



HeliCoil[®]

Thread technology for high-strength fastenings
Simple – quick – robust

BÖLLHOFF
Armstrong Limited

Helicoil®

TECHNICAL DATA & TOOLING

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HELICOIL® thread technology

The system

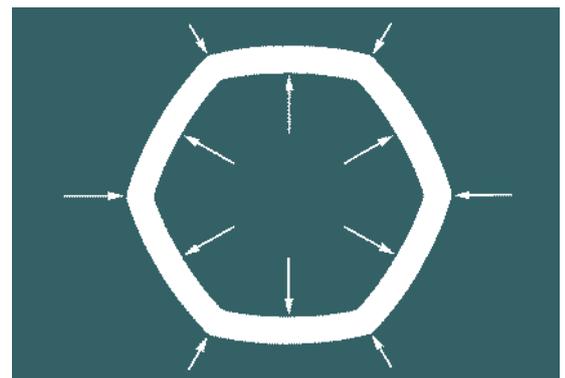
Thread inserts create high-strength fastenings in low-strength metal materials and have been well established in the market for over 50 years. These stainless steel thread inserts are formed into flexible spirals of proven quality wire with a rhombic profile. After installation, the tang can be broken off at the notch (predetermined breaking point) to allow through hole threads.



The versions

HELICOIL® thread inserts are available in two versions: HELICOIL® free running and HELICOIL® screwlock. Both versions have an optimal design. Like a screw, the thread insert is simply screwed in with an installation tool. HELICOIL® inserts are manufactured from high tensile stainless steel wire that has been formed into a diamond section to exacting dimensional standards.

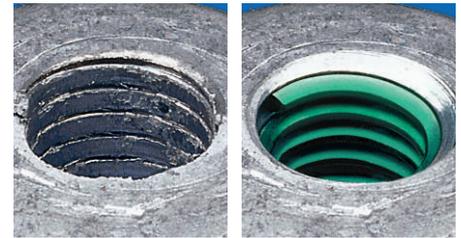
- **HELICOIL® free running**
Every thread of the precision-formed, rhombic profile is free running. The result is an internal thread true to gauge that can be used from both ends.
- **HELICOIL® screwlock**
The HELICOIL® screwlock bears the same benefits regarding threads as the HELICOIL® free running insert. Additionally an integrated screw clamping area serves as a screwlock. Locking of the screw is achieved by one or several polygon-shaped threads that damp the flanks of the bolt. The result is a flexible and resilient frictional locking. The achieved clamping torques are comparable with DIN 267 Part 15, ISO 2320 or can also be adapted to your individual application.



HELICOIL® thread technology

The applications

HELICOIL® inserts ensure high-strength threads transferring forces from flank to flank into the holding thread. This is a system of high reliability for which international industrial property rights have been filed and which is available worldwide. HELICOIL® provides thread inserts produced according to consistent material and quality specifications. This technology is the basis of national, aeronautical and military standards. Many leading large-scale users base their manufacturing standards on this system.



Damaged thread

Repaired thread

■ Structural component

Wherever low-strength materials (e.g. aluminium, magnesium alloys and fibre-reinforced plastics) are used, HELICOIL® is indispensable for thread reinforcement. This applies particularly to the aerospace industry, mechanical and plant engineering, the automotive industry and electrical and medical engineering. Thread reinforcement prevents wear of the threaded hole – even after frequent use.

HELICOIL® allows miniaturisation and lightweight construction in the development of serial parts. The required strength is provided by thread reinforcement with HELICOIL®.

■ Reject recovery and thread repair

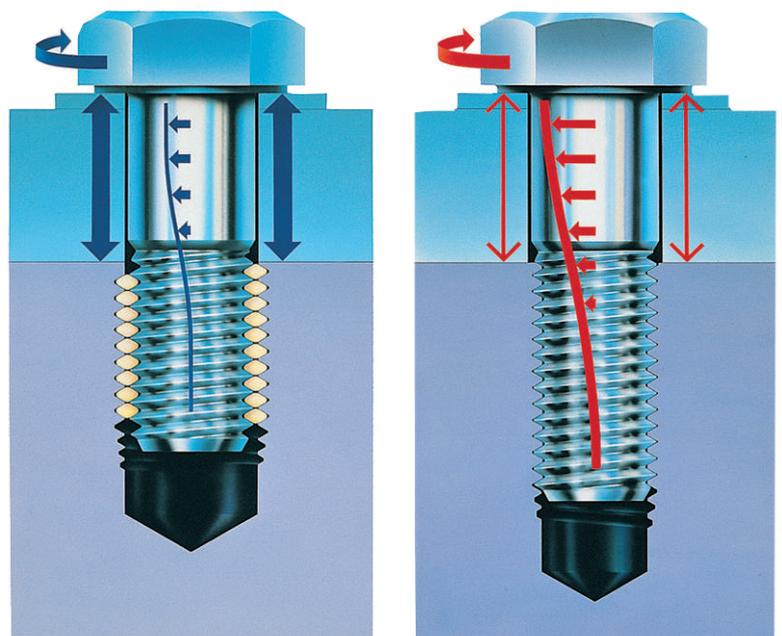
HELICOIL® thread inserts are internationally approved for the economical and permanent repair of damaged and worn out threads.

Apart from repair of valuable individual components, the possibility to return and salvage large volume components which have been rejected due to faults in the thread production is of major importance.

The advantages

■ Wear resistance

HELICOIL® thread inserts are made of austenitic chrome-nickel steel (minimum tensile strength of 1,400 N/mm²). The rolled thread has a high surface quality. This ensures a high-strength, wear-resistant thread with reduced friction torque. This also leads to an improved utilisation of the yield point of high-strength bolts. Torsion stress is considerably reduced compared to tapped threads.

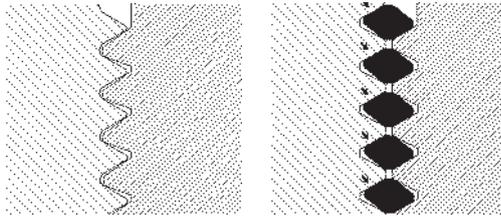


HELICOIL® thread technology

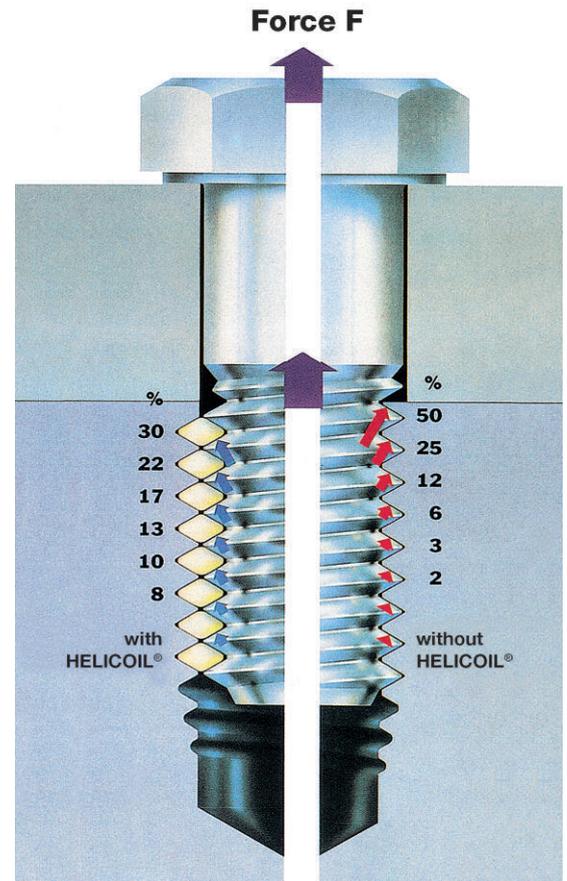
The advantages

Strength

The flexible characteristics of the HELICOIL® thread insert ensure even load and stress distribution and consequent optimum flank contact. Deficiencies in pitch and angle are balanced out over the entire length of the thread insert. With this, an optimum force transmission from bolt to threaded hole is achieved. The quality of screwed connection is considerably increased — for static as well as for dynamic operating loads.

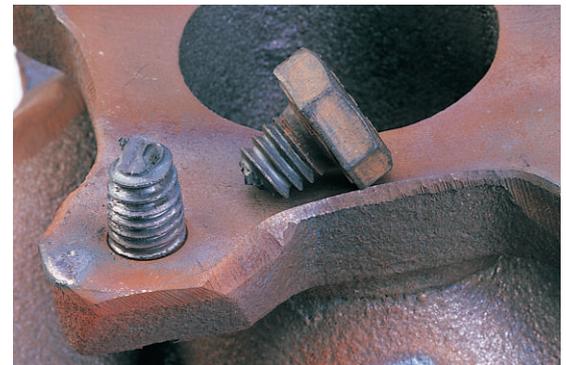


The improved distribution of preload-force increases the fatigue strength of dynamically loaded bolts. This is why HELICOIL® inserts are also used for high-strength holding materials, e.g. steel or cast iron alloys.



Resistance to corrosion and thermal effects

The basic material of HELICOIL® ensures that bolts do not seize under normal environmental influences. For thermally highly stressed bolted connections, HELICOIL® thread inserts of nickel alloy based materials with and without coating are available. Elasticity and spring force are constant even under high temperatures. For materials which are susceptible to corrosion, a range of surface treatments are available.



HELICOIL® Thread Technology

Materials

Thread insert Materials ^①	Temperature resistance	Minimum tensile strength at room temperature	Available surface treatment ^②	Examples of use
Stainless steel A 2 X5 CrNi 18 10 Material no. 1.4301 DTD 734 18 8	-195°C low temp. 425°C short-time 315°C long-time	1400 N/mm ²	- without - waxed - dry lubricating film - cadmium plated - silver plated	standard uses for all strength categories > 8,8 and materials ^③ general light construction, e.g. aluminium or aluminium alloys ^④
Stainless steel A 4 X6 CrNiMoTi 17 12 2 ^② Material no. 1.4571 316 Nitronic 60	-195°C low temp. 425°C short-time 315°C long-time 260°C long-time	1400 N/mm ²	- without - cadmium plated - silver plated	- increased corrosive protection - high grade alloy CrNi steel screws ^③ - low thread friction general light construction, sea water / chlorinated water
Bronze CuSn 6 Material no. 2.1020.34	300°C short-time 250°C long-time	900 N/mm ²	- without - cadmium plated	- Cu work pieces - expansion threads - CrNi screws
Inconel X 750 NiCr 15 Fe 7 TiAl ^② Material no. 2.4669 Alloy 90 NiCr 20 Co 18 Ti Material no.- 2.4632	750°C short-time 550°C long-time 900°C short-time 600°C long-time	1150 N/mm ²	- without - silver plated	- thermal stress in conjunction with corrosive protection - as tronautics - aeronautics - turbo-chargers
Aluminium alloy AlZnMgCu 1.5 ^② Material no. 3.4365	170°C short-time 150°C long-time	500 N/mm ²	- hard anodized - dry lubricating film	- magnesium work pieces - vehicle technology - lightweight construction

① Other materials or surface upon enquiry ② Special anti-corrosive measures must be made when utilising magnesium alloys
③ If CrNi screws are utilised, a commercially available lubricant must be used ④ Non-stock item, delivery upon enquiry

Determination of the Nominal Lengths

Guideline values for determining the length of the HELICOIL® thread insert relative to the parent material and the screw yield point, valid for temperatures of 20°C

Strength of the parent material Tensile strength R _m (N/mm ²)	Screw quality category									
	3.6 4.6	4.8 5.6	5.8 6.6	6.8 6.9	8.8	9.8	10.9	12.9	14.9	
up to 100	1.5 d	1.5 d	2 d	2.5 d	3 d	3 d	-	-	-	
> 100 – 150	1.5 d	1.5 d	2 d	2 d	2.5 d	2.5 d	2.5 d	2.5 d	3 d	
> 150 – 200	1 d	1.5 d	1.5 d	1.5 d	2 d	2 d	2 d	2.5 d	2.5 d	
> 200 – 250	1 d	1 d	1.5 d	1.5 d	1.5 d	1.5 d	2 d	2.5 d	2.5 d	
> 250 – 300	1 d	1 d	1 d	1 d	1.5 d	1.5 d	1.5 d	2 d	2 d	
> 300 – 350	1 d	1 d	1 d	1 d	1 d	1.5 d	1.5 d	1.5 d	2 d	
> 350 – 400	1 d	1 d	1 d	1 d	1 d	1 d	1.5 d	1.5 d	1.5 d	
> 400	1 d	1 d	1 d	1 d	1 d	1 d	1.5 d	1.5 d	1.5 d	

The figures are valid for materials with a tensile to shear strength ratio of $\frac{\text{shear strength}}{\text{tensile strength}} = 0.65$; like aluminium and steel alloys.

Cast iron alloys have a ratio of $\frac{\text{shear strength}}{\text{tensile strength}} = 0.8$ to 1.4

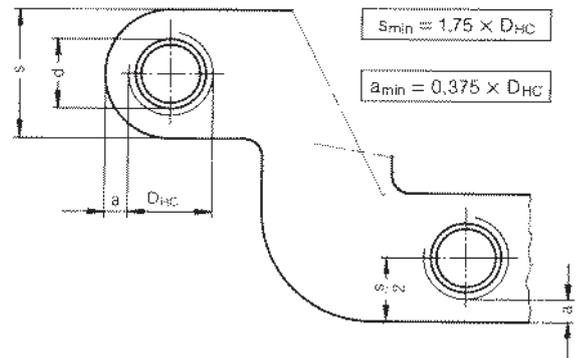
The guideline values must be assessed so that the screw is always the weakest part of the connection. Falling short of recommended nominal lengths is acceptable, if it is proven by testing. Intermediate lengths are also available.

HELICOIL® Thread Technology Design Guidelines

Minimum Wall Thickness

Assessment of the minimum wall thickness is mainly pre-determined by the individual operating data. These in turn determine the strength of the material and the length of the thread. The quoted guideline value formula applies to aluminium, cast and wrought alloys and a HELICOIL® screw-in thread length of 1.5 d.

- d = nominal diameter
- D_{HC} = HELICOIL® outer diameter
- a = remaining wall thickness



Aerospace & Military Specifications

AS4736 to 4748	BA/BSF/BSW/BSPF FR - Natural
AS4947 to 4959	BA/BSF/BSW/BSPF FR - Cadmium Plated
AS6733 to 6734	UNF FR - Natural
AS8455 to 8456	UNF/UNCFR - Cadmium Plated
AGS3600 to 3699	UNF/UNCSL - Cadmium Plated
AGS3700 to 3799	UNF SL - Silver Plated (HR503)
LN9039	Metric FR - Natural & Cadmium Plated
LN9499	Metric SL - Natural & Cadmium Plated
MA3279 to 3281	Metric FR - Natural, Dry Film & Cadmium
MA3329 to 3331	Metric SL - Natural, Dry Film & Cadmium
NASMI22076 to 124850	UNF/UNCFR - Natural
NASM21209	UNF/UNCSL - Natural, Dry Film & Cadmium

HELICOIL® inserts supplied by Bollhoff Armstrong Ltd against the above part numbers, conform to the Material, Mechanical and Chemical specifications, Product Dimensional criteria and post treatment finishes as specified in the associated product standard.

HELICOIL® Alloy 90 Inserts

SIZE	1D	1.5D	2D	2.5D	3D
10-32	AGS3706	AGS3731	AGS3756	AGS3781	AGS3718
1/4-28	AGS3707	AGS3732	AGS3757	AGS3782	AGS3719
5/16-24	AGS3708	AGS3733	AGS3758	AGS3783	AGS3720
3/8-24	AGS3709	AGS3734	AGS3759	AGS3784	AGS3721
7/16-20	AGS3710	AGS3735	AGS3760	AGS3785	AGS3722
1/2-20	AGS3711	AGS3736	AGS3761	AGS3786	AGS3723
9/16-18	AGS3712				
5/8-18	AGS3713				

To order Alloy 90 HELICOIL® inserts to Aerospace standards quote the relevant AGS part no. in the table above

Magnetism

HELICOIL® stainless steel inserts, due to cold working in the manufacturing process, have a slight magnetic signature. Tests conducted using a very sensitive gauss meter (having nulled out the earth's magnetic field) gave a residual field of 2 to 10 gauss.

HELICOIL® stainless steel inserts should be avoided in instruments which could be affected by magnetism.

For truly non-magnetic inserts use Nitronic 60 or Phosphor Bronze HELICOIL®.

High Temperature Applications

DTD734	425°C
Cadmium & Zinc Plated	Up to 250°C
Alloy 90	Up to 500°C (screwlock) Up to 650°C (free running only)
Nitronic 60	Up to 260°C
Zeron 100	Up to 300°C

HELICOIL® wire thread inserts are available in a range of materials to meet with a number of temperature range requirements. Highest temperature applications are supplied in Alloy 90 to BS HR 503, with ADS qualifications in the series listed below up to 500°C.

HELICOIL® Alloy 90 Tooling

SIZE	INSERT TOOL	T.B.O	EXTRACTION TOOL
10-32	ST1062	3581-3(-3)	1227-6
1/4-28	ST1088	3581-4(-3)	1227-6
5/16-24	ST1089	3581-5(-3)	1227-6
3/8-24	ST1090	3581-6(-3)	1227-6
7/16-20	ST1091	3581-7(-3)	1227-16
1/2-20	ST1092	3581-8(-3)	1227-16
9/16-18	ST1130	1196-9(-3)	1227-16
5/8-18	ST1099	1196-10(-3)	1227-16

Specialised installation tooling detailed above MUST be used in order to achieve the performance specifications laid down by the ADS.

HeliCoil[®]

Manual
installation
tools

Type **H-PSG**

Threaded mandrel, pitch controlled,
with depth stop.



Type **H-PMG**

Plain mandrel, pitch controlled,
with depth stop.



Type **H-PM**

Plain mandrel, without pitch control,
no depth stop.



Type **H-M**

Plain mandrel T-Bar, with depth stop.



METRIC

Insert Data

THREAD SIZE	FR PART NUMBER TOBS 7752	SL PART NUMBER TOBS 7751	INSERT LENGTH					FREE QDIA		NO FREE COILS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
M2 x 0.4	F102	S102	2	3	4	5	6	2.6	2.8	2.9	4.9	6.9	8.9	10.9	0.12 Nm	0.003 Nm
M2.2 x 0.45	F1022	S1022	2.2	3.3	4.4	5.5	6.6	2.8	2.9	3.2	5.4	7.8	10	12.3	0.14 Nm	0.02 Nm
M2.5 X 0.45	F1025	S1025	2.5	3.75	5	6.25	7.5	3.3	3.5	3.5	5.9	8.1	10.5	12.9	0.23 Nm	0.05 Nm
M3 X 0.5	F103	S103	3	4.5	6	7.5	9	3.8	4.0	3.9	6.3	8.7	11.1	13.5	0.45 Nm	0.1 Nm
M3.5 X 0.6	F1035	S1035	3.5	5.25	7	8.75	10.5	4.55	4.75	3.7	6.3	8.7	11.2	13.3	0.68 Nm	0.12 Nm
M4 X 0.7	F104	S104	4	6	8	10	12	5.15	5.35	3.7	6.1	8.4	10.9	13.2	0.9 Nm	0.15 Nm
M4.5 X 0.75	F1045	S1045	4.5	6.75	9	11.25	13.5	6.02	5.77	3.9	6.6	9.3	11.9	14.6		
M5 X 0.8	F105	S105	5	7.5	10	12.5	15	6.35	6.6	4.3	6.9	9.7	12.3	14.8	1.6 Nm	0.3 Nm
M6 X 1.0	F106	S106	6	9	12	15	18	7.6	7.85	4.2	6.9	9.6	12.3	14.6	3 Nm	0.4 Nm
M7 X 1.0	F107	S107	7	10.5	14	17.5	21	8.65	8.9	5.3	8.2	11.1	14.3	17.4	4.5 Nm	0.6 Nm
M8 X 1.0	F408	S408	8	12	16	20	24	9.85	10.1	6.1	9.5	12.9	16.5	19.9		
M8 X 1.25	F108	S108	8	12	16	20	24	9.85	10.1	4.7	7.4	10.6	13.5	16.4	6 Nm	0.8 Nm
M9 X 1.25	F109	S109	9	13.5	18	22.5	27	10.85	11.1	5.3	8.6	11.9	15.3	18.1		
M10 X 1.0*	474		6.35	9.52	11.11	12.52	19.05	12.1	12.5	2.8	5.6	7.0	8.4	13.9		
M10 X 1.25	F510	S510	10	15	20	25	30	12.1	12.5	6.0	9.7	13.1	16.9	20.1		
M10 X 1.5	F110	S110	10	15	20	25	30	12.1	12.5	5.0	8.1	11.2	14.2	17.2	10.5 Nm	1.4 Nm
M11 X 1.5	F111	S111	11	16.5	22	27.5	33	13.1	13.5	5.6	9.0	12.3	15.7	19.1		
M12 X 1.25*	INI39		12.52	19.05				12.5	13.1	6.1	10.6					
M12 X 1.25	F512	S512	12	18	24	30	36	14.4	14.8	7.4	11.6	15.9	20.0	24.3		
M12 X 1.5	F412	S412	12	18	24	30	36	14.4	14.8	14.8	6.2	13.5	16.8	20.8		
M12 X 1.75	F112	S112	12	18	24	30	36	14.4	14.8	5.2	8.4	11.7	14.7	18.0	15.5 Nm	2.1 Nm
M14 X 1.25*	512		9.52	11.11	12.52	15.88	19.05	17.2	17.7	3.5	4.6	5.7	7.9	10.1		
M14 X 1.5	F414	S414	14	21	28	35	42	17.2	17.7	7.1	11.2	15.3	19.0	23.7		
M14 X 2.0	F114	S114	14	21	28	35	42	17.2	17.7	5.2	8.3	11.5	14.6	18.4	23.5 Nm	3 Nm
M16 X 1.5	F416	S416	16	24	32	40	48	19.4	19.9	8.3	13.0	17.7	22.4	27.6		
M16 X 2.0	F116	S116	16	24	32	40	48	19.4	19.9	6.1	9.7	13.3	16.8	21.4	31.5 Nm	4.2 Nm
M18 X 1.5*	514		12.52	15.88				22.2	22.8	4.6	6.5					
M18 X 1.5	F418	S418	18	27	36	45	54	21.5	22.0	9.5	14.9	20.2	25.3	31.4		
M18 X 2.0	F218	S218	18	27	36	45	54	21.5	22.0	7.1	11.2	15.1	19.1	23.1		
M18 X 2.5	F118	S118	18	27	36	45	54	21.5	22.0	5.6	9.0	12.3	15.5	19.1	42 Nm	5.5 Nm
M20 X 1.5	F420	S420	20	30	40	50	60	23.7	24.2	10.7	16.7	22.4	29.9	35.0		
M20 X 2.0	F220	S220	20	30	40	50	60	23.7	24.2	8.0	12.5	16.8	21.3	25.9		
M20 X 2.5	F120	S120	20	30	40	50	60	23.7	24.2	6.3	10.0	13.7	17.7	21.5	54 Nm	7 Nm
M22 X 1.5	F422	S422	22	33	44	55	66	26.3	26.8	11.7	18.1	24.5	32.0	38.6		
M22 X 2.0	F222	S222	22	33	44	55	66	26.3	26.8	8.7	13.6	18.4	23.7	28.7		
M22 X 2.5	F122	S122	22	33	44	55	66	26.3	26.8	6.9	10.9	15.0	19.6	23.8	67.5 Nm	9 Nm
M24 X 2.0	F224	S224	24	36	48	60	72	28.6	29.1	9.6	15.0	20.2	25.9	31.4		
M24 X 3.0	F124	S124	24	36	48			28.6	29.1	6.2	10.0	14.0	17.7	21.5	80 Nm	10.5 Nm
M27 X 2.0	F227	S227	27	40.5	54	67.5		32.2	32.7	10.9	17.1	22.6				
M27 X 3.0	F127	S127	27	40.5	54	67.5		32.2	32.7	7.1	11.4	15.4	20.1		94 Nm	12 Nm
M30 X 2.0	F230	S230	30	45	60	75		35.2	35.7	12.3	19.0	25.5	32.8			
M30 X 3.5	F130	S130	30	45	60	75	90	35.2	35.7	7.0	11.0	14.9	19	23.1	108 Nm	14 Nm
M33 X 2.0	F233	S233	33	49.5				38.3	38.8	13.7	21.2					
M33 X 3.5	F133	S133	33	49.5	66			38.3	38.8	7.8	12.2	16.5			122 Nm	15.5 Nm
M36 X 2.0	F436	S436	36	54	72			42.1	42.6	14.1	21.9	31.1				
M36 X 4.0	F136	S136	36	54	72			42.1	42.6	7.0	11.0	15.2			136 Nm	17.5 Nm
M39 X 2.0	F639	S639	39	58.5				45.1	45.6	16.3	25.0					
M39 X 4.0	F139	S139	39	58.5	78			45.1	45.6	7.7	12.2	16.6			150 Nm	19.5 Nm

*Spark Plug Sizes

INSERT TYPE

F freerunning
S screwlock
F 106

MATERIAL

CN Stainless Steel
N90N Nimonic 90
TN Inconel X750
EN Nitronic 60
BN Phosphor Bronze
CN
CHOOSE FROM LIST

FINISH

BLANK None
P Cadmium Plate
V Silver Plate
Z Zinc Plate
W Dry Film Lube
P
CHOOSE FROM LIST

LENGTH

See above chart
x 9

ORDER CODE e.g

F106CNP x 9
M6 x 1.0 x 1.5DFR CP

HOW TO ORDER

Other Thread Sizes Available on Request

METRIC

Tooling

THREAD SIZE	HELI-COIL® TAPS					HELI-COIL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
	Plain Mandrel		Threaded Mandrel										
Type	Order No.	Type	Order No.										
1	2	3	4	5	6	7	8	9	10	11	12	13	14
M2 x 0.4		020040P	020040B	020040S	020040V	020040S	0200406			H-PSG	0150 010 2000	0158 040 0000	0158 602 0000
M2.2 x 0.45	022045R	022045P	022045B	022045S	022045V	022045S	0220456	Request	Request	H-PSG	Request	Request	Request
M2.5 x 0.45	025045R	025045P	025045B	025045S	025045V	025045S	0250456	H-PMG	0150 022 5000	H-PSG	0150 012 5000	0158 040 1000	0158 625 0000
M3 x 0.5	030050R	030050P	030050B	030050S	030050V	030050S	0300506	H-PMG	0150 020 3000	H-PSG	0150 010 3000	0158 040 1000	0158 603 0000
M3.5 x 0.6	035060R	035060P	035060B	035060S	035060V	035060S	0350606	H-PMG	0150 023 5000			0158 040 2000	0158 635 0000
M4 x 0.7	040070R	040070P	040070B	040070S	040070V	040070S	0400706	H-PMG	0150 020 4000	H-PSG	0150 010 4000	0158 040 2000	0158 604 0000
M4.5 x 0.75	045075R	045075P	045075B	045075S	045075V	045075S	0450756	Request	Request	Request	Request	Request	Request
M5 x 0.8	050080R	050080P	050080B	050080S	050080V	050080S	0500806	H-PMG	0150 020 5000	H-PSG	0150 010 5000	0158 040 3000	0158 605 0000
M6 x 1.0	060100R	060100P	060100B	060100S	060100V	060100S	0601006	H-PM	0150 040 6000	H-PSG	0150 010 6000	0158 040 3000	0158 606 0000
M7 x 1.0	070100R	070100P	070100B	070100S	070100V	070100S	0701006			H-PSG	0150 010 7000	0158 040 4000	0158 607 0000
M8 x 1.0	080100R	080100P	080100B	080100S	080100V	080100S	0801006			H-PSG	0150 010 8300	0158 040 4000	0158 608 0000
M8 x 1.25	080125R	080125P	080125B	080125S	080125V	080125S	0801256	H-PM	0150 040 8000	H-PSG	0150 010 8000	0158 040 4000	0158 608 0000
M9 x 1.25	090125R	090125P	090125B	090125S	090125V	090125S	0901256	H-PM	0150 040 9000			0158 040 4000	0158 609 0000
M10 x 1.0*	475	476					477			H-PSG	0150 011 0300	0158 040 5000	0158 610 0000
M10 x 1.25	100125R	100125P	100125B	100125S	100125V	100125S	1001256			H-PSG	0150 011 0900	0158 040 5000	0158 610 0000
M10 x 1.5	100150R	100150P	100150B	100150S	100150V	100150S	1001506	H-PM	0150 041 0000			0158 040 5000	0158 610 0000
M11 x 1.5	110150R	110150P	110150B	110150S	110150V	110150S	1101506	H-PM	0150 041 1000			0158 040 5000	0158 610 0000
M12 x 1.25*	ST534	ST535					ST536			H-PSG	0150 011 2900	USE PLIERS	
M12 x 1.25	120125R	120125P	120125B	120125S	120125V	120125S	1201256			H-PSG	0150 011 2900	0158 040 6000	0158 612 0000
M12 x 1.5	120150R	120150P	120150B	120150S	120150V	120150S	1201506			H-PSG	0150 011 2400	0158 040 6000	0158 612 0000
M12 x 1.75	120175R	120175P	120175B	120175S	120175V	120175S	1201756	H-PM	0150 041 2000			0158 040 6000	0158 612 0000
M14 x 1.25*	525	521					845			H-PSG	0150 011 4900	USE PLIERS	
M14 x 1.5	140150R	140150P	140150B	140150S	140150V	140150S	1401506			H-PSG	0150 011 4400	USE PLIERS	
M14 x 2.0	140200R	140200P	140200B	140200S	140200V	140200S	1402006	H-PM	0150 041 4000			USE PLIERS	
M16 x 1.5	160150R	160150P	160150B	160150S	160150V	160150S	1601506	H-PMG	0150 021 6400	H-PSG	0150 011 6400	USE PLIERS	
M16 x 2.0	160200R	160200P	160200B	160200S	160200V	160200S	1602006	H-PM	0150 041 6000			USE PLIERS	
M18 x 1.5*	526	522					846			H-PSG	0150 011 8400	USE PLIERS	
M18 x 1.5	180150R	180150P	180150B	180150S	180150V	180150S	1801506			H-PSG	0150 011 8400	USE PLIERS	
M18 x 2.0	180200R	180200P	180200B	180200S	180200V	180200S	1802006			H-PSG	0150 011 8500	USE PLIERS	
M18 x 2.5	180250R	180250P	180250B	180250S	180250V	180250S	1802506	H-M	0150 071 8000			USE PLIERS	
M20 x 1.5	200150R	200150P	200150B	200150S	200150V	200150S	2001506			H-PSG	0150 012 0400	USE PLIERS	
M20 x 2.0	200200R	200200P	200200B	200200S	200200V	200200S	2002006			H-PSG	0150 012 0500	USE PLIERS	
M20 x 2.5	200250R	200250P	200250B	200250S	200250V	200250S	2002506	H-M	0150 072 0000			USE PLIERS	
M22 x 1.5	220150R	220150P	220150B	220150S	220150V	220150S	2201506			H-PSG	0150 012 2400	USE PLIERS	
M22 x 2.0	220200R	220200P	220200B	220200S	220200V	220200S	2202006			H-PSG	0150 012 2500	USE PLIERS	
M22 x 2.5	220250R	220250P	220250B	220250S	220250V	220250S	2202506	H-M	0150 072 2000			USE PLIERS	
M24 x 2.0	240200R	240200P	240200B	240200S	240200V	240200S	2402006			H-PSG	0150 012 4500	USE PLIERS	
M24 x 3.0	240300R	240300P	240300B	240300S	240300V	240300S	2403006	H-M	0150 072 4000			USE PLIERS	
M27 x 2.0	270200R	270200P	270200B	270200S	270200V	270200S	2702006			H-PSG	0150 012 7500	USE PLIERS	
M27 x 3.0	270300R	270300P	270300B	270300S	270300V	270300S	2703006	H-M	0150 072 7000			USE PLIERS	
M30 x 2.0	300200R	300200P	300200B	300200S	300200V	300200S	3002006			H-PSG	0150 013 0500	USE PLIERS	
M30 x 3.5	300350R	300350P	300350B	300350S	300350V	300350S	3003506	H-M	0150 073 0000			USE PLIERS	
M33 x 2.0	330200R	330200P	330200B	330200S	330200V	330200S	3302006			H-PSG	0150 013 3500	USE PLIERS	
M33 x 3.5	330350R	330350P	330350B	330350S	330350V	330350S	3303506	H-M	0150 073 3000			USE PLIERS	
M36 x 2.0	360200R	360200P	360200B	360200S	360200V	360200S	3602006			H-PSG	0150 013 6500	USE PLIERS	
M36 x 4.0	360400R	360400P	360400B	360400S	360400V	360400S	3604006	H-M	0150 073 6000			USE PLIERS	
M39 x 2.0	390200R	390200P	390200B	390200S	390200V	390200S	3902006			H-PSG	0150 013 9500	USE PLIERS	
M39 x 4.0	390400R	390400P	390400B	390400S	390400V	390400S	3904006	H-M	0150 073 9000			USE PLIERS	

*Spark Plug Sizes

For Drilling & Tapping Data See Page 20

UNC

Insert Data

THREAD SIZE	FR PART NUMBER	SL PART NUMBER	INSERT LENGTH					FREE O.D.I.A.		NO FREE COLS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MIN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MIN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2-56	1185-02	3585-02	0.086	0.129	0.172	0.215	0.258	0.110	0.119	3.000	5.250	7.375	9.625	11.875	20 α-in	3 α-in
3-48	1185-03	3585-03	0.099	0.148	0.198	0.248	0.297	0.128	0.139	2.875	5.000	7.250	9.375	11.500	32 α-in	7 α-in
4-40	1185-04	3585-04	0.112	0.168	0.224	0.280	0.336	0.144	0.159	2.750	4.750	6.750	8.875	10.875	48 α-in	10 α-in
5-40	1185-05	3585-05	0.125	0.188	0.250	0.312	0.375	0.158	0.173	3.250	5.500	7.750	10.000	12.250	75 α-in	13 α-in
6-32	1185-06	3585-06	0.138	0.207	0.276	0.345	0.414	0.178	0.193	2.750	4.750	6.875	8.875	10.875	6 lbin	1.0 lbin
8-32	1185-2	3585-2	0.164	0.246	0.328	0.410	0.492	0.205	0.220	3.500	6.000	8.375	10.750	13.250	9 lbin	1.5 lbin
10-24	1185-3	3585-3	0.190	0.285	0.380	0.475	0.570	0.244	0.259	2.875	5.000	7.125	9.250	11.375	13 lbin	2.0 lbin
12-24	1185-1	3585-1	0.216	0.324	0.432	0.540	0.648	0.270	0.285	3.500	6.000	8.375	10.625	13.125	24 lbin	3.0 lbin
1/4-20	1185-4	3585-4	0.250	0.375	0.500	0.625	0.750	0.310	0.330	3.375	5.750	8.000	10.375	12.750	30 lbin	4.5 lbin
5/16-18	1185-5	3585-5	0.313	0.469	0.625	0.781	0.938	0.380	0.400	4.000	6.625	9.250	11.875	14.625	60 lbin	7.5 lbin
3/8-16	1185-6	3585-6	0.375	0.563	0.750	0.938	1.125	0.452	0.472	4.375	7.250	10.000	12.875	15.750	80 lbin	12.0 lbin
7/16-14	1185-7	3585-7	0.438	0.656	0.875	1.094	1.313	0.526	0.551	4.500	7.375	10.250	13.125	16.125	100 lbin	16.5 lbin
1/2-13	1185-8	3585-8	0.500	0.750	1.000	1.250	1.500	0.597	0.622	4.875	7.875	11.000	14.125	17.125	150 lbin	24.0 lbin
9/16-12	1185-9	3585-9	0.563	0.844	1.125	1.406	1.688	0.669	0.694	5.125	8.250	11.500	14.750	17.875	200 lbin	30.0 lbin
5/8-11	1185-10	3585-10	0.625	0.938	1.250	1.563	1.875	0.742	0.767	5.250	8.500	11.750	15.000	18.375	300 lbin	40.0 lbin
3/4-10	1185-12	3585-12	0.750	1.125	1.500	1.875	2.250	0.881	0.906	5.875	9.375	13.000	16.500	20.125	400 lbin	60.0 lbin
7/8-9	1185-14	3585-14	0.875	1.313	1.750	2.188	2.625	1.022	1.052	6.250	10.000	13.750	17.500	21.250	600 lbin	82.0 lbin
1-8	1185-16	3585-16	1.000	1.500	2.000	2.500	3.000	1.166	1.196	6.375	10.125	14.000	17.750	21.625	800 lbin	110.0 lbin
1-1/8-7	1185-18	3585-18	1.125	1.688	2.250	2.813	3.375	1.315	1.355	6.125	9.875	13.625	17.500	21.250	900 lbin	137.0 lbin
1-1/4-7	1185-20	3585-20	1.250	1.875	2.500	3.125	3.750	1.443	1.483	7.000	11.250	15.375	19.500	23.750	1000 lbin	165.0 lbin
1-3/8-6	1185-22	3585-22	1.375	2.063	2.750	3.438	4.125	1.598	1.643	6.500	10.500	14.375	18.375	22.250	1150 lbin	185.0 lbin
1-1/2-6	1185-24	3585-24	1.500	2.250	3.000	3.750	4.500	1.727	1.772	7.250	11.500	15.875	20.125	24.500	1350 lbin	210.0 lbin

UNF

THREAD SIZE	FR PART NUMBER	SL PART NUMBER	INSERT LENGTH					FREE O.D.I.A.		NO FREE COLS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MIN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MIN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2-64	1191-02	3591-02	0.086	0.129	0.172	0.215	0.258	0.110	0.119	3.500	5.875	8.375	10.750	13.125	20 α-in	3 α-in
3-56	1191-03	3591-03	0.099	0.148	0.198	0.248	0.297	0.131	0.146	3.375	5.625	8.000	10.375	12.625	32 α-in	7 α-in
4-48	1191-04	3591-04	0.112	0.168	0.224	0.280	0.336	0.147	0.162	3.375	5.625	7.875	10.250	12.500	48 α-in	10 α-in
5-44	1191-05	3591-05	0.125	0.188	0.250	0.312	0.375	0.163	0.178	3.563	5.938	8.313	10.750	13.125		
6-40	1191-06	3591-06	0.138	0.207	0.276	0.345	0.414	0.173	0.193	3.500	6.000	8.375	10.750	13.250	6 lbin	1.0 lbin
8-36	1191-2	3591-2	0.164	0.246	0.328	0.410	0.492	0.204	0.224	3.875	6.500	9.125	11.625	14.250	9 lbin	1.5 lbin
10-32	1191-3	3591-3	0.190	0.285	0.380	0.475	0.570	0.236	0.256	4.125	6.875	9.500	12.250	14.875	13 lbin	2.0 lbin
1/4-28	1191-4	3591-4	0.250	0.375	0.500	0.625	0.750	0.306	0.326	5.000	8.250	11.375	14.500	17.625	30 lbin	3.5 lbin
5/16-24	1191-5	3591-5	0.313	0.469	0.625	0.781	0.938	0.380	0.400	5.500	8.875	12.250	15.625	19.000	60 lbin	6.5 lbin
3/8-24	1191-6	3591-6	0.375	0.563	0.750	0.938	1.125	0.448	0.468	6.875	11.000	15.000	19.125	23.125	80 lbin	9.5 lbin
7/16-20	1191-7	3591-7	0.438	0.656	0.875	1.094	1.313	0.524	0.549	6.625	10.625	14.625	18.500	22.500	100 lbin	14.0 lbin
1/2-20	1191-8	3591-8	0.500	0.750	1.000	1.250	1.500	0.592	0.617	7.875	12.375	16.875	21.375	25.875	150 lbin	18.0 lbin
9/16-18	1191-9	3591-9	0.563	0.844	1.125	1.406	1.688	0.666	0.691	8.000	12.500	17.125	21.750	26.250	200 lbin	24.0 lbin
5/8-18	1191-10	3591-10	0.625	0.938	1.250	1.563	1.875	0.733	0.758	9.000	14.125	19.250	24.250	29.375	300 lbin	32.0 lbin
3/4-16	1191-12	3591-12	0.750	1.125	1.500	1.875	2.250	0.876	0.901	9.750	15.125	20.625	26.000	31.500	400 lbin	50.0 lbin
7/8-14	1191-14	3591-14	0.875	1.313	1.750	2.188	2.625	1.021	1.051	9.875	15.500	21.125	26.625	32.250	600 lbin	70.0 lbin
1-12	1191-161	3591-161	1.000	1.500	2.000	2.500	3.000	1.169	1.199	9.625	15.000	20.500	26.000	31.500	800 lbin	90.0 lbin
1-1/8-12	1191-18	3591-18	1.125	1.688	2.250	2.813	3.375	1.304	1.334	11.125	17.250	23.375	29.500	35.750	900 lbin	117.0 lbin
1-1/4-12	1191-20	3591-20	1.250	1.875	2.500	3.125	3.750	1.439	1.469	12.500	19.375	26.250	33.000	39.875	1000 lbin	143.0 lbin
1-3/8-12	1191-22	3591-22	1.375	2.063	2.750	3.438	4.125	1.575	1.610	13.750	21.375	28.875	36.500	44.000	1150 lbin	165.0 lbin
1-1/2-12	1191-24	3591-24	1.500	2.250	3.000	3.750	4.500	1.710	1.745	15.250	23.500	31.625	39.875	48.125	1350 lbin	190.0 lbin

INSERT TYPE
 1185 UNCFR
 3585 UNCSL
 1191 UNF FR
 3591 UNF SL

MATERIAL

- CN Stainless Steel
- N90N Nmaric 90
- TN Inconel X750
- EN Nitronic 60
- BN Phosphor Bronze

CHOOSE FROM LIST

FINISH

- BLANK None
- P Cadmium Plate
- V Silver Plate
- Z Zinc Plate
- W Dry Film Lube

CHOOSE FROM LIST

LENGTH
 See above chart

x .190

ORDER CODE e.g

1191-3CN x .190
 10-32UNF x 1D FR CP

HOW TO ORDER

UNC

Unified Tooling

THREAD SIZE	HELICOL® TAPS					HELICOL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
	Plain Mandrel		Threaded Mandrel										
	Class 2B	Class 3B	Type	Order No.	Type	Order No.	13	14					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2-56	02CRU	02CPB	02CBB	02CS	02CSB	1440-02	1688-02			HPSG	Request	0158 040 0000	0158 602 0000
3-48	03CRU	03CPB	03CBB	03CS	03CSB	1440-03	1688-03			HPSG	Request	Request	
4-40	04CRU	04CPB	04CBB	04CS	04CSB	1440-04	1688-04			HPSG	0150 016 5600	0158 040 1000	0158 603 0000
5-40	05CRU	05CPB	05CBB	05CS	05CSB	1440-05	1688-05			HPSG	0150 016 6600	0158 040 1000	0158 603 0000
6-32	06CRU	06CPB	06CBB	06CS	06CSB	1440-06	1688-06			HPSG	0150 016 7600	0158 040 2000	0158 603 0000
8-32	2CRU	2CPB	2CBB	2CS	2CSB	1440-2	1688-2			HPSG	0150 016 8600	0158 040 2000	0158 604 0000
10-24	3CRU	3CPB	3CBB	3CS	3CSB	1440-3	1688-3			HPSG	0150 016 9600	0158 040 3000	0158 604 0000
12-24	1CRU	1CPB	1CBB	1CS	1CSB	1440-1	1688-1	H-PM	0150 047 0600			0158 040 3000	0158 605 0000
1/4-20	4CRU	4CPB	4CBB	4CS	4CSB	1440-4	1688-4	H-PM	0150 047 4600			0158 040 3000	0158 606 0000
5/16-18	5CRU	5CPB	5CBB	5CS	5CSB	1440-5	1688-5	H-PM	0150 047 6600			0158 040 5000	0158 607 0000
3/8-16	6CRU	6CPB	6CBB	6CS	6CSB	1440-6	1688-6	H-PM	0150 047 7600			0158 040 5000	0158 609 0000
7/16-14	7CRU	7CPB	7CBB	7CS	7CSB	1440-7	1688-7	H-PM	0150 047 8600			0158 040 6000	0158 610 0000
1/2-13	8CRU	8CPB	8CBB	8CS	8CSB	1440-8	1688-8	H-PM	0150 047 9600			0158 040 6000	0158 611 0000
9/16-12	9CRU	9CPB	9CBB	9CS	9CSB	1440-9	1688-9	H-PM	0150 048 0600			USE PLIERS	
5/8-11	10CRU	10CPB	10CBB	10CS	10CSB	1440-10	1688-10	H-M	0150 078 1000			USE PLIERS	
3/4-10	12CRU	12CPB	12CBB	12CS	12CSB	1440-12	1688-12	H-M	0150 078 3000			USE PLIERS	
7/8-9	14CRU	14CPB	14CBB	14CS	14CSB	1440-14	1688-14	H-M	0150 078 5000			USE PLIERS	
1-8	16CRU	16CPB	16CBB	16CS	16CSB	1440-16	1688-16	H-M	0150 078 6000			USE PLIERS	
1-1/8-7	18CRU	18CPB	18CBB	18CS	18CSB	1440-18	1688-18	H-M	0150 078 7000			USE PLIERS	
1-1/4-7	20CRU	20CPB	20CBB	20CS	20CSB	1440-20	1688-20	H-M	0150 078 8000			USE PLIERS	
1-3/8-6	22CRU	22CPB	22CBB	22CS	22CSB	1440-22	1688-22	H-M	0150 078 9000			USE PLIERS	
1-1/2-6	24CRU	24CPB	24CBB	24CS	24CSB	1440-24	1688-24	H-M	0150 079 0000			USE PLIERS	

UNF

THREAD SIZE	HELICOL® TAPS					HELICOL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
	Plain Mandrel		Threaded Mandrel										
	Class 2B	Class 3B	Type	Order No.	Type	Order No.	13	14					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2-64	02FRU	02FPB	02FBB	02FS	02FSB	1441-02	1694-02		Request				
3-56	03FRU	03FPB	03FBB	03FS	03FSB	1441-03	1694-03		Request				
4-48	04FRU	04FPB	04FBB	04FS	04FSB	1441-04	1694-04			HPSG	0150 016 5700	0158 040 1000	0158 603 0000
5-44	05FRU	05FPB	05FBB	05FS	05FSB	1441-05	1694-05		Request				
6-40	06FRU	06FPB	06FBB	06FS	06FSB	1441-06	1694-06			HPSG	0150 016 7700	0158 040 2000	0158 603 0000
8-36	2FRU	2FPB	2FBB	2FS	2FSB	1441-2	1694-2			HPSG	0150 016 8700	0158 040 2000	0158 604 0000
10-32	3FRU	3FPB	3FBB	3FS	3FSB	1441-3	1694-3			HPSG	0150 016 9700	0158 040 3000	0158 604 0000
1/4-28	4FRU	4FPB	4FBB	4FS	4FSB	1441-4	1694-4			HPSG	0150 017 4700	0158 040 3000	0158 606 0000
5/16-24	5FRU	5FPB	5FBB	5FS	5FSB	1441-5	1694-5			HPSG	0150 017 6700	0158 040 4000	0158 608 0000
3/8-24	6FRU	6FPB	6FBB	6FS	6FSB	1441-6	1694-6			HPSG	0150 017 7700	0158 040 4000	0158 609 0000
7/16-20	7FRU	7FPB	7FBB	7FS	7FSB	1441-7	1694-7			HPSG	0150 017 8700	0158 040 5000	0158 611 0000
1/2-20	8FRU	8FPB	8FBB	8FS	8FSB	1441-8	1694-8			HPSG	0150 017 9700	0158 040 6000	0158 612 0000
9/16-18	9FRU	9FPB	9FBB	9FS	9FSB	1441-9	1694-9	H-PMG	0150 028 0700			USE PLIERS	0158 614 0000
5/8-18	10FRU	10FPB	10FBB	10FS	10FSB	1441-10	1694-10	H-PMG	0150 028 1700			USE PLIERS	0158 616 0000
3/4-16	12FRU	12FPB	12FBB	12FS	12FSB	1441-12	1694-12	H-PMG	0150 028 3700			USE PLIERS	
7/8-14	14FRU	14FPB	14FBB	14FS	14FSB	1441-14	1694-14	H-PMG	0150 028 5700			USE PLIERS	
1-12	16FRU	16FPB	16FBB	16FS	16FSB	1441-16	1694-16	H-PMG	0150 028 6700			USE PLIERS	
1-1/8-12	18FRU	18FPB	18FBB	18FS	18FSB	1441-18	1694-18	H-PMG	0150 028 7700			USE PLIERS	
1-1/4-12	20FRU	20FPB	20FBB	20FS	20FSB	1441-20	1694-20	H-PMG	0150 028 8700			USE PLIERS	
1-3/8-12	22FRU	22FPB	22FBB	22FS	22FSB	1441-22	1694-22	H-PMG	0150 028 9700			USE PLIERS	
1-1/2-12	24FRU	24FPB	24FBB	24FS	24FSB	1441-24	1694-24	H-PMG	0150 029 0700			USE PLIERS	

BSW

Insert Data

THREAD SIZE	FR PART NUMBER	SL PART NUMBER	INSERT LENGTH					FREE ODIA		NO FREE COLS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MIN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MIN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1/8-40	1255-2	2455-2	0.125	0.188	0.250	0.313	0.375	0.157	0.172	3.250	5.500	7.75	10.125	12.375	-	-
3/16-24	1255-3	2455-3	0.188	0.281	0.375	0.469	0.563	0.240	0.255	2.937	5.062	7.187	9.312	11.437	-	-
1/4-20	1255-4	2455-4	0.250	0.375	0.500	0.625	0.750	0.314	0.330	3.437	5.812	8.187	10.625	13.000	-	-
5/16-18	1255-5	2455-5	0.313	0.469	0.625	0.781	0.938	0.385	0.400	4.062	6.75	9.437	12.062	14.75	-	-
3/8-16	1255-6	2455-6	0.375	0.563	0.750	0.938	1.125	0.457	0.472	4.375	7.187	10.062	12.875	15.75	-	-
7/16-14	1255-7	2455-7	0.438	0.656	0.875	1.094	1.313	0.532	0.552	4.375	7.375	10.250	13.125	16.063	-	-
1/2-12	1255-8	2455-8	0.500	0.750	1.000	1.250	1.500	0.610	0.630	4.312	7.187	10.000	13.000	16.687	-	-
9/16-12	1255-9	2455-9	0.563	0.844	1.125	1.406	1.688	0.675	0.695	5.062	8.25	11.437	14.687	17.875	-	-
5/8-11	1255-10	2455-10	0.625	0.938	1.250	1.563	1.875	0.747	0.767	5.25	8.562	11.875	15.125	18.437	-	-
11/16-11	1255-11	2455-11	0.688	1.031	1.375	1.719	2.063	0.811	0.831	5.938	9.563	13.188	16.750	20.375	-	-
3/4-10	1255-12	2455-12	0.750	1.125	1.500	1.875	2.250	0.886	0.906	5.875	9.500	13.062	16.625	20.250	-	-
7/8-9	1255-14	2455-14	0.875	1.313	1.750	2.188	2.625	1.027	1.052	6.25	10.000	13.750	17.562	21.312	-	-
1-8	1255-16	2455-16	1.000	1.500	2.000	2.500	3.000	1.172	1.197	6.375	10.187	14.000	17.812	21.75	-	-
1-1/8-7	1255-18	2455-18	1.125	1.688	2.250	2.813		1.321	1.356	6.25	10.000	13.750	17.500		-	-
1-1/4-7	1255-20	2455-20	1.250	1.875	2.500	3.125		1.449	1.484	7.125	11.250	15.375	19.625		-	-
1-1/2-6	1255-24	2455-24	1.500	2.250	3.000	3.750		1.734	1.774	7.250	11.312	15.875	20.187		-	-

BSF

THREAD SIZE	FR PART NUMBER	SL PART NUMBER	INSERT LENGTH					FREE ODIA		NO FREE COLS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MIN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MIN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3/16-32	1261-3	2461-3	0.188	0.281	0.375	0.469	0.563	0.238	0.253	4.000	6.687	9.312	12.000	14.688	-	-
7/32-28	1261-35	2461-35	0.219	0.328	0.438	0.547	0.656	0.277	0.292	4.188	6.875	9.625	12.375	15.063	-	-
1/4-26	1261-4	2461-4	0.250	0.375	0.500	0.625	0.750	0.314	0.329	4.500	7.437	10.312	13.250	16.125	-	-
9/32-26	1261-45	2461-45	0.281	0.422	0.563	0.703	0.844	0.348	0.363	5.250	8.562	11.813	15.125	18.375	-	-
5/16-22	1261-5	2461-5	0.313	0.469	0.625	0.781	0.938	0.389	0.404	4.875	8.000	11.062	14.187	17.312	-	-
3/8-20	1261-6	2461-6	0.375	0.563	0.750	0.938	1.125	0.462	0.477	5.500	8.875	12.25	15.625	19.062	-	-
7/16-18	1261-7	2461-7	0.438	0.656	0.875	1.094	1.313	0.536	0.555	5.812	9.375	12.937	16.500	20.062	-	-
1/2-16	1261-8	2461-8	0.500	0.750	1.000	1.250	1.500	0.611	0.631	5.937	9.562	13.187	16.812	20.437	-	-
9/16-16	1261-9	2461-9	0.563	0.844	1.056	1.406	1.688	0.679	0.699	7.625	10.937	15.000	19.125	23.188	-	-
5/8-14	1261-10	2461-10	0.625	0.938	1.250	1.563	1.875	0.756	0.776	6.625	10.625	14.625	18.562	22.562	-	-
11/16-14	1261-11	2461-11	0.688	1.031	1.375	1.719	2.063	0.824	0.844	7.438	11.812	16.188	20.625	25.000	-	-
3/4-12	1261-12	2461-12	0.750	1.125	1.500	1.875	2.250	0.905	0.925	6.875	11.000	15.062	19.187	23.25	-	-
13/16-12	1261-13	2461-13	0.813	1.219	1.625	2.031	2.438	0.972	0.992	7.563	12.000	16.500	20.938	25.375	-	-
7/8-11	1261-14	2461-14	0.875	1.313	1.750	2.188	2.625	1.048	1.073	7.437	11.812	16.250	20.625	25.000	-	-
1-10	1261-16	2461-16	1.000	1.500	2.000	2.500		1.194	1.219	7.812	12.375	16.937	21.500		-	-
1-1/8-9	1261-18	2461-18	1.056	1.688	2.071	2.813		1.341	1.366	7.937	12.562	17.187	21.812		-	-
1-1/4-9	1261-20	2461-20	1.250	1.875	2.500	3.125		1.476	1.501	8.937	14.125	19.250	24.437		-	-
1-3/8-8	1261-22	2461-22	1.375	2.063	2.750			1.627	1.657	8.688	13.750	18.625			-	-
1-1/2-8	1261-24	2461-24	1.500	2.250	3.000			1.762	1.792	9.625	15.125	20.625			-	-

INSERT TYPE

- 1255 BSW FR
- 2455 BSW SL
- 1261 BSF FR
- 2461 BSF SL

HOW TO ORDER

2455-4

MATERIAL

- CN Stainless Steel
- N90N Nitronic 90
- TN Inconel X750
- EN Nitronic 60
- BN Phosphor Bronze

CN
CHOOSE FROM LIST

FINISH

- BLANK None
- P Cadmium Plate
- V Silver Plate
- Z Zinc Plate
- W Dry Film Lube

Z
CHOOSE FROM LIST

LENGTH
See above chart

x .375

ORDER CODE e.g.

2455-4CN x .375
1/4BSW x 1.5D SL ZP

BSW

Tooling

THREAD SIZE	HELICOL® TAPS					HELICOL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
						Medium Class	Close Class	Plain Mandrel		Threaded Mandrel			
								Type	Order No.	Type	Order No.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1/8-40	2WR	2WP	2WB	2WS	2WW	WGM-2				HPSG	0150 017 1300	0158 040 1000	0158 603 0000
3/16-24	3WR	3WP	3WB	3WS	3WW	WGM-3				HPSG	0150 017 2300	0158 040 2000	0158 604 0000
1/4-20	4WR	4WP	4WB	4WS	4WW	WGM-4	WGG-4	H-PM	0150 047 4300			0158 040 3000	0158 605 0000
5/16-18	5WR	5WP	5WB	5WS	5WW	WGM-5	WGG-5	H-PM	0150 047 6300			0158 040 3000	0158 607 0000
3/8-16	6WR	6WP	6WB	6WS	6WW	WGM-6	WGG-6	H-PM	0150 047 7300			0158 040 4000	0158 608 0000
7/16-14	7WR	7WP	7WB	7WS	7WW	WGM-7	WGG-7	H-PM	0150 047 8300			0158 040 4000	0158 609 0000
1/2-12	8WR	8WP	8WB	8WS	8WW	WGM-8	WGG-8	H-PM	0150 047 9300			0158 040 5000	0158 611 0000
9/16-12	9WR	9WP	9WB			WGM-9	WGG-9	H-PM	0150 048 0300			USE PLIERS	
5/8-11	10WR	10WP	10WB			WGM-10	WGG-10	H-M	0150 078 1000			USE PLIERS	
11/16-11	11WR	11WP	11WB			WGM-11	WCF-11	H-M	0150 078 2000			USE PLIERS	
3/4-10	12WR	12WP	12WB			WGM-12	WGG-12	H-M	0150 078 3000			USE PLIERS	
7/8-9	14WR	14WP	14WB			WGM-14	WGG-14	H-M	0150 078 5000			USE PLIERS	
1-8	16WR	16WP	16WB			WGM-16	WGG-16	H-M	0150 078 6000			USE PLIERS	
1-1/8-7	18WR	18WP	18WB			WGM-18	WGG-18	H-M	0150 078 7000			USE PLIERS	
1-1/4-7	20WR	20WP	20WB			WGM-20	WGG-20	H-M	0150 078 8000			USE PLIERS	
1-1/2-6	24WR	24WP	24WB			WGM-24	WGG-24	H-M	0150 079 0000			USE PLIERS	

BSF

THREAD SIZE	HELICOL® TAPS					HELICOL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
						Medium Class	Close Class	Plain Mandrel		Threaded Mandrel			
								Type	Order No.	Type	Order No.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3/16-32	3XR	3XP	3XB	3XS	3XV	XGM-3				HPSG	0150 017 2500	0158 040 2000	0158 604 0000
7/32-28	35XR	35XP	35XB	35XS	35XV	XGM-35				HPSG	0150 017 3500	0158 040 3000	0158 605 0000
1/4-26	4XR	4XP	4XB	4XS	4XV	XGM-4		H-PM	0150 047 4500			0158 040 3000	0158 606 0000
9/32-26	45XR	45XP	45XB	45XS	45XV	XGM-45		H-PM	0150 047 5500			0158 040 3000	0158 606 0000
5/16-22	5XR	5XP	5XB	5XS	5XV	XGM-5	XCG-5	H-PM	0150 047 6500			0158 040 5000	0158 607 0000
3/8-20	6XR	6XP	6XB	6XS	6XV	XGM-6	XCG-6	H-PM	0150 047 7500			0158 040 5000	0158 609 0000
7/16-18	7XR	7XP	7XB	7XS	7XV	XGM-7	XCG-7	H-PM	0150 047 8500			0158 040 6000	0158 610 0000
1/2-16	8XR	8XP	8XB	8XS	8XV	XGM-8	XCG-8	H-PM	0150 047 9500			0158 040 6000	0158 611 0000
9/16-16	9XR	9XP	9XB	9XS	9XV	XGM-9	XCG-9	H-PM	0150 048 0500			USE PLIERS	
5/8-14	10XR	10XP	10XB	10XS	10XV	XGM-10	XCG-10	H-PM	0150 048 1500			USE PLIERS	
11/16-14	11XR	11XP	11XB	11XS	11XV	XGM-11	XCG-11	H-PM	0150 048 2500			USE PLIERS	
3/4-12	12XR	12XP	12XB	12XS	12XV	XGM-12	XCG-12	H-PM	0150 048 3500			USE PLIERS	
13/16-12	13XR	13XP	13XB	13XS	13XV	XGM-13	XCG-13	H-PM	0150 048 4500			USE PLIERS	
7/8-11	14XR	14XP	14XB	14XS	14XV	XGM-14	XCG-14	H-PM	0150 048 5500			USE PLIERS	
1-10	16XR	16XP	16XB	16XS	16XV	XGM-16	XCG-16	H-PM	0150 048 6500			USE PLIERS	
1-1/8-9	18XR	18XP	18XB	18XS	18XV	XGM-18	XCG-18	H-PM	0150 048 7500			USE PLIERS	
1-1/4-9	20XR	20XP	20XB	20XS	20XV	XGM-20	XCG-20	H-PM	0150 048 8500			USE PLIERS	
1-3/8-8	22XR	22XP	22XB	22XS	22XV	XGM-22	XCG-22	H-PM	0150 048 9500			USE PLIERS	
1-1/2-8	24XR	24XP	24XB	24XS	24XV	XGM-24	XCG-24	H-PM	0150 049 0500			USE PLIERS	

For Drilling & Tapping Data See Page 21

G (BSPF)

Insert Data

THREAD SIZE	FR PART NUMBER	SL PART NUMBER	INSERT LENGTH					FREE ODIA		NO FREE COLS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MIN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MIN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1/8-28	1325-2	-	0.125	0.188	0.250	0.313	0.375	0.454	0.474	1.813	3.438	5.000	6.563	8.125	-	-
1/4-19	1325-4	-	0.250	0.375	0.500	0.625	0.750	0.619	0.639	2.875	5.125	7.313	9.438	11.625	-	-
3/8-19	1325-6	-	0.375	0.563	0.750	0.938	1.125	0.768	0.788	5.188	8.375	11.688	14.875	18.125	-	-
1/2-14	1325-8	-	0.500	0.750	1.000	1.250	1.500	0.972	0.992	5.063	8.250	11.438	14.688	17.875	-	-
5/8-14	1325-10	-	0.625	0.938	1.250	1.563	1.875	1.055	1.075	6.688	10.688	14.688	18.688	22.813	-	-
3/4-14	1325-12	-	0.750	1.125	1.500	1.875		1.205	1.225	8.313	13.125	17.938	22.750		-	-
7/8-14	1325-14	-	0.875	1.313	1.750		2.625	1.365	1.385	9.875	15.500	21.125		32.500	-	-
1-11	1325-16	-	1.000	1.500	2.000			1.517	1.537	8.750	13.813	18.875			-	-
1-1/4-11	1325-20	-	1.250	1.875	2.500		3.750	1.885	1.905	11.313	17.625	23.938		36.688	-	-
1-1/2-11	1325-24	-	1.500	2.250	3.000		4.500	2.136	2.156	13.813	21.438	29.125		44.313	-	-

BA

THREAD SIZE	FR PART NUMBER	SL PART NUMBER	INSERT LENGTH					FREE ODIA		NO FREE COLS					PREVAILING TORQUE	
			1D	1.5D	2D	2.5D	3D	MIN	MAX	1D	1.5D	2D	2.5D	3D	MAX	MIN
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0BA	1331-0	2631-0	0.236	0.354	0.472	0.590	0.708	0.294	0.309	4.125	6.813	9.500	12.188	14.875	-	-
1BA	1331-1	2631-1	0.209	0.313	0.418	0.522	0.627	0.261	0.276	4.000	6.625	9.250	11.875	14.500	-	-
2BA	1331-2	2631-2	0.185	0.277	0.370	0.462	0.555	0.232	0.247	3.875	6.438	9.000	11.563	14.125	-	-
3BA	1331-3	2631-3	0.161	0.241	0.322	0.402	0.483	0.203	0.218	3.750	6.188	8.688	11.125	13.625	-	-
4BA	1331-4	2631-4	0.142	0.213	0.284	0.355	0.426	0.179	0.194	3.563	5.938	8.313	10.750	13.125	-	-
5BA	1331-5	2631-5	0.126	0.189	0.252	0.315	0.378	0.159	0.174	3.500	5.875	8.250	10.625	13.000	-	-
6BA	1331-6	2631-6	0.110	0.165	0.220	0.275	0.330	0.140	0.155	3.375	5.625	7.875	10.188	12.438	-	-

INSERT TYPE

- 1325 G(BSPF) FR
- 1331 BA FR
- 2631 BASL

1325-4

MATERIAL

- CN Stainless Steel
- N90N N-monic 90
- TN Inconel X750
- EN Nitronic 60
- BN Phosphor Bronze

CN
CHOOSE FROM LIST

FINISH

- BLANK None
- P Cadmium Plate
- V Silver Plate
- Z Zinc Plate
- W Dry Film Lube

N/A
CHOOSE FROM LIST

LENGTH
See above chart

x .375

ORDER CODE e.g.

1325-4CN x .375
GI/4(BSPF) x 1.5D FR

HOW TO ORDER

Removal tool featuring a precision replaceable steel blade suitable for use with a tap wrench, or power screwdriver.



Extraction Tooling

NOMINAL THREAD	PART NO	NOMINAL THREAD	PART NO
M3	01806030000	UNC2-56	01806636000
M4	01806040000	UNC3-48	01806646000
M5	01806050000	UNC4-40	01806656000
M6	01806060000	UNC6-32	01806676000
M8	01806080000	UNC8-32	01806686000
M10	01806100000	UNC10-32	01806697000
M12	01806120000		

G (BSPF)

Tooling

THREAD SIZE	HELICOL® TAPS					HELICOL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
	Medum Class	Close Class	Plain Mandrel		Threaded Mandrel								
Type	Order No.	Type	Order No.										
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1/8-28	2PR	2PP	2PB	2PS	2PV	PGM-2	-			HPSG	0150 017 1400	0158 609 0000	
1/4-19	4PR	4PP	4PB	4PS	4PV	PGM-4	-	H-PMG	0150 027 4400			USE PLIERS	-
3/8-19	6PR	6PP	6PB	6PS	6PV	PGM-6	-	H-PMG	0150 027 7400			USE PLIERS	-
1/2-14	8PR	8PP	8PB	8PS	8PV	PGM-8	PGG-8	H-PMG	0150 027 9400			USE PLIERS	-
5/8-14	10PR	10PP	10PB	10PS	10PV	PGM-10	PGG-10	H-PMG	0150 028 1400			USE PLIERS	-
3/4-14	12PR	12PP	12PB	12PS	12PV	PGM-12	PGG-12	H-PMG	0150 028 3400			USE PLIERS	-
7/8-14	14PR	14PP	14PB	14PS	14PV	PGM-14	PGG-14	H-PMG	0150 028 5400			USE PLIERS	-
1-11	16PR	16PP	16PB	16PS	16PV	PGM-16	PGG-16	H-PMG	0150 028 6400			USE PLIERS	-
1-1/4-11	20PR	20PP	20PB	20PS	20PV	PGM-20	PGG-20	H-PMG	0150 028 8400			USE PLIERS	-
1-1/2-11	24PR	24PP	24PB	24PS	24PV	PGM-24	PGG-24	H-PMG	0150 029 0400			USE PLIERS	-

BA

THREAD SIZE	HELICOL® TAPS					HELICOL® GAUGES		INSERTING TOOL				TANG BREAK OFF	AUTOTANG BREAK OFF
	Rough	Finish	Bottom	SP Flute	SP Point								
	STD Nut Fit	Type	Order No.	Type	Order No.								
1	2	3	4	5	6	7	8	9	10	11	12	13	
0BA	0BAR	0BAP	0BAB	0BAS	0BV	0BAG	H-PM	0150 049 2200			0158 040 3000	0158 605 0000	
1BA	1BAR	1BAP	1BAB	1BAS	1BV	1BAG			HPSG	0150 019 3200	0158 040 3000	0158 604 0000	
2BA	2BAR	2BAP	2BAB	2BAS	2BV	2BAG			HPSG	0150 019 4200	0158 040 3000	0158 604 0000	
3BA	3BAR	3BAP	3BAB	3BAS	3BV	3BAG			HPSG	0150 019 5200	0158 040 2000	0158 603 0000	
4BA	4BAR	4BAP	4BAB	4BAS	4BV	4BAG			HPSG	0150 019 6200	0158 040 2000	0158 603 0000	
5BA	5BAR	5BAP	5BAB	5BAS	5BV	5BAG			HPSG	0150 019 7200	0158 040 1000	0158 603 0000	
6BA	6BAR	6BAP	6BAB	6BAS	6BV	6BAG			HPSG	0150 019 8200	0158 040 1000	0158 603 0000	

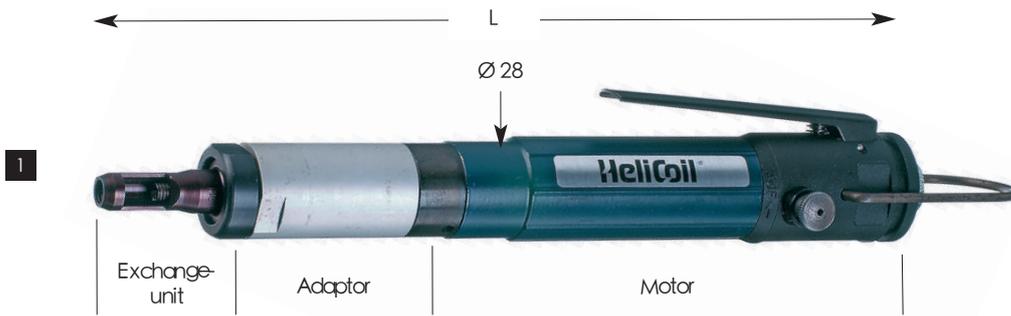
For Drilling & Tapping Data See Page 21

Extraction Tooling



NOMINAL THREAD	MANUAL PART NO	MECHANICAL WITH 1/4 HEX DRIVE PART NO	NOMINAL THREAD	MANUAL PART NO	MECHANICAL WITH 1/4 HEX DRIVE PART NO
M2 - M3.5	0180300000		UNC3/4-10 TO 7/8-9	0180303000	
M4 - M10	01803010000		UNF 5/8-18 TO 7/8-14	01803030000	
M11 - M16	01803020000		UNC1-8 TO 1 1/8-7	01803040000	
M2-M6		01805010000	UNF 1-14 TO 1 1/8-12	01803040000	
M7-M16		01805020000	UNC1 1/4-7 TO 1 1/2-6	01803050000	
UNC2-56 TO 6-32	01803000000		UNF 1 1/4-12 TO 1 1/2-12	01803050000	
UNF 4-48 TO 6-40	01803000000		UNC2-56 TO 12-24		01805010000
UNC8-32 TO 3/8-16	01803010000		UNF 4-48 TO 1/4-28		01805010000
UNF 8-36 TO 3/8-24	01803010000		UNC1/4-20 TO 5/8-11		01805020000
UNC7/16-14 TO 5/8-11	01803020000		UNF 5/16-24 TO 5/8-18		01805020000
UNF 7/16-20 TO 9/16-1	01803020000				

Pneumatic Installation Tool Type P-PSG for HELICOIL® and HELICOIL® plus free running and screwlock



TYPE	NOMINAL THREAD RANGE Ø D	DIMENSIONS		WEIGHT kg	AIR PRESSURE bar	AIR CONSUMPTION l/Min
		Ø	L			
P-PSG256	M2.5 to M6 UNC2-56 to 10-24 UNC12-24 & 1/4-20 UNF4-48 to 1/4-28	28	240	0.6	2.5-4.0 2.5-4.0 4.0-5.0 4.0-5.0	204
P-PSG714	M7 to M14 UNC5/16-18 to 1/2-13 UNF5/16-24 to 1/2-20	42	360	1.4	4.0-5.0	282
P-PSG1626	M16 to M26	42	440	2.5	4.0-6.0	282

Pneumatic installation tool with reversing compressed air motor and front end exchange unit. The HELICOIL® installation depth is set by changing the compensating discs. This tool is recommended for medium to large volume production applications. Tools for installing HELICOIL® thread inserts > 2.5 d are available on request. Tools P-PSG 714 and P-PSG 1626 are fitted with a safety sliding finger guard.

Parallel Arm System Type S 600



- Quick & accurate positioning
- Precise, vertical installation
- Rapid tool changeover
- 360° rotation
- Roller bearing & counter balance for light, smooth movement
- Suitable for use with electrical and pneumatic HELICOIL® installation tools

TYPE	PRODUCT CHARACTERISTIC	ORDER NO
S 600	Working radius	140 mm - 600mm
	Working height	50 mm - 430 mm
	Weight without tool	8 kg
	Max. permitted torque	15 Nm
		0182 080 0003

Ordering instructions:

When ordering a tool or components, please state the type, size and length of the HELICOIL® thread insert to be used.

Parts listed suitable for nominal lengths up to 2d. Other lengths available on request.

2 Exchange unit



3 Pre-winder cartridge



4 Mandrel Assembly comprising installation mandrel and clutch



5 Compensating disc assortment



A Adaptor



M Motor



Complete tools, front end exchange units, wear and spare parts

MOTOR	ADAPTOR	NOMINAL THREAD RANGE Ø D	TOOL COMPLETE INCL. EXCHANGE UNIT	COMPONENTS		WEAR AND SPARE PARTS		
				FRONT END EXCHANGE UNITS ≤ 2D	PRE-WINDER CARTRIDGE	MANDREL ASSEMBLY	COMPENSATING DISC ASSORTMENT	
M	A		1	2	3	4	5	
METRIC								
P-PSG256 0160 370 0010	0160 370 0040	M2.5 X 0.45	0160 372 5000	0160 272 5050	0160 172 5032	719060029	0160 170 0060	
		M3 X 0.5	0160 370 3000	0160 270 3050	0160 170 3032	719060001		
		M4 X 0.7	0160 370 4000	0160 270 4050	0160 170 4032	719060002		
		M5 X 0.8	0160 370 5000	0160 270 5050	0160 170 5032	719060003		
		M6 X 1.0	0160 370 6000	0160 270 6050	0160 170 6032	719060004		
P-PSG714 0160 180 0010	0160 180 0040	M7 X 1.0	0160 280 7000	0160 280 7050	0160 280 7032	719060005	0160 280 0060	
		M8 X 1.25	0160 280 8000	0160 280 8050	0160 280 8032	719060006		
		M8 X 1	0160 280 8300	0160 281 8350	0160 280 8332	719060007		
		M10 X 1.5	0160 281 0000	0160 281 0050	0160 281 0032	719060008		
		M10 X 1.25	0160 281 0900	0160 281 0950	0160 281 0932	719060009		
		M10 X 1	0160 281 0300	0160 281 0350	0160 281 0332	719060010		
		M12 X 1.75	0160 281 2000	0160 281 2050	0160 281 2032	719060011		
		M12 X 1.5	0160 281 2400	0160 281 2450	0160 281 2432	719060012		
		M12 X 1.25	0160 281 2900	0160 281 2950	0160 281 2932	719060013		
		M12 X 1	0160 281 2300	0160 281 2350	0160 281 2332	719060014		
		M14 X 2.0*	0160 281 4000	0160 281 4050	0160 281 4032	719060015		
		M14 X 1.5	0160 281 4400	0160 281 4450	0160 281 4432	719060016		
		M14 X 1.25	0160 281 4900	0160 281 4950	0160 281 4932	719060017		
P-PSG1626 0160 090 0011	0160 090 0040	M16 X 2.0	0160 191 6000	0160 191 6050	0160 091 6032	719060018	0160 0190 0060	
		M16 X 1.5	0160 191 6400	0160 191 6450	0160 191 6432	719060019		
		M18 X 1.5	0160 191 8400	0160 191 8450	0160 191 8432	719060020		
		M20 X 2.5	0160 192 0000	0160 192 0050	0160 192 0032	719060021		
		M20 X 1.5	0160 192 0400	0160 192 0450	0160 192 0432	719060022		
		M22 X 1.5	0160 192 2400	0160 192 2450	0160 192 2432	719060023		
		M24 X 1.5*	0160 192 4400	0160 192 4450	0160 192 4432	719060024		
		M26 X 1.5*	0160 192 6400	0160 192 6450	0160 192 6432	719060025		
UNC								
P-PSG256 0160 370 0010	0160 370 0040	2-56	0160 376 3603	0160 276 3650	0160 276 3632	719060050	0160 170 0060	
		4-40	0160 376 5603	0160 176 5650	0160 176 5632	719060051		
		5-40	0160 376 6603	0160 176 6650	0160 176 6632	719060052		
		6-32	0160 376 7603	0160 176 7650	0160 176 7632	719060053		
		8-32	0160 376 8603	0160 176 8650	0160 176 8632	719060054		
		10-24	0160 376 9603	0160 176 9650	0160 176 9632	719060055		
		12-24	0160 377 0603	0160 177 0650	0160 177 0632	719060056		
		1/4"-20	0160 377 4603	0160 177 4650	0160 177 4632	719060057		
P-PSG714 0160 180 0010	0160 180 0040	5/16"-18	0160 287 6603	0160 287 6650	0160 287 6632	719060058	0160 280 0060	
		3/8"-16	0160 287 7603	0160 287 7650	0160 287 7632	719060059		
		7/16"-14	0160 287 8603	0160 287 8650	0160 287 8632	719060060		
		1/2"-13	0160 287 9603	0160 287 9650	0160 287 9632	719060061		
UNF								
P-PSG256 0160 370 0010	0160 370 0040	4-48	0160 376 5703	0160 176 5750	0160 176 5732	719060030	0160 170 0060	
		6-40	0160 376 7703	0160 176 7750	0160 176 7732	719060031		
		8-36	0160 376 8703	0160 176 8750	0160 176 8732	719060032		
		10-32	0160 376 9703	0160 176 9750	0160 276 9732	719060033		
		1/4"-28	0160 377 4703	0160 177 4750	0160 177 4732	719060034		
P-PSG714 0160 180 0010	0160 180 0040	5/16"-24	0160 287 6703	0160 287 6750	0160 287 6732	719060035	0160 280 0060	
		3/8"-24	0160 287 7703	0160 287 7750	0160 287 7732	719060036		
		7/16"-20	0160 287 8703	0160 287 8750	0160 287 8732	719060037		
		1/2"-20	0160 287 9703	0160 287 9750	0160 287 9732	719060038		
ALLOY 90								
P-PSG256 0160 370 0010	719025102	10-32	719001392	719031148	719061148	719041148	719080848	
		1/4"-28	719001407	719031445	719061461	719041447	719081245	
P-PSG1626 0160 090 0011	0160 190 0040	5/16"-24	719001501	719031916	719060566	719041156	01602800060	
		3/8"-24	719001601	719031921	719060571	719041031	01602800060	
On Request	On Request	1/2"-20	719001801	719031930	719060580	719041041	01602800060	

HELICOIL® Electrical Installation Tool – Type E-PS G 256



The electrical installation tool type E-PS G for HELICOIL® classic, HELICOIL® plus and HELICOIL® tangfree thread inserts has to be equipped with a dimension-dependent exchange unit.

The tool is especially suited for the installation of HELICOIL® inserts in medium and large-scale volume production during specific installation situations, for instance in clean room applications or in the aerospace industry.

Advantages

- Rotation direction switches automatically when the tool reaches the required installation depth
- Manual reverse override switch also fitted
- Brushless drive for clean room applications
- Soft start setting to gradually increase torque
- High flexibility and compatibility, can use existing pneumatic pre-winder and mandrel

Technical data

Length: 250 mm
 Weight: 750 g
 Dimensions: M 2,5 – M 6
 (M 8 and M 10 on request)
 Maximum speed: 1200 rotations per minute / infinitely variable
 Order No*: 0160 470 0000

HELICOIL® classic, HELICOIL® plus and HELICOIL® tangfree pre-winder exchange units

Exchange unit



NOMINAL DIAMETER Ø	Exchange unit HELICOIL® free running and screwlock	Exchange unit HELICOIL® tangfree free running	Exchange unit HELICOIL® tangfree screwlock
METRIC			
M2.5	0160 272 5050	On Request	On Request
M3	0160 270 3050	5160 370 3050	5160 370 3052
M4	0160 270 4050	5160 370 4050	5160 370 4052
M5	0160 270 5050	5160 370 5050	5160 370 5052
M6	0160 270 6050	5160 370 6050	5160 370 6052
UNC			
4-40	0160 176 5650	On Request	On Request
6-32	0160 176 7650	On Request	On Request
8-32	0160 176 8650	On Request	On Request
10-24	0160 176 9650	On Request	On Request
1/4"-20	0160 177 4650	On Request	On Request
UNF			
4-48	0160 176 5750	N/A	N/A
6-40	0160 176 7750	N/A	N/A
8-36	0160 176 8750	N/A	N/A
10-32	0160 176 9750	On Request	On Request
1/4"-28	0160 177 4750	On Request	On Request

* Please remember to order the pre-winder exchange unit for the appropriate size of insert.

HELICOIL® Electrical Installation Tool – Type ES-410



Swap the front end adaptor of the E-PS G with the bell housing adaptor to convert the E-PS G tool to the tool type ES-410 to facilitate the quick processing of HELICOIL® plus and HELICOIL® tangfree thread inserts. Adjust the software setting of the control unit according to the insert diameter and length and gain enhanced speed of installation and productivity.

Technical data

Length:	280 mm
Weight:	570 g
Dimensions:	M 4 – M 10
Maximum speed:	1200 rotations per minute / infinitely variable
Tool Holder:	Quick-change chuck 1/4" hexagon socket with radial bearing for installation mandrel
Order No*:	Complete tool ES-410 - 4160 540 0000 Bell Housing only - 4160 540 0002

HELICOIL® plus and HELICOIL® tangfree *installation mandrel*

Installation mandrel



NOMINAL THREAD RANGE Ø	Mandrel HELICOIL® plus free running	Mandrel HELICOIL® plus screwlock	Mandrel HELICOIL® tangfree free running	Mandrel HELICOIL® tangfree screwlock
METRIC				
M4	4160 230 4020	4160 230 4022	5160 320 4020	On Request
M5	4160 230 5020	4160 230 5022	5160 330 5020	On Request
M6	4160 230 6020	4160 230 6022	5160 330 6020	On Request
M7	4160 250 7020	4160 250 7022	N/A	N/A
M8	4160 250 8020	4160 250 8022	5160 450 8000	On Request
M9	4160 250 9020	4160 250 9022	N/A	N/A
M10	4160 251 0020	4160 251 0022	5160 451 0000	On Request
UNC				
4-40	4160 236 5620	4160 236 5620	N/A	On Request
5-40	4160 236 6620	4160 236 6620	N/A	On Request
6-32	4160 236 7620	4160 236 7620	N/A	On Request
8-32	4160 236 8620	4160 236 8622	N/A	On Request
10-24	4160 236 9620	4160 236 9620	N/A	On Request
12-24	4160 237 0620	4160 237 0620	N/A	On Request
1/4"-20	4160 257 4620	4160 257 4620	N/A	On Request
5/16"-18	4160 257 6620	4160 257 6620	N/A	On Request
3/8"-16	4160 257 7620	4160 257 7620	N/A	On Request

* Please remember to order the installation mandrel for the appropriate size of insert.

Tapped Hole Data

METRIC To BS 4377		TAPPED HOLE				FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	CLASS 5H MAX - MN	CLASS 6H MAX - MN	
SIZE	DRILL	A	B	C	C	E
M2 X 0.4	2.10	2.18 - 2.09	2.52	2.30 - 2.26	2.31 - 2.26	1.57
M2.2 X 0.45	2.30	2.40 - 2.30	2.79	2.53 - 2.49	2.55 - 2.49	1.71
M2.5 X 0.45	2.60	2.70 - 2.60	3.09	2.83 - 2.79	2.85 - 2.79	2.01
M3 X 0.5	3.10	3.22 - 3.11	3.65	3.37 - 3.33	3.38 - 3.33	2.46
M3.5 X 0.6	3.60	3.75 - 3.63	4.28	3.94 - 3.89	3.96 - 3.89	2.85
M4 X 0.7	4.10	4.29 - 4.15	4.91	4.51 - 4.46	4.53 - 4.46	3.24
M4.5 X 0.75	4.70	4.81 - 4.66	5.47	5.04 - 4.99	5.06 - 4.99	3.69
M5 X 0.8	5.20	5.33 - 5.17	6.04	5.58 - 5.52	5.60 - 5.52	4.13
M6 X 1.0	6.20	6.41 - 6.22	7.30	6.72 - 6.65	6.74 - 6.65	4.92
M7 X 1.0	7.20	7.41 - 7.22	8.30	7.72 - 7.65	7.74 - 7.65	5.92
M8 X 1.0	8.20	8.41 - 8.22	9.30	8.72 - 8.65	8.74 - 8.65	6.92
M8 X 1.25	8.30	8.48 - 8.27	9.62	8.89 - 8.81	8.91 - 8.81	6.65
M9 X 1.25	9.30	9.48 - 9.27	10.62	9.89 - 9.81	9.91 - 9.81	7.65
M10 X 1.0*	10.30	10.39 - 10.26	11.20		10.71 - 10.65	8.86
M10 X 1.25	10.30	10.48 - 10.27	11.62	10.89 - 10.81	10.91 - 10.81	8.65
M10 X 1.5	10.30	10.56 - 10.33	11.95	11.06 - 10.97	11.09 - 10.97	8.38
M11 X 1.5	11.30	11.56 - 11.33	12.95	12.06 - 11.97	12.09 - 11.97	9.38
M12 X 1.25*	12.30	12.47 - 12.27	13.61		12.90 - 12.81	10.64
M12 X 1.25	12.30	12.48 - 12.27	13.62	12.90 - 12.81	12.93 - 12.81	10.65
M12 X 1.5	12.50	12.32 - 12.56	13.95	13.07 - 12.97	13.10 - 12.97	
M12 X 1.75	12.40	12.64 - 12.38	14.27	13.24 - 13.14	13.27 - 13.14	10.11
M14 X 1.25*	14.30	14.40 - 14.28	15.57		15.04 - 14.97	12.65
M14 X 1.5	14.30	14.56 - 14.33	15.95	15.07 - 14.97	15.10 - 14.97	12.38
M14 X 2.0	14.50	14.73 - 14.43	16.60	15.41 - 15.30	15.44 - 15.30	11.84
M16 X 1.5	16.25	16.56 - 16.33	17.95	17.07 - 16.97	17.10 - 16.97	14.38
M16 X 2.0	16.50	16.73 - 16.43	18.60	17.41 - 17.30	17.44 - 17.30	13.84
M18 X 1.5*	23/32	18.36 - 18.24	20.14		19.15 - 19.06	16.05
M18 X 1.5	18.25	18.56 - 18.33	19.95	19.07 - 18.97	19.10 - 18.97	16.38
M18 X 2.0	18.50	18.73 - 18.43	20.60	19.41 - 19.30	19.44 - 19.30	15.84
M18 X 2.5	18.50	18.90 - 18.54	21.25	19.74 - 19.62	19.78 - 19.62	15.29
M20 X 1.5	20.25	20.56 - 20.33	21.95	21.07 - 20.97	21.10 - 20.97	18.38
M20 X 2.0	20.50	20.73 - 20.43	22.60	21.41 - 21.30	21.44 - 21.30	17.84
M20 X 2.5	20.50	20.90 - 20.54	23.25	21.74 - 21.62	21.78 - 21.62	17.29
M22 X 1.5	22.50	22.56 - 22.33	23.95	23.07 - 22.97	23.10 - 22.97	20.38
M22 X 2.0	22.50	22.73 - 22.43	24.60	23.41 - 23.30	23.44 - 23.30	19.84
M22 X 2.5	22.50	22.90 - 22.54	25.25	23.74 - 23.62	23.78 - 23.62	19.29
M24 X 2.0	24.25	24.73 - 24.43	26.60	25.41 - 25.30	25.45 - 25.30	21.84
M24 X 3.0	24.75	25.05 - 24.65	27.90	26.09 - 25.95	26.14 - 25.95	20.75
M27 X 2.0	27.50	27.43 - 27.73	29.60			
M27 X 3.0	27.50	28.05 - 27.65	30.90	29.09 - 28.95	29.14 - 28.95	23.75
M30 X 2.0	30.50	30.43 - 30.73	32.60			
M30 X 3.5	30.50	31.21 - 30.76	34.55	32.43 - 32.27	32.47 - 32.27	26.21
M33 X 2.0	33.50	33.43 - 33.78	35.60			
M33 X 3.5	33.50	34.21 - 33.76	37.55	35.43 - 35.27	35.47 - 35.27	29.21
M36 X 2.0	36.50	36.43 - 36.73	38.60			
M36 X 4.0	36.50	37.34 - 36.87	41.20	38.76 - 38.60	38.81 - 38.60	31.67
M39 X 2.0	39.50	39.43 - 39.73	41.60			
M39 X 4.0	39.50	40.34 - 39.87	44.20	41.76 - 41.60	41.81 - 41.60	34.67

*Spak Plug Sizes

Recommended for screwlock insert applications.

UNC To BS 3409		TAPPED HOLE				FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	CLASS 2B MAX - MN	CLASS 3B MAX - MN	
SIZE	DRILL	A	B	C	C	E
2-56	2.3MM	0.094 - 0.090	0.1092	0.0996 - 0.0976	0.0989 - 0.0976	0.0667
3-48	2.7MM	0.108 - 0.104	0.1261	0.1147 - 0.1125	0.1139 - 0.1125	0.0764
4-40	3MM	0.122 - 0.118	0.1445	0.1307 - 0.1282	0.1298 - 0.1282	0.0849
5-40	3.4MM	0.135 - 0.131	0.1575	0.1437 - 0.1412	0.1429 - 0.1412	0.0979
6-32	3.7MM	0.150 - 0.145	0.1786	0.1611 - 0.1583	0.1601 - 0.1583	0.1042
8-32	11/64	0.175 - 0.171	0.2046	0.1872 - 0.1843	0.1862 - 0.1843	0.1302
10-24	5.1MM	0.205 - 0.199	0.2441	0.2204 - 0.2171	0.2193 - 0.2171	0.1449
12-24	5.8MM	0.230 - 0.225	0.2701	0.2465 - 0.2431	0.2454 - 0.2431	0.1709
1/4-20	6.7MM	0.270 - 0.261	0.3150	0.2863 - 0.2825	0.2851 - 0.2825	0.1959
5/16-18	8.3MM	0.334 - 0.325	0.3847	0.3529 - 0.3486	0.3515 - 0.3486	0.2524
3/8-16	9.9MM	0.398 - 0.389	0.4562	0.4203 - 0.4156	0.4189 - 0.4156	0.3073
7/16-14	29/64	0.463 - 0.453	0.5303	0.4890 - 0.4839	0.4875 - 0.4839	0.3602
1/2-13	33/64	0.527 - 0.517	0.5999	0.5554 - 0.5499	0.5537 - 0.5499	0.4167
9/16-12	14.75MM	0.591 - 0.581	0.6708	0.6225 - 0.6167	0.6208 - 0.6167	0.4723
5/8-11	16.5MM	0.656 - 0.645	0.7431	0.6903 - 0.6841	0.6885 - 0.6841	0.5266
3/4-10	19.75MM	0.783 - 0.772	0.8799	0.8216 - 0.8149	0.8196 - 0.8149	0.6417
7/8-9	23MM	0.912 - 0.899	1.0193	0.9543 - 0.9471	0.9522 - 0.9471	0.7547
1-8	1-1/32	1.042 - 1.027	1.1624	1.0890 - 1.0812	1.0868 - 1.0812	0.8647
1-1/8-7	1-5/32	1.170 - 1.156	1.3106	1.2262 - 1.2178	1.2239 - 1.2178	0.9704
1-1/4-7	1-9/32	1.295 - 1.281	1.4356	1.3514 - 1.3428	1.3490 - 1.3428	1.0954
1-3/8-6	36MM	1.431 - 1.411	1.5914	1.4926 - 1.4832	1.4900 - 1.4832	1.1946
1-1/2-6	1-35/64	1.556 - 1.536	1.7164	1.6177 - 1.6082	1.6151 - 1.6082	1.3196

UNF To BS 3409		TAPPED HOLE				FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	CLASS 2B MAX - MN	CLASS 3B MAX - MN	
SIZE	DRILL	A	B	C	C	E
2-64	2.3MM	0.093 - 0.090	0.1063	0.0980 - 0.0962	0.0974 - 0.0962	0.0691
3-56	2.65MM	0.106 - 0.103	0.1222	0.1126 - 0.1106	0.1119 - 0.1106	0.0797
4-48	3MM	0.120 - 0.117	0.1391	0.1278 - 0.1255	0.1270 - 0.1255	0.0894
5-44	3.3MM	0.134 - 0.130	0.1545	0.1422 - 0.1398	0.1414 - 0.1398	0.1004
6-40	3.7MM	0.148 - 0.144	0.1705	0.1568 - 0.1542	0.1559 - 0.1542	0.1109
8-36	11/64	0.174 - 0.170	0.2001	0.1848 - 0.1820	0.1839 - 0.1820	0.1339
10-32	5.1MM	0.201 - 0.197	0.2306	0.2133 - 0.2103	0.2123 - 0.2103	0.1562
1/4-28	6.6MM	0.264 - 0.258	0.2964	0.2765 - 0.2732	0.2754 - 0.2732	0.2113
5/16-24	8.2MM	0.328 - 0.322	0.3666	0.3433 - 0.3395	0.3421 - 0.3395	0.2674
3/8-24	9.8MM	0.390 - 0.384	0.4291	0.4059 - 0.4020	0.4047 - 0.4020	0.3299
7/16-20	29/64	0.456 - 0.449	0.5025	0.4744 - 0.4700	0.4731 - 0.4700	0.3834
1/2-20	33/64	0.518 - 0.511	0.5650	0.5371 - 0.5325	0.5357 - 0.5325	0.4459
9/16-18	37/64	0.582 - 0.575	0.6347	0.6035 - 0.5986	0.6020 - 0.5986	0.5024
5/8-18	41/64	0.644 - 0.637	0.6972	0.6661 - 0.6611	0.6646 - 0.6611	0.5649
3/4-16	49/64	0.771 - 0.764	0.8312	0.7961 - 0.7906	0.7945 - 0.7906	0.6823
7/8-14	22.75MM	0.899 - 0.891	0.9678	0.9274 - 0.9214	0.9257 - 0.9214	0.7977
1-12	26MM	1.028 - 1.018	1.1083	1.0608 - 1.0542	1.0589 - 1.0542	0.9098
1-1/8-12	29.25MM	1.153 - 1.143	2333	1.1860 - 1.1792	1.1841 - 1.1792	1.0348
1-1/4-12	1-17/64	1.278 - 1.268	1.3583	1.3112 - 1.3042	1.3092 - 1.3042	1.1598
1-3/8-12	35.5MM	1.403 - 1.393	1.4833	1.4364 - 1.4292	1.4343 - 1.4292	1.2848
1-1/2-12	38.5MM	1.528 - 1.518	1.6083	1.5615 - 1.5542	1.5595 - 1.5542	1.4098

Tapped Hole Data

BSW		TAPPED HOLE				FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	MED CLASS MAX - MN	CLOSE CLASS MAX - MN	
SIZE	DRILL	A	B	C	C	E
1/8-40	3.3MM	0.135 - 0.129	0.1548	0.1430 - 0.1410	NOT RECOMMENDED	0.0930
3/16-24	5MM	0.202 - 0.196	0.2365	0.2166 - 0.2142		0.1341
1/4-20	6.7MM	0.267 - 0.261	0.3087	0.2849 - 0.2820		0.1860
5/16-18	21/64	0.334 - 0.328	0.3777	0.3512 - 0.3480		0.2413
3/8-16	25/64	0.398 - 0.390	0.4483	0.4185 - 0.4150	0.4170 - 0.4150	0.2950
7/16-14	29/64	0.463 - 0.453	0.5212	0.4871 - 0.4833	0.4855 - 0.4833	0.3461
1/2-12	33/64	0.525 - 0.515	0.5973	0.5575 - 0.5533	0.5557 - 0.5533	0.3932
9/16-12	37/64	0.588 - 0.578	0.6600	0.6201 - 0.6158	0.6184 - 0.6158	0.4557
5/8-11	21/32	0.663 - 0.653	0.7312	0.6873 - 0.6832	0.6859 - 0.6832	0.5086
11/16-11	23/32	0.727 - 0.717	0.7938	0.7505 - 0.7457	0.7485 - 0.7457	0.5711
3/4-10	25/32	0.791 - 0.781	0.8669	0.8191 - 0.8141	0.8171 - 0.8141	0.6220
7/8-9	29/32	0.916 - 0.906	1.0048	0.9516 - 0.9462	0.9495 - 0.9462	0.7328
1-8	1-1/32	1.044 - 1.031	1.1457	1.0859 - 1.0801	1.0836 - 1.0801	0.8400
1-1/8-7	1-11/64	1.186 - 1.171	1.2912	1.2227 - 1.2165	1.2203 - 1.2165	0.9420
1-1/4-7	1-19/64	1.311 - 1.296	1.4163	1.3479 - 1.3415	1.3454 - 1.3415	1.0670
1-1/2-6	1-35/64	1.571 - 1.546	1.6936	1.6137 - 1.6067	1.6110 - 1.6067	1.2866

BSF		TAPPED HOLE				FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	MED CLASS MAX - MN	CLOSE CLASS MAX - MN	
SIZE	DRILL	A	B	C	C	E
3/16-32	4.9MM	0.198 - 0.192	0.2247	0.2098 - 0.2075	NOT RECOMMENDED	0.1475
7/32-28	5.8MM	0.231 - 0.225	0.2612	0.2442 - 0.2416		0.1730
1/4-26	6.6MM	0.264 - 0.257	0.2957	0.2774 - 0.2747		0.2008
9/32-26	7.4MM	0.295 - 0.288	0.3270	0.3088 - 0.3059		0.2320
5/16-22	8.3MM	0.330 - 0.323	0.3662	0.3447 - 0.3416	0.2543	
3/8-20	9.8MM	0.392 - 0.385	0.4340	0.4104 - 0.4070	0.3110	
7/16-18	29/64	0.458 - 0.450	0.5030	0.4767 - 0.4730	0.4751 - 0.4730	0.3663
1/2-16	33/64	0.522 - 0.513	0.5736	0.5440 - 0.5400	0.5423 - 0.5400	0.4200
9/16-16	37/64	0.586 - 0.577	0.6362	0.6067 - 0.6025	0.6049 - 0.6025	0.4825
5/8-14	41/64	0.649 - 0.640	0.7091	0.6752 - 0.6708	0.6734 - 0.6708	0.5336
11/16-14	45/64	0.713 - 0.703	0.7717	0.7379 - 0.7333	0.7360 - 0.7333	0.5961
3/4-12	49/64	0.775 - 0.765	0.8478	0.8082 - 0.8033	0.8062 - 0.8033	0.6432
13/16-12	53/64	0.838 - 0.828	0.9104	0.8708 - 0.8658	0.8688 - 0.8658	0.7057
7/8-11	57/64	0.900 - 0.890	0.9817	0.9384 - 0.9332	0.9364 - 0.9332	0.7586
1-10	1-1/32	1.044 - 1.031	1.1173	1.0697 - 1.0641	1.0675 - 1.0641	0.8720
1-1/8-9	1-5/32	1.170 - 1.156	1.2551	1.2021 - 1.1962	1.1998 - 1.1962	0.9828
1-1/4-9	1-9/32	1.295 - 1.281	1.3803	1.3274 - 1.3212	1.3250 - 1.3212	1.1078
1-3/8-8	1-13/32	1.420 - 1.406	1.5212	1.4616 - 1.4551	1.4591 - 1.4551	1.2150
1-1/2-8	1-17/32	1.545 - 1.531	1.6464	1.5868 - 1.5801	1.5843 - 1.5801	1.3400

G (BSPF)		TAPPED HOLE				FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	MED CLASS MAX - MN	CLOSE CLASS MAX - MN	
SIZE	DRILL	A	B	C	C	E
1/8-28	25/64	0.400 - 0.390	0.4258	0.4090 - 0.4058	NOT RECOMMENDED	0.3372
1/4-19	17/32	0.540 - 0.530	0.5803	0.5556 - 0.5517		0.4506
3/8-19	43/64	0.680 - 0.670	0.7184	0.6937 - 0.6897		0.5886
1/2-14	27/32	0.850 - 0.840	0.9092	0.8754 - 0.8708		0.7336
5/8-14	59/64	0.927 - 0.915	0.9863	0.9524 - 0.9478	0.9506 - 0.9478	0.8106
3/4-14	1-1/6	1.066 - 1.053	1.1255	1.0918 - 1.0868	1.0898 - 1.0868	0.9496
7/8-14	1-13/64	1.213 - 1.200	1.2735	1.2399 - 1.2348	1.2378 - 1.2348	1.0976
1-11	1-21/64	1.335 - 1.320	1.4158	1.3727 - 1.3673	1.3705 - 1.3673	1.1926
1-1/4-11	1-43/64	1.680 - 1.665	1.7571	1.7141 - 1.7083	1.7118 - 1.7083	1.5336
1-1/2-11	1-29/32	1.921 - 1.906	1.9893	1.9464 - 1.9403	1.9440 - 1.9403	1.7656

BA		TAPPED HOLE			FITTED MINOR DIA
		MINOR DIA MAX - MN	MAJOR DIA	STANDARD NUT FIT MAX - MN	
SIZE	DRILL	A	B	C	E
0BA	6.2MM	0.246 - 0.241	0.2805	0.2645 - 0.2598	0.1890
1BA	5.5MM	0.22 - 0.213	0.2485	0.2342 - 0.2299	0.1661
2BA	4.9MM	0.196 - 0.191	0.2208	0.2079 - 0.2042	0.1468
3BA	4.3MM	0.171 - 0.166	0.1938	0.1821 - 0.1786	0.1268
4BA	3.8MM	0.152 - 0.147	0.1711	0.1605 - 0.1574	0.1106
5BA	3.3MM	0.135 - 0.129	0.1522	0.1426 - 0.1399	0.0980
6BA	2.9MM	0.116 - 0.113	0.1339	0.1252 - 0.1226	0.0850

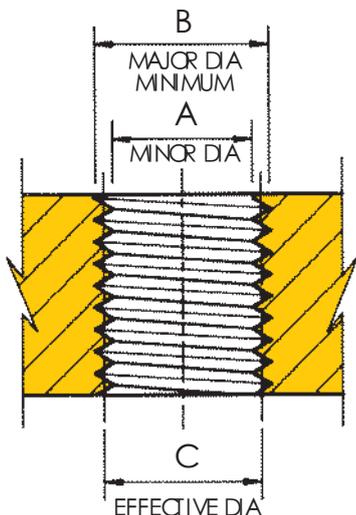
Recommended for screwlock insert applications.

TAPPED HOLE

Drilling and tapping procedures should follow good workshop practice at all times.

It is most important to adhere to the limits given for the drilled and tapped hole to achieve the class of fit required.

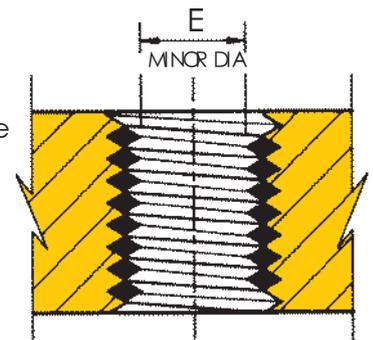
Minimum drilling and tapping depths are given in the tables.



INSERT (FITTED)

Helical® when fitted will mimic the class of fit of the tapped hole. It is important that the class of fit is checked with an Helical® gauge before insertion.

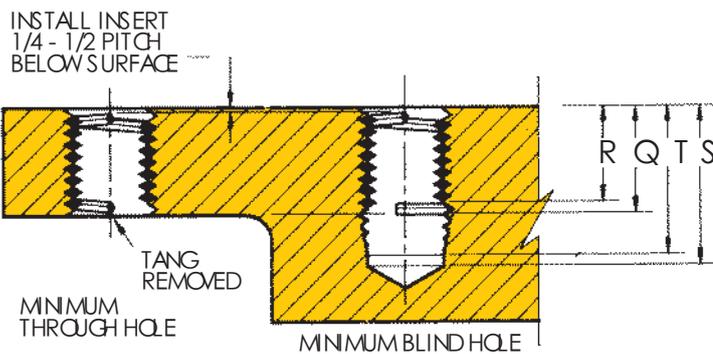
For maximum performance, Taps should be removed to permit full length thread engagement between insert and bdt. In screwlock applications this ensures full form thread engagement with the locking feature.



METRIC

Drilling & Tapping Depths

METRIC SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
M2 X 0.4	2.00	1.60	3.80	3.40	3.00	2.60	4.80	4.40	4.00	3.60	5.80	5.40	5.00	4.60	6.80	6.40	6.00	5.60	7.80	7.40
M2.2 X 0.45	2.20	1.75	4.23	3.78	3.30	2.85	5.33	4.88	4.40	3.95	6.43	5.98	5.50	5.05	7.53	7.08	6.60	6.15	8.63	8.18
M2.5 X 0.45	2.50	2.05	4.53	4.08	3.75	3.30	5.78	5.33	5.00	4.55	7.03	6.58	6.25	5.80	8.28	7.83	7.50	7.05	9.53	9.08
M3 X 0.5	3.00	2.50	5.25	4.75	4.50	4.00	6.75	6.25	6.00	5.50	8.25	7.75	7.50	7.00	9.75	9.25	9.00	8.50	11.25	10.75
M3.5 X 0.6	3.50	2.90	6.20	5.60	5.25	4.65	7.95	7.35	7.00	6.40	9.70	9.10	8.75	8.15	11.45	10.85	10.50	9.90	13.20	12.60
M4 X 0.7	4.00	3.30	7.15	6.45	6.00	5.30	9.15	8.45	8.00	7.30	11.15	10.45	10.00	9.30	13.15	12.45	12.00	11.30	15.15	14.45
M4.5 X 0.75	4.50	3.75	7.88	7.13	6.75	6.00	10.13	9.38	9.00	8.25	12.38	11.63	11.25	10.50	14.63	13.88	13.50	12.75	16.88	16.13
M5 X 0.8	5.00	4.20	8.60	7.80	7.50	6.70	11.10	10.30	10.00	9.20	13.60	12.80	12.50	11.70	16.10	15.30	15.00	14.20	18.60	17.80
M6 X 1.0	6.00	5.00	10.50	9.50	9.00	8.00	13.50	12.50	12.00	11.00	16.50	15.50	15.00	14.00	19.50	18.50	18.00	17.00	22.50	21.50
M7 X 1.0	7.00	6.00	11.50	10.50	10.50	9.50	15.00	14.00	14.00	13.00	18.50	17.50	17.50	16.50	22.00	21.00	21.00	20.00	25.50	24.50
M8 X 1.0	8.00	7.00	12.50	11.50	12.00	11.00	16.50	15.50	16.00	15.00	20.50	19.50	20.00	19.00	24.50	23.50	24.00	23.00	28.50	27.50
M8 X 1.25	8.00	6.75	13.63	12.38	12.00	10.75	17.63	16.38	16.00	14.75	21.63	20.38	20.00	18.75	25.63	24.38	24.00	22.75	29.63	28.38
M9 X 1.25	9.00	7.75	14.63	13.38	13.50	12.25	19.13	17.88	18.00	16.75	23.63	22.38	22.50	21.25	28.13	26.88	27.00	25.75	32.63	31.38
M10 X 1.25	10.00	8.75	15.63	14.38	15.00	13.75	20.63	19.38	20.00	18.75	25.63	24.38	25.00	23.75	30.63	29.38	30.00	28.75	35.63	34.38
M10 X 1.5	10.00	8.50	16.75	15.25	15.00	13.50	21.75	20.25	20.00	18.50	26.75	25.25	25.00	23.50	31.75	30.25	30.00	28.50	36.75	35.25
M11 X 1.5	11.00	9.50	17.75	16.25	16.50	15.00	23.25	21.75	22.00	20.50	28.75	27.25	27.50	26.00	34.25	32.75	33.00	31.50	39.75	38.25
M12 X 1.25	12.00	10.75	17.63	16.38	18.00	16.75	23.63	22.38	24.00	22.75	29.63	27.38	30.00	28.75	35.63	34.38	36.00	34.75	41.63	40.38
M12 X 1.75	12.00	10.25	19.88	18.13	18.00	16.25	25.88	24.13	24.00	22.25	31.88	30.13	30.00	28.25	37.88	36.13	36.00	34.25	43.88	42.13
M14 X 1.5	14.00	12.50	20.75	19.25	21.00	19.50	27.75	26.25	28.00	26.50	34.75	33.25	35.00	33.50	41.75	40.25	42.00	40.50	48.75	47.25
M14 X 2.0	14.00	12.00	23.00	21.00	21.00	19.00	30.00	28.00	28.00	26.00	37.00	35.00	35.00	33.00	44.00	42.00	42.00	40.00	51.00	49.00
M16 X 1.5	16.00	14.50	22.75	21.25	24.00	22.50	30.75	29.25	32.00	30.50	38.75	37.25	40.00	38.50	46.75	45.25	48.00	46.50	54.75	53.25
M16 X 2.0	16.00	14.00	25.00	23.00	24.00	22.00	33.00	31.00	32.00	30.00	41.00	39.00	40.00	38.00	49.00	47.00	48.00	46.00	57.00	55.00
M18 X 1.5	18.00	16.50	24.75	23.25	27.00	25.50	33.75	32.25	36.00	34.50	42.75	41.25	45.00	43.50	51.75	50.25	54.00	52.50	60.75	59.25
M18 X 2.0	18.00	16.00	27.00	25.00	27.00	25.00	36.00	34.00	36.00	34.00	45.00	43.00	45.00	43.00	54.00	52.00	54.00	52.00	63.00	61.00
M18 X 2.5	18.00	15.50	29.25	26.75	27.00	24.50	38.25	35.75	36.00	33.50	47.25	44.75	45.00	42.50	56.25	53.75	54.00	51.50	65.25	62.75
M20 X 1.5	20.00	18.50	26.75	25.25	30.00	28.50	36.75	35.25	40.00	38.50	46.75	45.25	50.00	48.50	56.75	55.25	60.00	58.50	66.75	65.25
M20 X 2.0	20.00	18.00	29.00	27.00	30.00	28.00	39.00	37.00	40.00	38.00	49.00	47.00	50.00	48.00	59.00	57.00	60.00	58.00	69.00	67.00
M20 X 2.5	20.00	17.50	31.25	28.75	30.00	27.50	41.25	38.75	40.00	37.50	51.25	48.75	50.00	47.50	61.25	58.75	60.00	57.50	71.25	68.75
M22 X 1.5	22.00	20.50	28.75	27.25	33.00	31.50	39.75	38.25	44.00	42.50	50.75	49.25	55.00	53.50	61.75	60.25	66.00	64.50	72.75	71.25
M22 X 2.0	22.00	20.00	31.00	29.00	33.00	31.00	42.00	40.00	44.00	42.00	53.00	51.00	55.00	53.00	64.00	62.00	66.00	64.00	75.00	73.00
M22 X 2.5	22.00	19.50	33.25	30.75	33.00	30.50	44.25	41.75	44.00	41.50	55.25	52.75	55.00	52.50	66.25	63.75	66.00	63.50	77.25	74.75
M24 X 2.0	24.00	22.00	33.00	31.00	36.00	34.00	45.00	43.00	48.00	46.00	57.00	55.00	60.00	58.00	69.00	67.00	72.00	70.00	81.00	79.00
M24 X 3.0	24.00	21.00	37.50	34.50	36.00	33.00	49.50	46.50	48.00	45.00	61.50	58.50	60.00	57.00	73.50	70.50	72.00	69.00	85.50	82.50
M27 X 3.0	27.00	24.00	40.50	37.50	40.50	37.50	54.00	51.00	54.00	51.00	67.50	64.50	67.50	64.50	81.00	78.00	81.00	78.00	94.50	91.50
M30 X 3.5	30.00	26.50	45.75	42.25	45.00	41.50	60.75	57.25	60.00	56.50	75.75	72.25	75.00	71.50	90.75	87.25	90.00	86.50	105.75	102.25
M33 X 3.5	33.00	29.50	48.75	45.25	49.50	46.00	65.25	61.75	66.00	62.50	81.75	78.25	82.50	79.00	98.25	94.75	99.00	95.50	114.75	111.25
M36 X 4.0	36.00	32.00	54.00	50.00	54.00	50.00	72.00	68.00	72.00	68.00	90.00	86.00	90.00	86.00	108.00	104.00	108.00	104.00	126.00	122.00
M39 X 4.0	39.00	35.00	57.00	53.00	58.50	54.50	76.50	72.50	78.00	74.00	96.00	92.00	97.50	93.50	115.50	111.50	117.00	113.00	135.00	131.00



- Q- Full topped thread length (min.)
 - R - Entering portion of screw (max.). If Tang is not removed
 - S - Drill depth (min.) - excluding point.
 - T - Tap depth (min.) - including 3 1/2 threads chamfer of plug tap.
1. Figures in table are for min. depth holes. When possible, add 1 pitch to Q, S and T. Insert can then be installed 1/4 - 1/2 pitch below surface.
 2. Depths of C-bore or C'sks. If any, must be added to values for Q, R, S and T.
 3. If bottoming taps are used S and T may be reduced by an amount equal to 2 x pitch.

UNC

Drilling & Tapping Depths - Unified

UNC SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
2-56	0.086	0.068	0.166	0.148	0.129	0.111	0.209	0.191	0.172	0.154	0.252	0.234	0.215	0.197	0.295	0.277	0.258	0.240	0.338	0.320
3-48	0.099	0.078	0.193	0.172	0.148	0.127	0.242	0.221	0.198	0.177	0.292	0.271	0.248	0.227	0.342	0.321	0.297	0.276	0.391	0.370
4-40	0.112	0.087	0.224	0.199	0.168	0.143	0.280	0.255	0.224	0.199	0.336	0.311	0.280	0.255	0.392	0.367	0.336	0.311	0.448	0.423
5-40	0.125	0.100	0.237	0.212	0.187	0.162	0.300	0.275	0.250	0.225	0.362	0.337	0.312	0.287	0.425	0.400	0.375	0.350	0.487	0.462
6-32	0.138	0.107	0.279	0.247	0.207	0.176	0.348	0.316	0.276	0.245	0.417	0.385	0.345	0.314	0.486	0.454	0.414	0.383	0.555	0.523
8-32	0.164	0.133	0.305	0.273	0.246	0.215	0.387	0.355	0.328	0.297	0.469	0.437	0.410	0.379	0.551	0.519	0.492	0.461	0.633	0.601
10-24	0.190	0.148	0.377	0.336	0.285	0.243	0.472	0.431	0.380	0.338	0.567	0.526	0.475	0.433	0.662	0.621	0.570	0.528	0.757	0.716
12-24	0.216	0.174	0.404	0.362	0.324	0.282	0.512	0.470	0.432	0.390	0.620	0.578	0.540	0.498	0.727	0.686	0.648	0.606	0.836	0.794
1/4-20	0.250	0.200	0.475	0.425	0.375	0.325	0.600	0.550	0.500	0.450	0.725	0.675	0.625	0.575	0.850	0.800	0.750	0.700	0.975	0.925
5/16-18	0.312	0.257	0.562	0.507	0.469	0.413	0.719	0.663	0.625	0.569	0.875	0.819	0.781	0.726	1.031	0.976	0.937	0.882	1.187	1.132
3/8-16	0.375	0.312	0.656	0.594	0.562	0.500	0.844	0.781	0.750	0.687	1.031	0.969	0.937	0.875	1.219	1.156	1.125	1.062	1.406	1.344
7/16-14	0.437	0.366	0.759	0.687	0.656	0.585	0.978	0.906	0.875	0.804	1.196	1.125	1.094	1.022	1.415	1.343	1.312	1.241	1.634	1.562
1/2-13	0.500	0.423	0.846	0.769	0.750	0.673	1.096	1.019	1.000	0.923	1.346	1.269	1.250	1.173	1.596	1.519	1.500	1.423	1.846	1.769
9/16-12	0.562	0.479	0.937	0.854	0.844	0.760	1.219	1.135	1.125	1.042	1.500	1.417	1.406	1.323	1.781	1.698	1.687	1.604	2.062	1.979
5/8-11	0.625	0.534	1.034	0.943	0.937	0.846	1.347	1.256	1.250	1.159	1.659	1.568	1.562	1.471	1.972	1.881	1.875	1.784	2.284	2.193
3/4-10	0.750	0.650	1.200	1.100	1.125	1.025	1.575	1.475	1.500	1.400	1.950	1.850	1.875	1.775	2.325	2.225	2.250	2.150	2.700	2.600
7/8-9	0.875	0.764	1.375	1.264	1.312	1.201	1.812	1.701	1.750	1.639	2.250	2.139	2.187	2.076	2.687	2.576	2.625	2.514	3.125	3.014
1-8	1.000	0.875	1.563	1.437	1.500	1.375	2.062	1.937	2.000	1.875	2.562	2.437	2.500	2.375	3.062	2.937	3.000	2.875	3.562	3.437
1-1/8-7	1.125	0.982	1.768	1.625	1.687	1.545	2.330	2.187	2.250	2.107	2.893	2.750	2.812	2.670	3.455	3.312	3.375	3.232	4.018	3.875
1-1/4-7	1.250	1.107	1.893	1.750	1.875	1.732	2.518	2.375	2.500	2.357	3.143	3.000	3.125	2.982	3.768	3.625	3.750	3.607	4.393	4.250
1-3/8-6	1.375	1.208	2.125	1.958	2.062	1.896	2.812	2.646	2.750	2.583	3.500	3.333	3.437	3.270	4.187	4.021	4.125	3.958	4.875	4.708
1-1/2-6	1.500	1.333	2.250	2.083	2.250	2.083	3.000	2.833	3.000	2.833	3.750	3.583	3.750	3.583	4.500	4.333	4.500	4.333	5.250	5.083

UNF

UNF SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
2-64	0.086	0.070	0.156	0.141	0.129	0.113	0.199	0.184	0.172	0.156	0.242	0.227	0.215	0.199	0.285	0.270	0.258	0.242	0.328	0.313
3-56	0.099	0.081	0.179	0.161	0.148	0.130	0.228	0.210	0.198	0.180	0.278	0.260	0.248	0.230	0.328	0.310	0.297	0.279	0.377	0.359
4-48	0.112	0.091	0.206	0.185	0.168	0.147	0.262	0.241	0.224	0.203	0.318	0.297	0.280	0.259	0.374	0.353	0.336	0.315	0.430	0.409
5-44	0.125	0.102	0.227	0.205	0.188	0.165	0.290	0.268	0.250	0.227	0.352	0.330	0.312	0.289	0.414	0.392	0.375	0.352	0.477	0.455
6-40	0.138	0.113	0.250	0.225	0.207	0.182	0.319	0.294	0.276	0.251	0.388	0.363	0.345	0.320	0.457	0.432	0.414	0.389	0.526	0.501
8-36	0.164	0.136	0.289	0.261	0.246	0.218	0.371	0.343	0.328	0.300	0.453	0.425	0.410	0.382	0.535	0.507	0.492	0.464	0.617	0.589
10-32	0.190	0.159	0.331	0.299	0.285	0.254	0.426	0.394	0.380	0.349	0.521	0.489	0.475	0.444	0.616	0.584	0.570	0.539	0.711	0.679
1/4-28	0.250	0.214	0.411	0.375	0.375	0.339	0.536	0.500	0.500	0.464	0.661	0.625	0.625	0.589	0.786	0.750	0.750	0.714	0.911	0.875
5/16-24	0.312	0.271	0.500	0.458	0.469	0.428	0.656	0.615	0.625	0.583	0.812	0.771	0.781	0.740	0.969	0.927	0.937	0.896	1.125	1.083
3/8-24	0.375	0.333	0.562	0.521	0.562	0.521	0.750	0.708	0.750	0.708	0.937	0.896	0.937	0.896	1.125	1.083	1.125	1.083	1.312	1.271
7/16-20	0.437	0.387	0.662	0.612	0.656	0.606	0.881	0.831	0.875	0.825	1.100	1.050	1.094	1.044	1.319	1.269	1.312	1.262	1.537	1.488
1/2-20	0.500	0.450	0.725	0.675	0.750	0.700	0.975	0.925	1.000	0.950	1.225	1.175	1.250	1.200	1.475	1.425	1.500	1.450	1.725	1.675
9/16-18	0.562	0.507	0.812	0.757	0.844	0.788	1.094	1.038	1.125	1.068	1.375	1.319	1.406	1.351	1.656	1.601	1.687	1.632	1.937	1.882
5/8-18	0.625	0.569	0.875	0.819	0.937	0.882	1.187	1.132	1.250	1.194	1.500	1.444	1.562	1.507	1.812	1.757	1.875	1.819	2.125	2.069
3/4-16	0.750	0.687	1.031	0.969	1.125	1.062	1.406	1.344	1.500	1.437	1.781	1.719	1.875	1.812	2.156	2.094	2.250	2.187	2.531	2.469
7/8-14	0.875	0.804	1.196	1.125	1.312	1.241	1.634	1.562	1.750	1.679	2.071	2.000	2.187	2.116	2.509	2.437	2.625	2.554	2.946	2.875
1-12	1.000	0.917	1.375	1.292	1.500	1.417	1.875	1.792	2.000	1.917	2.375	2.292	2.500	2.417	2.875	2.792	3.000	2.917	3.375	3.292
1-1/8-12	1.125	1.042	1.500	1.417	1.687	1.604	2.062	1.979	2.250	2.167	2.625	2.542	2.812	2.729	3.187	3.104	3.375	3.292	3.750	3.667
1-1/4-12	1.250	1.167	1.625	1.542	1.875	1.792	2.250	2.167	2.500	2.417	2.875	2.792	3.125	3.042	3.500	3.417	3.750	3.667	4.125	4.042
1-3/8-12	1.375	1.292	1.750	1.667	2.062	1.979	2.437	2.354	2.750	2.667	3.125	3.042	3.437	3.354	3.812	3.729	4.125	4.042	4.500	4.417
1-1/2-12	1.500	1.417	1.875	1.792	2.250	2.167	2.625	2.542	3.000	2.917	3.375	3.292	3.750	3.667	4.125	4.042	4.500	4.417	4.875	4.792

BSW

Drilling & Tapping Depths

BSW SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
1/8-40	0.125	0.100	0.237	0.212	0.187	0.162	0.299	0.274	0.250	0.225	0.362	0.337	0.312	0.287	0.425	0.400	0.375	0.350	0.487	0.462
3/16-24	0.187	0.146	0.375	0.332	0.281	0.240	0.468	0.426	0.375	0.334	0.562	0.520	0.468	0.427	0.656	0.612	0.562	0.521	0.750	0.708
1/4-20	0.250	0.200	0.475	0.425	0.375	0.325	0.600	0.550	0.500	0.450	0.725	0.675	0.625	0.575	0.850	0.800	0.750	0.700	0.975	0.925
5/16-18	0.312	0.257	0.562	0.507	0.469	0.413	0.719	0.663	0.625	0.569	0.875	0.819	0.781	0.726	1.031	0.976	0.937	0.882	1.187	1.132
3/8-16	0.375	0.312	0.656	0.594	0.562	0.500	0.844	0.781	0.750	0.687	1.031	0.969	0.937	0.875	1.219	1.156	1.125	1.062	1.406	1.344
7/16-14	0.437	0.366	0.759	0.687	0.656	0.585	0.978	0.906	0.875	0.804	1.196	1.125	1.093	1.022	1.415	1.343	1.312	1.241	1.634	1.562
1/2-12	0.500	0.417	0.875	0.792	0.750	0.667	1.125	1.042	1.000	0.917	1.375	1.292	1.250	1.167	1.625	1.542	1.500	1.417	1.875	1.792
9/16-12	0.562	0.479	0.937	0.854	0.844	0.760	1.219	1.135	1.125	1.042	1.500	1.417	1.406	1.323	1.781	1.698	1.687	1.604	2.062	1.979
5/8-11	0.625	0.534	1.034	0.943	0.937	0.846	1.347	1.256	1.250	1.159	1.659	1.568	1.562	1.471	1.972	1.881	1.875	1.784	2.284	2.193
11/16-11	0.687	0.596	1.097	1.006	1.031	0.940	1.441	1.350	1.375	1.284	1.785	1.694	1.718	1.627	2.128	2.037	2.062	1.971	2.472	2.381
3/4-10	0.750	0.650	1.200	1.100	1.125	1.025	1.575	1.475	1.500	1.400	1.950	1.850	1.875	1.775	2.325	2.225	2.250	2.150	2.700	2.600
7/8-9	0.875	0.764	1.375	1.264	1.312	1.201	1.812	1.701	1.750	1.639	2.250	2.139	2.187	2.076	2.687	2.576	2.625	2.514	3.125	3.014
1-8	1.000	0.875	1.563	1.437	1.500	1.375	2.062	1.937	2.000	1.875	2.562	2.437	2.500	2.375	3.062	2.937	3.000	2.875	3.562	3.437
1-1/8-7	1.125	0.982	1.768	1.625	1.687	1.545	2.330	2.187	2.250	2.107	2.893	2.750	2.812	2.670	3.455	3.312	3.375	3.232	4.018	3.875
1-1/4-7	1.250	1.107	1.893	1.750	1.875	1.732	2.518	2.375	2.500	2.357	3.143	3.000	3.125	2.982	3.768	3.625	3.750	3.607	4.393	4.250
1-1/2-6	1.500	1.333	2.250	2.083	2.250	2.083	3.000	2.833	3.000	2.833	3.750	3.583	3.750	3.583	4.500	4.333	4.500	4.333	5.250	5.083

BSF

BSF SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
3/16-32	0.187	0.156	0.327	0.296	0.281	0.250	0.421	0.390	0.375	0.344	0.515	0.484	0.468	0.437	0.608	0.577	0.562	0.531	0.702	0.671
7/32-28	0.218	0.182	0.379	0.343	0.328	0.292	0.489	0.453	0.437	0.401	0.598	0.562	0.546	0.510	0.707	0.671	0.656	0.620	0.817	0.781
1/4-26	0.250	0.212	0.423	0.385	0.375	0.337	0.548	0.510	0.500	0.462	0.673	0.635	0.625	0.587	0.798	0.760	0.750	0.712	0.923	0.885
9/32-26	0.281	0.243	0.454	0.416	0.421	0.383	0.594	0.556	0.562	0.524	0.735	0.697	0.703	0.665	0.876	0.838	0.843	0.805	1.016	0.978
5/16-22	0.312	0.267	0.516	0.471	0.469	0.424	0.673	0.628	0.625	0.580	0.829	0.784	0.781	0.736	0.985	0.940	0.937	0.892	1.141	1.096
3/8-20	0.375	0.325	0.600	0.550	0.562	0.512	0.787	0.737	0.750	0.700	0.975	0.925	0.937	0.887	1.162	1.112	1.125	1.075	1.350	1.300
7/16-18	0.437	0.381	0.687	0.631	0.656	0.600	0.906	0.850	0.875	0.819	1.125	1.069	1.093	1.037	1.343	1.287	1.312	1.256	1.562	1.506
1/2-16	0.500	0.437	0.781	0.719	0.750	0.688	1.031	0.969	1.000	0.938	1.281	1.219	1.250	1.188	1.531	1.469	1.500	1.438	1.781	1.719
9/16-16	0.562	0.500	0.843	0.781	0.844	0.782	1.125	1.063	1.125	1.062	1.406	1.344	1.406	1.344	1.687	1.625	1.687	1.625	1.968	1.906
5/8-14	0.625	0.554	0.946	0.875	0.937	0.866	1.258	1.187	1.250	1.179	1.571	1.500	1.562	1.491	1.883	1.812	1.875	1.804	2.196	2.125
11/16-14	0.687	0.616	1.008	0.937	1.031	0.960	1.352	1.281	1.375	1.304	1.696	1.625	1.718	1.647	2.039	1.968	2.062	1.991	2.383	2.312
3/4-12	0.750	0.667	1.125	1.042	1.125	1.042	1.500	1.417	1.500	1.417	1.875	1.792	1.875	1.792	2.250	2.167	2.250	2.167	2.625	2.542
13/16-12	0.812	0.729	1.187	1.104	1.218	1.135	1.593	1.510	1.625	1.542	2.000	1.917	2.031	1.948	2.406	2.323	2.437	2.354	2.812	2.729
7/8-11	0.875	0.784	1.284	1.193	1.312	1.221	1.721	1.630	1.750	1.659	2.159	2.068	2.187	2.096	2.596	2.505	2.625	2.534	3.034	2.943
1-10	1.000	0.900	1.450	1.350	1.500	1.400	1.950	1.850	2.000	1.900	2.450	2.350	2.500	2.400	2.950	2.850	3.000	2.900	3.450	3.350
1-1/8-9	1.125	1.014	1.625	1.514	1.687	1.576	2.187	2.076	2.250	2.139	2.750	2.639	2.812	2.701	3.312	3.201	3.375	3.264	3.875	3.764
1-1/4-9	1.250	1.139	1.750	1.639	1.875	1.764	2.375	2.264	2.500	2.389	3.000	2.889	3.125	3.014	3.625	3.514	3.750	3.639	4.250	4.139
1-3/8-8	1.375	1.250	1.938	1.813	2.062	1.937	2.625	2.500	2.750	2.625	3.312	3.188	3.437	3.312	4.000	3.875	4.125	4.000	4.688	4.563
1-1/2-8	1.500	1.375	2.063	1.938	2.250	2.125	2.813	2.688	3.000	2.875	3.563	3.438	3.750	3.625	4.313	4.188	4.500	4.375	5.063	4.938

G (BSPF)

G(BSPF) SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
1/8-28	0.125	0.089	0.287	0.251	0.187	0.151	0.349	0.313	0.250	0.214	0.412	0.376	0.312	0.276	0.474	0.438	0.375	0.339	0.537	0.501
1/4-19	0.250	0.197	0.488	0.435	0.375	0.322	0.613	0.560	0.500	0.447	0.738	0.685	0.625	0.572	0.863	0.810	0.750	0.697	0.988	0.935
3/8-19	0.375	0.322	0.613	0.560	0.562	0.509	0.800	0.747	0.750	0.697	0.988	0.935	0.937	0.884	1.175	1.122	1.125	1.072	1.363	1.310
1/2-14	0.500	0.429	0.820	0.749	0.750	0.679	1.070	0.999	1.000	0.929	1.320	1.249	1.250	1.179	1.570	1.499	1.500	1.429	1.820	1.749
5/8-14	0.625	0.554	0.945	0.874	0.937	0.866	1.257	1.186	1.250	1.179	1.570	1.499	1.562	1.491	1.882	1.811	1.875	1.804	2.195	2.124
3/4-14	0.750	0.679	1.070	0.999	1.125	1.054	1.445	1.374	1.500	1.429	1.820	1.749	1.875	1.804	2.195	2.124	2.250	2.179	2.570	2.499
7/8-14	0.875	0.804	1.195	1.124	1.312	1.241	1.632	1.561	1.750	1.679	2.070	1.999	2.187	2.116	2.507	2.436	2.625	2.554	2.945	2.874
1-11	1.000	0.909	1.410	1.319	1.500	1.409	1.910	1.819	2.000	1.909	2.410	2.319	2.500	2.409	2.910	2.819	3.000	2.909	3.410	3.319
1-1/4-11	1.250	1.159	1.660	1.569	1.875	1.784	2.285	2.194	2.500	2.409	2.910	2.819	3.125	3.034	3.535	3.44	3.750	3.659	4.160	4.069
1-1/2-11	1.500	1.409	1.910	1.819	2.250	2.159	2.660	2.569	3.000	2.909	3.410	3.319	3.750	3.659	4.160	4.069	4.500	4.409	4.910	4.819

BA

BA SIZE	1D				1.5D				2D				2.5D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
0BA	0.236	0.197	0.413	0.374	0.354	0.315	0.531	0.492	0.472	0.433	0.649	0.610	0.591	0.552	0.768	0.729	0.709	0.670	0.886	0.847
1BA	0.209	0.174	0.368	0.333	0.313	0.278	0.472	0.437	0.417	0.382	0.576	0.541	0.522	0.487	0.681	0.646	0.626	0.591	0.785	0.750
2BA	0.185	0.153	0.329	0.297	0.278	0.246	0.422	0.390	0.370	0.338	0.514	0.482	0.463	0.431	0.607	0.575	0.555	0.523	0.699	0.667
3BA	0.161	0.132	0.291	0.262	0.242	0.213	0.372	0.343	0.323	0.294	0.453	0.424	0.404	0.375	0.534	0.505	0.484	0.455	0.614	0.585
4BA	0.142	0.116	0.259	0.233	0.213	0.187	0.330	0.304	0.283	0.257	0.400	0.374	0.354	0.328	0.471	0.445	0.425	0.399	0.542	0.516
5BA	0.126	0.103	0.230	0.207	0.189	0.166	0.293	0.270	0.252	0.229	0.356	0.333	0.315	0.292	0.419	0.396	0.378	0.355	0.482	0.459
6BA	0.110	0.089	0.204	0.183	0.165	0.144	0.259	0.238</												

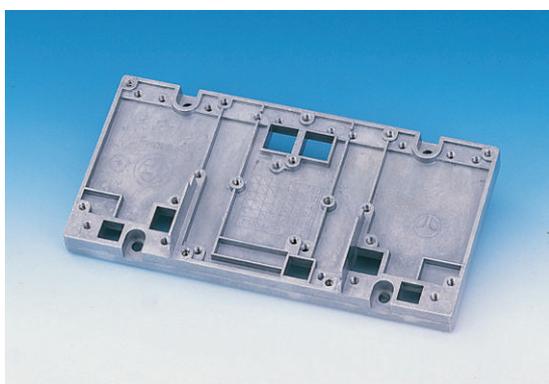
Examples of application for HELICOIL® thread inserts



Steering gear casings of aluminium

Automotive, aerospace industry

- Gear box housing of magnesium alloys
- Thread reinforcement for oil drain plugs
- Exhaust systems
- Satellite technology
- Aeroplane engines
- Repeated Assembly
- Maintenance and repair



Mounting plate for electrical components of die-cast aluminium

Electronics, sheet metal, plastic

- Lamps
- Electrical appliances
- Drill hammer



Mechanical engineering console Material: G-ASi9 Mg

Machines and plant

- Printing presses
- High-temperature areas
- Translation threads (adjusting screws)
- Repeated screwings
- Maintenance and repair



Oil drain hole of a car oil sump of aluminium. Thread reinforcement with HELICOIL®

Further examples of application

Professional Single Size Kits

METRIC

KIT SIZE	PRODUCT CODE	INSERT QTY.
M3 X 0.5	71671745643	50
M3.5 X 0.6	71671745644	50
M4 X 0.7	71671745645	50
M5 X 0.8	71671745646	50
M6 X 1.0	71671745647	50
M7 X 1.0	71671745651	50
M8 X 1.25	71671745648	50
M8 X 1.0	71671745652	50
M10 X 1.5	71671745649	25
M10 X 1.0	71671745653	25
M10 X 1.25	71671745695	25
M11 X 1.5	71671745654	25
M12 X 1.75	71671745650	25
M12 X 1.5	71671745655	25
M14 X 2.0	71671745679	25
M14 X 1.5	71671745678	25
M16 X 1.5	71671745680	12
M16 X 2.0	71671745681	12
M18 X 1.5	71671745682	12
M18 X 2.0	71671745683	12
M18 X 2.5	71671745684	12
M20 X 1.5	71671745685	12
M20 X 2.5	71671745687	12
M22 X 1.5	71671745688	12
M22 X 2.0	71671745689	12
M22 X 2.5	71671745690	12
M24 X 3.0*	71650824300	6
M24 X 2.0*	71650825100	6
M30 X 3.5*	71650824500	6

G (BSPF)

KIT SIZE	PRODUCT CODE	INSERT QTY.
1/8-28	71671745634	25
1/4-19	71671745635	25
3/8-19	71671745675	16
1/2-14	71671745676	16
5/8-14	71671745677	16
3/4-14*	71620832600	6
7/8-14*	71620832700	6
1-11*	71620832800	6
1-1/4-11*	71620832900	6

BA

KIT SIZE	PRODUCT CODE	INSERT QTY.
0BA	71671745636	50
1BA	71671745637	50
2BA	71671745638	50
3BA	71671745639	50
4BA	71671745640	50
5BA	71671745641	50
6BA	71671745642	50

BSW

KIT SIZE	PRODUCT CODE	INSERT QTY.
1/8-40	71671745627	50
3/16-24	71671745628	50
1/4-20	71671745629	50
5/16-18	71671745630	50
3/8-16	71671745631	25
7/16-14	71671745632	25
1/2-12	71671745633	25
9/16-12	71671745670	25
5/8-11	71671745671	12
11/16-11	71671745672	12
3/4-10	71671745673	12
7/8-9	71671745674	12
1-8*	71620830000	6
1-1/8-7*	71620830200	6
1-1/4-7*	71620830300	6
1-1/2-6*	71620830400	6

BSF

KIT SIZE	PRODUCT CODE	INSERT QTY.
3/16-32	71671745621	50
1/4-26	71671745622	50
5/16-22	71671745623	50
3/8-20	71671745624	25
7/16-18	71671745625	25
1/2-16	71671745626	25
9/16-16	71671745664	25
5/8-14	71671745665	12
11/16-14	71671745666	12
3/4-12	71671745667	12
13/16-12	71671745668	12
7/8-11	71671745669	12
1-10*	71620829000	6
1-1/8-9*	71620829100	6
1-1/4-9*	71620829200	6
1-3/8-8*	71620829300	6
1-1/2-8*	71620829400	6

UNC

KIT SIZE	PRODUCT CODE	INSERT QTY.
2-56	71671745600	50
4-40	71671745610	50
5-40	71671745611	50
6-32	71671745612	50
8-32	71671745613	50
10-24	71671745614	50
12-24	71671745615	50
1/4-20	71671745616	50
5/16-18	71671745617	50
3/8-16	71671745618	25
7/16-14	71671745619	25
1/2-13	71671745620	25
9/16-12	71671745660	12
5/8-11	71671745661	12
3/4-10	71671745662	12
7/8-9	71671745663	12
1-8*	71620831800	6
1-1/8-7*	71620831900	6
1-1/4-7*	71620832000	6
1-3/8-6*	71620832100	6
1-1/2-6*	71620832200	6

UNF

KIT SIZE	PRODUCT CODE	INSERT QTY.
4-48	71671745601	50
6-40	71671745602	50
8-36	71671745603	50
10-32	71671745604	50
1/4-28	71671745605	50
5/16-24	71671745606	50
3/8-24	71671745607	50
7/16-20	71671745608	50
1/2-20	71671745609	25
9/16-18	71671745656	25
5/8-18	71671745657	12
3/4-16	71671745658	12
7/8-14	71671745659	12
1-12*	71620830900	6
1-1/8-12*	71620831000	6
1-1/4-12*	71620831100	6
1-3/8-12*	71620831200	6
1-1/2-12*	71620831300	6



Professional Kit

* Not available in Plastic Case

Other repair kit options



HELICOIL® Eco-Kits

The Eco-Kit can be used in numerous situations. It is a quick and economical solution to any type of thread repair, regardless of application. HELICOIL® Eco-Kits contain all the necessary tools and inserts together with step by step instructions for use.

Kits are available in all common Metric, unified (UNF & UNC), BSF, BSW, G (BSP) thread forms as well as M10, M12 & M14 spark plug repair kits. (Leaflet available)



HELICOIL® plus thread repair kit

The flexible and engineered solution. HELICOIL® plus thread repair kits allow easy installation of a new thread in only a few steps. Kits contain all the necessary tools and three different lengths of HELICOIL® plus inserts, together with step by step instructions for use. The reduced first coil of the HELICOIL® plus insert further simplifies the repair. (see HELICOIL® plus repairing of damaged threads catalogue)



HELICOIL® plus range kit

The workshop and automotive solution. Kits include different diameters of tools and inserts e.g. M5-M12 and M6-M14. They each contain three different lengths of HELICOIL® plus inserts, HSS taps, drills, installation and tang break off tools. Available in metric, unified and traditional British thread forms. Specialist automotive kits are available for spark plug, lambda sensor, sump plug and steering joint repairs. (see HELICOIL® plus repairing of damaged threads catalogue)



HELICOIL® professional kit

The professional repair solution. If a technical component fails that requires professional repair to the highest level, the single size HELICOIL® professional kit meets the most stringent requirements. It provides full aerospace traceability and manufacturers' release certificates for the inserts.

Böllhoff International with companies in:

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China
Czech Republic
France
Germany
Hungary
India
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Japan
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HAI JU TRADING CO.,LTD.

海聚貿易有限公司

台北市中山區中山北路二段62巷36號

TEL : (02) 2511-8900

FAX : (02) 2511-8902

P.C. : 10448

E-MAIL : Hai.ju@msa.hinet.net

HTTP : www.oceanus.com.tw

BÖLLHOFF
Armstrong Limited