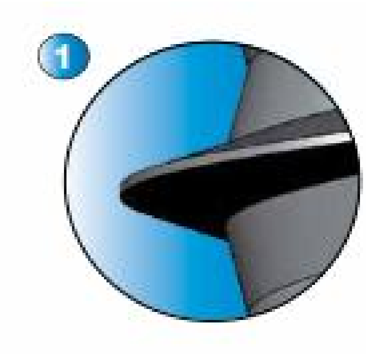
EJOT®

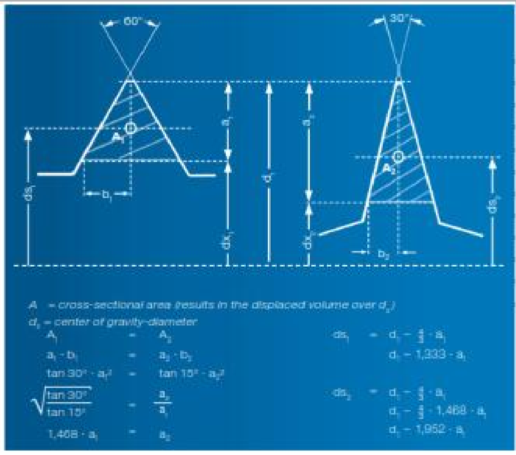
The EJOT PT® Screw

The proven fastener for thermoplastics

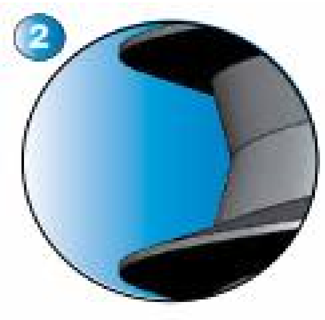
EJOT® The Quality Connection



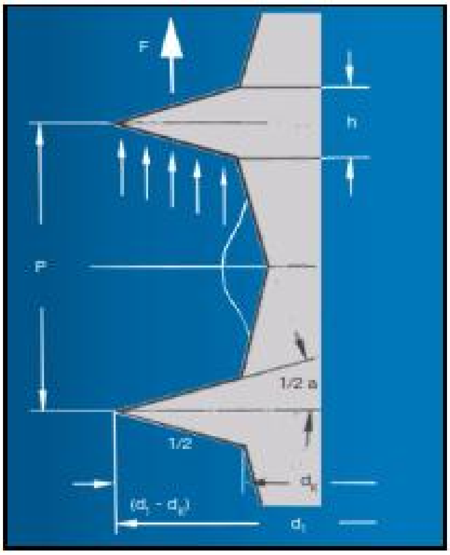
PT® with 30° flank angle



Larger thread bearing depth -results in larger load-carrying capacity, lower installation torques and smaller lever arms; but provides the same displacement volume.

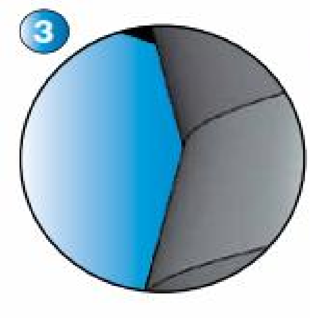


PT® with optimum pitch



Good self-locking of the screw thread, plus balanced load ratio between plastic and steel.

F = shearing stress in the plastic material / flexural stress on the screw thread
P = thread pitch
A = shearing diameter = $d1 \cdot \pi \cdot P$
P
W = resisting torque of the thread root= $h^2 \cdot dK \cdot \pi = \tan^2 \cdot 2\,(d1 - dK)^2 \cdot dK \cdot \pi$
τB = shearing fracture stress of the plastic material
σB = bending fracture stress of the screw material



PT® with recessed thread root

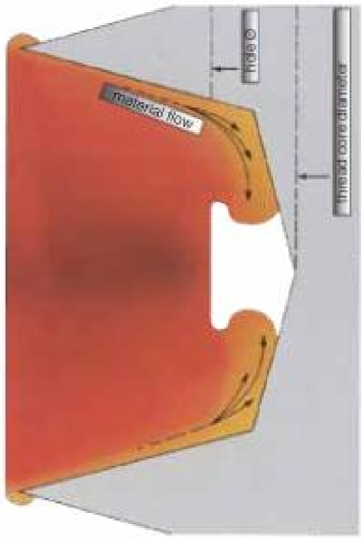


Diagram of the material flow in the recessed thread root

Optimum material flow during thread forming
Low radial stress
No material jam in the core area
No material stress through plasticisation
Increased load-carrying capacity and best possible resistance against relaxation.

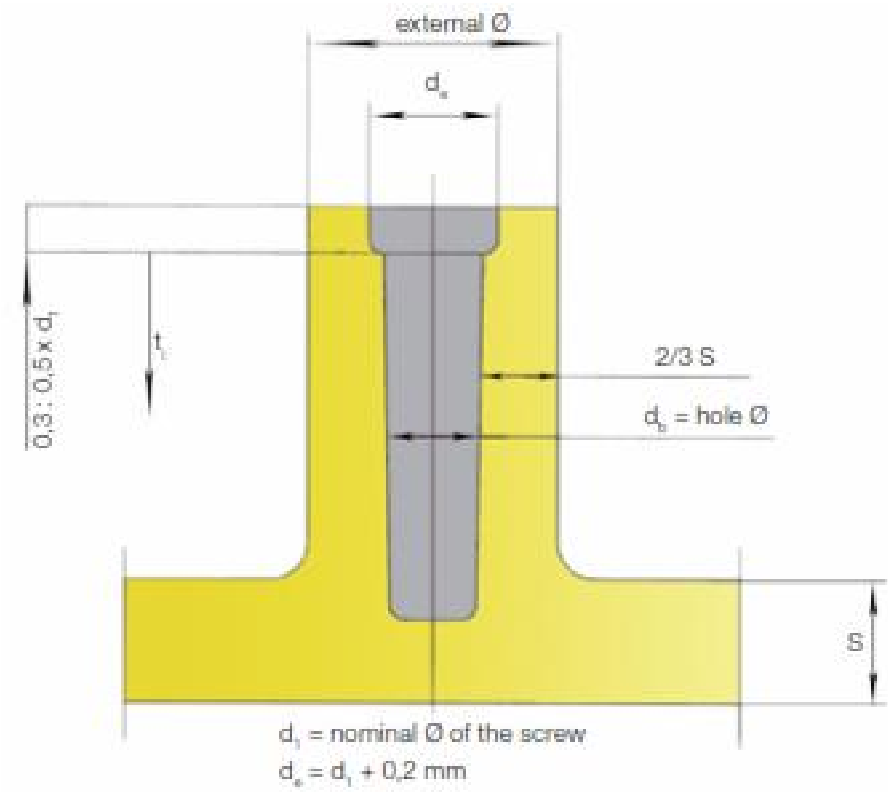
Notes for the design engineer.

PT joints facilitate the design of thin walled flat structures. The results are material saving and cycle time reduction during injection moulding. If the overall joint costs of a component are examined, considerable cost saving can be realised with the PT joint.

The boss geometry should correspond to the illustrated design recommendation (page 4).

The top balancing hole is of special importance as it ensures a favourable distribution of edge stress.

Boss geometry for EJOT PT joints



Design recommendations for EJOT PT screws.

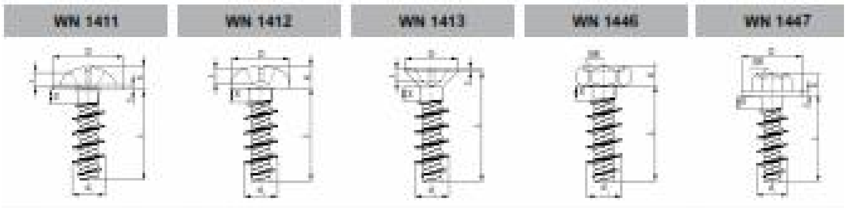
Material	Hole Ø d_b	External Ø d_A	Installation Depth t_i
ABS	0,80 x d	2,00 x d	2,00 x d
ABS PC Blend	0,80 x d	2,00 x d	2,00 x d
ASA	0,78 x d	2,00 x d	2,00 x d
PA 4.6	0,73 x d	1,85 x d	1,80 x d
PA 6	0,75 x d	1,85 x d	1,70 x d
PA 6.6	0,75 x d	1,85 x d	1,70 x d
PBT	0,75 x d	1,85 x d	1,70 x d
PE - LD	0,70 x d	2,00 x d	2,00 x d
PE - HD	0,75 x d	1,80 x d	1,80 x d
PET	0,75 x d	1,85 x d	1,70 x d
PET - GF 30	0,80 x d	1,80 x d	1,70 x d
POM	0,75 x d	1,95 x d	2,00 x d
POM - GF 30	0,80 x d	1,95 x d	2,00 x d
PP	0,70 x d	2,00 x d	2,00 x d
PP - GF 30	0,72 x d	2,00 x d	2,00 x d
PP - TV 20	0,72 x d	2,00 x d	2,00 x d
PS	0,80 x d	2,00 x d	2,00 x d
PVC (hart)	0,80 x d	2,00 x d	2,00 x d
SAN	0,77 x d	2,00 x d	1,90 x d

Part numbering and specification, as follows:

Head style KA=Phillips KB=Pozi, diameter, length.

Eg. A pan flange pozi screw, 4mm in diameter and 10mm long = WN1411-KB40-10

Torx drive products available on request.



				K30	K 35	K 40	K 50	K 60	K 70	K 80	K 100
Nominal Ø				K30	K 35	K 40	K 50	K 60	K 70	K 80	K 100
External thread Ø			d_1	3,0	3,5	4,0	5,0	6,0	7,0	8,0	10
Thread core Ø			d_2	1,66	1,91	2,17	2,68	3,19	3,7	4,21	5,23
Thread pitch			P	1,34	1,57	1,79	2,24	2,69	3,14	3,59	4,49
Thread run-out X_{max}	Standard L >		3 · d	3,0	3,5	4,0	5,0	6,0	7,0	8,0	10
	Shortened L ≤		3 · d	1,5	1,8	2,0	2,5	3,0	3,5	4,0	5,0
WN1411	Head Ø		D	6,0	7,0	8,0	10,0	12,0	14,0		
	Head height		K	2,1	2,4	2,5	3,2	4,0	4,6		
	Washer thickness		S	0,7	0,8	0,9	1,1	1,2	1,5		
	H cross recess (A)	Width / size	m	2,9/1	3,5/2	4,2/2	4,8/2	6,4/3	7,0/3		
		Depth t	min.	1,15	1,07	1,33	1,98	2,24	2,84		
			max.	1,61	1,70	1,98	2,61	2,90	3,50		
	Z cross recess (B)	Width / size	m	2,8/1	3,8/2	4,1/2	4,7/2	6,3/3	7,0/3		
		Depth t	min.	1,26	1,06	1,40	2,01	2,27	2,91		
			max.	1,51	1,54	1,86	2,47	2,73	3,37		
WN1412	Head Ø		D	5,3	6,1	7,0	8,8	10,5	12,3		
	Head height		K	2,0	2,5	2,7	3,4	4,0	4,5		
	H cross recess (A)	Width / size	m	2,9/1	4,0/2	4,3/2	4,9/2	6,5/3	7,1/3		
		Depth t	min.	1,19	1,23	1,51	2,12	2,44	3,00		
			max.	1,65	1,86	2,14	2,75	3,10	3,66		
	Z cross recess (B)	Width / size	m	2,9/1	3,9/2	4,3/2	4,9/2	6,6/3	7,1/3		
		Depth t	min.	1,36	1,26	1,62	2,23	2,57	3,14		
			max.	1,61	1,72	2,08	2,67	3,03	3,61		
WN1413	Head Ø		D	5,5	7,3	8,4	9,3	11,3	13,6		
	Head height		c	0,55	0,65	0,70	0,75	0,85	0,90		
	H cross recess (A)	Width / size	m	2,7/1	3,9/2	4,2/2	4,6/2	5,2/2	6,9/3		
		Depth t	min.	1,10	1,33	1,59	2,04	2,59	3,02		
			max.	1,56	1,96	2,22	2,67	3,22	3,68		
	Z cross recess (B)	Width / size	m	2,7/1	4,0/2	4,2/2	4,6/2	5,1/2	6,8/3		
		Depth t	min.	1,20	1,47	1,70	2,06	2,60	3,01		
			max.	1,45	1,93	2,18	2,52	3,06	3,47		
WN1446	Wrench size		A/F	5,0	5,5	7,0	8,0	10,0	10,0	13,0	13,0
	Head height		K	1,5	2,3	2,3	3,0	3,5	4,8	5,3	5,8
WN1447	Wrench size		A/F	5,0	5,5	5,5	7,0	8,0	8,0	10,0	13,0
	Head height		K	2,3	2,8	2,8	3,5	4,2	5,0	6,0	7,0
	Washer Ø		D	6,5	7,0	8,0	10,0	12,0	14,0	16,0 *	18,0
	Washer thickness		S	0,6	0,7	0,8	0,8	1,0	1,2	1,2	1,5