwork precision mechanics, countersunk screws for top balance jewel caps", and therefore these two standards were withdrawn in March 1970.

c) Dimensioning

In the case of countersunk head screws, the determining of the head height k presents special difficulty because the transition from the screw head to the shank or thread is always radiused and there is therefore no edge which can serve as a basis for measurement. A measuring method has therefore been adopted which overcomes this difficulty. Moreover, the newly included check dimensions d_x, k_x and l_x represent a dimensioning scheme which is functionally apt and which offers considerable advantages to both manufacturer and user[3]).



3.1. Dimension "d_x"

d_x is calculated by the formula $d_x = \frac{d_1 + d_2}{2}$ the values being rounded to the nearest standard sizes according to DIN 3. The check diameter d_x specified for the screw is at the same time the hole diameter for the necessary inspection gauge.

3.2. Dimension "k_x" and dimension "c"

k_x is calculated by the formula $k_x = k - \left(\frac{d_x - d_1}{2}\right)$ and can be determined with the aid of a stylus gauge and the inspection gauge. If the tolerance specified for them is taken into account, the values of k_x will ensure the required head height k, and a value of c in line with requirements if the tolerance specified for d_2 is taken into account.

c is calculated by the formula $c = k_x - \left(\frac{d_2 - d_x}{2}\right)$. For information, the c values arising when the extremes of the tolerances on k_x and d_2 are applied are given below (see Table).

3.3. Dimension "l_x"

$$l_x = l - k_x$$

In acceptance testing and in the design field it is expedient to take account of l_x, since l is also guaranteed in extreme cases as an upper limit with the tolerances specified for l_x and k_x maintained.

3) See DIN-Mitteilungen, Vol. 49, No. 8, page 307, Ing. Karl Finkl, München, "Dimensioning of countersunk head screws and the associated countersunks".

Thread		M0,4	M0,5	M0,6	M0,7	M0,8	M0,9	M1	M1,2	M1,4
c	max.	0,07	0,12	0,12	0,12	0,17	0,17	0,17	0,17	0,17
	min.	0,01	0,04	0,04	0,04	0,09	0,09	0,09	0,09	0,09