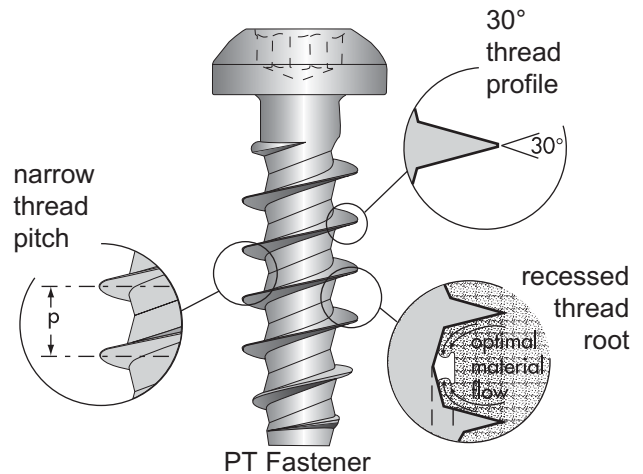


# PT<sup>®</sup> Thread-forming Fasteners

With a high thread profile and recessed thread root, the PT fastener provides increased thread engagement with minimal stress on the boss. It provides optimal performance in a wide range of thermoplastics.



## Specifications

Sizes • K15 – K100 in diameter  
up to 127mm under head

Head Styles • Can be used with any head design

Specials • Shoulder screws, sems, double end studs, collar studs; others as required

Drive Systems • TORX PLUS<sup>®</sup> Drive is recommended to facilitate the proper amount of torque transfer required for forming threads. Other styles also available.

## Applications

Thermoplastics with a flexural modulus up to 1,400,000 p.s.i.

## Key Advantages

- Optimizes performance in all types of thermoplastics
- Provides maximum resistance to back-out and pull-out
- Minimizes boss failure
- Increases product reliability

## Features & Benefits

Narrow 30° thread profile minimizes radial expansion and stress in boss

- Permits use of thinner bosses, which can reduce cycling times and material usage
- Reduces back-out caused by relaxation
- Increases load-carrying capability through increased thread engagement
- Can be used in repeat assembly operations

Optimum thread pitch allows deeper thread engagement

- Provides increased pull-out values
- Optimizes non-reversibility
- Balances load ratio between plastic and screw

Recessed thread root allows optimal material flow

- Minimizes installation torque
- Improves clamp load
- Minimizes potential of boss cracking

Round body evenly distributes surface contact between application and screw

- Improves load ratio
- Reduces high points of stress on the boss

Through hardened to Rc 33-39

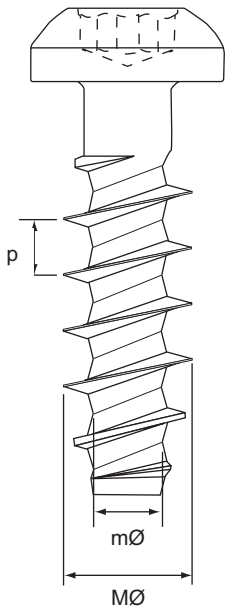


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# PT® Thread-forming Fasteners

## Dimensions

\*PT fastener standards are true metric sizes.



Nom. Size	Metric Size	p Thread Pitch (mm)	MØ Major Diameter (mm)	mØ Minor Diameter (mm)
K15	M1.5	0.67	1.50	0.89
K18	M1.8	0.80	1.80	1.04
K22	M2.2	0.98	2.20	1.25
K25	M2.5	1.12	2.50	1.40
K30	M3.0	1.34	3.00	1.66
K35	M3.5	1.57	3.50	1.91
K40	M4.0	1.79	4.00	2.17
K50	M5.0	2.24	5.00	2.68
K60	M6.0	2.69	6.00	3.19
K70	M7.0	3.14	7.00	3.70
K100	M10.0	4.49	10.00	5.23

## Hole Size per Percentage of Thread Engagement

Size	100%		90%		80%		70%		60%		50%		40%	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
K15	1.21	.048	1.24	.049	1.27	.050	1.30	.051	1.33	.052	1.35	.053	1.38	.054
K18	1.40	.055	1.44	.057	1.48	.058	1.52	.060	1.56	.061	1.60	.063	1.64	.065
K22	1.66	.065	1.71	.067	1.77	.070	1.82	.072	1.88	.074	1.93	.076	1.98	.078
K25	1.85	.073	1.92	.076	1.98	.078	2.05	.081	2.11	.083	2.18	.086	2.24	.088
K30	2.18	.086	2.26	.089	2.34	.092	2.42	.095	2.51	.099	2.59	.102	2.67	.105
K35	2.50	.098	2.60	.102	2.70	.106	2.80	.110	2.90	.114	3.00	.118	3.10	.122
K40	2.82	.111	2.94	.116	3.06	.120	3.17	.125	3.29	.130	3.41	.134	3.53	.139
K50	3.46	.136	3.62	.142	3.77	.148	3.92	.155	4.08	.161	4.23	.167	4.39	.173
K60	4.11	.162	4.30	.169	4.49	.177	4.68	.184	4.86	.192	5.05	.199	5.24	.206
K80	5.40	.212	5.66	.223	5.92	.233	6.18	.243	6.44	.253	6.70	.264	6.96	.274
K100	6.68	.263	7.02	.276	7.35	.289	7.68	.302	8.01	.315	8.34	.328	8.67	.341

# PT<sup>®</sup> Thread-forming Fasteners

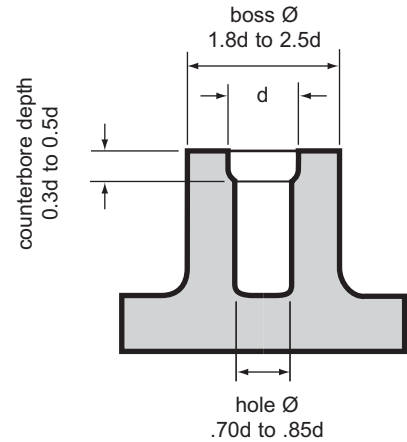
Laboratory testing and service applications have produced the general recommendations shown here. Specific applications may, however, require some modifications to allow for:

- molding conditions
- mold tool design
- amount of reground material
- weld lines
- structural heterogeneity
- feed distance from gate

In order to ensure optimal performance, we strongly recommend testing on initial samples.

## Counterbore Size

The width of the counterbore should be equal to the major diameter of the screw ( $d$ ). The height of the counterbore should be 0.3 to 0.5 times the nominal screw diameter.



## Boss Design Example

Material: ABS

To calculate boss size based on fastener size:

Screw size: K40

Major diameter: 4mm

Boss O.D. = 2 X screw dia.

2 X 4mm = 8mm

Boss I.D. = .8 X screw dia.

.8 X 4mm = 3.2mm

Min. length of eng. = 2 X screw dia.

2 X 4mm = 8mm

To calculate screw size based on (predetermined) boss size:

Boss O.D.: 8mm

Boss I.D.: 3.2mm

Screw dia. = Boss O.D. ÷ 2

8mm ÷ 2 = 4mm

## PT Fastener Boss Design Recommendations

Material	Hole Diameter	Boss Diameter	Length of Engagement
ABS (acrylonitrile)	0.80 x d	2.00 x d	2.00 x d
ASA (acrylonitrile styrene acrylic)	0.78 x d	2.00 x d	2.00 x d
Nylon: PA6 (polyamide)	0.75 x d	1.85 x d	1.70 x d
Nylon: PA-GF30	0.80 x d	2.00 x d	1.90 x d
Nylon: PA6.6	0.75 x d	1.85 x d	1.70 x d
Nylon: PA6.6-GF30	0.82 x d	2.00 x d	1.80 x d
PBT (polybutylene terephthalate)	0.75 x d	1.85 x d	1.70 x d
PBT-GF30	0.80 x d	1.80 x d	1.70 x d
PC (polycarbonate)	0.85 x d	2.50 x d	2.20 x d
PC-GF30	0.85 x d	2.20 x d	2.00 x d
PE soft (polyethylene)	0.70 x d	2.00 x d	2.00 x d
PE hard (polyethylene)	0.75 x d	1.80 x d	1.80 x d
PET (polyethylene terephthalate)	0.75 x d	1.85 x d	1.70 x d
PET-GF30	0.80 x d	1.80 x d	1.70 x d
POM acetal	0.75 x d	1.95 x d	2.00 x d
PP (polypropylene)	0.70 x d	2.00 x d	2.00 x d
PPO (polyphenylene oxide)	0.85 x d	2.50 x d	2.20 x d
PS (polystyrene)	0.80 x d	2.00 x d	2.00 x d
PVC hard (polyvinyl chloride)	0.80 x d	2.00 x d	2.00 x d
SAN (styrene acrylonitrile)	0.77 x d	2.00 x d	1.90 x d