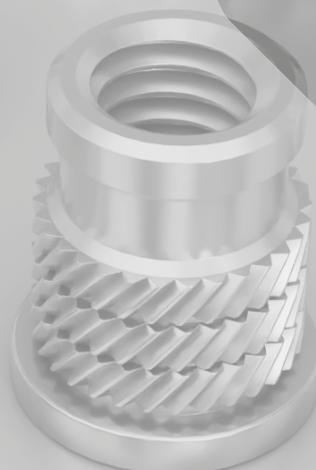
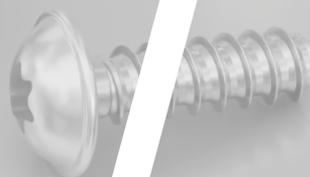
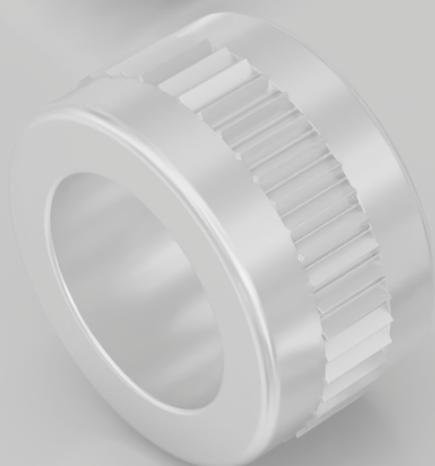
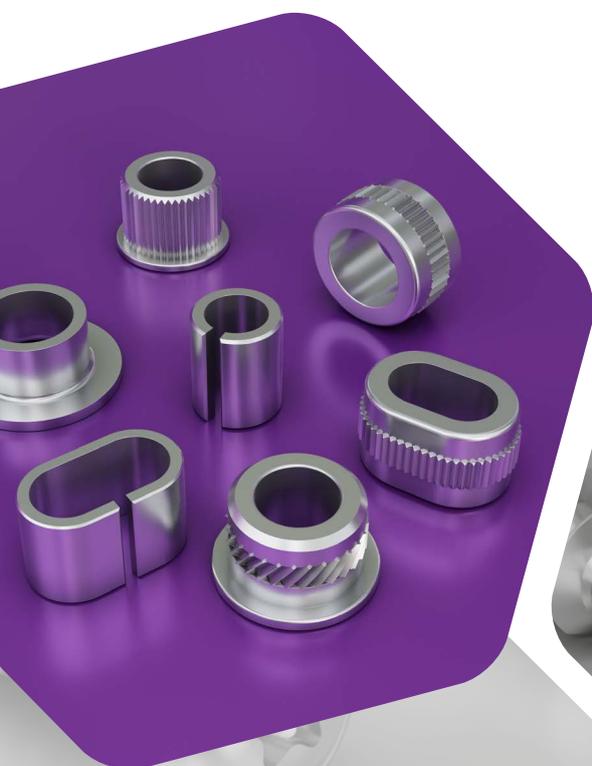


Fasteners for Plastic

Product Brochure



part of the Trifast plc Group

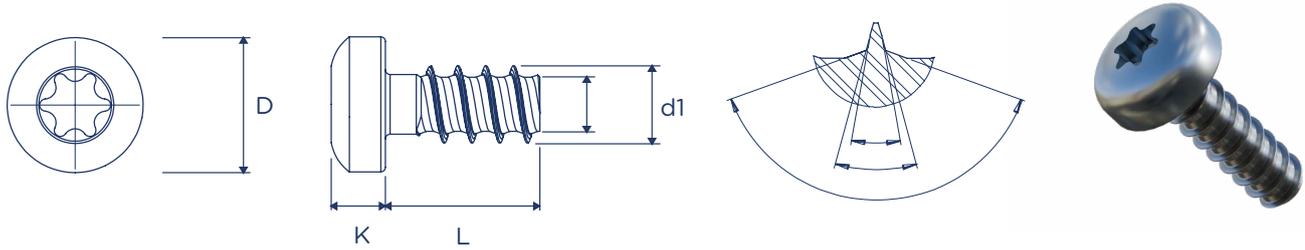




Screws for Plastic					
	Pan Plas-Tech 30-20® Recess T Drive	3		Pan Plas-Fix® 45 PoziDriv®	12
	Flange Plas-Tech 30-20® Recess T Drive	4		Flange Plas-Fix® 45 PoziDriv®	13
	Countersunk Plas-Tech 30-20® Recess T Drive	5		Countersunk Plas-Fix® 45 PoziDriv®	14
	Pan Plas-Tech® 30 PoziDriv®	6		Pan Plas-Fix® 45 Recess T Drive	15
	Flange Plas-Tech® 30 PoziDriv®	7		Countersunk Plas-Fix® 45 Recess T Drive	16
	Countersunk Plas-Tech® 30 PoziDriv®	8		Pan Plas-Fix® 60 PoziDriv®	17
	Pan Plas-Tech® 30 Recess T Drive	9		Flange Plas-Fix® 60 PoziDriv®	18
	Flange Plas-Tech® 30 Recess T Drive	10		Countersunk Plas-Fix® 60 PoziDriv®	19
	Countersunk Plas-Tech® 30 Recess T Drive	11			

Brass Inserts					
	Tech-Sert Unheaded	20		Thread-Sert Unheaded	25
	Sonic-Sert Unheaded Headed	21		Thread-Sert Headed	25
	Sonic-Sert Unheaded Headed	21		Broaching-Sert Unheaded	26
	Press-Sert Unheaded	22		Broaching-Sert Headed	26
	Press-Sert Unheaded	22		Expansion-Sert Unheaded	27
	Fin-Sert Unheaded Headed	23		Expansion-Sert Headed	27
	Fin-Sert Unheaded Headed	23		Flow-Sert Unheaded	28
	Heat-Sert Unheaded Headed	24			

Compression Limiters	
Visit our website for more information on Symmetrical, Flanged, Oval and Round Compression Limiters . www.trfastenings.com/Products/Catalogue/Fasteners-for-Plastic/Compression-Limiters	29



Dimensions (mm) Steel/Zinc-Nickel (CR3)

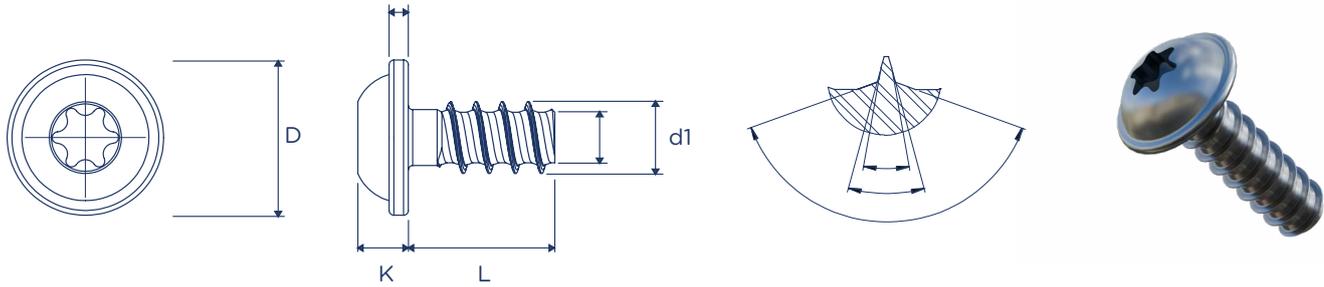
Screw Size	3.0mm	3.5mm	4mm	5mm	6mm
Dia. d1 Max	3	3.5	4	5	6
D	5.3	6.1	7	8.8	10.5
K - Max	2,42	2.82	3.25	3.65	4.35
Recess	T10	T15	T20	T25	T30
Nominal Hole Diameter	2.4	2.8	3.2	4	4.8

Preferred Range

Preferred lengths: 6mm - 30mm

Materials available: Steel/Zinc-Nickel (CR3). Other coatings available

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc-Nickel (CR3)

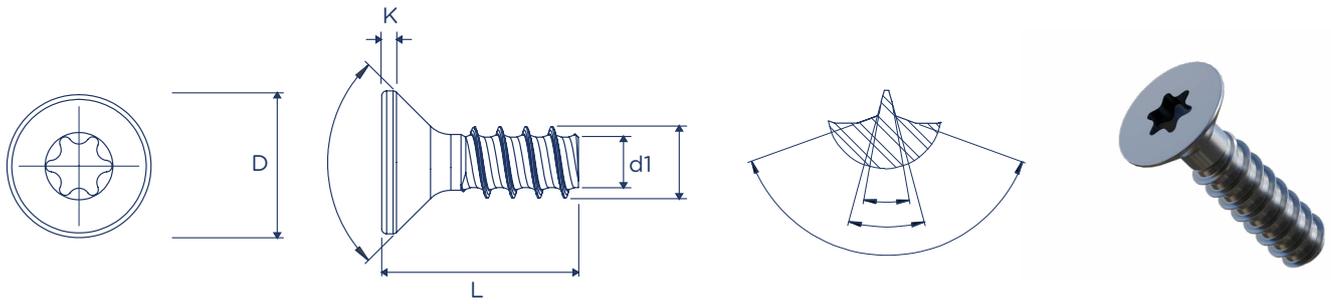
Screw Size	3mm	3.5mm	4mm	5mm	6mm
Dia. d1 Max	3	3.5	4	5	6
D	6.5	7.5	9	11	13.5
K - Max	2.42	2.82	3.25	3.65	4.35
Recess	T10	T15	T20	T25	T30
Nominal Hole Diameter	2.4	2.8	3.2	4	4.8

Preferred Range

Preferred lengths: 6mm - 30mm

Materials available: Steel/Zinc-Nickel (CR3). Other coatings available

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc-Nickel (CR3)

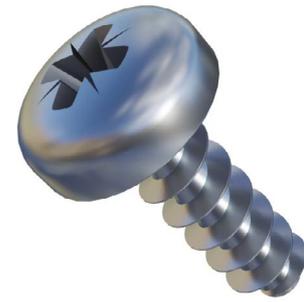
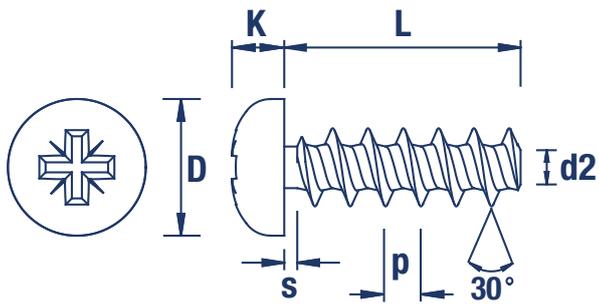
Screw Size	3mm	4mm
Dia. d1 Max	3	4
D	6	8
K - Max	0.55	0.7
Recess	T10	T20
Nominal Hole Diameter	2.4	3.2

Preferred Range

Preferred lengths: 8mm - 20mm

Materials available: Steel/Zinc-Nickel (CR3). Other coatings available

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

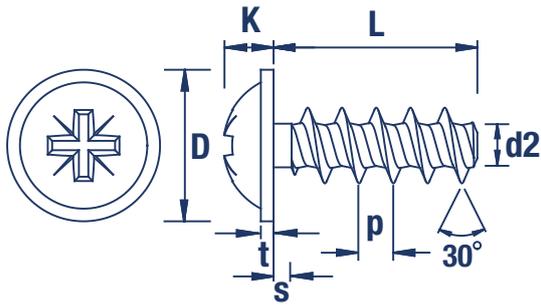
Thread Dimensions	Screw Size	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	d2 nom.	1.25	1.40	1.66	1.91	2.17	2.68	3.19
	p	0.98	1.12	1.34	1.57	1.79	2.24	2.69
	s (L > 3 x d1)	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	s (L < 3 x d1)	1.1	1.3	1.5	1.8	2.0	2.5	3.0
Recommended Hole Size mm		1.54 - 1.87	1.75 - 2.12	2.10 - 2.55	2.45 - 2.97	2.80 - 3.40	3.50 - 4.25	4.20 - 5.10
Head Dimensions	D	3.9	4.4	5.3	6.1	7.0	8.8	10.5
	K	1.5	1.7	2.0	2.5	2.7	3.4	4.0
	Recess No.	PZ 1	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2	PZ 3

Preferred Range

Preferred lengths: 4mm - 40mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

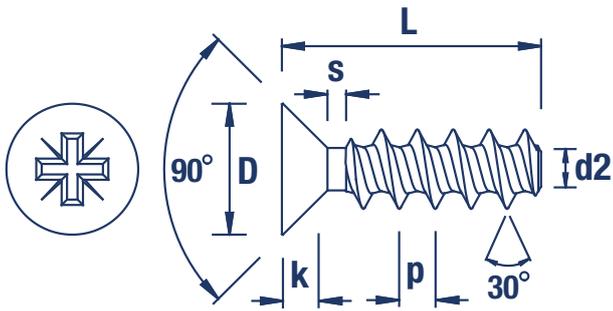
Thread Dimensions	Screw Size	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	d2 nom.	1.25	1.40	1.66	1.91	2.17	2.68	3.19
	p	0.98	1.12	1.34	1.57	1.79	2.24	2.69
	s (L > 3 x d1)	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	s (L < 3 x d1)	1.1	1.3	1.5	1.8	2.0	2.5	3.0
Recommended Hole Size mm		1.54 - 1.87	1.75 - 2.12	2.10 - 2.55	2.45 - 2.97	2.80 - 3.40	3.50 - 4.25	4.20 - 5.10
Head Dimensions	D	4.4	5.0	6.0	7.0	8.0	10.0	12.0
	K	1.6	1.8	2.1	2.4	2.5	3.2	4.0
	t	0.5	0.6	0.7	0.8	0.9	1.1	1.3
	Recess No.	PZ 1	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2	PZ 3

Preferred Range

Preferred lengths: 5mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

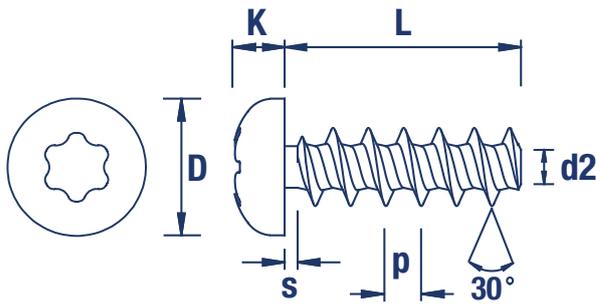
Thread Dimensions	Screw Size	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	d2 nom.	1.25	1.40	1.66	1.91	2.17	2.68	3.19
	p	0.98	1.12	1.34	1.57	1.79	2.24	2.69
	s (L > 3 x d1)	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	s (L < 3 x d1)	1.1	1.3	1.5	1.8	2.0	2.5	3.0
Recommended Hole Size mm		1.54 - 1.87	1.75 - 2.12	2.10 - 2.55	2.45 - 2.97	2.80 - 3.40	3.50 - 4.25	4.20 - 5.10
Head Dimensions	D	3.8	4.7	5.5	7.3	8.4	9.3	11.3
	K	1.30	1.75	2.05	2.80	3.25	3.40	3.80
	Recess No.	PZ 1	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2	PZ 3

Preferred Range

Preferred lengths: 5mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

Thread Dimensions	Screw Size	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	d2 nom.	1.04	1.25	1.40	1.66	1.91	2.17	2.68	3.19
	p	0.80	0.98	1.12	1.34	1.57	1.79	2.24	2.69
	s (L > 3 x d1)	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	s (L < 3 x d1)	0.9	1.1	1.3	1.5	1.8	2.0	2.5	3.0
Recommended Hole Size mm		1.26 - 1.53	1.54 - 1.87	1.75 - 2.12	2.10 - 2.55	2.45 - 2.97	2.80 - 3.40	3.50 - 4.25	4.20 - 5.10
Head Dimensions	D	3.6	4.0	4.2	5.6	6.9	7.5	8.2	10.8
	K	1.3	1.5	1.6	2.1	2.3	2.6	2.9	3.8
	Recess No.	T6	T6	T7/T8*	T10	T10	T20	T20	T23/T25*

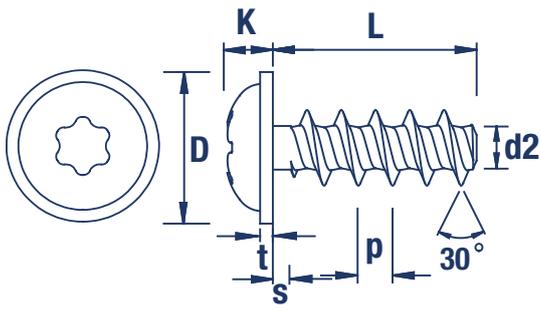
Preferred Range

Preferred lengths: 5mm - 40mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes

* larger drive size preferred



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

Thread Dimensions	Screw Size	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	d2 nom.	1.25	1.40	1.66	1.91	2.17	2.68	3.19
	p	0.98	1.12	1.34	1.57	1.79	2.24	2.69
	s (L > 3 x d1)	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	s (L < 3 x d1)	1.1	1.3	1.5	1.8	2.0	2.5	3.0
Recommended Hole Size mm		1.54 - 1.87	1.75 - 2.12	2.10 - 2.55	2.45 - 2.97	2.80 - 3.40	3.50 - 4.25	4.20 - 5.10
Head Dimensions	D	4.5	5.0	6.0	7.0	8.0	10.0	12.0
	K	1.4	1.5	2.1	2.4	2.6	3.3	3.6
	t	0.5	0.5	0.6	0.7	0.8	1.0	1.2
	Recess No.	T6	T6/T7*	T10	T10	T20	T20	T23/T25*

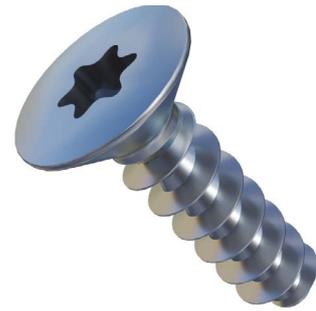
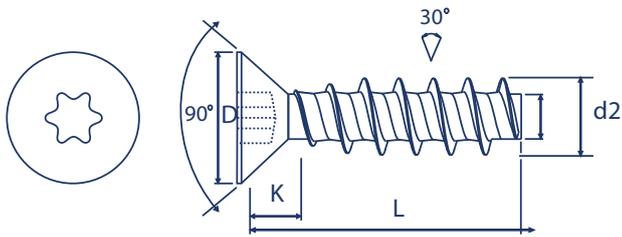
Preferred Range

Preferred lengths: 6mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes

*** larger drive size preferred**



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

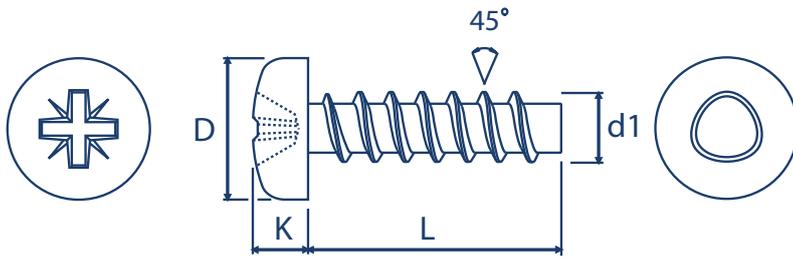
Thread Dimensions	Screw Size	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	d2 nom.	1.04	1.25	1.40	1.66	1.91	2.17	2.68	3.19
	p	0.80	0.98	1.12	1.34	1.57	1.79	2.24	2.69
	s (L > 3 x d1)	1.8	2.2	2.5	3.0	3.5	4.0	5.0	6.0
	s (L < 3 x d1)	0.9	1.1	1.3	1.5	1.8	2.0	2.5	3.0
Recommended Hole Size mm		1.26 - 1.53	1.54 - 1.87	1.75 - 2.12	2.10 - 2.55	2.45 - 2.97	2.80 - 3.40	3.50 - 4.25	4.20 - 5.10
Head Dimensions	D	3.4	3.8	4.7	5.5	7.3	8.4	9.2	11.3
	K	0.35	0.35	0.35	0.35	0.40	0.45	0.50	0.55
	Recess No.	T6	T6	T8	T8	T15	T20	T20	T30

Preferred Range

Preferred lengths: 6mm - 20mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

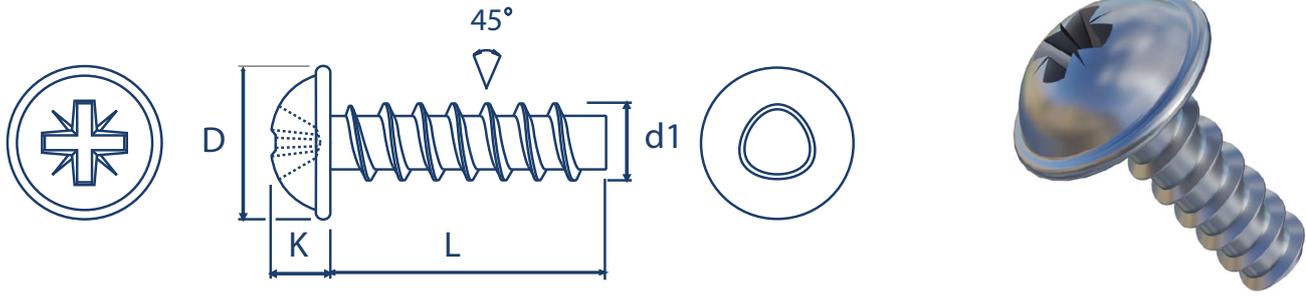
Screw Size	1.8	2.2	2.5	3	3.5	4	5	6
Dia. d1 Max	1.85	2.25	2.55	3.05	3.55	4.06	5.06	6.06
D	3.60	4.24	4.00	5.00	6.00	7.00	8.00	10.00
K - Max	1.50	1.57	1.60	1.95	2.30	2.45	2.80	3.50
Recess	PZ 0	PZ 1	PZ 1	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2
Recommended Hole Size mm	1.19 - 1.45	1.47 - 1.79	1.80 - 2.00	2.26 - 2.50	2.73 - 2.95	3.18 - 3.41	3.62 - 4.10	4.55 - 5.05

Preferred Range

Preferred lengths: 4mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

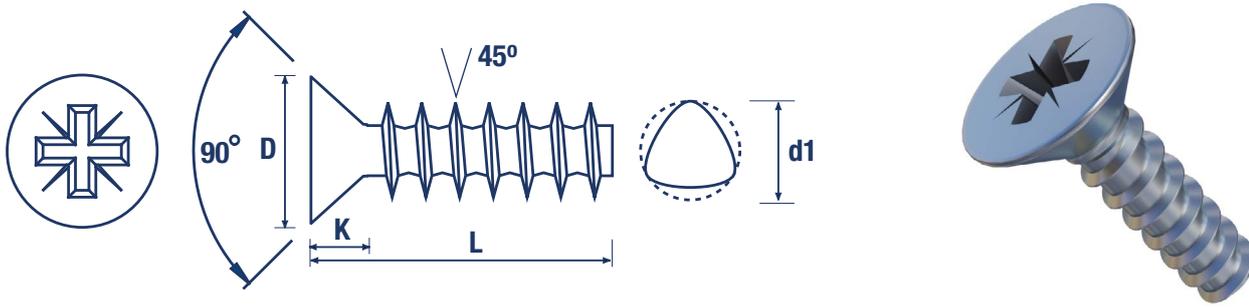
Screw Size	3.5	4	5	6
Dia. d1 Max	3.55	4.06	5.06	6.06
D	6.60	8.00	9.60	12.00
K - Max	1.60	2.00	2.30	2.90
Recess	PZ 1	PZ 2	PZ 2	PZ 2
Recommended Hole Size mm	2.73 - 2.95	3.18 - 3.41	3.62 - 4.10	4.55 - 5.05

Preferred Range

Preferred lengths: 8mm - 25mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

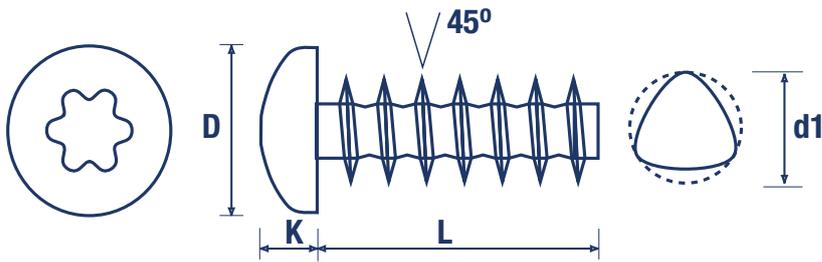
Screw Size	2.5	3	3.5	4	5	6
Dia. d1 Max	2.55	3.05	3.55	4.06	5.06	6.06
D	4.40	5.50	6.30	7.35	8.40	10.00
K - Max	1.30	1.50	1.65	1.90	2.20	2.50
Recess	PZ 1	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2
Recommended Hole Size mm	1.80 - 2.00	2.26 - 2.50	2.73 - 2.95	3.18 - 3.41	3.62 - 4.10	4.55 - 5.05

Preferred Range

Preferred lengths: 6mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

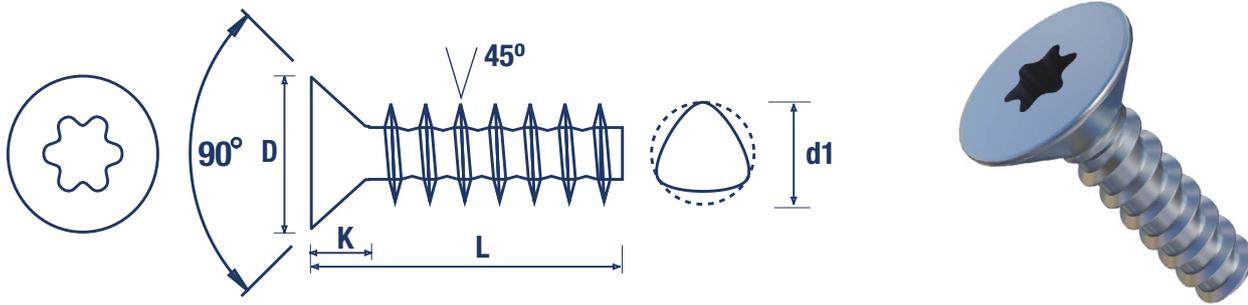
Screw Size	2.5	3	3.5	4	5
Dia. d1 Max	2.55	3.05	3.55	4.06	5.06
D	4.00	5.00	6.00	7.00	8.00
K - Max	1.60	1.95	2.30	2.45	2.80
Recess	T6	T8	T10	T15	T20
Recommended Hole Size mm	1.80 - 2.00	2.26 - 2.50	2.73 - 2.95	3.18 - 3.41	3.62 - 4.10

Preferred Range

Preferred lengths: 6mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3) | A2 Stainless Steel/Self Colour (SF)

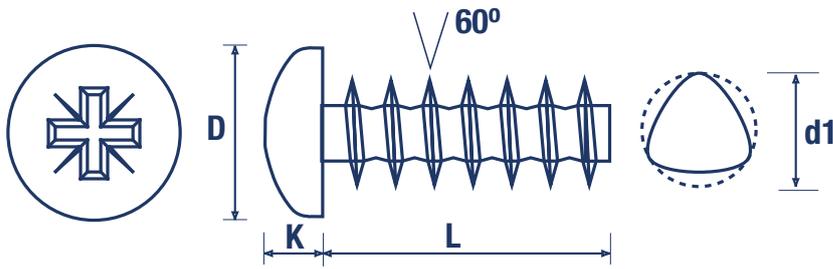
Screw Size	2.5	3	3.5	4	5
Dia. d1 Max	2.55	3.05	3.55	4.06	5.06
D	4.40	5.50	6.30	7.35	8.40
K - Max	1.30	1.50	1.65	1.90	2.20
Recess	T6	T8	T10	T15	T20
Recommended Hole Size mm	1.80 - 2.00	2.26 - 2.50	2.73 - 2.95	3.18 - 3.41	3.62 - 4.10

Preferred Range

Preferred lengths: 6mm - 30mm

Materials available: Steel/Zinc & Clear (CR3), A2 Stainless Steel/Self Colour (SF)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3)

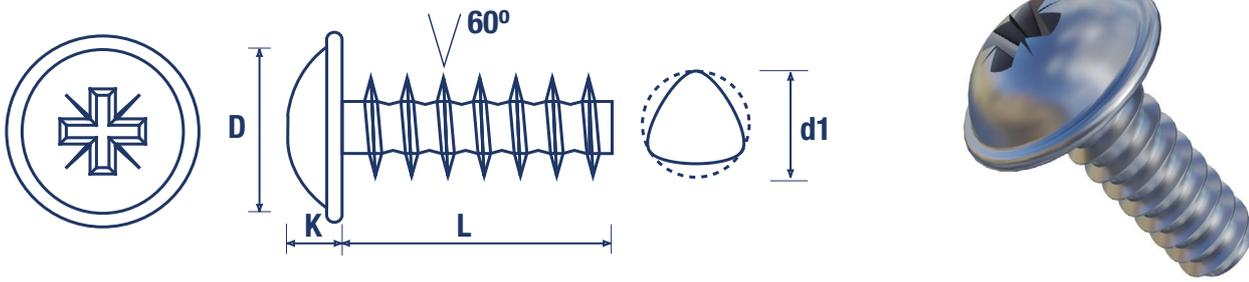
Screw Size	2-28	4-20	6-19	8-16	10-14
Dia. d1 Max	2-28	4-20	6-19	8-16	10-14
D	4.2	5.6	6.9	8.2	9.5
K - Max	1.57	2.03	2.46	2.92	3.38
Recess	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2
Nominal Hole Diameter (80% thread engagement)	1.96	2.59	3.12	3.84	4.5

Preferred Range

Preferred lengths: 4.8mm - 38.1mm

Materials available: Steel/Zinc & Clear (CR3)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3)

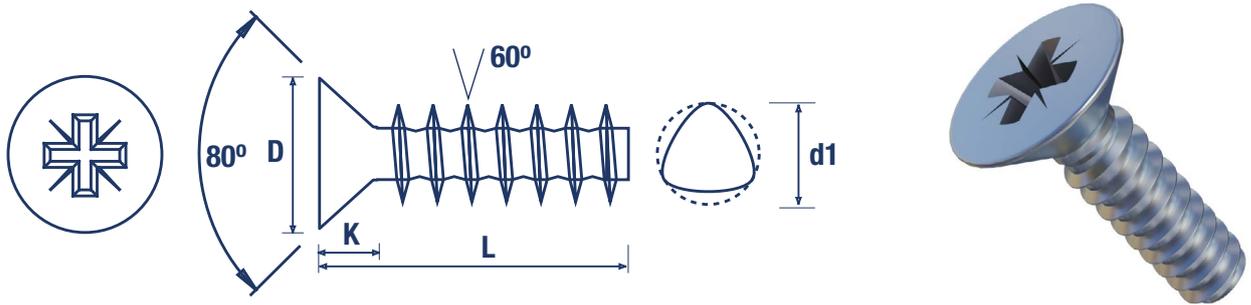
Screw Size	2-28	4.20	6-19	8-16	10-14
Dia. d1 Max	2-28	4.20	6-19	8-16	10-14
D	4.9	6.5	8.2	9.8	11.4
K - Max	1.50	1.60	1.88	2.36	2.90
Recess	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2
Nominal Hole Diameter (80% thread engagement)	1.96	2.59	3.12	3.84	4.5

Preferred Range

Preferred lengths: 6.4mm - 25.4mm

Materials available: Steel/Zinc & Clear (CR3)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Steel/Zinc & Clear (CR3)

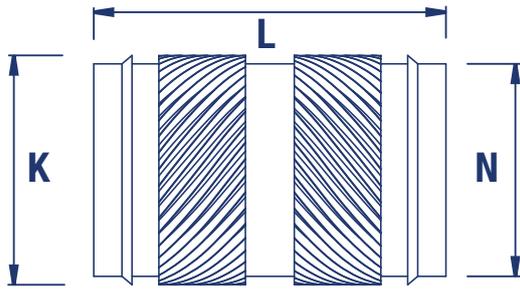
Screw Size	2-28	4.20	6-19	8-16	10-14
Dia. d1 Max	2-28	4.20	6-19	8-16	10-14
D	4.4	5.7	7.1	8.4	9.8
K - Max	1.30	1.70	2.11	2.54	2.95
Recess	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2
Nominal Hole Diameter (80% thread engagement)	1.96	2.59	3.12	3.84	4.5

Preferred Range

Preferred lengths: 4.8mm - 19.1mm

Materials available: Steel/Zinc & Clear (CR3)

Driver bits are available from stock for all screw sizes



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8	M10
L mm	4.0	5.7	5.7	7.1	8.1	9.5	12.7	12.7	12.7
K mm	3.5	4.4	4.4	5.2	6.1	6.8	8.5	10.0	12.3
N mm	3.1	3.9	3.9	4.7	5.5	6.3	7.9	9.5	11.8
Recommended Hole Size mm (-0.0/+0.1)	3.2	4.0	4.0	4.8	5.6	6.4	8.0	9.6	11.9
Minimum Wall Thickness Boss	1.3	1.6	1.6	1.8	2.1	2.6	3.3	4.5	6.0

Tech-Sert information for designers

The **Tech-Sert** has been designed for post mould installation into thermoplastics using heat or ultrasonics with the opposing knurls and vanes providing high levels of pull out and torque resistance. The symmetrical design means the insert can be installed either way round which allows for automated installation.

Advantages:

- Rapid installation
- Symmetrical design for automated installation
- Allows for thin walls in the boss
- High pull out and torque resistance

Installation Data

The Tech-Sert is installed using either heat or ultrasonics.

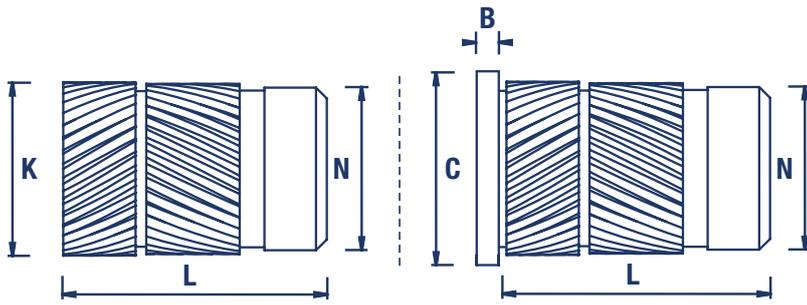
Heat Installation

Where heat is used you must ensure that the insert softens, but does not melt the plastic, which helps avoid flash forming around the top of the insert.

Ultrasonic Installation

Ultrasonic installation works best with low amplitude vibrations and enough power to soften the surrounding plastic.

Care should be taken to avoid excessive downward pressure being applied during installation which can result in the insert being forced into the hole rather than allowing the plastic to soften around it.



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8	M10
L mm	4.0	5.7	5.7	7.1	8.2	9.5	12.7	12.7	12.7
K mm	3.6	4.6	4.6	5.4	6.3	7.1	8.7	10.2	12.6
B mm	0.53	0.61	0.61	0.76	0.91	1.09	1.35	1.35	1.60
C mm	4.8	5.5	5.5	6.4	7.1	7.9	9.5	11.1	14.0
N mm	3.1	3.9	3.9	4.7	5.5	6.3	7.9	9.5	11.8
Recommended Hole Size mm (-0.0/+0.1)	3.2	4.0	4.0	4.8	5.6	6.4	8.0	9.6	11.9
Minimum Wall Thickness Boss	1.3	1.6	1.6	1.8	2.1	2.6	3.3	4.5	6.0

Tech-Sert information for designers

The **Sonic-Sert** has been designed for post mould installation into thermoplastics using heat or ultrasonics with the opposing knurls providing a combination of high pull out and torque resistance.

Advantages:

- Rapid installation
- Allows for thin walls in the boss
- High pull out and torque resistance

Installation Data

The Sonic-Sert is installed using either heat or ultrasonics.

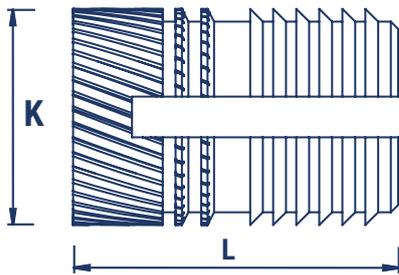
Heat Installation

Where heat is used you must ensure that the insert softens, but does not melt the plastic, which helps avoid flash forming around the top of the insert.

Ultrasonic Installation

Ultrasonic installation works best with low amplitude vibrations and enough power to soften the surrounding plastic.

Care should be taken to avoid excessive downward pressure being applied during installation which can result in the insert being forced into the hole rather than allowing the plastic to soften around it.



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8
L mm	4.0	5.8	5.8	7.2	8.2	9.5	12.7	12.7
K mm	3.7	4.5	4.5	5.3	6.2	6.9	8.5	10.1
Recommended Hole Size mm (-0.0/+0.1)	3.2	4.0	4.0	4.8	5.6	6.4	8.0	9.6
Minimum Wall Thickness Boss	1.6	2.0	2.0	2.4	2.8	3.2	4.0	4.8

Press-Sert information for designers

The **Press-Sert** is a press-in insert, designed for post mould installation into thermoplastics. The combination of plain and knurled vanes provides good levels of pull out and torque resistance.

Advantages:

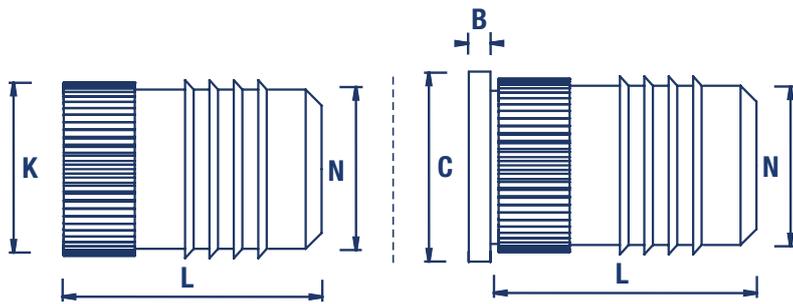
- Simple, press-in installation
- Provides self-locking action on mating screw
- Good pull out and torque resistance

Installation Data

The Press-Sert should be installed with a press that can provide a steady squeezing action to prevent damage to the mating boss.

The mating screw should always be installed into the knurled end of the insert to allow it to expand. It is important that the screw fully penetrates the insert to achieve full expansion and optimum pull-out resistance.

Press-Sert inserts should not be used in notch-sensitive plastics.



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8
L mm	4.0	4.8	4.8	6.4	7.9	9.5	12.7	12.7
K mm	3.7	4.5	4.5	5.3	6.1	7.0	8.6	10.2
B mm	0.45	0.58	0.58	0.74	0.89	1.07	1.32	1.32
C mm	4.8	5.5	5.5	6.4	7.1	7.9	9.5	11.1
N mm	3.1	3.9	3.9	4.7	5.5	6.3	7.9	9.5
Recommended Hole Size mm (-0.0/+0.1)	3.2	4.0	4.0	4.8	5.6	6.4	8.0	9.6
Minimum Wall Thickness Boss	1.6	2.0	2.0	2.4	2.8	3.2	4.0	4.8

Fin-Sert information for designers

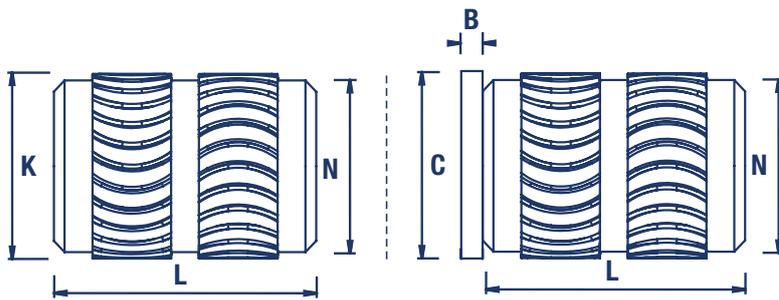
The **Fin-Sert** is a press-in insert, designed for post mould installation into thermoplastics. The combination of fins and knurls provides good levels of pull out and torque resistance.

Advantages:

- Simple, press-in installation
- Free running female thread
- Good resistance against rotation and pull out

Installation Data

The Fin-Sert should be installed in a smooth action to prevent damage to the mating boss.



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8
L mm	3.9	5.8	5.8	7.1	8.1	9.5	12.7	12.7
K mm	3.5	4.4	4.4	5.2	6.1	6.9	8.5	10.0
B mm	0.51	0.58	0.58	0.74	0.89	1.07	1.32	1.32
C mm	4.8	5.5	5.5	6.4	7.1	7.9	9.5	11.1
N mm	3.1	3.9	3.9	4.7	5.5	6.3	7.9	9.5
Recommended Hole Size mm (-0.0/+0.1)	3.2	4.0	4.0	4.8	5.6	6.4	8.0	9.6
Minimum Wall Thickness Boss	1.4	1.8	1.8	2.1	2.4	2.8	3.6	5.0

Heat-Sert information for designers

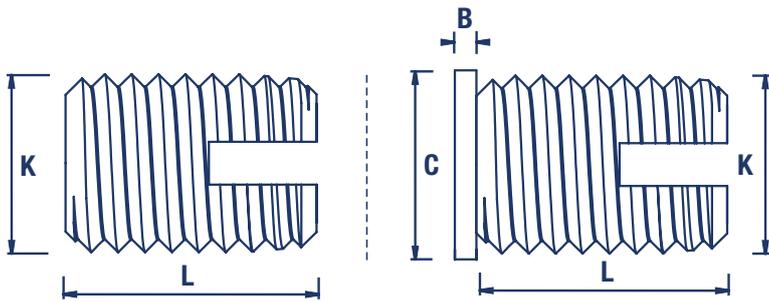
The Heat-Sert has been designed for post mould installation into notch-sensitive thermoplastics using heat. The rounded knurls alleviate stress in the mating boss.

Advantages:

- Designed specifically for notch-sensitive plastics
- Symmetrical design for automated installation
- High pull out and torque resistance

Installation Data

The Heat-Sert should be heated before installation into the thermoplastic boss. The heat must be enough to soften the plastic, without reaching melting point, to prevent flash formation.



Dimensions (mm) Brass/Self Colour

Thread size	M2.5	M3	M3.5	M4	M5	M6	M8	M10
L mm	6.0	6.0	8.0	8.0	10.0	14.0	15.0	18.0
B mm	0.58	0.58	0.73	0.89	1.06	1.32	1.32	1.57
C mm	6.0	6.5	8.5	8.0	9.5	12.0	14.0	16.0
K max mm	4.5	5.0	6.0	6.5	8.0	10.0	12.0	14.0
Recommended Hole Size Thermoplastics mm	4.0-4.1	4.5-4.6	5.3-5.4	5.8-5.9	7.1-7.2	8.6-8.8	10.6-10.8	12.6-12.8
Recommended Hole Size Thermosets mm	4.1-4.3	4.6-4.8	5.5-5.7	6.0-6.2	7.3-7.6	9.0-9.4	11.0-11.4	13.0-13.4

Heat-Sert information for designers

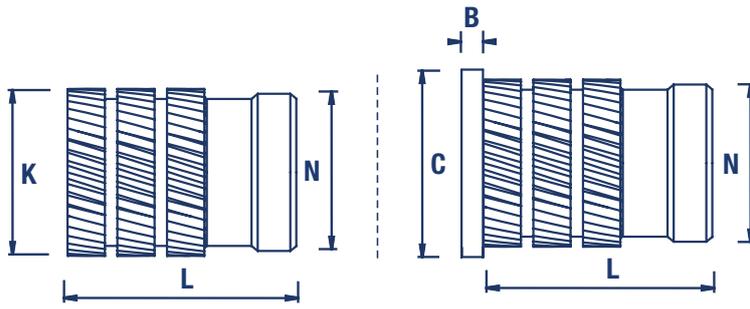
The **Thread-Sert** is a self-tapping insert, designed for post mould installation into thermoplastics and thermosets. They are ideally suited to applications with a high pull-out force requirement.

Advantages:

- Simple, self-tapping installation
- Helps prevent jack-out
- High torque resistance

Installation Data

The Thread-Sert is installed by tapping with either a hand tool, a vertical drill with a tapping attachment, or a standard tapping machine. The maximum RPM should be kept between 35 and 40. Ensure that the mandrel does not extend beyond the slot.



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8	M10
L mm	4.1	5.3	5.3	6.3	7.4	8.3	9.2	9.2	9.2
B mm	0.51	0.58	0.58	0.74	0.89	1.07	1.32	1.32	1.57
C mm	4.8	5.5	5.5	6.4	7.1	7.9	9.5	11.1	14.0
K mm	3.3	4.2	4.2	5.0	5.8	6.6	8.2	9.7	12.7
N mm	3.0	3.7	3.7	4.5	5.3	6.1	7.7	9.3	12.2
Recommended Hole Size mm (-0.0/+0.1)	3.1	3.8	3.8	4.6	5.4	6.2	7.8	9.3	12.2
Minimum Wall Thickness Boss	1.6	2.0	2.0	2.5	2.5	2.5	2.8	3.8	5.0

Broaching-Sert information for designers

The **Broaching-Sert** is a press-in insert, designed for post mould installation into thermosets. The sharp knurls of the insert cut into the mating material during installation thereby reducing stress in brittle thermosets.

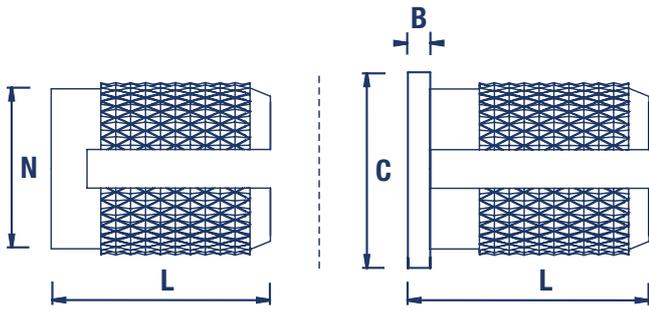
Advantages:

- Simple, press-in installation
- Allows for thin walls in the boss
- Good pull out and torque resistance

Installation Data

The Broaching-Sert should be installed with a press that can provide a steady squeezing action to prevent damage to the mating boss.

The insert should be allowed to freely rotate during installation.



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8
L mm	3.9	4.7	4.7	6.3	7.9	9.4	12.6	12.6
B mm	0.43	0.51	0.51	0.66	0.82	0.99	1.25	1.25
C mm	4.8	5.5	5.5	6.4	7.1	7.9	9.5	11.1
N max mm	3.2	4.0	4.0	4.7	5.5	6.3	7.9	9.5
Recommended Hole Size mm (-0.0/+0.1)	3.2	4.0	4.0	4.8	5.6	6.4	8.0	9.6
Minimum Wall Thickness Boss	2.4	3.2	3.2	3.6	4.0	4.8	6.0	7.0

Expansion-Sert information for designers

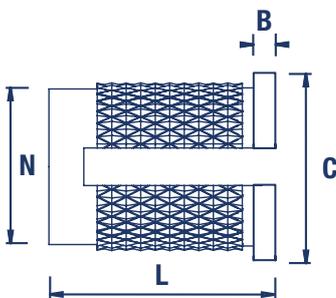
The **Expansion-Sert** is a press-in insert, designed for post mould installation into thermosets. The knurl pattern makes this insert ideal for hard thermosets.

Advantages:

- Simple, press-in installation
- Provides self-locking action on mating screw
- Good pull out and torque resistance

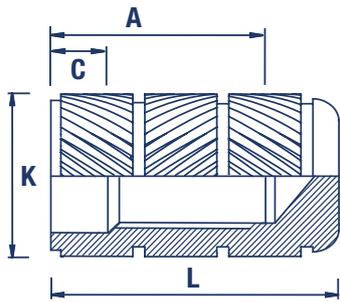
Installation Data

The Expansion-Sert should be installed with a press that can provide a smooth insertion to prevent damage to the mating boss. It is important that the mating screw fully penetrates the insert to achieve full expansion and optimum pull-out resistance.



Reverse Headed Expansion-Sert

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Fasteners for Plastic 2026 Edition 1



Dimensions (mm) Brass/Self Colour

Thread size	M2	M2.5	M3	M3.5	M4	M5	M6	M8	M10
L mm	5.5	6.4	7.3	9.2	10.2	11.2	14.4	16.5	17.9
K mm	3.4	4.3	4.7	5.5	6.3	7.3	9.8	11.4	13.8
A min. mm	3.6	4.0	4.6	6.0	6.7	7.4	8.1	11.1	11.9
C mm	1.0	1.2	1.3	1.6	1.8	2.0	2.0	2.3	2.4

Flow-Sert information for designers

The **Flow-Sert** is a blind insert, designed to be installed during the moulding process.

Advantages:

- The blind end prevents plastic ingress during moulding
- Very high pull out and torque resistance

Installation Data

The Flow-Sert is to be in-moulded in the application. It is critical that the mould pin used is designed to locate the Flow-Sert and prevent plastic ingress.

Please contact your nearest TR location for mould pin design assistance.



Compression Limiters



These products made to customer drawing are used extensively in plastic mouldings as through-holes, reducing the stress generated by threaded fasteners.

Compression Limiters play an increasingly important role in automotive applications including electric vehicle (EV), electric vehicle battery (EVB) and in other industries.

Product range		Available materials	
			
Symmetrical	Flanged	Steel	Stainless Steel
			
Split seam	Oval	Brass	Aluminium

High-Low Screws



High-Low Screws have two widely spaced threads. One, the high thread, shall have a 30° included angle whilst the second, the low thread, has a 60° included angle. The unique thread form has three important advantages in plastic applications:

1. High pull out loads
2. Wider differential between driving and stripping torque values
3. Reduced radial pressure which minimises both cracking or busting

Type BT Screws



Type BT Thread Cutting Screws have spaced threads with a blunt point and tapered lead threads, as with Type F Self Tappers with a thread cutting edge and chip cavity.

These screws cut their mating thread form and are therefore more suited to applications in less ductile materials (which are unsuitable for the Type F Screws) such as thermoset plastics and cast aluminium.

Type Y Screws



Type Y Thread Cutting Screws have spaced threads with a blunt point and tapered entering threads, as with Type F Self Tappers, with multi cutting flutes extended from point to under head.

The Screws cut their mating thread and are therefore suitable to less ductile materials such as thermoset plastics and aluminium.

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TR supplies to customers in c.65 countries across a range of sectors: automotive, medical equipment, smart infrastructure and distributors.

As a full-service provider to multinational OEMs and Tier 1 companies, we offer end-to-end support: concept design, technical engineering, manufacturing, supply chain management, and worldwide logistics.



Manufacturing

We have a manufacturing network in Europe and Asia specialising in producing high volume parts specifically to customer drawings.

Our factories are strategically placed geographically to provide cost efficient product to very high quality standards.



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TR, part of the Trifast plc Group, is a global leader in the design, engineering, manufacture and supply of fastenings and Category 'C' components. We support major assembly industries with solutions that enhance efficiency and performance.

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Bespoke Products

Our factories in Asia and Europe produce components which are specifically tailored to customer drawings.

In addition, our strategic partnerships with other world-class manufacturers, allow us to offer a wide range of practically any size of turned, cold-formed, pressed or moulded components.



Website

www.trfastenings.com is designed to be the ultimate go-to resource for engineers, designers and buyers.

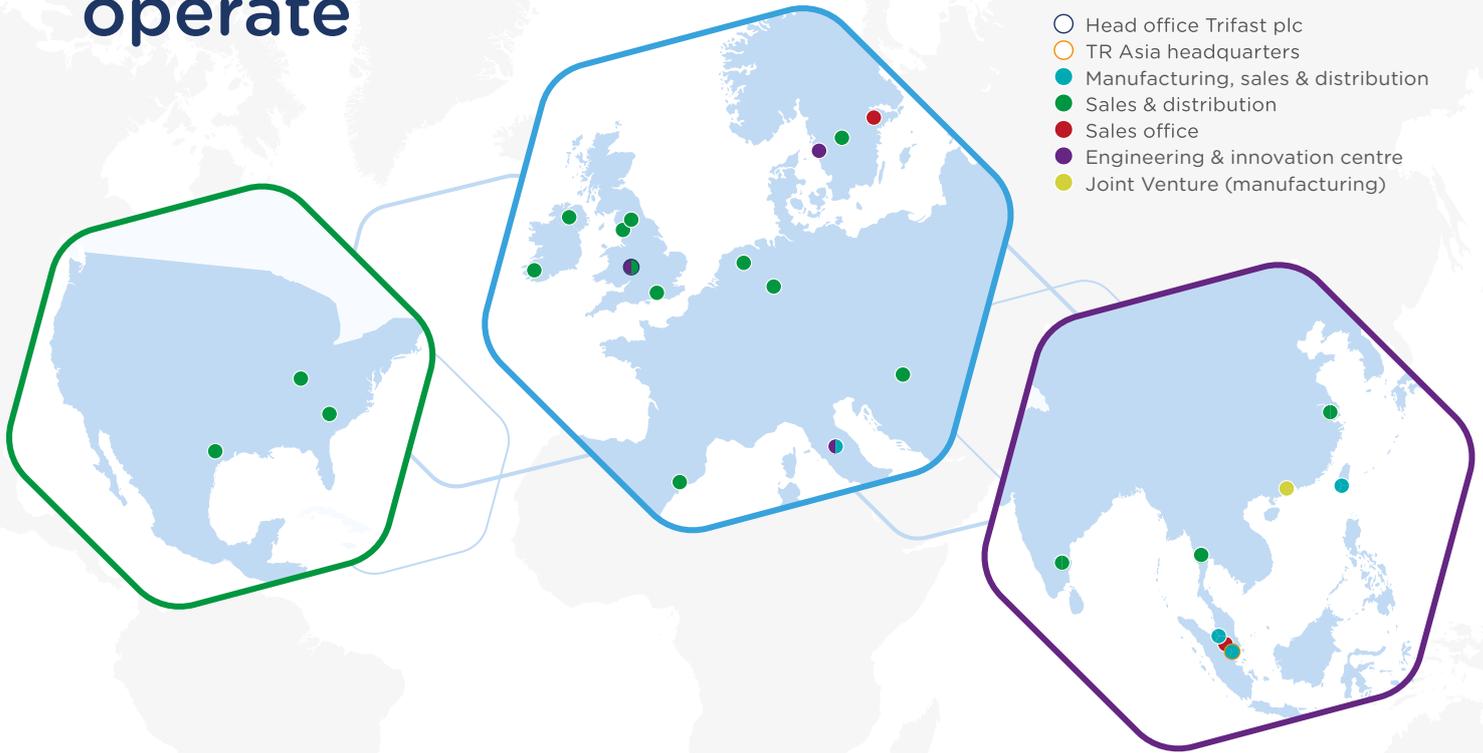
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Where we operate

Key:

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- TR Asia headquarters
- Manufacturing, sales & distribution
- Sales & distribution
- Sales office
- Engineering & innovation centre
- Joint Venture (manufacturing)



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