DIRECT SCREW FIXINGS

FOR PLASTICS & LIGHT ALLOYS

P.S.M INTERNATIONAL

INTRODUCTION

P.S.M *the local fastener company . . .*

PSM International is a global manufacturer and distributor of specialised fasteners and joining systems.

The Company has its origins in the heartland of British manufacturing - the so called "Black Country" in the English Midlands.
The business was established in 1931 to supply special high precision, machine turned components for the lock industry for which the area is still famous.

The development of the Company's present product range began in 1951 and by the 1960's the business was almost entirely devoted to the manufacture and distribution of specialist fastener products.

Today PSM is focused solely on providing design engineers and manufacturers with engineered solutions to assembly problems which provide cost effective methods and enhance the performance of the finished item. PSM engineers are trained to high standards to assist design engineers in this specialised area. PSM manufacture over 100 different products in 10,000 variations.

The Company is a member of the McKechnie Group PLC and has global capabilities with manufacturing and distribution operations in 25 countries around the world.

Wherever manufactured goods are made PSM has local people providing technical support, application engineering, project management and customer service to a consistently high standard.

. . . Worldwide

INTRODUCTION

Direct Screw Fixings provide a fast, economical, production line solution to fixing plastic and light alloy components where the need for re-use and high assembly torque is not a major factor.

The unique patented thread forms of the PT® Screw range have been engineered to maximise the advantages of Direct Screw Fixings with forming screws for thermoplastics and light alloy materials and cutting types for use with thermosetting materials.

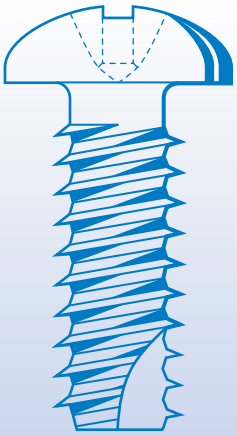
The adoption of these thread forms ensures that the margins between installation and stripping torque are optimised (an essential for trouble free installation) together with higher than normal re-usability - typically greater than 10 times - into thermoplastic materials, and maximum resistance to vibration.

The information in this catalogue is intended as a general guide. For further advice please consult your local PSM Sales Engineer or our Applications Engineers. The PSM Technology Centre can also provide pre-production test facilities for accurate performance data.

PT® SERIES

pages 4-7

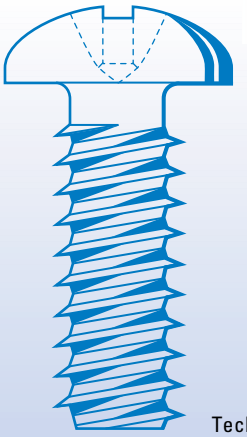
PT® SERIES - Designed for use in thermoplastics, its key design features include a profiled thread root to assist plastic flow, a 30° flank angle to reduce boss bursting forces and an 8° pitch angle.



DURO-PT® SERIES

pages 8-10

DURO-PT® SERIES - The cutting notch combined with the profiled thread root gives low installation torques whilst the special thread form provides high stripping torques when used in thermosetting materials.



PT® TYPE DG

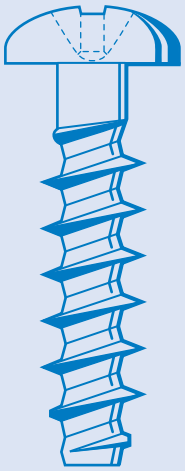
pages 11-13

PT® TYPE DG - Developed to provide an effective screw fixing in light alloy materials with low installation torque and high stripping torque.

Technical details may change. Please contact PSM International for latest drawings and specifications.

DIRECT SCREW FIXINGS

DIRECT SCREW FIXINGS PT® TYPE



The PT® SCREW is a direct screw fastener for use in thermoplastics. The key design aspects include a profiled thread root to assist plastic flow, a 30° flank angle to reduce boss bursting forces and an 8° pitch angle which combine to give low installation torques with high stripping torques. For those applications not requiring the high levels of thread re-use and high clamping torque, (properties associated with threaded inserts) PT® screw offers an economical solution to plastics assembly and has distinct advantages over other direct screw fixings.

ADVANTAGES

- REDUCED INSTALLATION TORQUE.
- HIGH STRIPPING TORQUE.
- GREATER SAFETY MARGIN BETWEEN INSTALLATION TORQUE AND STRIPPING TORQUE.
- HIGH PARENT MATERIAL SHEAR STRENGTH.
- MINIMISES MATERIAL FLOW RESISTANCE.
- DESIGNED TO REDUCE STRESS WITHIN THE THERMOPLASTIC TO AN ABSOLUTE MINIMUM.
- HIGH RESISTANCE TO VIBRATION AND RELAXATION.
- ALLOWS FOR SMALLER BOSSES.

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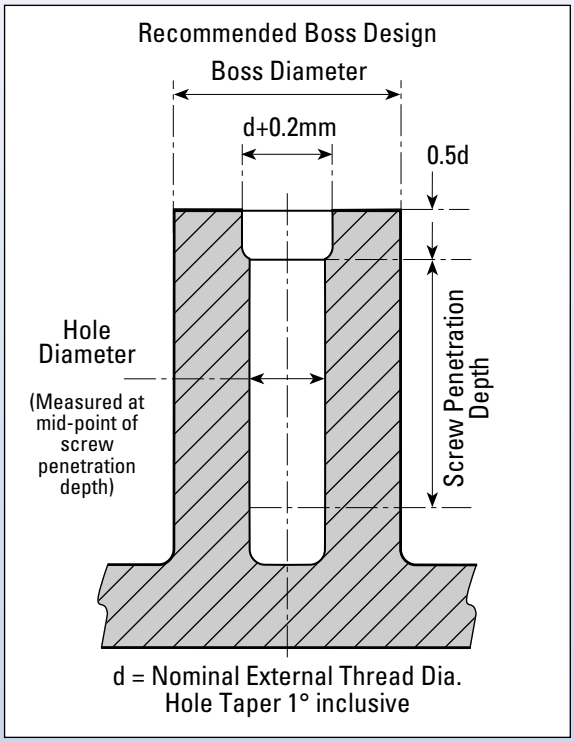
DESIGN GUIDE



When choosing a direct screw fixing one of the major criteria is to obtain the maximum margin between driving torque and stripping torque. Screw design, material characteristics, moulding practice, hole size and installation speed all have an influence.
The specialised equipment necessary to measure the effect of these factors is available at P.S.M's Technology Centre.
This allows customers to obtain the best design possible.
Pre-production testing is therefore strongly recommended.
Please note the inclusion of a counterbore - this is important for the following reasons:

- Prevents damage to the top of the boss
- Helps alignment of the screw in the boss
- Assists in repeated assemblies of the screw
- Acts as a relief for any material extruded to the head of the screw and allows flush finishes.

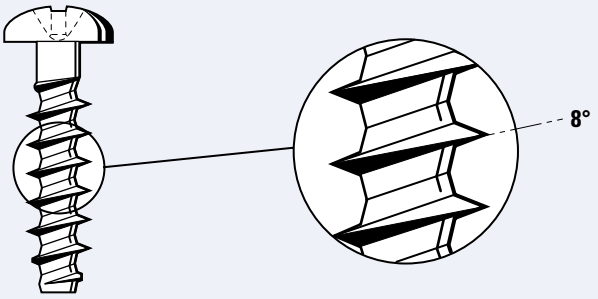
N.B. If moulded tool design or application into an existing boss renders the recommended boss design impractical, please contact P.S.M for specific advice.

DESIGN FEATURES

PT® TYPE

8° OPTIMUM PITCH ANGLE

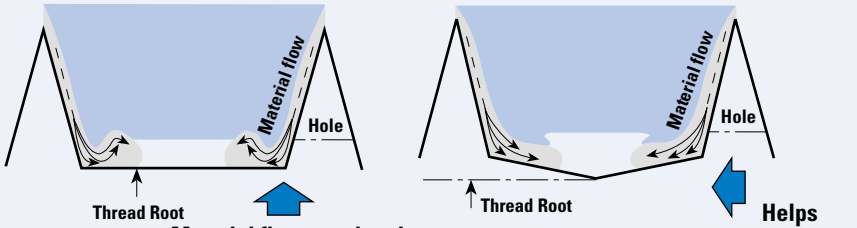
- Lowest installation torque/highest stripping torque
- Maximum resistance to vibration loosening and material relaxation in the component



PROFILED THREAD ROOT

- Improved plastic flow reduces stress, providing long term reliability
- Greater surface area contact between screw thread and plastic, to give a high shear and stripping torque
- Lower installation torques

Flat Root thread v PT Profiled Root thread



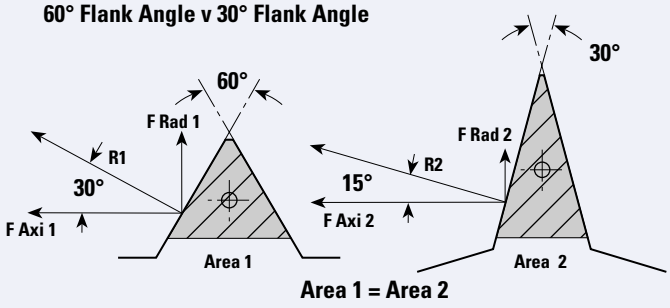
30° COMBINED FLANK ANGLE

- Lower radial stresses, reducing boss bursting force
- Greater thread penetration into the plastic material, permitting enhanced clamping torque
- Reduced centre of pressure, producing lower installation torque

Resolution of Resultant Forces for the Same Volume Displacement

F Rad 1 = 0.500R F Rad 2 = 0.259R
F Axi 1 = 0.867R F Axi 2 = 0.966R

60° Flank Angle v 30° Flank Angle



DESIGN RECOMMENDATION

MATERIAL	Hole Diameter	Boss Diameter	Min. Screw Penetration Depth
ABS	0.8d	2d	2d
ABS/PC Blend	0.8d	2d	2d
ASA	0.78d	2d	2d
PA 4.6	0.73d	1.85d	1.8d
PA 4.6 - GF 30	0.78d	1.85d	1.8d
PA 6	0.75d	1.85d	1.7d
PA 6 - GF 30	0.8d	2d	1.9d
PA 6.6	0.75d	1.85d	1.7d
PA 6.6 - GF 30	0.82d	2d	1.8d
PBT	0.75d	1.85d	1.7d
PBT - GF 30	0.8d	1.8d	1.7d
PC	0.85d	2.5d	2.2d*
PC - GF 30	0.85d	2.2d	2.0d*

MATERIAL	Hole Diameter	Boss Diameter	Min. Screw Penetration Depth
LDPE	0.7d	2d	2d
HDPE	0.75d	1.8d	1.8d
PET	0.75d	1.85d	1.7d
PET - GF 30	0.8d	1.8d	1.7d
PMMA	0.85d	2d	2d
POM	0.75d	1.95d	2d
PP	0.7d	2d	2d
PP-TF 20	0.72d	2d	2d
PPO	0.85d	2.5d	2.2d*
PS	0.8d	2d	2d
PVC (Hard)	0.8d	2d	2d
SAN	0.77d	2d	1.9d
PPS	Contact PSM		

For other materials contact PSM.

d = Nominal External Thread Diameter.

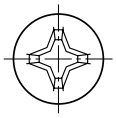
* Where materials are known to be sensitive to environmental stress cracking, ageing tests should be carried out as recommended by the material manufacturer.

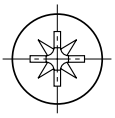
PT® TYPE DIMENSIONS

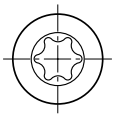
PRODUCT CODE
WN 14

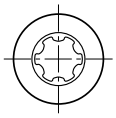
Nominal Diameter		K18	K22	K25	K30	K35	K40	K50	K60	K70	K100
External thread	d	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0	7.0	10.0
Thread root	R	1.04	1.25	1.40	1.66	1.91	2.17	2.68	3.19	3.70	5.23
Thread pitch	P	0.80	0.98	1.12	1.34	1.57	1.79	2.24	2.69	3.14	4.49
HEAD STYLE 11 Pan Flange											
Head diameter	HD		4.4	5.0	6.0	7.0	8.0	10.0	12.0	14.0	
Head height	H		1.6	1.8	2.1	2.4	2.5	3.2	4.0	4.6	
Flange thickness	S		0.5	0.6	0.7	0.8	0.9	1.1	1.3	1.5	
A PHILLIPS	Recess No.		1	1	1	2	2	2	3	3	
B POZI	Recess No.		1	1	1	2	2	2	3	3	
Head diameter	HD		4.5	5.0	6.0	7.0	8.0	10.0	12.0	14.0	20.0
Head height	H		1.4	1.5	2.1	2.4	2.6	3.3	3.6	4.2	5.5
Washer thickness	S		0.5	0.5	0.6	0.7	0.8	1.0	1.2	1.4	2.0
C TORX®	Recess No.		T6	T6	T10	T10	T20	T20	T25	T30	T40
D TORX PLUS® with AUTOSERT®	Recess No.		6 IP	6 IP	10 IP	10 IP	20 IP	20 IP	25 IP	30 IP	40 IP
Screw lengths > 3d	X	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0	7.0	10.0
Screw lengths ≤ 3d	X	0.9	1.1	1.3	1.5	1.8	2.0	2.5	3.0	3.5	5.0
HEAD STYLE 12 Pan.											
Head diameter	HD	3.6	3.9	4.4	5.3	6.1	7.0	8.8	10.5	12.3	
Head height	H	1.5	1.5	1.7	2.0	2.5	2.7	3.4	4.0	4.5	
A PHILLIPS	Recess No.	0	1	1	1	2	2	2	3	3	
B POZI	Recess No.	0	1	1	1	2	2	2	3	3	
Head diameter	HD	3.6	4.0	4.2	5.6	6.9	7.5	8.2	10.8	12.5	16.0
Head height	H	1.3	1.4	1.6	2.1	2.3	2.6	2.9	3.8	4.4	6.0
C TORX®	Recess No.	T6	T6	T7	T10	T10	T20	T20	T25	T30	T40
D TORX PLUS® with AUTOSERT®	Recess No.	6 IP	6 IP	7 IP	10 IP	10 IP	20 IP	20 IP	25 IP	30 IP	40 IP
Screw lengths > 3d	X	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0	7.0	10.0
Screw lengths ≤ 3d	X	0.9	1.1	1.3	1.5	1.8	2.0	2.5	3.0	3.5	5.0
HEAD STYLE 13 Countersunk											
Head diameter	HD	3.4	3.8	4.7	5.5	7.3	8.4	9.3	11.3	13.6	
Cylinder head height	F	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	
Screw lengths > 3d	Y	0.90	1.10	1.30	1.50	1.80	2.00	2.50	3.00	3.50	
Screw lengths ≤ 3d	Y	0.50	0.60	0.70	0.75	1.00	1.00	1.25	1.50	1.75	
A PHILLIPS	Recess No.	0	1	1	1	2	2	2	2	3	
B POZI	Recess No.	0	1	1	1	2	2	2	2	3	
Head diameter	HD	3.4	3.8	4.7	5.5	7.3	8.4	9.3	11.3	13.6	
C TORX®	Recess No.	T6	T6	T8	T8	T15	T20	T20	T30	T40	
D TORX PLUS® with AUTOSERT®	Recess No.	6 IP	6 IP	8 IP	8 IP	15 IP	20 IP	20 IP	30 IP	40 IP	

STANDARD RECESS STYLES
- Other available recesses are shown on page 14.


A PHILLIPS


B POZI


C TORX®


D TORX PLUS®

MATERIAL
Through Hardened & Tempered Steel

STANDARD FINISHES
Zinc Plate and Clear Passivation (Z)
Zinc Plate and Chromate (ZC)
Zinc Plate and Black Chromate (ZBC)

OTHER FINISHES
– Available to order.

SIZE RANGE

PT SCREWS	K 18	K 22	K 25	K 30	K 35	K 40	K 50	K 60	K 70	K 100
Length 'L' (mm) / Nominal Ø (mm)	1.80	2.20	2.50	3.00	3.50	4.00	5.00	6.00	7.00	10.00
4 ± 0.6		■	■	■	■	■	■	■	■	■
5 ± 0.6				■	■	■	■	■	■	■
6 ± 0.6					■	■	■	■	■	■
7 ± 0.75						■	■	■	■	■
8 ± 0.75								■	■	■
10 ± 0.75								■	■	■
12 ± 0.9									■	■
14 ± 0.9										■
16 ± 0.9										■
18 ± 0.9										■
20 ± 1.05	■									
25 ± 1.05	■									
30 ± 1.05	■	■								
35 ± 1.25	■	■	■	■						
40 ± 1.25	■	■	■	■	■					
50 ± 1.25	■	■	■	■	■	■				
60 ± 1.5	■	■	■	■	■	■	■			
70 ± 1.5	■	■	■	■	■	■	■	■		
80 ± 1.5	■	■	■	■	■	■	■	■	■	
90 ± 1.75	■	■	■	■	■	■	■	■	■	
100 ± 1.75	■	■	■	■	■	■	■	■	■	

HOW TO SPECIFY

SCREW TYPE	WN1412-KB30 x10-Z
HEAD STYLE	WN1412-KB30 x10-Z
RECESS CODE	WN1412-KB30 x10-Z
THREAD DIAMETER	WN1412-KB30 x10-Z
LENGTH OF SCREW	WN1412-KB30 x10-Z
FINISH	WN1412-KB30 x10-Z

ASSEMBLY DATA

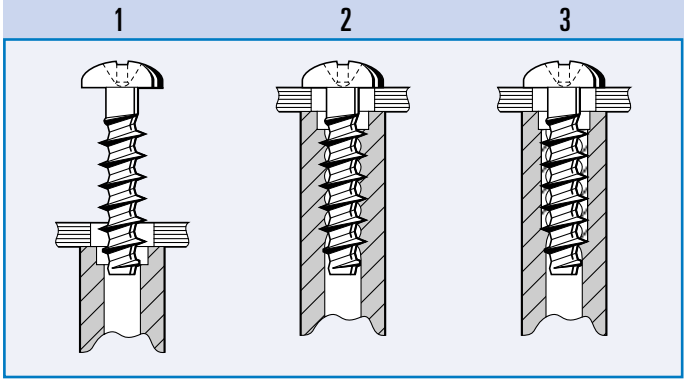
PT® TYPE

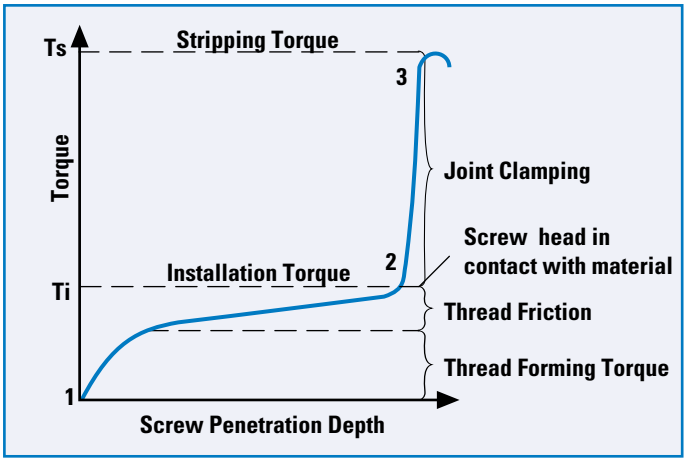
To determine the optimum performance of direct screw fixings there are a number of influential factors which have to be considered if problems on the production line or in service are to be avoided. In order to establish the optimum clamping torque it is first necessary to establish the following:

1 Amount of torque required to form the first thread
2 The amount of torque required for the screwhead to come into contact with the mating component.
3 The amount of torque required for the joint to fail.

These figures should be obtained by the use of specialised equipment which simulates production line conditions since testing by hand omits the important effect of friction due to installation speed. P.S.M's Technology Centre is fully equipped to conduct these tests for you.

The repeat torque accuracy of the installation tool can vary and should always be considered when specifying the recommended clamping torque.

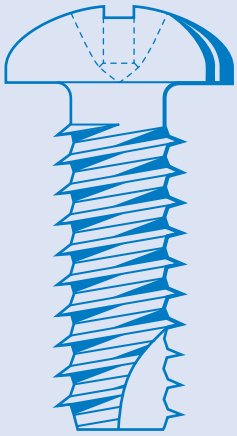




RECOMMENDED INSTALLATION TOOL SPEEDS

The speed at which screws are installed should be carefully considered - speeds which are too high can destroy the material into which the screws are being driven.
Although a speed of 600rpm is recommended for most materials, pre-production testing and consultation with PSM should be undertaken for optimum results.

DIRECT SCREW FIXINGS DURO-PT® TYPE



*The **DURO-PT®** SCREW is a direct screw fastener for use in thermosetting plastics.*
The design incorporates many unique features which provide designers with a really effective direct screw fixing for these materials. The cutting notch combined with the profiled thread root and special thread form provides low installation and high stripping torques.
The efficient removal of cutting debris ensures greatly reduced bursting forces, providing the solution to a common problem associated with conventional self tapping screws, when used in thermosets.

PT is a registered trade mark of EJOT Verbindungstechnik GmbH & Co. KG, Bad Laasphe, Germany

ADVANTAGES

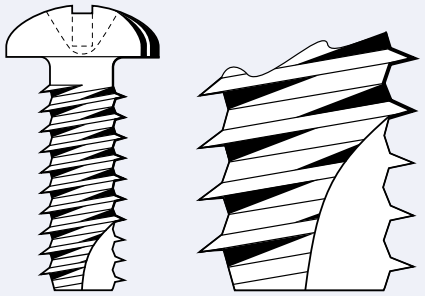
- REDUCES STRESS IN THERMOSETTING PLASTICS TO AN ABSOLUTE MINIMUM.
- WIDE SAFETY MARGIN BETWEEN INSTALLATION AND STRIPPING TORQUE.
- SUITABLE FOR ALL TYPES OF THERMOSETTING PLASTICS.
- CAN BE USED IN THERMOPLASTICS WITH A HIGH FILL CONTENT.(>30%)

DESIGN FEATURES

DURO-PT® TYPE

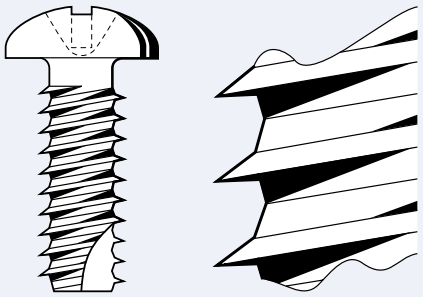
SPECIAL CUTTING NOTCH

- Removes 60-80% of material cut during the thread cutting operation
- Reduces installation torque
- Reduces radial pressure



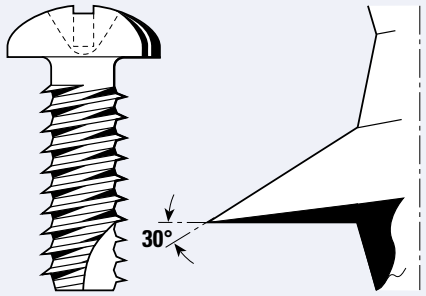
SPECIAL PROFILED ROOT

- Provides space for debris
- Reduces radial stress
- Reduces installation torque
- Increases stripping torque



SPECIAL SHAPED TOOTH

- Reduces radial stress
- Maximum surface bearing area
- High stripping torque
- High clamping force
- High back-off torque



DESIGN GUIDE

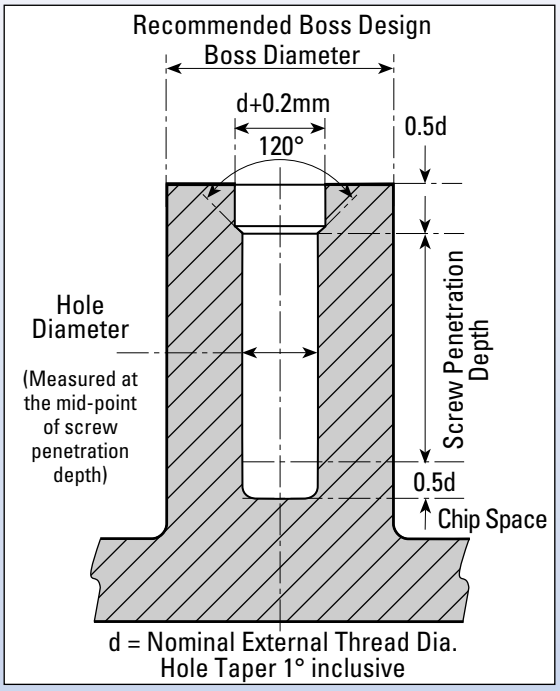
BOSS DESIGN DEPENDS ON THE FOLLOWING FACTORS:

- Type of thermoset material used
- The density of the material
- The amount and type of filler

Because of these variables the following recommendations are minimum and maximum guidelines only.

	Minimum	Maximum
HOLE DIAMETER	0.85 x d	0.88 x d
BOSS DIAMETER	2.5 x d	3.0 x d
SCREW PENETRATION DEPTH	2.0 x d	3.0 x d

FOR SPECIFIC APPLICATION ADVICE, CONTACT P.S.M.

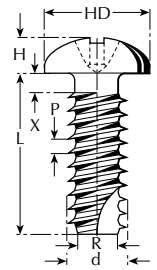


DURO-PT® SCREWS

DURO-PT® TYPE DIMENSIONS

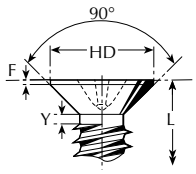
PRODUCT CODE WN 17

HEAD STYLE 42 Pan



Nominal Diameter			K22	K25	K30	K35	K40	K50	K60	K80
External thread		d	2.2	2.5	3.0	3.5	4.0	5.0	6.0	8.0
Thread root		R	1.59	1.81	2.18	2.56	2.93	3.68	4.42	5.91
Thread pitch		P	0.71	0.77	0.86	0.95	1.04	1.23	1.42	1.79
Head diameter		HD	4.0	5.0	6.0	7.0	8.0	10.0	12.0	16.0
Head height		H	1.6	2.0	2.4	2.7	3.1	3.8	4.6	6.0
A PHILLIPS	Recess No.		1	1	1	2	2	2	3	4
B POZI	Recess No.		1	1	1	2	2	2	3	4
Head diameter		HD	4.0	5.0	6.0	7.0	8.0	10.0	12.0	16.0
Head height		H	1.6	2.0	2.4	2.7	3.1	3.8	4.6	6.0
C TORX®	Recess No.		T6	T8	T10	T15	T20	T25	T30	T40
D TORX PLUS® with AUTOSERT®	Recess No.		6 IP	8 IP	10 P	15 IP	20 IP	25 IP	30 IP	40 IP
Screw lengths > 3d		X	2.2	2.5	3.0	3.5	4.0	5.0	6.0	8.0
Screw lengths ≤ 3d		X	1.1	1.3	1.5	1.8	2.0	2.5	3.0	4.0

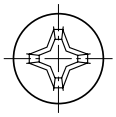
HEAD STYLE 43 Countersunk

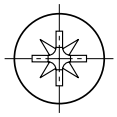


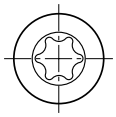
Head diameter		HD	3.8	4.7	5.6	6.5	7.5	9.2	11.0	14.5
Cylinder head height		F	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.65
A PHILLIPS	Recess No.		1	1	1	2	2	2	3	4
B POZI	Recess No.		1	1	1	2	2	2	3	4
Head diameter		HD	3.8	4.7	5.5	7.3	8.4	9.3	11.3	15.8
Cylinder head height		F	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.70
C TORX®	Recess No.		T6	T8	T10	T15	T20	T25	T30	T40
D TORX PLUS® with AUTOSERT®	Recess No.		6 IP	8 IP	10 IP	15 IP	20 IP	25 IP	30 IP	40 IP
Screw lengths > 3d		Y	1.10	1.30	1.50	1.80	2.00	2.50	3.00	4.0
Screw lengths ≤ 3d		Y	0.60	0.70	0.75	1.00	1.00	1.25	1.50	2.0

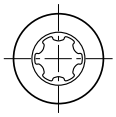
STANDARD RECESS STYLES

- Other available recesses are shown on page 14.


A PHILLIPS


B POZI


C TORX®


D TORX PLUS®

MATERIAL

Case Hardened Mild Steel

STANDARD FINISHES

Zinc Plate and Clear Passivation (Z)

Zinc Plate and Chromate (ZC)

Zinc Plate and Black Chromate (ZBC)

OTHER FINISHES

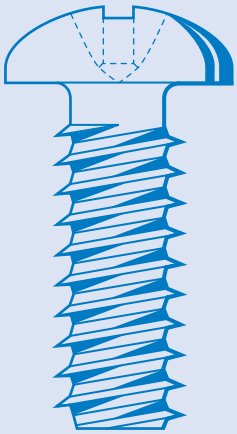
– Possible on quotation.

HOW TO SPECIFY

SCREW TYPE	WN1742-KB30 x10-Z
HEAD STYLE	WN1742-KB30 x10-Z
RECESS CODE	WN1742-KB30 x10-Z
THREAD DIAMETER	WN1742-KB30 x10-Z
LENGTH OF SCREW	WN1742-KB30 x10-Z
FINISH	WN1742-KB30 x10-Z

SIZE RANGE

DURO-PT SCREWS		K 22	K 25	K 30	K 35	K 40	K 50	K 60	K 80
Length 'L' (mm)	Nominal Ø (mm)	2.20	2.50	3.00	3.50	4.00	5.00	6.00	8.00
5 ± 0.6				■	■	■	■	■	■
6 ± 0.6					■	■	■	■	■
7 ± 0.75						■	■	■	■
8 ± 0.75							■	■	■
10 ± 0.75								■	■
12 ± 0.9									■
14 ± 0.9									■
16 ± 0.9									
18 ± 0.9									
20 ± 1.05		■							
25 ± 1.05		■							
30 ± 1.05		■	■						
35 ± 1.25		■	■	■					
40 ± 1.25		■	■	■	■				
50 ± 1.25		■	■	■	■	■			
60 ± 1.5		■	■	■	■	■	■		
70 ± 1.5		■	■	■	■	■	■	■	
80 ± 1.5		■	■	■	■	■	■	■	



The PT® TYPE DG is a direct screw fastener for use in light alloys. The design incorporates many unique features which provide designers with a really effective direct screw fixing for these materials. The profiled thread root gives low installation torque whilst the special thread form provides high stripping torque.

PT is a registered trade mark of EJOT Verbindungstechnik GmbH & Co. KG, Bad Laasphe, Germany

DIRECT SCREW FIXINGS PT® TYPE DG

ADVANTAGES

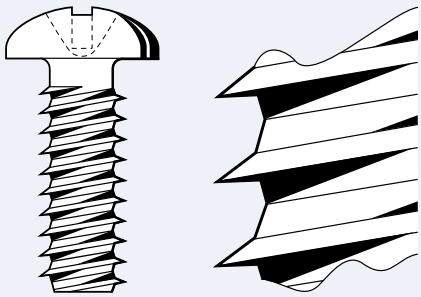
- THREAD FORMING - NO DEBRIS
- RELIABLE & EASY INSTALLATION INTO PUNCHED, DRILLED, EXTRUDED & MOULDED HOLES
- RE-USABILITY OF SCREW

DESIGN FEATURES

PT® TYPE DG

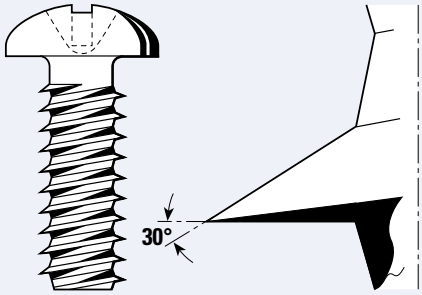
SPECIAL PROFILED ROOT

- Reduces stress
- Allows material to flow during thread forming
- Reduces installation torque
- Increases stripping torque
- Increases pull-out load



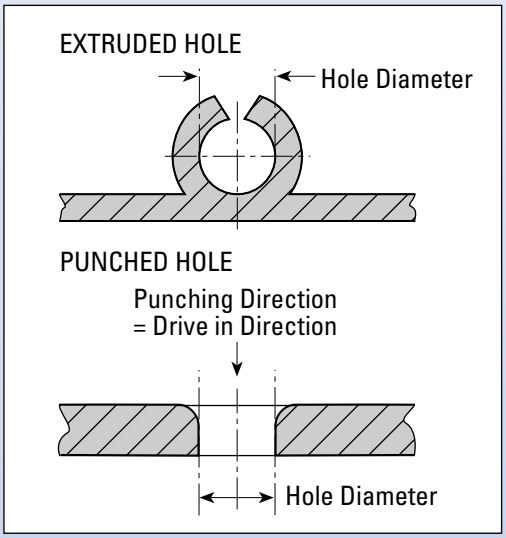
SPECIAL SHAPED TOOTH

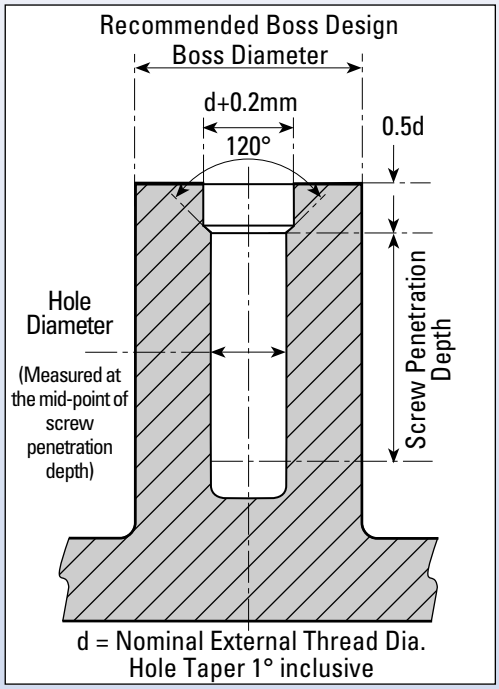
- Reduces radial stress
- Maximum surface bearing area
- High stripping torque
- High clamping force
- High back-off torque



DESIGN GUIDE

	Hard Materials	Medium Soft Materials	Soft Materials
HOLE DIA.	0.94 x d	0.92 x d	0.90 x d
MINIMUM BOSS DIAMETER	2.5 x d	2.5 x d	2.5 x d
MINIMUM SCREW PENETRATION	1.5 x d	1.5 x d	1.5 x d
MAXIMUM SCREW PENETRATION	2.5 x d	2.5 x d	2.5 x d





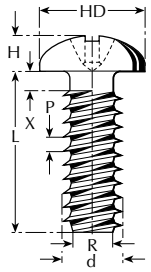
SOFT MATERIALS = ≤ 50 VPN
MEDIUM SOFT MATERIALS = 51 TO 75 VPN
HARD MATERIALS = 76 TO 100 VPN

FOR SPECIFIC APPLICATION ADVICE,
CONTACT P.S.M.

PT® TYPE DG DIMENSIONS

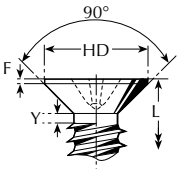
PRODUCT CODE WN 15

HEAD STYLE 42 Pan



Nominal Diameter			K22	K25	K30	K35	K40	K50	K60	K80
External thread		d	2.2	2.5	3.0	3.5	4.0	5.0	6.0	8.0
Thread root		R	1.59	1.81	2.18	2.56	2.93	3.68	4.42	5.91
Thread pitch		P	0.71	0.77	0.86	0.95	1.04	1.23	1.42	1.79
Head diameter		HD	4.0	5.0	6.0	7.0	8.0	10.0	12.0	16.0
Head height		H	1.6	2.0	2.4	2.7	3.1	3.8	4.6	6.0
A PHILLIPS	Recess No.		1	1	1	2	2	2	3	4
B POZI	Recess No.		1	1	1	2	2	2	3	4
Head diameter		HD	4.0	5.0	6.0	7.0	8.0	10.0	12.0	16.0
Head height		H	1.6	2.0	2.4	2.7	3.1	3.8	4.6	6.0
C TORX®	Recess No.		T6	T8	T10	T15	T20	T25	T30	T40
D TORX PLUS® with AUTOSERT®	Recess No.		6 IP	8 IP	10 IP	15 IP	20 IP	25 IP	30 IP	40 IP
Screw lengths > 3d		X	2.2	2.5	3.0	3.5	4.0	5.0	6.0	8.0
Screw lengths ≤ 3d		X	1.1	1.3	1.5	1.8	2.0	2.5	3.0	4.0

HEAD STYLE 43 Countersunk

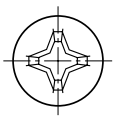


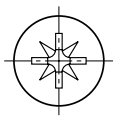
Head diameter		HD	3.8	4.7	5.6	6.5	7.5	9.2	11.0	14.5
Cylinder head height		F	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.65
A PHILLIPS	Recess No.		1	1	1	2	2	2	3	4
B POZI	Recess No.		1	1	1	2	2	2	3	4
Head diameter		HD	3.8	4.7	5.5	7.3	8.4	9.3	11.3	15.8
Cylinder head height		F	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.70
C TORX®	Recess No.		T6	T8	T10	T15	T20	T25	T30	T40
D TORX PLUS® with AUTOSERT®	Recess No.		6 IP	8 IP	10 IP	15 IP	20 IP	25 IP	30 IP	40 I
Screw lengths > 3d		Y	1.10	1.30	1.50	1.80	2.00	2.50	3.00	4.00
Screw lengths ≤ 3d		Y	0.60	0.70	0.75	1.00	1.00	1.25	1.50	2.00

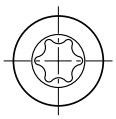
TORX PLUS®,TORX® and AUTOSERT® are registered trademarks of Camcar Division of Textron Inc.

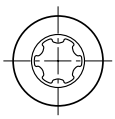
STANDARD RECESS STYLES

- Other available recesses are shown on page 14.


A PHILLIPS


B POZI


C TORX®


D TORX PLUS®

MATERIAL

Case Hardened Mild Steel

STANDARD FINISHES

Zinc Plate and Clear Passivation (Z)

Zinc Plate and Chromate (ZC)

Zinc Plate and Black Chromate (ZBC)

OTHER FINISHES

– Possible on quotation.

HOW TO SPECIFY

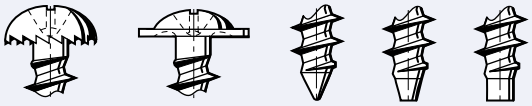
SCREW TYPE	WN1542-KB30 x10-Z
HEAD STYLE	WN1542-KB30 x10-Z
RECESS CODE	WN1542-KB30 x10-Z
THREAD DIAMETER	WN1542-KB30 x10-Z
LENGTH OF SCREW	WN1542-KB30 x10-Z
FINISH	WN1542-KB30 x10-Z

SIZE RANGE

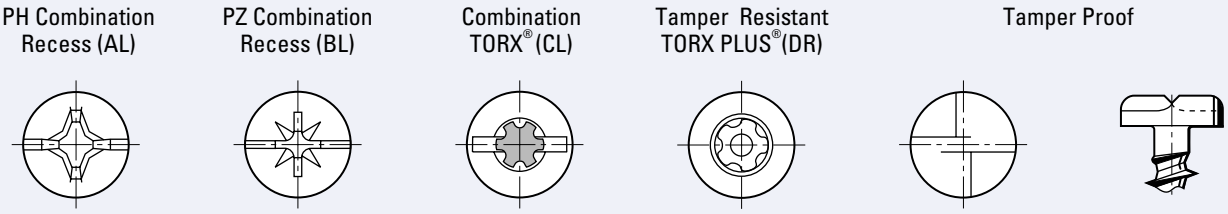
PT-DG SCREWS	K 22	K 25	K 30	K 35	K 40	K 50	K 60	K 80
Length 'L' (mm) / Nominal Ø (mm)	2.20	2.50	3.00	3.50	4.00	5.00	6.00	8.00
5 ± 0.6			■	■	■	■	■	■
6 ± 0.6				■	■	■	■	■
7 ± 0.75					■	■	■	■
8 ± 0.75						■	■	■
10 ± 0.75							■	■
12 ± 0.9								■
14 ± 0.9								■
16 ± 0.9								
18 ± 0.9								
20 ± 1.05	■							
25 ± 1.05	■							
30 ± 1.05	■	■						
35 ± 1.25	■	■	■					
40 ± 1.25	■	■	■	■				
50 ± 1.25	■	■	■	■	■			
60 ± 1.5	■	■	■	■	■	■		
70 ± 1.5	■	■	■	■	■	■	■	
80 ± 1.5	■	■	■	■	■	■	■	

OPTIONAL FEATURES

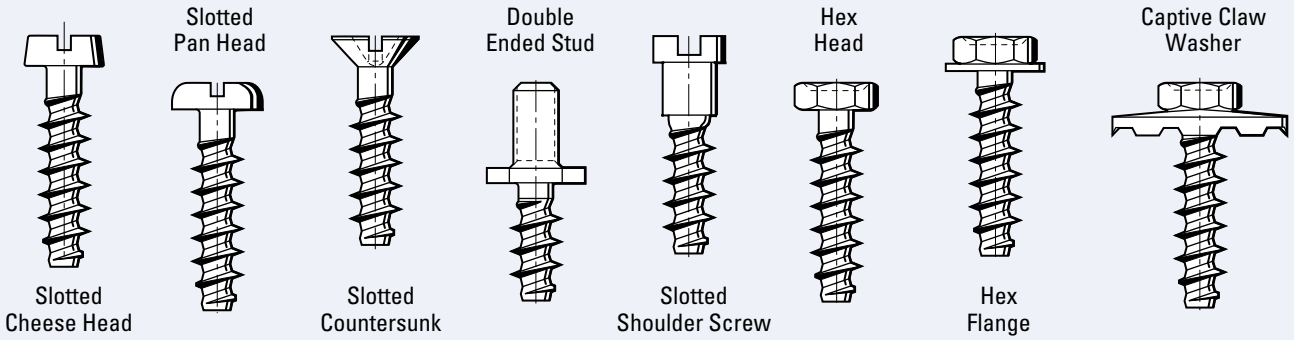
OPTIONAL FEATURES



OTHER AVAILABLE RECESSES



SPECIAL VARIATIONS



OTHER PSM PRODUCTS

INSERTS FOR PLASTICS

PSM offers the widest selection of inserts for plastics available anywhere. There is a PSM insert to suit every plastic and every installation technique. Press-Lok® and Fin-Lok® offer the simplicity of push-in installation. Miniature designs are made possible by Mini-Tech®. There is the high performance of Tech-Sonic® and the ultrasonic capability of Sonic-Lok®. Screw-Sert® is ideal for low strength materials whilst for thermosetting resins Banc-Lok® and Spiro® are recommended.

THREADED FASTENERS FOR THIN SHEET METAL

Both riveting and self-clinching types are available in a variety of styles including stand-offs, blind types, self locking and self piercing.
Whether the design calls for high performance or compact size there is a product specially designed to match the requirement.

SPRING STEEL AND PLASTIC FASTENERS

The versatility of the spring steel fastener is unique and gives designers of complex parts the flexibility they need.
PSM manufactures specially designed items to meet specific design criteria, although standard parts are also available.
Complementing these parts is a range of corrosion resistant and lightweight plastic moulded fixings and components.

FASTENERS FOR METAL

PSM's engineering pin range includes 'Hardened and Ground' pins in parallel and tapered format together with Grooved pins.
Hardened steel Screw-Sert® and PHI® provide machine threads for cast alloys whilst PTDG® screws provide a high strength direct screw fixing.

INSTALLATION TECHNOLOGY

When a "fastening solution" is not enough, PSM is able to offer a Total Assembly Solution. The choice ranges from a relatively simple standard machine through CNC workstations to complete turnkey solutions incorporating state of the art technology.

THREAD LOCKING AND SEALING SYSTEMS

PSM offer a wide range of pre-applied processes for the locking and sealing of threaded components. These include the Tuf-Lok® Blue Nylon anti-vibration patch, a large range of Micro-encapsulated Adhesives and Non-curing Sealants supplied by Omni-Technik, Loctite, and 3M and also the Nyltite Nylon Collar for the under head sealing of thread forming/cutting screws.

Please contact your local PSM Sales Office for more information on these products . . .