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DEUTSCHE NORMEN

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No guarantee can be given in respect of this translation
In all cases the latest German-language version of this standard shall be taken as authoritative

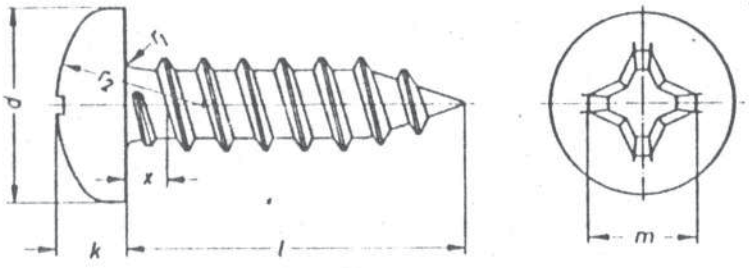
Pan Head Tapping Screws with Recessed Head

DIN 7981

Linsen-Blechschrauben mit Kreuzschlitz

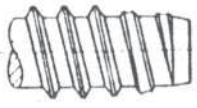
Dimensions in mm

Type B with cone end



Type BZ with flat end

other dimensions and details as for Type B



$x_{max.} = P$ according to DIN 7970

Designation of a pan head tapping screw with cone end (B) of 3.5 mm nominal diameter and length l = 19 mm:

Tapping screw B 3.5 × 19 DIN 7981

Nominal diameter			2,2	2,9	3,5	(3,9)	4,2	4,8	(5,5)	6,3
d			4,2	5,6	6,9	7,5	8,2	9,5	10,8	12,5
k		max.	1,8	2,2	2,6	2,8	3,05	3,55	3,95	4,55
		min.	1,55	1,95	2,35	2,55	2,75	3,25	3,65	4,25
r_1		max.	0,3	0,4	0,5	0,5	0,6	0,7	0,8	0,9
r_2		≈	3,4	4,4	5,4	5,8	6,2	7,2	8,2	9,5
Recess	Size		1		2				3	
	m		2,6	3	4,2	4,4	4,6	5	6,5	7,1
	Depth of penetration	min.	0,86	1,35	1,4	1,63	1,8	2,26	2,49	3
		max.	1,32	1,8	2,03	2,26	2,46	2,87	3,15	3,66
l			Weight (7,85 kg/dm³) kg/1000 pieces ≈							
4,5			0,160	—	—	—	—	—	—	—
6,5			0,200	0,400	—	—	—	—	—	—
9,5			0,260	0,510	0,790	1,05	1,22	1,85	—	—
13			0,330	0,630	0,970	1,27	1,46	2,20	3,20	3,90
16			0,390	0,740	1,12	1,46	1,67	2,50	3,60	4,44
19				0,850	1,27	1,65	1,88	2,80	4,00	4,98
22					1,42	1,84	2,10	3,10	4,38	5,52
25					1,57	2,03	2,30	3,40	4,76	6,06
32							2,80	4,10	5,67	7,32
38								4,70	6,45	8,40
45										
50										
No according to ISO			2	4	6	7	8	10	12	14

Bracketed nominal diameters should be avoided wherever possible.

Normally these tapping screws are made in the sizes for which weight details are given. It is not practicable to make the sizes for which dashes appear instead of length data.

Technical conditions of delivery and material according to DIN 267 Sheet 12 (at present circulating as draft)

Type: H according to DIN 267 Sheet 2

Thread and screw ends according to DIN 7970
Recesses and depth gauges according to DIN 7962
For core hole diameters see DIN 7975

Explanations on page 2

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Explanations

In recent years the Technical Committee ISO/TC 2 "Bolts, nuts and accessories" of the International Organization for Standardization (ISO) has been dealing with ISO Recommendations for tapping screws and has decided with a large majority to adopt the American standards in full. Corresponding ISO drafts have already been passed. These relate, however, only to tapping screws with slotted head.
Owing to the number of patent claims affecting the recesses, tapping screws with recessed head have not been internationally standardized. The recommendation has been made, however, that standard head dimensions should be specified for tapping screws with slotted head and with recessed head. This recommendation and the new issues of DIN 7970, DIN 7971, DIN 7972 and DIN 7973 therefore gave occasion to revise the standards dealing with recessed head tapping screws also.
The new issues of DIN 7981, DIN 7982 and DIN 7983 are very closely in line with the new issues of DIN 7971, DIN 7972 and DIN 7973, in other words the head dimensions of the screws agree. The only exception is DIN 7981. Compared with DIN 7971, the head of the recessed screw is not flat but domed. For the same head diameter and approximately the same volume of upset, therefore, the resulting head heights are greater for recessed head screws according to DIN 7981 than for slotted head screws according to DIN 7971. The doming of the head on these screws is also conditioned by pressworking reasons, since it is very difficult to impress cruciform recesses in flat pan heads.
Since the coarse pitch thread (Type A) hitherto in use has not been accepted by ISO, it has ceased to be included in the present new issues of DIN 7981, DIN 7982 and DIN 7983. It should be noted, however, that the forthcoming ISO Recommendations regarding tapping screws provide different type letter symbols for screws with cone end and screws with flat end. These type letter symbols have not been adopted because this would have entailed amending existing documents and in addition would have made it necessary to use different standard specification numbers. Hence the following situation has arisen:

Type B with cone end according to DIN = Type AB according to ISO

Type BZ with flat end according to DIN = Type B according to ISO

It is appropriate at this stage to draw attention to the possibility of confusion.
The ISO Recommendations denote the tapping screw thread by the numbers hitherto commonly used, for example in the U.S.A. In the DIN standards, however, the nominal diameters used hitherto have been retained for denoting the thread. The ISO numbers have been added for information purposes only.
Compared with the previous issues of the standards, the depths of penetration of the recesses have been changed in some cases. Practical use and appropriate tests have shown that corrections were necessary in order to prevent head fractures (fractures occurring between the bottom of the recess and the screw shank).
With regard to technical conditions of delivery and materials, reference has been made to DIN 267 Sheet 12 (at present circulating as draft). This draft standard likewise agrees with an ISO Recommendation in course of preparation.