

powercoil®

wire thread insert system

WIRE THREAD INSERTS FOR
THREAD REPAIR AND THREAD CREATION





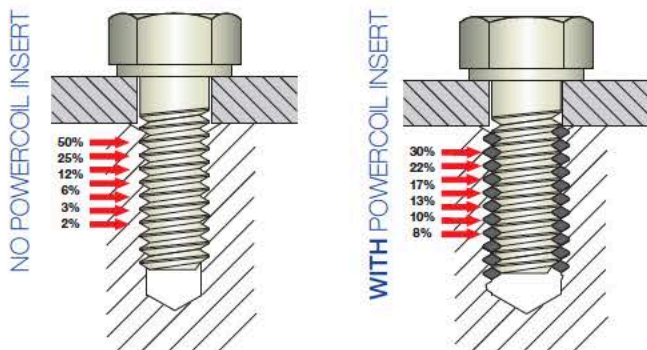
Manufactured from high quality chromium nickel stainless steel, PowerCoil Wire Thread Inserts provide high strength internal threads that resist the effects of temperature and corrosion. Their unique design ensures superior threads whose compound performance cannot be reproduced by any other single fastening method. Available in two basic forms, free running or screw locking, they are much lighter and less expensive than any other equivalent type of thread insert and because of their compact size they can generally be incorporated into existing designs where no previous provision has been made.

FEATURES & BENEFITS

- ◆ Much lighter and less expensive than any other equivalent type of thread insert.
- ◆ Wire thread inserts can generally be introduced into existing designs where no previous provision has been made.
- ◆ They increase quality and performance whilst reducing overall product cost.
- ◆ Their use may result in the use of thinner sections or lighter parent materials without sacrificing thread strength.
- ◆ They protect tapped threads against failures due to stripping, seizing, corrosion and wear.
- ◆ PowerCoil inserts have an exceedingly smooth surface finish which virtually eliminates friction-induced thread erosion.
- ◆ The continuous helically coiled design negates the need for thick wall structures to support the internal and external threads.
- ◆ Wire thread inserts can be installed in reduced size bosses or flanges and within constricted areas – saving space and weight while providing high strength.

STRENGTH

- ◆ Wire thread inserts create internal threads that have a much improved distribution of residual stress loading when compared with conventional tapped holes.
- ◆ The flexibility of wire thread inserts helps to compensate for pitch and flank angle errors, inherent in normal tapped holes.
- ◆ PowerCoil inserts significantly enhance the load bearing capacity by deflecting the residual forces into a helical hoop stress which is dispersed into the wall of the tapped hole.
- ◆ They enable designs to be confidently based on the bolt strength utilising smaller and shorter threads even when used in low strength materials such as magnesium and aluminium alloys.
- ◆ Both static and dynamic load bearing capabilities are improved.

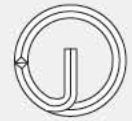
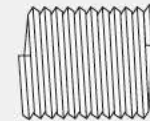


ELIMINATE STRESS

- ◆ Virtually no stress is introduced into the parent material because there is no staking, locking, swaging or keying in place.

WEAR RESISTANCE

- ◆ The combination of material hardness and the brilliant surface finish of wire thread inserts creates internal threads in which wear due to thread friction is virtually eliminated.
- ◆ The low frictional coefficient ensures that virtually all of the applied assembly torque is converted into clamping load, thus providing threads that stay tight.

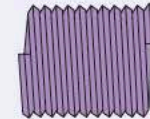


FREE RUNNING INSERTS

When installed, using any one of a variety of manual or automatic tools, PowerCoil free running inserts provide strong permanent internal threads that resist heat and corrosion.



Once fitted, their position is maintained by the action of radial pressure between their coils and the flanks of the tapped hole. This pressure exists because their free (uninstalled) diameter is larger, by a calculated amount, than their installed diameter.



SCREW LOCKING INSERTS

Screw locking (or prevailing torque) inserts are of particular value in applications subject to the effects of cyclic vibration or impact. In addition to the benefits of free running inserts, screw locking inserts offer:

- ◆ The additional security of prevailing locking torque. This is achieved by the action of one or more polygonal grip coils positioned within each insert's length, which exert radial pressure on the male thread.
- ◆ Each grip coil consists of a number of tangential locking chords that protrude inside the minor diameter. As the male thread passes through these grip coils, the locking flats are displaced thus exerting radial pressure or prevailing torque on the male thread.
- ◆ On removal of the male thread, the coils relax to their original form.

NOMINAL THREAD	LOCKING TORQUE	
	Nm	Nm
METRIC COARSE	MIN	MAX
M2.20 X 0.45	0.14	0.02
M2.50 X 0.45	0.23	0.05
M3.00 X 0.50	0.45	0.10
M3.50 X 0.60	0.68	0.12
M4.00 X 0.70	0.90	0.15
M5.00 X 0.80	1.60	0.30
M6.00 X 1.00	3.00	0.40
M7.00 X 1.00	4.50	0.60
M8.00 X 1.25	6.00	0.80
M10.00 X 1.50	10.50	1.40
M12.00 X 1.75	15.50	2.10
M14.00 X 2.00	23.50	3.00
M16.00 X 2.00	31.50	4.20
M18.00 X 2.50	42.00	5.50
M20.00 X 2.50	54.00	7.00
M22.00 X 2.50	67.50	9.00
M24.00 X 3.00	80.00	10.50
METRIC FINE	MIN	MAX
M8.00 X 1.00	6.00	0.80
M10.00 X 1.00	10.50	1.40
M10.00 X 1.25	10.50	1.40
M12.00 X 1.25	15.50	2.10
M12.00 X 1.50	15.50	2.10
M14.00 X 1.50	23.50	3.00
M16.00 X 1.50	31.50	4.20
M18.00 X 1.50	42.00	5.50
M18.00 X 2.00	42.00	5.50
M20.00 X 1.50	54.00	7.00
M20.00 X 2.00	54.00	7.00
M22.00 X 1.50	67.50	9.00
M22.00 X 2.00	67.50	9.00
M24.00 X 1.50	80.00	10.50
M24.00 X 2.00	80.00	10.50

NOMINAL THREAD	LOCKING TORQUE	
	lb. in.	lb. in.
UNC	MIN	MAX
2 X 56	1.25	0.19
4 X 40	3.00	0.63
5 X 40	4.69	0.81
6 X 32	6.00	1.00
8 X 32	9.00	1.50
10 X 24	13.00	2.00
12 X 24	24.00	3.00
1/4 X 20	30.00	4.50
5/16 X 18	60.00	7.50
3/8 X 18	80.00	12.00
7/16 X 14	100.00	16.50
1/2 X 13	150.00	24.00
9/16 X 12	200.00	30.00
5/8 X 11	300.00	40.00
3/4 X 10	400.00	60.00
7/8 X 9	600.00	82.00
1 X 8	800.00	110.00
UNF	MIN	MAX
4 X 48	0.19	0.63
6 X 40	6.00	1.00
8 X 36	9.00	1.50
10 X 32	13.00	2.00
1/4 X 28	30.00	3.50
5/16 X 24	60.00	6.50
3/8 X 24	80.00	9.50
7/16 X 20	100.00	14.00
1/2 X 20	150.00	18.00
9/16 X 18	200.00	24.00
5/8 X 18	300.00	32.00
3/4 X 16	400.00	50.00
7/8 X 14	600.00	70.00
1 X 12	800.00	90.00
1 X 14	800.00	90.00

KITS

PowerCoil Kits include stainless steel free running 1.5D inserts*, a HSS STI intermediate tap and installation tool. Kits up to 13mm and 1/2" also include a HSS tapping drill and a tang break tool.

PowerCoil Kits are ideal for repairs and use in low to medium production volume environments. Detailed instructions are included in every kit.

*Spark plug and BA inserts are not 1.5D. Check catalogue for actual lengths.



THREAD TYPE	SINGLE SIZE KITS		# INSERTS	HSS DRILL	HSS STI TAP	INSTALL TOOL	BREAK TOOL
	FROM	TO					
METRIC COARSE 34 KITS	M 2-0.40	M 8-1.25	20	✓	✓	✓	✓
	M 9-1.25	M 10-1.50	15	✓	✓	✓	✓
	M 11-1.50	M 12-1.75	10	✓	✓	✓	✓
	M 13-1.75	M 16-2.00	10	-	✓	✓	-
	M 18-2.50	M 25-3.00	5	-	✓	✓	-
	M 27-3.00	M 39-4.00	10	-	✓	✓	-
	M 42-4.50	M 72-6.00	5	-	✓	✓	-
METRIC FINE 39 KITS	M 8-1.00		20	✓	✓	✓	✓
	M 10-1.25	M 10-1.00	15	✓	✓	✓	✓
	M 11-1.25	M 12-1.00	10	✓	✓	✓	✓
	M 13-1.50	M 16-1.50	10	-	✓	✓	-
	M 18-2.00	M 25-1.25	5	-	✓	✓	-
	M 26-1.50	M 39-3.00	10	-	✓	✓	-
	M 42-3.00	M 52-2.00	5	-	✓	✓	-
SPARK PLUG 5 KITS	M10-1.00	-	5+5	-	✓	✓	✓
	M12-1.25	-	5+5	-	✓	✓	✓
	M14-1.25	-	5+5+5	-	✓	✓	-
	M18-1.50	-	5	-	✓	✓	-
UNC 24 KITS	UNC 2-56	UNC 5/16-18	20	✓	✓	✓	✓
	UNC 3/8-16	-	15	✓	✓	✓	✓
	UNC 7/16-14	UNC 1/2-13	10	✓	✓	✓	✓
	UNC 9/16-12	UNC 5/8-11	10	-	✓	✓	-
	UNC 3/4-10	UNC 1-8	5	-	✓	✓	-
	UNC 1.1/8-7	UNC 2.1/2-4	10	-	✓	✓	-
UNF 22 KITS	UNF 3-56	UNF 5/16-24	20	✓	✓	✓	✓
	UNF 3/8-24	-	15	✓	✓	✓	✓
	UNF 7/16-16	UNF 1/2-20	10	✓	✓	✓	✓
	UNF 9/16-18	UNF 5/8-18	10	-	✓	✓	-
	UNF 3/4-16	UNF 1-14	5	-	✓	✓	-
	UNF 1.1/8-12	UNF 1.1/2-12	10	-	✓	✓	-
BSW 12 KITS	BSW 1/8-40	BSW 5/16-18	20	✓	✓	✓	✓
	BSW 3/8-16	-	15	✓	✓	✓	✓
	BSW 7/16-14	BSW 1/2-12	10	✓	✓	✓	✓
	BSW 9/16-12	BSW 5/8-11	10	-	✓	✓	-
	BSW 3/4-10	BSW 1-8	5	-	✓	✓	-
BSF 10 KITS	BSF 3/16-32	BSF 5/16-22	20	✓	✓	✓	✓
	BSF 3/8-20	-	15	✓	✓	✓	✓
	BSF 7/16-18	BSF 1/2-16	10	✓	✓	✓	✓
	BSF 9/16-16	BSF 5/8-14	10	-	✓	✓	-
	BSF 3/4-12	BSF 1-10	5	-	✓	✓	-
BSP 10 KITS	BSP 1/8-28	BSP 1.1/2-11	10	-	✓	✓	-
NPT 7 KITS	NPT 1/16-27	NPT 1-11.5	10	-	✓	✓	-
8-UN 10 KITS	UN 1.1/8-8	UN 3-8	5	-	✓	✓	-
BSC 5 KITS	BSC 1/4-26	BCS 5/16-26	20	✓	✓	✓	✓
	BSC 3/8-26	-	15	✓	✓	✓	✓
	BSC 7/16-26	BSC 1/2-26	10	✓	✓	✓	✓
BA 4 KITS	BA 0	BA 6	20	✓	✓	✓	✓



Complete range of STI taps, hand installation tools as well as electric and pneumatic tools for production environments



KITS WORKSHOP

PowerCoil Workshop Kits include a selection of the most popular sizes in the most common thread forms. There are a range of standard metric kits including variations that include spark plug inserts. Workshop Kits are available in Metric, UNC, UNF, BSW and BSF thread forms.

All workshop kits include drills, STI taps and tools for each size insert. They are ideal for use in workshop and medium production volume environments.

Detailed instructions are included in every kit.

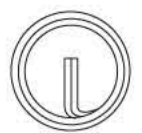


POWERCOIL KITS

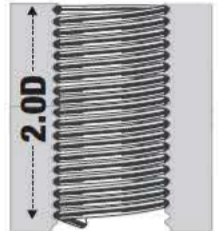
1. Cost effective repair option.
2. Includes all the tools required to make a repair.
3. Rubber tool holders ensure all components are stored safely after each use.

BULK INSERTS

PowerCoil bulk inserts are available in both free-running and screw locking forms. A selected range of thread forms and sizes are also available on strip feed reels for use in production and assembly environments.



← 1.0D →



THREAD TYPE	SIZE RANGE		INSERT LENGTH "D" / MM / INCH	FREE RUNNING BULK	SCREW LOCKING BULK
	FROM	TO			
METRIC	M 2-0.4	M 42-3.0	1.0, 1.5, 2.0, 2.5, 3.0D	✓	✓
SPARK PLUG	M 10-1.0	-	0.339, 1/2"	✓	-
	M 12-1.25	-	1/2, 3/4"	✓	-
	M 14-1.25	-	3/8, 7/16, 1/2, 3/4"	✓	-
	M 14-1.25	-	8.4, 12.4, 16.4MM	✓	-
	M 18-1.5	-	1/2"	✓	-
UNC	UNC 2-56	UNC 1.1/2-6	1.0, 1.5, 2.0, 2.5, 3.0D	✓	✓
UNF	UNF 3-56	UNF 1.1/2-12	1.0, 1.5, 2.0, 2.5, 3.0D	✓	✓
BSW	BSW 1/8-40	BSW 1-8	1.0, 1.5, 2.0, 2.5, 3.0D	✓	-
BSF	BSF 3/16-32	BSF 1-10	1.0, 1.5, 2.0, 2.5, 3.0D	✓	-
BSC	BSC 1/4-26	BSC 1/2-26	1.0, 1.5, 2.0, 2.5, 3.0D	✓	-
BSP	BSP 1/8-28	BSP 1-11	1.0, 1.5, 2.0, 2.5, 3.0D	✓	-
NPT	NPT 1/8-27	NPT 1-11.5	1.5D	✓	-
BA	BA 0	BA 6	1.0, 1.5, 2.0, 2.5, 3.0D	✓	-
8-UN	UN 1.1/8-8	UN 2-8	1.0, 1.5, 2.0, 2.5, 3.0D	✓	-

PowerCoil wire thread inserts comply with many requirements and standards of industry and aerospace industry. These include but are not limited to: DIN 8140, DIN 65536, LN 9039, LN 9499. Further standards such as MS and EN on request.



THREAD TYPE	SIZE RANGE		INSERT LENGTH "D" / MM / INCH	FREE RUNNING STRIP FEED REEL	SCREW LOCKING STRIP FEED REEL
	FROM	TO			
METRIC	M 2.2-0.45	M 12-1.75	1.0, 1.5, 2.0D	✓	✓
UNC	UNC 2-56	UNC 3/8-16	1.0, 1.5, 2.0D	✓	✓
UNF	UNF 4-48	UNF 3/8-24	1.0, 1.5, 2.0D	✓	✓

CLAM SHELL INSERT PACKETS

PowerCoil clam shell insert packets are a cost effective way to purchase small quantities of free running inserts for replenishing kits. They can also be used for low volume applications where the customer already has a suitable STI tap and tools.

THREAD TYPE	SIZE RANGE		INSERT LENGTH "D" / MM / INCH	FREE RUNNING CLAM SHELL PACK
	FROM	TO		
METRIC COARSE	M 2-0.4	M 3.0-0.6	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 4-0.7	M 10-1.5	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 11-1.5	M 13-1.75	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 14-2	M 24-3	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 27-3	M 36-4	1.0, 1.5, 2.0, 2.5, 3.0D	✓
METRIC FINE	M 6-0.75	M 20-1.5	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 20-1.25	-	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 21-2	M 24-1.5	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	M 26-1.5	M 36-1.5	1.0, 1.5, 2.0, 2.5, 3.0D	✓
SPARK PLUG	M 10-1.0	-	0.339, 1/2"	✓
	M 12-1.25	-	1/2, 3/4"	✓
	M 14-1.25	-	3/8, 7/16, 1/2, 3/4"	✓
	M 14-1.25	-	8.4, 12.4, 16.4MM	✓
	M 18-1.5	-	1/2"	✓
UNC	UNC 2-56	UNC 1-8	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	UNC 1.1/8-7	UNC 1.1/2-6	1.0, 1.5, 2.0, 2.5, 3.0D	✓
UNF	UNF 3-56	UNF 1-12	1.0, 1.5, 2.0, 2.5, 3.0D	✓
	UNF 1.1/8-12	UNF 1.1/2-12	1.0, 1.5, 2.0, 2.5, 3.0D	✓
BSW	BSW 1/8-40	BSW 1-8	1.0, 1.5, 2.0, 2.5, 3.0D	✓
BSF	BSF 3/16-32	BSF 1-10	1.0, 1.5, 2.0, 2.5, 3.0D	✓
BSC	BSC 1/4-26	BSC 1/2-26	1.0, 1.5, 2.0, 2.5, 3.0D	✓
BSP	BSP 1/8-28	BSP 1-11	1.0, 1.5, 2.0, 2.5, 3.0D	✓
NPT	NPT 1/16-27	NPT 1-11.5	1.5D	✓



Please note
Larger inserts in
longer lengths may
not fit in clam shells
and will be supplied
in a plastic bag.

PowerCoil is a registered trademark of Bordo International Pty Ltd Australia



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