



HeliCoil[®] plus

Thread technology for high-strength fastenings
Simple – fast – long-lasting

BÖLLHOFF

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HELICOIL® plus thread technology

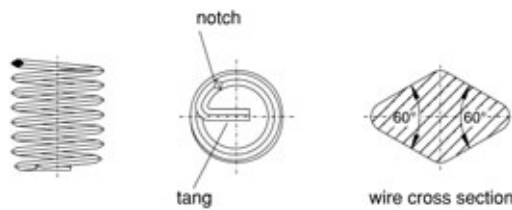
The system

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



The newest generation of this technology is called "HELICOIL® plus".

Due to the optimised shape, HELICOIL® plus is now much easier to install. This is ensured by the entry which allows to position and screw in HELICOIL® plus like a screw. The tool sleeve with leader cartridge required in the past is no longer necessary. An installation mandrel with similar dimensions as a tap is all that is required for screwing in the thread insert. However, former tools of the established shape can still be used for installation.



- R_m = tensile strength 1,400 N/mm² min.
- HV = vickers hardness 425 HV 0.2 min.
- R_z = roughness depth approx. 2.5 μ m
- μ_G = reduced thread friction, results in increased preload-force F_v
- τ_t = reduction in torsion stress in the screw shank

The technology

HELICOIL® plus thread inserts feature high wear resistance, low thread friction within small tolerances, high surface quality as well as corrosion and heat resistance.

Performance limits defined by nut thread and material strength are enhanced by the globally established HELICOIL® plus thread technology.

HELICOIL® plus thread technology

The versions

HELICOIL® plus thread inserts are available in two versions: HELICOIL® plus free running and HELICOIL® plus screwlock. Both versions have an optimal design. Like a screw, the thread insert is simply screwed in with an installation mandrel. Compared to former methods of installation, thanks to the therefore considerably enhanced program of tools that can be used for installation, installation times are reduced by up to 20 %.

■ **HELICOIL® plus free running**

Every thread of the thread insert with precision-formed, rhombic profile is free running. The result is an internal thread true to gauge that can be used on both sides.

The dimensional stability of the ISO thread complies with DIN 13 6H and for special requirements with 4H.

The green colour allows easier distinction when the HELICOIL® plus free running is installed. The colour is grip-resistant and does not affect the dimension. Our seal of quality, a rhombic imprint at the end of the last thread, unmistakably identifies each Böllhoff HELICOIL® plus free running thread insert as an original.



■ **HELICOIL® plus screwlock**

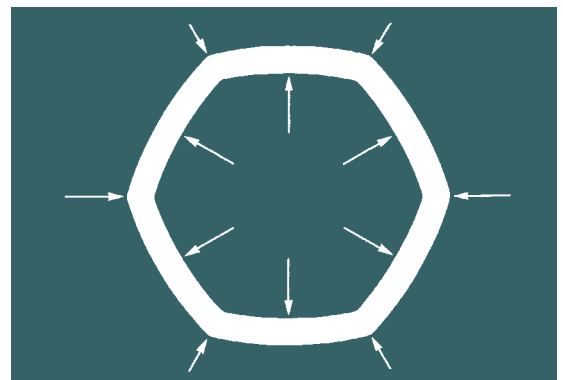
The HELICOIL®, plus screwlock bears the same benefits regarding threads as the HELICOIL® plus free running. Additionally an integrated screw clamping area serves as a screw-lock. Locking of the screw is achieved by one or several polygonal-shaped threads that clamp the flanks of the screwed-in screw.

The result is an elastically resilient frictional locking. The achieved clamping torques can be compared to the indication in DIN 267 Part 15, ISO 2320 or can also be adapted to your individual application. Guide values for clamping torques are provided in the table on page 7.



Red HELICOIL® plus screwlock thread inserts, which also bear the rhombic imprint, shall only be used with screws of a higher property class (from 8.8). Common lubricants according to the manufacturers' recommendations shall be used for highly alloyed screws.

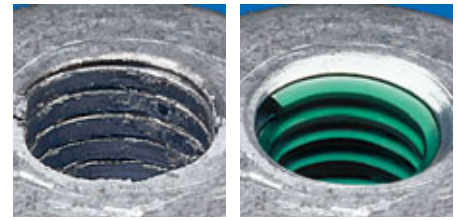
The same tightening procedures and torques as for HELICOIL® plus free running apply.



HELICOIL® plus thread technology

The applications

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



Damaged thread

Repaired thread

■ Structural component

Wherever low-strength materials (e.g. **aluminium, aluminiummagnesium alloys and fibre-reinforced plastics**) are used, HELICOIL® plus is indispensable for thread reinforcement. This applies particularly to mechanical and plant engineering, the automotive industry, electrical and medical engineering as well as to the aerospace industry. Thread reinforcement excludes wear of the nut thread – even for frequent use.

HELICOIL® plus allows **miniaturisation** and **lightweight** construction upon the development of serial parts. The required strength is ensured by thread reinforcement with HELICOIL® plus.

■ Rejects recovery and thread repair

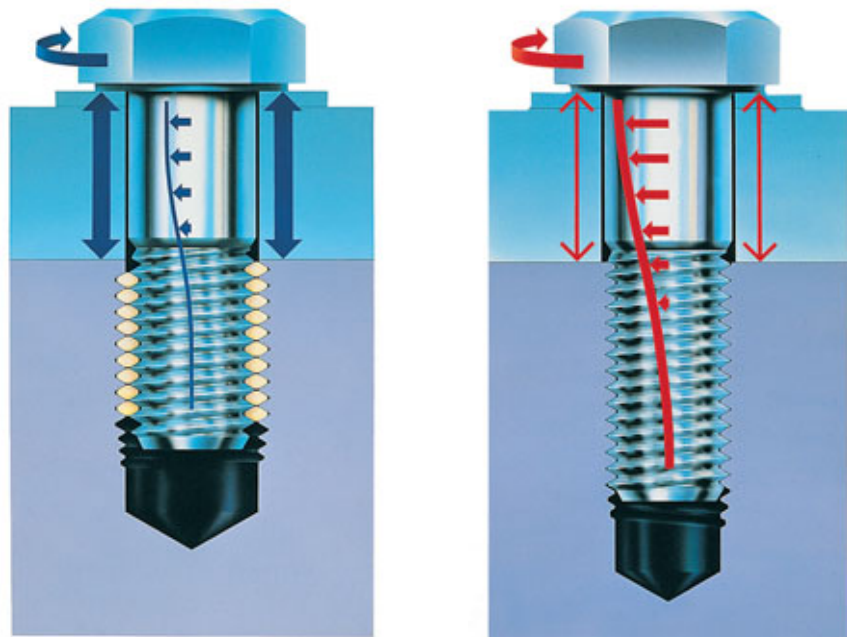
HELICOIL® plus thread inserts are internationally released for economical and permanent repair of damaged and worn out threads.

Apart from repair of valuable individual components, the possibility to return large-scale components which have been rejected due to faults upon thread production to the production process is of major importance.

The advantages

■ Wear resistance

HELICOIL® plus thread inserts are made of austenitic chrome-nickel steel (minimum tensile strength of 1,400 N/mm²). The rolled nut thread has a high surface quality. This ensures a high-strength, wear-resistant thread with an extremely small and constant thread friction torque. In case of repeated screwings and if an even tightening torque is applied,



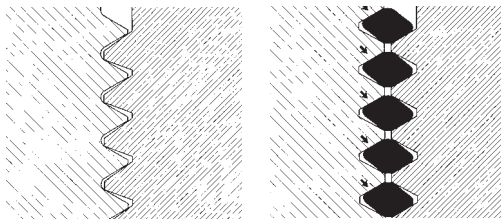
a higher and even preload-force is therefore achieved. This also leads to an improved utilisation of the yield point of high-strength screws. Torsion stress is considerably reduced: Compared to tapped threads, surface roughness of HELICOIL® plus is up to 90 percent smaller.

HELICOIL® plus thread technology

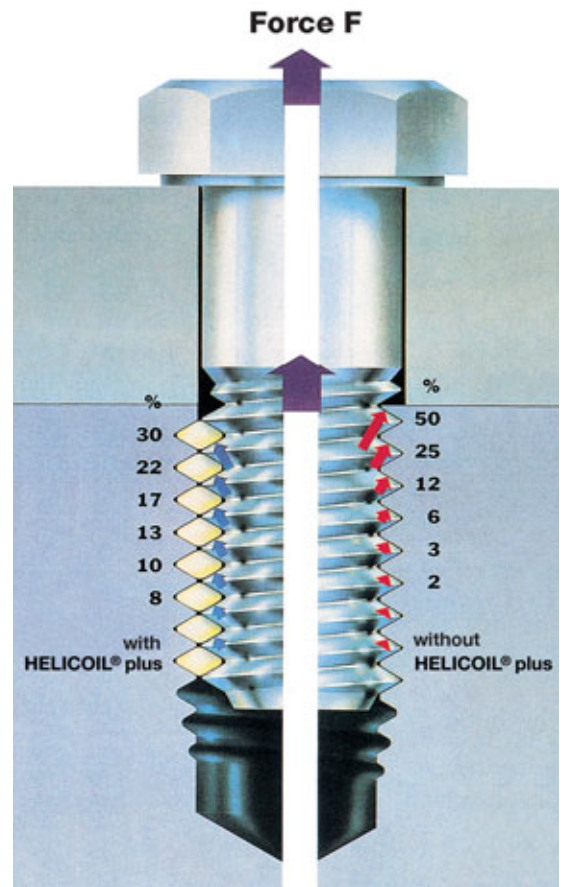
The advantages

■ **Strength**

The flexible characteristics of the HELICOIL® plus thread insert ensure even load and stress distribution and therefore optimum flank contact. Deficient pitches and angles are compensated over the entire length of the thread insert. With this, an optimum force transmission from bolt to nut thread is achieved. The quality of screwed connections is considerably increased — for static as well as for dynamic operating loads.



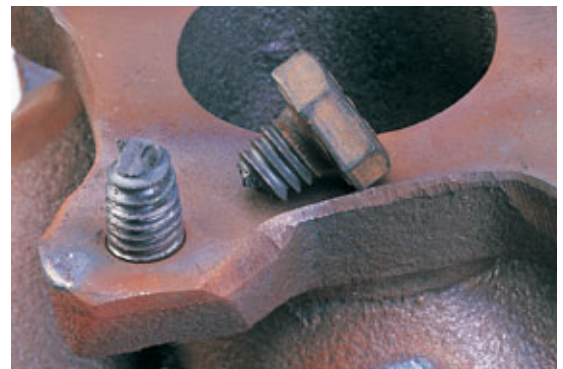
The improved distribution of preload-force increases the fatigue strength of dynamically loaded screws. This is why HELICOIL® are also suitable for high-strength holding thread materials, e.g. steel or cast iron alloys.



■ **Resistance to corrosion and thermal effects**

The basic material of HELICOIL® plus ensures that screws do not seize under normal environmental influences. For thermally highly stressed screwed connections, HELICOIL® plus thread inserts of nickel basis materials with and without coating are available. Elasticity and spring force are constant even under high temperatures.

If materials which are susceptible to corrosion, such as magnesium, are used, HELICOIL® plus is employed as a special hard-coated version of highstrength aluminium. Contact corrosion can therefore be ruled out.



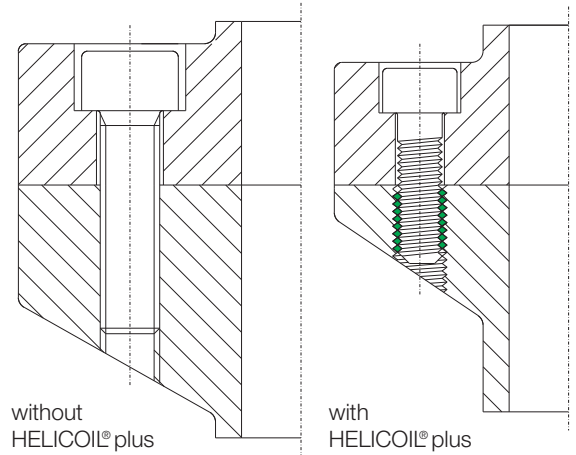
HELICOIL® plus thread technology

The advantages

■ **Freedom of design**

HELICOIL® plus thread inserts leave the engineer a relatively free choice of materials and material thicknesses. With a maximum strength thanks to thread reinforcement, HELICOIL® plus meets the current trend towards lightweight construction (e.g. of magnesium) requiring only minimum space. Due to a reduced number of joints, reduced screw dimensions, less material, reduced installation space and weight, HELICOIL® plus considerably contributes to a cost reduction for equal or higher requirements.

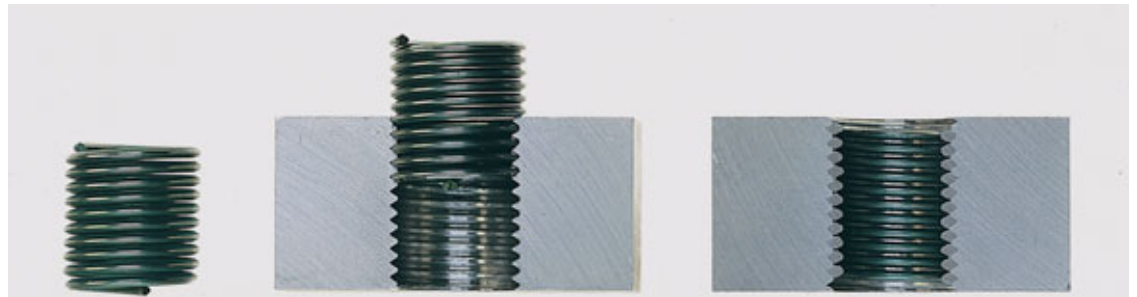
- shorter lengths of thread engagement
- small screw, higher property class



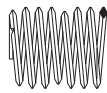
■ **Tight fit**

The outside diameter of the HELICOIL® plus thread insert in not installed state is by a defined measure larger than the holding thread. Combined with the high spring force of the material, this difference in dimension results in radial expansion and therefore in the tight and clearance-free fit in the nut thread.

Additional locking elements or adhesive – as common for fixed bushings – are not required anymore. If you use an impact wrench, please contact our technical consultant.



Screw locking with HELICOIL® plus screwlock



Thread technology and the polygonal-shaped thread of HELICOIL® plus screwlock ensure a high degree of frictional locking and thus locking of the screw against self-unscrewing. Additional locking of the joint with split pins, wires or washers is not necessary. This reduces costs and allows easier installation.

Guide values for clamping torques according to DIN 267 Part 15 or ISO 2320
valid for coarse threads and fine threads
values in Nm for property classes 8

Threads	M 3	M 4	M 5	M 6	M 8	M 10	M 12	M 14	M 16	M 18	M 20
1st screwing-on, max.	0.43	0.90	1.60	3.00	6.00	10.5	15.5	24.0	32.0	42.0	54.0
1st screwing-off, min.	0.12	0.18	0.29	0.45	0.85	1.5	2.3	3.3	4.5	6.0	7.5
5th screwing-off, min.	0.08	0.12	0.20	0.30	0.60	1.0	1.6	2.3	3.0	4.2	5.3

Clamping torques for other metric threads on request.

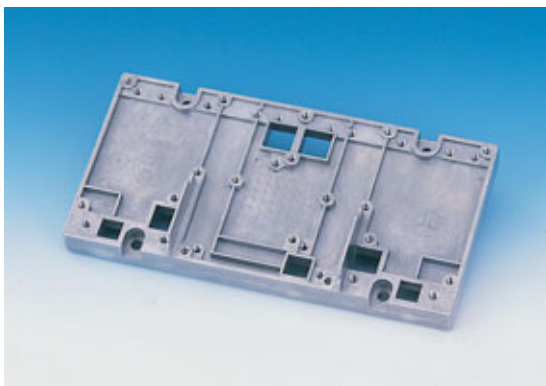
Examples of application for HELICOIL® plus thread inserts



Automotive, aerospace industry

Steering gear casings
of aluminium
HELICOIL® plus
M 14 x 1.5 x 14
free running

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



Electronics, sheet metal, plastic

Mounting plate for electrical
components of die-cast
aluminium

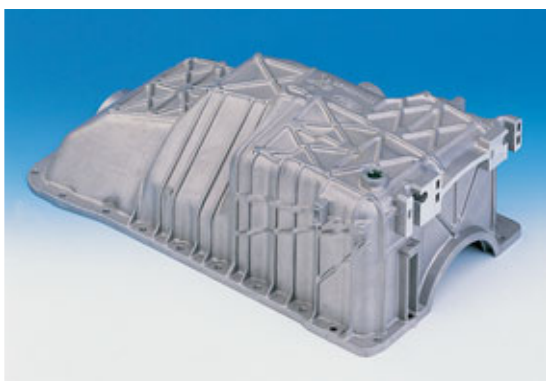
- Lamps
- Electrical appliances
- Drill hammer



Machines and plants

Mechanical engineering
console
Material: G-AIS9 Mg
HELICOIL® plus
M 8 x 12 free running

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



Further examples of application

Oil drain hole of a car oil sump
of aluminium.
Thread reinforcement with
HELICOIL® plus
M 14 x 1.5 x 14 free running

Further examples of application for HELICOIL® plus thread inserts



Cover of a car gear box of cast aluminium HELICOIL® plus M 6 x 6 free running



Fitting of car roof rails
Cast aluminium with HELICOIL® plus M 6 x 6 screwlock



Housing of aluminium casting alloy.
Flange with HELICOIL® plus M 5 x 10 screwlock



Gear box housing of an angle grinder of aluminium
HELICOIL® plus M 10 x 15 screwlock
HELICOIL® plus M 6 x 12 free running



Engine support for garden chipper of aluminium.
Screw locking device with HELICOIL® plus screwlock M 8 x 12



Housing for electrical components of aluminium
HELICOIL® plus screwlock



Crossing protection of flush-mounted lamp.
Material: cast aluminium
HELICOIL® plus M 8 x 12 free running



Nuts in high-temperature applications with HELICOIL® insert of INCONEL – silvered and nuts with HELICOIL® screwlock as the locking device

HELICOIL® plus 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	low temp. -196°C short-term 425°C long-term 315°C	1400 N/mm ²	– without – waxed – dry lubricating film – cadmium-plated – silvered	Standard applications for all property classes and materials ^③	general lightweight e.g. of aluminium or magnesium alloys ^④
Stainless steel A 4 X6 CrNiMoTi 17 12 2 ^④ Material No 1.4571	low temp. -196°C short-term 425°C long-term 315°C	1400 N/mm ²		– increased corrosion protection – highly alloyed CrNi steel screws ^③ – low thread friction	general lightweight construction sea water / chlorine-containing water
Bronze CuSN 6 Material No 2.1020.34	short-term 300°C long-term 250°C	900 N/mm ²	– without – cadmium-plated	– Cu workpieces – translation threads – CrNi screws	
Inconel X 750 NiCr 15 Fe 7 TiAl ^① Material No 2.4669	short-term 750°C long-term 550°C	1150 N/mm ²	– without – silvered	– thermal load in combination with corrosion protection	– aerospace technology – aeroplane engines – turbocharger
Nimonic 90 NiCr 20 Co 18 Ti Material No 2.4632	short-term 900°C long-term 600°C				
Aluminium AlZnMgCu 1,5 ^② Material No 3.4365	short-term 170°C long-term 150°C	500 N/mm ²	– hard-coated – dry lubricating film	– magnesium workpieces	– vehicle technol. – lightweight construction

^① Other materials and surfaces on request
^② If magnesium alloys are used outdoors, special measures are recommended for corrosion protection
^③ If CrNi screws are used, a suitable coating or common lubricant is recommended
^④ Delivery on request

Notes: Data only apply to uncoloured HELICOIL® plus.
 Up to M 5, the applied colour is temperature-resistant from -18 °C to 200 °C.
 From M 6, the applied colour is temperature-resistant from -5°C to -120 °C (+150 °C short-term).

Thread types

Threads	HELICOIL® plus free running		HELICOIL® plus screwlock		Page
	Nominal diameter	Nominal length	Nominal diameter	Nominal length	
Metric ISO thread Coarse thread	M 2 to M 68	0.5 d to 3 d	M 2 to M 39	0.75 d to 3 d ^⑤	12-17
Metric ISO thread Fine thread	M 8 x 1 to M 160 x 6	0.5 d to 3 d	M 8 x 1 to M 64 x 4	0.75 d to 3 d	
Pipe thread ISO 228/1 British Standard Pipe Thread = BSP	G 1/8" to G 1 1/2"	1 d to 2,5 d	–	–	see cat. 0101
UNIFIED or American National Coarse Thread Series = UNC/NC	2-56 to 1 1/2"-6	1 d to 2.5 d	2-56 to 3/4"-16	1 d to 2.5 d	
UNIFIED or American National Fine Thread Series = UNF/NF	3-56 to 1 1/2"-12	1 d to 2.5 d	3-56 to 3/4"-16	1 d to 2.5 d	
British Standard Whitworth Coarse Thread Series = BSW	1/8" to 1 1/2"	1 d to 2.5 d	5/16" to 3/4"	1 d to 3 d	
British Standard Fine Thread Series = BSF	3/16" to 1 1/2"	1 d to 2.5 d	3/16" to 3/4"	1 d to 2.5 d	
British Association Standard Thread = BA	OBA to 6BA	1 d to 2.5 d	OBA 2BA 4BA 6BA	1 d to 2.5 d	

^⑤ Not possible for M 2 and M 2.5.

HELICOIL® plus thread inserts comply with many requirements and standards of industry and aerospace industry. Among these are: DIN 8140, DIN 65536, LN 9039, LN 9499. Further standards (e.g. MS or EN standards) on request.

Determination of nominal length

Guide values to determine minimum length of the HELICOIL® plus thread insert depending on mounting material and screw property class, valid for temperature of 20 °C

Strength of mounting material Tensile strength R_m (N/mm ²)	Screw property class									
	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	

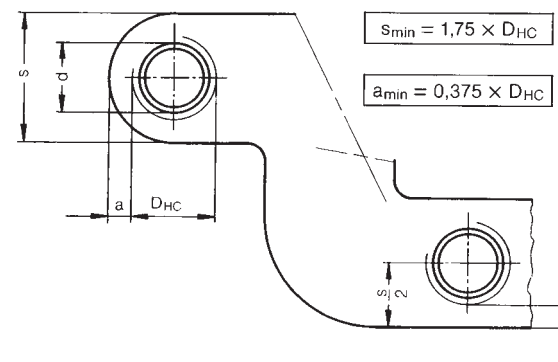
The table of values to determine the minimum lengths applies to aluminium as well as to materials with a ratio of $\frac{\text{shear stress}}{\text{tensile stress}} = 0.6$ to 0.7 .
Some iron casting alloys have a ratio of $\frac{\text{shear stress}}{\text{tensile stress}} = 0.8$ to 1.4 . (Source VDI 2230)

For these guide values, the screw is the weaker joint member.
Lengths can be shorter than the recommended nominal lengths if tests confirm this.
Intermediate lengths are also available.
Temperature limits for validity: aluminium alloys $T_{max} = 300^\circ\text{C}$, magnesium alloys $T_{max} = 100^\circ\text{C}$.
For the design of screwed connections under thermal stress, the changes of temperature-dependent material parameters must be taken into account.

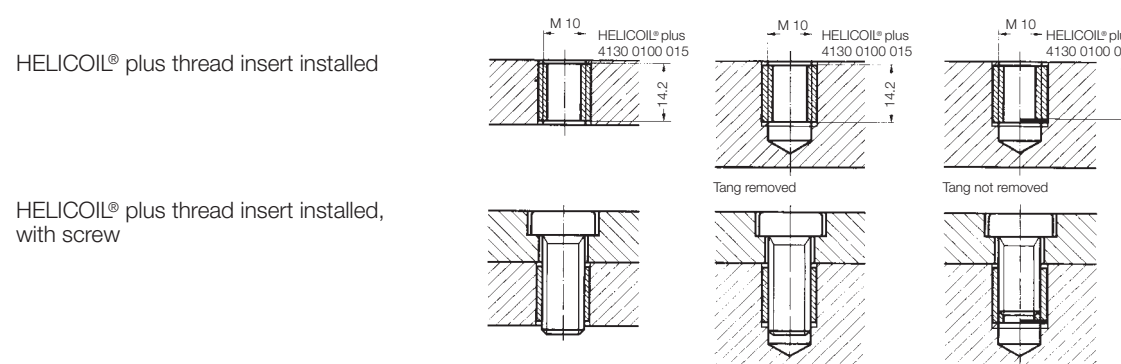
Minimum wall thickness

The minimum wall thickness mainly depends on individual operating data. These define material strength and length of thread engagement. The indicated guide value formulas apply to aluminium, cast and wrought alloys and a length of thread engagement of the HELICOIL® plus of $1.5 d$.

- d = nominal diameter
- D_{HC} = outside diameter of the holding thread
- a = residual wall thickness

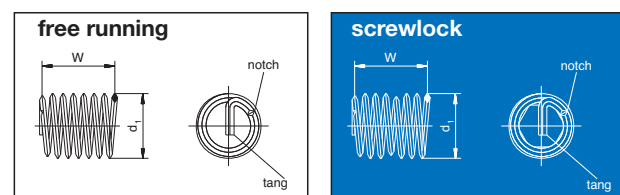


Diagrammatic representation with the example of M 10 x 15:



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please open this page.

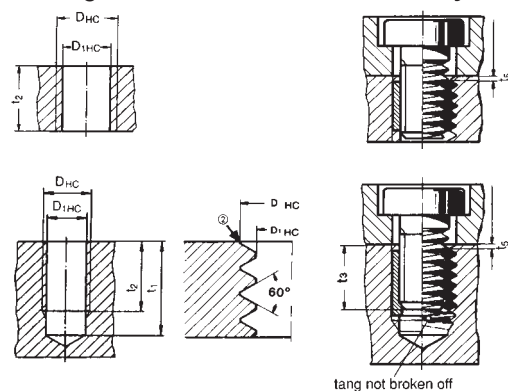
HELICOIL® plus thread inserts



The control values of not installed thread inserts free running and screwlock are W and d₁. This length can only be measured for installed thread inserts.

Holding thread

Assembly



- d = nominal thread diameter
- P = thread pitch
- d₁ = outside diameter of thread insert prior to installation
- W = number of threads prior to installation
- D_{HC} = outside diameter of holding thread
- D_{1HC} = crest diameter
- B = Suitable twist drill diameter. Please note: D_{1HC} is decisive for selecting the correct twist drill diameter.
- t₁ = minimum depth of tap hole according to DIN 76 – Part 1 (guide value)
- t₂ = The nominal length of the thread insert corresponds to the minimum length of the full holding thread for blind holes or to the minimum plate thickness for a through hole.
- t₃ = maximum screw-in depth for not broken off tang
- t₅ = distance of the thread insert to the joint face = 0.25 to 0.5 P, if t₂ corresponds to the above-mentioned minimum value

② Prior to tapping, counter-bore 90° and deburr. Outside diameter of upset part = D_{HC} + 0.1 mm.

■ When HELICOIL® plus thread inserts are used in series production, we recommend to add at least 1 x P to values t₁ and t₂.

① Materials or surfaces are to be indicated with the 5th digit of the Order no:

Beispiel:

↓ 4130 002 0005

- 0 = stainless steel A2, X 5 CrNi 18 10
 - 1 = bronze, CuSn 6
 - 2 = Nimonic 90, NiCr 20 Co 18 Ti, silvered*
 - 3 = stainless steel A4, X 6 CrNiMoTi 17 12 2
 - 4 = Inconel X 750, NiCr 15 Fe 7 TiAl, silvered*
 - 5 = Inconel X 750, NiCr 15 Fe 7 TiAl, bright
 - 6 = stainless steel A2, X 5 CrNi 18 10, cadmium-plated
 - 7 = stainless steel A2, X 5 CrNi 18 10, magazined**
 - 8 = bronze, CuSn 6, magazined**
- Other materials on request.

* Use special tools.

** See page 18.

All measures in mm. Technical modifications reserved.

HELICOIL® plus thread inserts

d	P	t ₂ min.*		W	d ₁ min. max.	D _{1HC} min. max.	B	t ₃ max.	D _{HC} min.	free running	screwlock
		x d	mm							Order No ^①	Order No ^①
M 2	0.40	1 d	2.0	2.9	2.6 2.8	2.09 2.18	2.1	1.8 2.8 3.8 4.8 5.8	2.52	4130 002 0002	on request
		1.5 d	3.0	4.9						4130 002 0003	
		2 d	4.0	6.9						4130 002 0004	
		2.5 d	5.0	8.9						4130 002 0005	
		3 d	6.0	10.9					4130 002 0006		
M 2.5	0.45	1 d	2.5	3.5	3.3 3.5	2.60 2.70	2.6	2.3 3.5 4.8 6.0 7.3	3.08	4130 025 0025	4132 025 0025
		1.5 d	3.75	5.9						4130 025 0375	4132 025 0375
		2 d	5.0	8.1						4130 025 0005	4132 025 0005
		2.5 d	6.25	10.5						4130 025 0625	4132 025 0625
		3 d	7.5	12.9					4130 025 0075	4132 025 0075	
M 3	0.5	1 d	3.0	3.9	3.8 4.0	3.11 3.22	3.2	2.7 4.2 5.7 7.2 8.7	3.65	4130 003 0003	4132 003 0003
		1.5 d	4.5	6.3						4130 003 0045	4132 003 0045
		2 d	6.0	8.7						4130 003 0006	4132 003 0006
		2.5 d	7.5	11.1						4130 003 0075	4132 003 0075
		3 d	9.0	13.5					4130 003 0009	4132 003 0009	
M 3.5	0.6	1 d	3.5	3.7	4.42 4.60	3.63 3.76	3.7	3.2 5.0 6.7 8.5 10.2	4.28	4130 035 0035	4132 035 0035
		1.5 d	5.25	6.3						4130 035 0053	4132 035 0053
		2 d	7.0	8.7						4130 035 0007	4132 035 0007
		2.5 d	8.75	11.2						4130 035 0875	4132 035 0875
		3 d	10.5	13.3					4130 035 0105	4132 035 0105	
M 4	0.7	1 d	4.0	3.7	5.05 5.25	4.15 4.29	4.2	3.6 5.6 7.6 9.6 11.6	4.91	4130 004 0004	4132 004 0004
		1.5 d	6.0	6.1						4130 004 0006	4132 004 0006
		2 d	8.0	8.4						4130 004 0008	4132 004 0008
		2.5 d	10.0	10.9						4130 004 0010	4132 004 0010
		3 d	12.0	13.2					4130 004 0012	4132 004 0012	
M 5	0.8	1 d	5.0	4.3	6.35 6.6	5.17 5.33	5.2	4.6 7.1 9.6 12.1 14.6	6.04	4130 005 0005	4132 005 0005
		1.5 d	7.5	6.9						4130 005 0075	4132 005 0075
		2 d	10.0	9.7						4130 005 0010	4132 005 0010
		2.5 d	12.5	12.3						4130 005 0125	4132 005 0125
		3 d	15.0	14.8					4130 005 0015	4132 005 0015	
M 6	1.0	1 d	6.0	4.2	7.6 7.85	6.22 6.41	6.3	5.5 8.5 11.5 14.5 17.5	7.30	4130 006 0006	4132 006 0006
		1.5 d	9.0	6.9						4130 006 0009	4132 006 0009
		2 d	12.0	9.6						4130 006 0012	4132 006 0012
		2.5 d	15.0	12.3						4130 006 0015	4132 006 0015
		3 d	18.0	14.6					4130 006 0018	4132 006 0018	
M 7	1.0	1 d	7.0	5.3	8.65 8.9	7.22 7.41	7.3	6.5 10.0 13.5 17.0 20.5	8.30	4130 007 0007	4132 007 0007
		1.5 d	10.5	8.2						4130 007 0105	4132 007 0105
		2 d	14.0	11.1						4130 007 0014	4132 007 0014
		2.5 d	17.5	14.3						4130 007 0175	4132 007 0175
		3 d	21.0	17.4					4130 007 0021	4132 007 0021	
M 8	1.25	1 d	8.0	4.7	9.85 10.1	8.27 8.48	8.4	7.4 11.4 15.4 19.4 23.4	9.62	4130 008 0008	4132 008 0008
		1.5 d	12.0	7.4						4130 008 0012	4132 008 0012
		2 d	16.0	10.6						4130 008 0016	4132 008 0016
		2.5 d	20.0	13.5						4130 008 0020	4132 008 0020
		3 d	24.0	16.4					4130 008 0024	4132 008 0024	
M 8 x 1	1.0	1 d	8.0	6.1	9.85 10.1	8.22 8.41	8.3	7.5 11.5 15.5 19.5 23.5	9.30	4130 008 3008	4132 008 3008
		1.5 d	12.0	9.5						4130 008 3012	4132 008 3012
		2 d	16.0	12.9						4130 008 3016	4132 008 3016
		2.5 d	20.0	16.5						4130 008 3020	4132 008 3020
		3 d	24.0	19.9					4130 008 3024	4132 008 3024	

* Intermediate lengths also available.

① See flap page 11b.

HELICOIL® plus thread inserts

d	P	t ₂ min.*		W	d ₁ min. max.	D _{1HC} min. max.	B	t ₃ max.	D _{HC} min.	free running Order No [®]	screwlock Order No [®]
		x d	mm								
M 9	1.25	1 d	9.0	5.3	10.85 11.1	9.27 9.48	9.4	8.4	10.62	4130 009 0009	on request
		1.5 d	13.5	8.6				12.9		4130 009 0135	
		2 d	18.0	11.9				17.4		4130 009 0018	
		2.5 d	22.5	15.3				21.9		4130 009 0225	
		3 d	27.0	18.1				26.4		4130 009 0027	
M 10	1.5	1 d	10.0	5.0	12.1 12.5	10.32 10.56	10.50	9.2	11.95	4130 010 0010	4132 010 0010
		1.5 d	15.0	8.1				14.2		4130 010 0015	4132 010 0015
		2 d	20.0	11.2				19.2		4130 010 0020	4132 010 0020
		2.5 d	25.0	14.2				24.2		4130 010 0025	4132 010 0025
		3 d	30.0	17.2				29.2		4130 010 0030	4132 010 0030
M 10 x 1	1.0	1 d	10.0	7.6	12.1 12.5	10.22 10.41	10.25	9.5	11.30	4130 010 3010	4132 010 3010
		1.5 d	15.0	12.1				14.5		4130 010 3015	4132 010 3015
		2 d	20.0	16.3				19.5		4130 010 3020	4132 010 3020
		2.5 d	25.0	20.7				24.5		4130 010 3025	4132 010 3025
		3 d	30.0	25.0				29.5		4130 010 3030	4132 010 3030
M 10 x 1.25	1.25	1 d	10.0	6.0	12.1 12.5	10.27 10.48	10.40	9.4	11.62	4130 010 9010	4132 010 9010
		1.5 d	15.0	9.7				14.4		4130 010 9015	4132 010 9015
		2 d	20.0	13.1				19.4		4130 010 9020	4132 010 9020
		2.5 d	25.0	16.9				24.4		4130 010 9025	4132 010 9025
		3 d	30.0	20.1				29.4		4130 010 9030	4132 010 9030
M 11	1.5	1 d	11.0	5.6	13.1 13.5	11.33 11.56	11.50	10.2	12.95	4130 011 0011	on request
		1.5 d	16.5	9.0				15.7		4130 011 0165	
		2 d	22.0	12.3				21.2		4130 011 0022	
		2.5 d	27.5	15.7				26.7		4130 011 0275	
		3 d	33.0	19.1				32.2		4130 011 0033	
M 12	1.75	1 d	12.0	5.2	14.4 14.8	12.38 12.64	12.50	11.1	14.27	4130 012 0012	4132 012 0012
		1.5 d	18.0	8.4				17.1		4130 012 0018	4132 012 0018
		2 d	24.0	11.7				23.1		4130 012 0024	4132 012 0024
		2.5 d	30.0	14.7				29.1		4130 012 0030	4132 012 0030
		3 d	36.0	18.0				35.1		4130 012 0036	4132 012 0036
M 12 x 1	1.0	1 d	12.0	9.3	14.4 14.8	12.22 12.41	12.25	11.5	13.30	4130 012 3012	on request
		1.5 d	18.0	14.5				17.5		4130 012 3018	
		2 d	24.0	19.5				23.5		4130 012 3024	
		2.5 d	30.0	24.8				29.5		4130 012 3030	
		3 d	36.0	30.0				35.5		4130 012 3036	
M 12 x 1.25	1.25	1 d	12.0	7.4	14.4 14.8	12.27 12.48	12.25	11.4	13.62	4130 012 9012	4132 012 9012
		1.5 d	18.0	11.6				17.4		4130 012 9018	4132 012 9018
		2 d	24.0	15.9				23.4		4130 012 9024	4132 012 9024
		2.5 d	30.0	20.0				29.4		4130 012 9030	4132 012 9030
		3 d	36.0	24.3				35.4		4130 012 9036	4132 012 9036
M 12 x 1.5	1.5	1 d	12.0	6.2	14.4 14.8	12.32 12.56	12.50	11.2	13.95	4130 012 4012	4132 012 4012
		1.5 d	18.0	9.8				17.2		4130 012 4018	4132 012 4018
		2 d	24.0	13.5				23.2		4130 012 4024	4132 012 4024
		2.5 d	30.0	17.1				29.2		4130 012 4030	4132 012 4030
		3 d	36.0	20.8				35.2		4130 012 4036	4132 012 4036

* Intermediate lengths also available.

© See flap page 11b.

HELICOIL® plus thread inserts

d	P	t ₂ min.*		W	d ₁ min. max.	D _{1HC} min. max.	B	t ₃ max.	D _{HC} min.	free running Order No [®]	screwlock Order No [®]
		x d	mm								
M 14	2.0	1 d	14.0	5.6	16.8 17.2	14.43 14.73	14.50	13.0	16.60	4130 014 0014	4132 014 0014
		1.5 d	21.0	8.8				20.0		4130 014 0021	4132 014 0021
		2 d	28.0	12.0				27.0		4130 014 0028	4132 014 0028
		2.5 d	35.0	15.2				34.0		4130 014 0035	4132 014 0035
M 14 x 1	1.0	1 d	14.0	11.2	16.8 17.2	14.22 14.41	14.25	13.5	15.30	4130 014 3014	on request
		1.5 d	21.0	17.2				20.5		4130 014 3021	
		2 d	28.0	23.2				27.5		4130 014 3028	
		2.5 d	35.0	29.2				34.5		4130 014 3035	
M 14 x 1.25	1.25	spark plug thread	8.4	4.6	16.8 17.2	14.27 14.48	14.25	7.8	15.62	4130 014 9084	on request
			12.4	7.4				11.8		4130 014 9124	
			14.4	9.1				13.8		4130 014 9144	
			16.4	10.2				15.8		4130 014 9164	
M 14 x 1.5	1.5	1 d	14.0	7.4	16.8 17.2	14.38 14.56	14.50	13.2	15.95	4130 014 4014	4132 014 4014
		1.5 d	21.0	11.6				20.2		4130 014 4021	4132 014 4021
		2 d	28.0	15.7				27.2		4130 014 4028	4132 014 4028
		2.5 d	35.0	19.9				34.2		4130 014 4035	4132 014 4035
M 16	2.0	1 d	16.0	6.5	19.0 19.4	16.43 16.73	16.50	15.0	18.60	4130 016 0016	4132 016 0016
		1.5 d	24.0	10.1				23.0		4130 016 0024	4132 016 0024
		2 d	32.0	13.8				31.0		4130 016 0032	4132 016 0032
		2.5 d	40.0	17.5				39.0		4130 016 0040	4132 016 0040
M 16 x 1.5	1.5	1 d	16.0	8.7	19.0 19.4	16.32 16.56	16.50	15.2	17.95	4130 016 4016	4132 016 4016
		1.5 d	24.0	13.4				23.2		4130 016 4024	4132 016 4024
		2 d	32.0	18.1				31.2		4130 016 4032	4132 016 4032
		2.5 d	40.0	22.9				39.2		4130 016 4040	4132 016 4040
M 18	2.5	0.5 d	9.0	2.3	21.5 22.0	18.54 18.90	18.75	7.7	21.25	4130 018 0009	4132 018 0009
		0.75 d	13.5	3.8				12.2		4130 018 0135	4132 018 0135
		1 d	18.0	5.6				16.7		4130 018 0018	4132 018 0018
		1.5 d	27.0	9.0				25.7		4130 018 0027	4132 018 0027
		2 d	36.0	12.3				34.7		4130 018 0036	4132 018 0036
M 18 x 1.5	1.5	0.5 d	9.0	4.2	21.5 22.0	18.32 18.56	18.50	8.2	19.95	4130 018 4009	4132 018 4009
		0.75 d	13.5	7.0				12.7		4130 018 4135	4132 018 4135
		1 d	18.0	9.5				17.2		4130 018 4018	4132 018 4018
		1.5 d	27.0	14.9				26.2		4130 018 4027	4132 018 4027
		2 d	36.0	20.2				35.2		4130 018 4036	4132 018 4036
M 18 x 2	2.0	0.5 d	9.0	3.1	21.5 22.0	18.43 18.72	18.50	8.0	20.60	4130 018 5009	4132 018 5009
		0.75 d	13.5	5.1				12.5		4130 018 5135	4132 018 5135
		1 d	18.0	7.1				17.0		4130 018 5018	4132 018 5018
		1.5 d	27.0	11.2				26.0		4130 018 5027	4132 018 5027
		2 d	36.0	15.1				35.0		4130 018 5036	4132 018 5036

* Intermediate lengths also available.

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HELICOIL® plus thread inserts

d	P	t ₂ min.*		W	d ₁ min. max.	D _{1HC} min. max.	B	t ₃ max.	D _{HC} min.	free running Order No [®]	screwlock Order No [®]
		x d	mm								
M 20	2.5	0.5 d	10.0	2.7	23.7 24.2	20.54 20.90	20.75	8.7	23.25	4130 020 0010	4132 020 0010
		0.75 d	15.0	4.5				13.7		4130 020 0015	4132 020 0015
		1 d	20.0	6.3				18.7		4130 020 0020	4132 020 0020
		1.5 d	30.0	10.0				28.7		4130 020 0030	4132 020 0030
		2 d	40.0	13.7				38.7		4130 020 0040	4132 020 0040
M 20 x 1.5	1.5	0.5 d	10.0	4.9	23.7 24.2	20.32 20.56	20.50	9.2	21.95	4130 020 4010	4132 020 4010
		0.75 d	15.0	7.9				14.2		4130 020 4015	4132 020 4015
		1 d	20.0	10.7				19.2		4130 020 4020	4132 020 4020
		1.5 d	30.0	16.7				29.2		4130 020 4030	4132 020 4030
		2 d	40.0	22.4				39.2		4130 020 4040	4132 020 4040
M 20 x 2	2.0	0.5 d	10.0	3.5	23.7 24.2	20.43 20.73	20.50	9.0	22.60	4130 020 5010	4132 020 5010
		0.75 d	15.0	5.8				14.0		4130 020 5015	4132 020 5015
		1 d	20.0	8.0				19.0		4130 020 5020	4132 020 5020
		1.5 d	30.0	12.5				29.0		4130 020 5030	4132 020 5030
		2 d	40.0	16.8				39.0		4130 020 5040	4132 020 5040
M 22	2.5	0.5 d	11.0	3.0	26.3 26.8	22.54 22.90	22.75	9.7	25.25	4130 022 0011	4132 022 0011
		0.75 d	16.5	5.0				15.2		4130 022 0165	4132 022 0165
		1 d	22.0	6.9				20.7		4130 022 0022	4132 022 0022
		1.5 d	33.0	10.9				31.7		4130 022 0033	4132 022 0033
		2 d	44.0	15.0				42.7		4130 022 0044	4132 022 0044
M 22 x 1.5	1.5	0.5 d	11.0	5.5	26.3 26.8	22.32 22.56	22.50	10.2	23.95	4130 022 4011	on request
		0.75 d	16.5	8.6				15.7		4130 022 4165	
		1 d	22.0	11.7				21.2		4130 022 4022	
		1.5 d	33.0	18.1				32.2		4130 022 4033	
		2 d	44.0	24.5				43.2		4130 022 4044	
M 22 x 2	2.0	0.5 d	11.0	3.9	26.3 26.8	22.43 22.73	22.50	10.0	24.60	4130 022 5011	4132 022 5011
		0.75 d	16.5	6.4				15.5		4130 022 5165	4132 022 5165
		1 d	22.0	8.7				21.0		4130 022 5022	4132 022 5022
		1.5 d	33.0	13.6				32.0		4130 022 5033	4132 022 5033
		2 d	44.0	18.4				43.0		4130 022 5044	4132 022 5044
M 24	3.0	0.5 d	12.0	2.6	28.6 29.1	24.65 25.05	24.75	10.5	27.90	4130 024 0012	4132 024 0012
		0.75 d	18.0	4.5				16.5		4130 024 0018	4132 024 0018
		1 d	24.0	6.2				22.5		4130 024 0024	4132 024 0024
		1.5 d	36.0	10.0				34.5		4130 024 0036	4132 024 0036
		2 d	48.0	14.0				46.5		4130 024 0048	on request
M 24 x 1.5	1.5	0.5 d	12.0	6.0	28.6 29.1	24.33 24.56	24.50	11.2	25.95	4130 024 4012	on request
		0.75 d	18.0	9.5				17.2		4130 024 4018	
		1 d	24.0	12.9				23.2		4130 024 4024	
		1.5 d	36.0	19.8				35.2		4130 024 4036	
		2 d	48.0	26.7				47.2		4130 024 4048	
M 24 x 2	2.0	0.5 d	12.0	4.3	28.6 29.1	24.43 24.73	24.50	11.0	26.60	4130 024 5012	4132 024 5012
		0.75 d	18.0	7.0				17.0		4130 024 5018	4132 024 5018
		1 d	24.0	9.6				23.0		4130 024 5024	4132 024 5024
		1.5 d	36.0	15.0				35.0		4130 024 5036	4132 024 5036
		2 d	48.0	20.2				47.0		4130 024 5048	4132 024 5048

* Intermediate lengths also available.

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HELICOIL® plus thread inserts

d	P	t ₂ min.*		W	d ₁ min. max.	D _{1HC} min. max.	B	t ₃ max.	D _{HC} min.	free running Order No [®]	screwlock Order No [®]
		x d	mm								
M 26 x 1.5	1.5	0.5 d	13.0	6.5	31.0 31.5	26.33 26.56	26.50	12.2	27.95	4130 026 4013	on request
		0.75 d	19.5	10.3				18.7		4130 026 4195	
		1 d	26.0	14.0				25.2		4130 026 4026	
		1.5 d	39.0	21.6				38.2		4130 026 4039	
		2 d	52.0	29.1				51.2		4130 026 4052	
M 27	3.0	0.5 d	13.5	3.2	32.2 32.7	27.65 28.05	27.75	12.0	30.90	4130 027 0135	4132 027 0135
		0.75 d	20.3	5.0				18.8		4130 027 0203	4132 027 0203
		1 d	27.0	7.1				25.5		4130 027 0027	4132 027 0027
		1.5 d	40.5	11.4				39.0		4130 027 0405	4132 027 0405
		2 d	54.0	15.4				52.5		4130 027 0054	4132 027 0054
M 27 x 1.5	1.5	0.5 d	13.5	6.7	32.2 32.7	27.33 27.56	27.50	12.7	28.95	4130 027 4135	on request
		0.75 d	20.3	10.7				19.5		4130 027 4203	
		1 d	27.0	14.6				26.2		4130 027 4027	
		1.5 d	40.5	22.6				39.7		4130 027 4405	
		2 d	54.0	30.0				53.2		4130 027 4054	
M 27 x 2	2.0	0.5 d	13.5	5.1	32.2 32.7	27.43 27.73	27.50	12.5	29.60	4130 027 5135	on request
		0.75 d	20.3	7.9				19.3		4130 027 5203	
		1 d	27.0	10.8				26.0		4130 027 5027	
		1.5 d	40.5	16.8				39.5		4130 027 5405	
		2 d	54.0	22.6				53.0		4130 027 5054	
M 28 x 1.5	1.5	0.5 d	14.0	7.1	33.1 33.6	28.33 28.56	28.50	13.2	29.95	4130 028 4014	on request
		0.75 d	21.0	11.1				20.2		4130 028 4021	
		1 d	28.0	15.2				27.2		4130 028 4028	
		1.5 d	42.0	23.3				41.2		4130 028 4042	
		2 d	56.0	31.4				55.2		4130 028 4056	
M 30	3.5	0.5 d	15.0	3.0	35.2 35.7	30.76 31.21	31.00	13.2	34.55	4130 030 0015	4132 030 0015
		0.75 d	22.5	4.9				20.7		4130 030 0225	4132 030 0225
		1 d	30.0	7.0				28.2		4130 030 0030	4132 030 0030
		1.5 d	45.0	11.0				43.2		4130 030 0045	4132 030 0045
		2 d	60.0	14.9				58.2		4130 030 0060	4132 030 0060
M 30 x 1.5	1.5	0.5 d	15.0	7.8	35.2 35.7	30.33 30.56	30.50	14.2	31.95	4130 030 4015	on request
		0.75 d	22.5	12.2				21.7		4130 030 4225	
		1 d	30.0	16.5				29.2		4130 030 4030	
		1.5 d	45.0	25.3				44.2		4130 030 4045	
		2 d	60.0	34.0				59.2		4130 030 4060	
M 30 x 2	2.0	0.5 d	15.0	5.7	35.2 35.7	30.43 30.73	30.50	14.0	32.60	4130 030 5015	on request
		0.75 d	22.5	9.0				21.5		4130 030 5225	
		1 d	30.0	12.3				29.0		4130 030 5030	
		1.5 d	45.0	19.0				44.0		4130 030 5045	
		2 d	60.0	25.5				59.0		4130 030 5060	
M 33	3.5	0.5 d	16.5	3.4	38.3 38.8	33.76 34.21	34.00	14.7	37.55	4130 033 0165	on request
		0.75 d	24.8	5.6				23.0		4130 033 0248	on request
		1 d	33.0	7.8				31.2		4130 033 0033	4132 033 0033
		1.5 d	49.5	12.2				47.7		4130 033 0495	4132 033 0495
		2 d	66.0	16.5				64.2		4130 033 0066	4132 033 0066

* Intermediate lengths also available.

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HELICOIL® plus thread inserts

d	P	t ₂ min.*		W	d ₁ min. max.	D _{1HC} min. max.	B	t ₃ max.	D _{HC} min.	free running Order No [Ⓞ]	screwlock Order No [Ⓞ]
		x d	mm								
M 33 x 2	2.0	0.5 d	16.5	6.4	38.3 38.8	33.43 33.73	33.50	15.5	35.60	4130 033 5165	on request
		0.75 d	24.8	10.1				23.8		4130 033 5248	
		1 d	33.0	13.7				32.0		4130 033 5033	
		1.5 d	49.5	21.2				48.5		4130 033 5495	
		2 d	66.0	28.4				65.0		4130 033 5066	
M 36	4.0	0.5 d	18.0	3.2	42.1 42.6	36.87 37.34	37.00	16.0	41.20	4130 036 0018	on request
		0.75 d	27.0	5.0				25.0		4130 036 0027	on request
		1 d	36.0	7.0				34.0		4130 036 0036	4132 036 0036
		1.5 d	54.0	11.1				52.0		4130 036 0054	4132 036 0054
		2 d	72.0	15.2				70.0		4130 036 0072	4132 036 0072
M 36 x 1.5	1.5	0.5 d	18.0	9.5	42.1 42.6	36.33 36.56	36.50	17.2	37.95	4130 036 4018	on request
		0.75 d	27.0	14.7				26.2		4130 036 4027	
		1 d	36.0	19.9				35.2		4130 036 4036	
		1.5 d	54.0	30.5				53.2		4130 036 4054	
		2 d	72.0	41.0				71.2		4130 036 4072	
M 36 x 2	2.0	0.5 d	18.0	6.8	42.1 42.6	36.43 36.73	36.50	17.0	38.60	4130 036 5018	on request
		0.75 d	27.0	10.3				26.0		4130 036 5027	
		1 d	36.0	14.1				35.0		4130 036 5036	
		1.5 d	54.0	21.9				53.0		4130 036 5054	
		2 d	72.0	31.1				71.0		4130 036 5072	
M 36 x 3**	3.0	0.5 d	18.0	4.4	42.1 42.6	36.65 37.05	37.00	16.5	39.90	4130 036 6018	4132 036 6018
		0.75 d	27.0	7.2				25.5		4130 036 6027	4132 036 6027
		1 d	36.0	9.9				34.5		4130 036 6036	4132 036 6036
		1.5 d	54.0	15.3				52.5		4130 036 6054	4132 036 6054
		2 d	72.0	20.5				70.5		4130 036 6072	4132 036 6072
M 39	4.0	0.75 d	29.3	5.5	45.1 45.6	39.87 40.34	40.00	23.4	44.20	4130 039 0293	4132 039 0293
		1 d	39.0	7.7				33.1		4130 039 0039	4132 039 0039
		1.25 d	48.8	9.9				42.9		4130 039 0488	4132 039 0488
		1.5 d	58.5	12.3				52.6		4130 039 0585	4132 039 0585
		2 d	78.0	16.6				72.1		4130 039 0078	4132 039 0078
M 39 x 2	2.0	0.5 d	19.5	7.5	45.1 45.6	39.43 39.73	39.50	16.6	41.60	4130 039 5195	4132 039 5195
		0.75 d	29.3	11.9				26.3		4130 039 5293	4132 039 5293
		1 d	39.0	16.3				36.1		4130 039 5039	4132 039 5039
		1.25 d	48.8	20.6				45.8		4130 039 5488	4132 039 5488
		1.5 d	58.5	25.0				55.6		4130 039 5585	4132 039 5585
M 39 x 3	3.0	0.5 d	19.5	4.9	45.1 45.6	39.65 40.05	40.00	15.1	42.90	4130 039 6195	4132 039 6195
		0.75 d	29.3	7.8				24.8		4130 039 6293	4132 039 6293
		1 d	39.0	10.8				34.6		4130 039 6039	4132 039 6039
		1.25 d	48.8	13.7				44.3		4130 039 6488	4132 039 6488
		1.5 d	58.5	16.8				54.1		4130 039 6585	4132 039 6585
M 42	4.5	0.5 d	21.0	3.3	48.5 49.0	42.98 43.05	43.00	18.7	47.85	4130 042 0021	on request
		0.75 d	35.0	6.2				32.7		4130 042 0035	
		1 d	42.0	7.3				39.7		4130 042 0042	
		1.25 d	52.5	9.5				50.2		4130 042 0525	
		1.5 d	63.0	11.6				60.7		4130 042 0063	
		2 d	84.0	15.6				81.7		4130 042 0084	

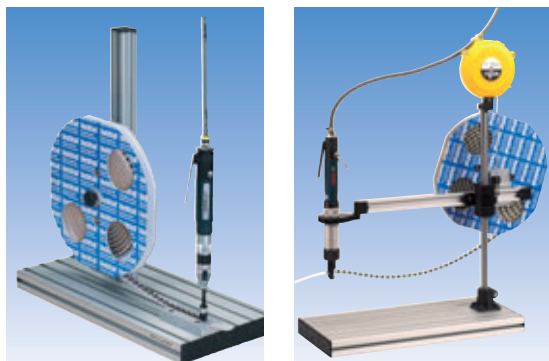
* Intermediate lengths also available. HELICOIL® plus > M 24 on request.

** Further nominal thread diameters available. See "Thread types" table on page 10.

Ⓞ See flap page 11b.

HELICOIL® plus *magazined thread inserts for efficient installation*

HELICOIL® plus STRIPFEED®



Accessories: See page 41

Magazined HELICOIL® plus thread inserts provide advantages especially for processing smaller thread inserts. To that purpose, manual taps as well as stationary installation devices are available. Advantages for processing for small- and large-scale production:

- easier handling
- improved working conditions for series installation
- increased performance due to safe feeding
- cost reduction

Imperial dimensions: See separate catalogue 0101

Threads Nominal Ø	Nominal length	Magazined to roller diameter = 320 mm			Magazined to roller diameter = 220 mm			Strips for "pick-and-place"		
		Number of inserts	HELICOIL® plus free running Order No	HELICOIL® plus screwlock Order No	Number of inserts	HELICOIL® plus free running Order No	HELICOIL® plus screwlock Order No	Number of inserts	HELICOIL® plus free running Order No	HELICOIL® plus screwlock Order No
M 2	1.5 x d	—	—	—	—	—	—	150	4130 702 0016	4132 702 0016
	2 x d	4500*	4130 702 0008*	4132 702 0008*	1000*	4130 702 0028*	4132 702 0028*	150	4130 702 0018	4132 702 0018
	3 x d	3000*	4130 702 0012*	4132 702 0012*	—	—	—	—	—	—
M 2.5	1 x d	5000	4130 725 0004	4132 725 0004	1000	4130 725 0024	4132 725 0024	150	4130 725 0014	4132 725 0014
	1.5 x d	4000	4130 725 0006	4132 725 0006	1000	4130 725 0026	4132 725 0026	150	4130 725 0016	4132 725 0016
	2 x d	3000	4130 725 0008	4132 725 0008	1000	4130 725 0028	4132 725 0028	150	4130 725 0018	4132 725 0018
M 3	1 x d	4000	4130 703 0004	4132 703 0004	1000	4130 703 0024	4132 703 0024	100	4130 703 0014	4132 703 0014
	1.5 x d	2800	4130 703 0006	4132 703 0006	1000	4130 703 0026	4132 703 0026	100	4130 703 0016	4132 703 0016
	2 x d	2000	4130 703 0008	4132 703 0008	1000	4130 703 0028	4132 703 0028	100	4130 703 0018	4132 703 0018
M 3.5	1 x d	5000*	4130 735 0004*	4132 735 0004*	1000*	4130 735 0024*	4132 735 0024*	100	4130 735 0014	4132 735 0014
	1.5 x d	5000*	4130 735 0006*	4132 735 0006*	1000*	4130 735 0026*	4132 735 0026*	100	4130 735 0016	4132 735 0016
	2 x d	5000*	4130 735 0008*	4132 735 0008*	1000*	4130 735 0028*	4132 735 0028*	100	4130 735 0018	4132 735 0018
M 4	1 x d	2200	4130 704 0004	4132 704 0004	1000	4130 704 0024	4132 704 0024	100	4130 704 0014	4132 704 0014
	1.5 x d	1500	4130 704 0006	4132 704 0006	1000	4130 704 0026	4132 704 0026	100	4130 704 0016	4132 704 0016
	2 x d	1300	4130 704 0008	4132 704 0008	—	—	—	100	4130 704 0018	4132 704 0018
M 5	1 x d	1500	4130 705 0004	4132 705 0004	1000	4130 705 0024	4132 705 0024	100	4130 705 0014	4132 705 0014
	1.5 x d	1000	4130 705 0006	4132 705 0006	—	—	—	100	4130 705 0016	4132 705 0016
	2 x d	800	4130 705 0008	4132 705 0008	—	—	—	100	4130 705 0018	4132 705 0018
M 6	1 x d	1100	4130 706 0004	4132 706 0004	*	*	*	100	4130 706 0014	4132 706 0014
	1.5 x d	750	4130 706 0006	4132 706 0006	—	—	—	100	4130 706 0016	4132 706 0016
	2 x d	550	4130 706 0008	4132 706 0008	—	—	—	100	4130 706 0018	4132 706 0018
M 8	1 x d	650	4130 708 0004	4132 708 0004	—	—	—	100	4130 708 0014	4132 708 0014
	1.5 x d	400	4130 708 0006	4132 708 0006	—	—	—	100	4130 708 0016	4132 708 0016
	2 x d	300	4130 708 0008	4132 708 0008	—	—	—	100	4130 708 0018	4132 708 0018
M 10	1 x d	400	4130 710 0004	4132 710 0004	—	—	—	*	*	*
	1.5 x d	270	4130 710 0006	4132 710 0006	—	—	—	*	*	*
	2 x d	200	4130 710 0008	4132 710 0008	—	—	—	*	*	*

* On request

HELICOIL® plus
pick-and-place
equipment

Threads Nominal Ø	Order No
M 2	4148 002 0000
M 2,5	4148 002 0000
M 3	4148 002 0000
M 3,5	4148 002 0000
M 4	4148 004 0000
M 5	4148 004 0000
M 6	4148 006 0000
M 8	4148 008 0000



"pick-and-place" equipment



Installation of HELICOIL® plus

Installation of HELICOIL® plus thread inserts

Workpiece preparation

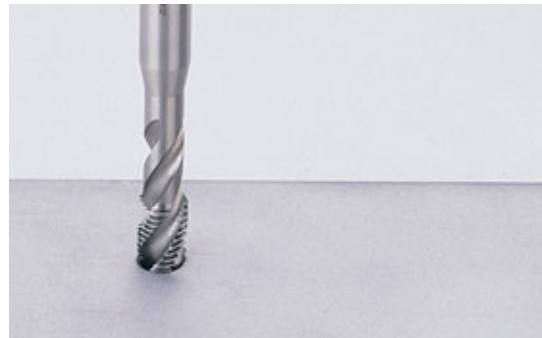
■ Tap drilling

Common twist drills are used.
Notes on diameter and tap hole depth are given on pages 12 to 17.
Prior to tapping, counter-bore 90° and deburr.
Outside diameter of upset part = $D_{HC} + 0,1 \text{ mm}$.



■ Tapping

For tapping the HELICOIL® plus holding thread, system-dependent original HELICOIL® taps must be used. Recommendations for suitable manual and machine taps are given on pages 21 to 31.
The trueness to gauge of the holding thread must be checked with HELICOIL® thread plug limit gauges. (See page 32.)



■ Form tapping

Today, chipless production of internal threads with forming taps is an efficient production method for many materials. This also applies to HELICOIL® plus (see pages 30/31).

Installation procedure

■ Insertion of thread insert

Manual or mechanical installation tools or automatic installation machines can be used for installation. The HELICOIL® plus thread insert is screwed onto the installation mandrel with the tang down (3A) and inserted into the leader cartridge (3B) or placed onto the fly-over tool (3C). Then, the device is placed on the tapped hole.



3A



3B



3C

■ Installation

By turning the thread tang (4A), the mandrel (4B) or the fly-over tool, respectively, (4C) manually or triggering the drive, the thread insert is screwed in. It must be installed with at least 0.25 P below the surface (see page 11 b).



4A



4B



4C

■ Breaking off the tang

To produce a through-hole thread, the tang is broken off at the notch. For that, a tang break-off tool is used (5A and 5B). For threads from M 14 fine and normal screw thread, the tang can be removed with long nose pliers (5C).

In case of blind-hole threads, the tang does not have to be removed if the maximum screw-in depth t_3 of the screw is observed.



5A



5B





5C

Application engineering regarding HELICOIL® plus thread inserts

Customer data	Date of enquiry: _____	
	Company: _____ Address: _____ _____	
	Phone: _____ Fax: _____ Telex: _____	
	Contact person (name and position): _____ _____	
	Affected department: _____	
	Customer approval guidelines: _____	
Desired date for visit of technical marketing consultant: _____		
Application	Technical description (function, dimensions, tolerances as well as specific requirements for HELICOIL® plus)	
	Can Böllhoff – obtain a sample (corresp. application)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	– obtain a drawing (of application)? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Processing and tool principle: _____	
	Attachment: _____	
Information	New application: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample requested: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Annual number of pieces: _____	if so, date and quantity: _____ _____
	Delivery quantity: _____	Pre-production series requested: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Duration of application: _____	if so, date and quantity: _____ _____
	Start of series (date): _____	
	Current solution (of this or similar application):	

System components for installation

Standard range of HELICOIL® plus manual and machine taps

Materials	Range of types			Recommended guide values [Ⓞ]	
	Manual tap All hole types	Machine tap		Cutting speed [m/min]	Cooling Lubrication
		Through hole 	Blind hole 		
Aluminium and aluminium casting alloys (short-chip)	0140.0 0140.1-2* 0140.3-5**	0141.1	0141.5	10...20	emulsion
Aluminium and aluminium casting alloys (long-chip)	0140.0 0140.1-2* 0140.3-5**	0141.1	0141.4	15...20	emulsion
Magnesium alloys	0140.0 0140.1-2* 0140.3-5**	0141.1	0141.4	25	dry
Steel to 700 N/mm ²	0140.0			16	oil, emulsion
Cast iron soft $R_m \leq 250$ N/mm ²	0140.1-2*	0141.1	0141.5	15	petroleum/emulsion
Cast iron hard $R_m > 250$ N/mm ²	0140.3-5**			10	emulsion
Malleable cast iron				10	oil, emulsion
Copper	0140.0			16	oil, emulsion
Bronze/red brass	0140.1-2*	0141.1	0141.5	5...12	oil, emulsion
Brass tough	0140.3-5*			16	oil, emulsion
Zinc alloy				20	oil, emulsion
Brass, brittle	0140.0 0140.1-2* 0140.3-5**	0141.1	0141.5	25	oil dry

[Ⓞ]In individual cases, cutting tests are required for other materials.

* Set of taps (two-piece)

** Set of taps (three-piece)

We also supply tin-coated taps.

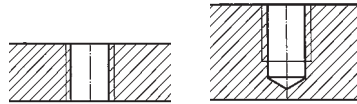
For materials which are difficult to machine and which are not listed in the overview, such as

- stainless steels
- heat-resisting steel
- other steel alloys
- titanium alloys

we can offer you special taps!

HELICOIL® machine taps for specific requirements

Usually, standard taps of the HELICOIL® program range comply with practical requirements.
For specific requirements with critical chip removal requirements, special machine taps must be used.



Material	Through hole	Blind hole	Cutting speed (m/min.)	Cooling Lubrication
Aluminium alloys with a high silicon content SI > 12 %	0141 9XXX 444	0141 9XXX 451	10	oil/emulsion
Materials difficult to machine such as: Stainless steel Heat-resisting steel	0141 9XXX 444	0141 9XXX 451	5 4	oil/emulsion
Hard materials cast iron	0141 9XXX 418	0141 9XXX 418	8 – 10	petroleum/ emulsion
Tough, seizing materials such as: Electrolytic copper Bronze, hard	0141 9XXX 445	0141 9XXX 451	12 5	oil
Brass, brittle	0141 9XXX 424	0141 9XXX 424	25	oil
Titanium alloys ≤ 700 N/mm ² > 700 N/mm ²	0141 9XXX 444 0141 9XXX 447	0141 9XXX 451 0141 9XXX 432	8 4	oil
Plastic, soft thermoplastic	0141 9XXX 445	0141 9XXX 451		compressed air/ emulsion
Plastic, brittle thermoset	0141 9XXX 446	0141 9XXX 446		compressed air

Example of a designation: M 4 dimension:: 0141 **9040** 451

Further taps as special versions, such as tin-coated taps or oversize taps, on request.

Thread tolerances of holding threads

Metric threads

■ Normal tolerances for metric threads:

According to DIN 8140 Part 2, HELICOIL® holding threads comply with tolerance **6H mod**.

6H mod corresponds to the accuracy of tolerance **5H** (also see imprint on gauge for HELICOIL® holding thread).

After the HELICOIL® plus thread insert has been installed, the completed ISO thread complies with tolerance **6H**.

■ More precise tolerances for metric threads:

Aerospace standards require ISO thread tolerance **5H**:

HELICOIL® holding threads then have to comply with tolerance **5H mod**.

5H mod corresponds to the accuracy of tolerance **4H** (also see imprint on gauge for HELICOIL® holding thread).

After the HELICOIL® plus thread insert has been installed, the completed ISO thread complies with tolerance **5H**.

■ MJ thread:

There is no specific HELICOIL® holding thread defined for the use of threaded bolts with an MJ thread profile.

■ Item codes/examples:

Effect on the item code of HELICOIL® taps

For tolerances **6H mod** and **5H**, the 9th digit of the item code is **1**

Example: M 10 0141 410 0152

For tolerances **5H mod** and **4H**, the 9th digit of the item code is **2**

Example: M 10 0141 410 0252

Effect on the item code of HELICOIL® forming taps

For tolerances **6H mod** and **5H**, the 9th digit of the item code is **0**

Example: M 10 0144 110 0004

For tolerances **5H mod** and **4H**, the 9th digit of the item code is **2**

Example: M 10 0144 110 0204

Effect on the item code of HELICOIL® thread plug limit gauges

For tolerances **6H mod** and **5H**, the 9th digit of the item code is **5**

Example: M 10 0147 310 0500

For tolerances **5H mod** and **4H**, the 9th digit of the item code is **4**

Example: M 10 0147 310 0400

Manual taps for HELICOIL® plus



Type 0140.0

HELICOIL® manual tap, cutting

For cutting materials with a strength up to 700 N/mm².

For through holes.

For blind holes only if sufficient chip space is provided. Minimum requirement 1d deeper than the full thread length.



Type 0140.1-2

HELICOIL® manual tap,

two-piece set with stepped flank diameter:

pre-tap 4-pitch chamfer 0140.1...
 final tap 2-pitch chamfer 0140.2...

For cutting materials with a strength up to 700 N/mm².

For through holes and blind holes.



Type 0140.3-5 see page 26.

For combined drilling and tapping tools, see page 26.

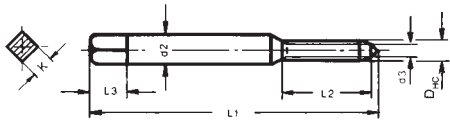
Nominal thread Ø	Cutting taps for tolerance class 5H (6H mod.)*	Taps for tolerance class 5H (6H mod.)* (1 set)	
		Pre-taps Type 0140.1 Order No	Finishing taps Type 0140.2 Order No
d	Type 0140.0 Order No	Type 0140.1 Order No	Type 0140.2 Order No
M 2	0140 002 0104	0140 102 0104	0140 202 0102
M 2.5	0140 025 0104	0140 125 0104	0140 225 0102
M 3	0140 003 0104	0140 103 0104	0140 203 0102
M 3.5	0140 035 0104	0140 135 0104	0140 235 0102
M 4	0140 004 0104	0140 104 0104	0140 204 0102
M 5	0140 005 0104	0140 105 0104	0140 205 0102
M 6	0140 006 0104	0140 106 0104	0140 206 0102
M 7	0140 007 0104	0140 107 0104	0140 207 0102
M 8	0140 008 0104	0140 108 0104	0140 208 0102
M 8 x 1	0140 008 3104	0140 108 3104	0140 208 3102
M 9	0140 009 0104	0140 109 0104	0140 209 0102
M 10	0140 010 0104	0140 110 0104	0140 210 0102
M 10 x 1	0140 010 3104	0140 110 3104	0140 210 3102
M 10 x 1.25	0140 010 9104	0140 110 9104	0140 210 9102
M 11	0140 011 0104	0140 111 0104	0140 211 0102
M 12	0140 012 0104	0140 112 0104	0140 212 0102
M 12 x 1	0140 012 3104	0140 112 3104	0140 212 3102
M 12 x 1.25	0140 012 9104	0140 112 9104	0140 212 9102
M 12 x 1.5	0140 012 4104	0140 112 4104	0140 212 4102
M 14	0140 014 0104	0140 114 0104	0140 214 0102
M 14 x 1	0140 014 3104	0140 114 3104	0140 214 3102
M 14 x 1.25	0140 014 9104	0140 114 9104	0140 214 9102
M 14 x 1.5	0140 014 4104	0140 114 4104	0140 214 4102
M 16	0140 016 0104	0140 116 0104	0140 216 0102
M 16 x 1.5	0140 016 4104	0140 116 4104	0140 216 4102
M 18	–	0140 118 0104	0140 218 0102
M 18 x 1.5	0140 018 4104	0140 118 4104	0140 218 4102
M 18 x 2	0140 018 5104	0140 118 5104	0140 218 5102
M 20	–	0140 120 0104	0140 220 0102
M 20 x 1.5	0140 020 4104	0140 120 4104	0140 220 4102
M 20 x 2	0140 020 5104	0140 120 5104	0140 220 5102
M 22	–	0140 122 0104	0140 222 0102
M 22 x 1.5	0140 022 4104	0140 122 4104	0140 222 4102
M 22 x 2	0140 022 5104	0140 122 5104	0140 222 5102
M 24	–	0140 124 0104	0140 224 0102
M 24 x 1.5	0140 024 4104	0140 124 4104	0140 224 4102
M 24 x 2	0140 024 5104	0140 124 5104	0140 224 5102

Further dimensions on request.

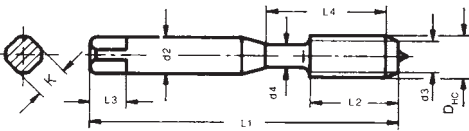
* For tolerance class 4H, the ninth digit of the order No changes from 1 to 2. For details see page 23. Types 0140.0 and 0140.2 can, to a limited degree, also be used as machine taps.

Shank Ø tolerance h9. They are especially suitable for short-chip materials such as grey cast iron, brass or magnesium.

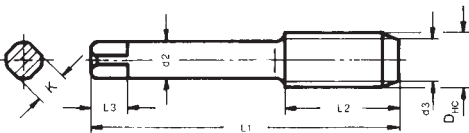
Construction dimensions for manual taps



Version A



Version B



Version C

Nominal thread Ø d	Design	Min. Outside Ø D _{hc}	Shank Ø h 9 d 2	Chamfer Ø d 3	Total length L 1	Max. thread length L 2	Square length L 3	Square h 12 K	L 4	d 4
M 2	A	2.5	2.8	2	40	9	5	2.1	–	–
M 2.5	B	3.1	3.5	2.5	40	10	6	2.7	13.5	2.6
M 3	B	3.6	4	3	45	10	6	3	13.5	3.1
M 3.5	B	4.3	4.5	3.5	45	12	6	3.4	15.5	3.6
M 4	B	4.9	6	4	50	14	8	4.9	17.5	4.2
M 5	B	6.0	6	5	50	16	8	4.9	19.5	5.2
M 6	C	7.3	6	6	56	19	8	4.9	–	–
M 7	C	8.3	7	7	63	19	8	5.5	–	–
M 8	C	9.6	7	8	70	22	8	5.5	–	–
M 8 x 1	C	9.3	7	8	63	19	8	5.5	–	–
M 9	C	10.6	8	9	70	24	9	6.2	–	–
M 10	C	11.9	9	10	75	27	10	7	–	–
M 10 x 1	C	11.3	9	10	70	22	10	7	–	–
M 10 x 1.25	C	11.6	10	9	70	22	10	7	–	–
M 11	C	12.9	11	11	70	22	12	9	–	–
M 12	C	14.3	11	12	80	30	12	9	–	–
M 12 x 1	C	13.3	11	12	70	22	12	9	–	–
M 12 x 1.25	C	13.6	11	12	70	22	12	9	–	–
M 12 x 1.5	C	14.0	11	12	70	22	12	9	–	–
M 14	C	16.6	12	14	80	32	12	9	–	–
M 14 x 1	C	15.3	12	14	70	22	12	9	–	–
M 14 x 1.25	C	15.6	12	14	70	22	12	9	–	–
M 14 x 1.5	C	16.0	12	14	70	22	12	9	–	–
M 16	C	18.6	14	16	80	22	14	11	–	–
M 16 x 1.5	C	18.0	14	16	80	22	14	11	–	–
M 18	C	21.3	16	18	95	40	15	12	–	–
M 18 x 1.5	C	20.0	16	18	80	22	15	12	–	–
M 18 x 2	C	20.6	16	18	80	22	15	12	–	–
M 20	C	23.3	18	20	100	40	17	14.5	–	–
M 20 x 1.5	C	22.0	18	20	80	22	17	14.5	–	–
M 20 x 2	C	22.6	18	20	80	22	17	14.5	–	–
M 22	C	25.3	18	22	110	50	17	14.5	–	–
M 22 x 1.5	C	24.0	18	22	90	22	17	14.5	–	–
M 22 x 2	C	24.6	18	22	90	22	17	14.5	–	–
M 24	C	27.9	20	24	110	50	19	16	–	–
M 24 x 1.5	C	26.0	18	24	90	22	17	14.5	–	–
M 24 x 2	C	26.6	20	24	90	22	19	16	–	–

Manual taps for HELICOIL® plus



Type 0140.0

HELICOIL® manual tap, cutting

For cutting materials with a strength up to 700 N/mm².

For through holes.

For blind holes only if sufficient chip space is provided. Minimum requirement 1d deeper than the full thread length.



Type 0140.1-2

HELICOIL® manual tap, two-piece set with stepped flank diameter:

pre-tap 4-pitch chamfer 0140.1...
 final tap 2-pitch chamfer 0140.2...

For cutting materials with a strength up to 700 N/mm².

For through holes and blind holes.



Type 0140.3-5

HELICOIL® manual tap, three-piece set from M 36 with constant pitch

pre-tap 0140.3...
 middle tap 0140.4...
 final tap 0140.5...

Nominal thread Ø d	Cutting taps for tolerance class 5H (6H mod.)* Type 0140.0 Order No	Taps for tolerance class 5H (6H mod.)* (1 set)	
		Pre-taps Type 0140.1 Order No	Finishing taps Type 0140.2 Order No
M 26 x 1.5	0140 026 4104	0140 126 4104	0140 226 4102
M 27	–	0140 127 0104	0140 227 0102
M 27 x 1.5	0140 027 4104	0140 127 4104	0140 227 4102
M 27 x 2	0140 027 5104	0140 127 5104	0140 227 5102
M 28 x 1.5	0140 028 4104	0140 128 4104	0140 228 4102
M 30	–	0140 130 0104	0140 230 0102
M 30 x 1.5	0140 030 4104	0140 130 4104	0140 230 4102
M 30 x 2	0140 030 5104	0140 130 5104	0140 230 5102
M 33	–	0140 133 0104	0140 233 0102
M 33 x 2	0140 033 5104	0140 133 5104	0140 233 5102
M 36**	–	–	–
M 36 x 1.5	0140 036 4104	0140 136 4104	0140 236 4102
M 36 x 2	0140 036 5104	0140 136 5104	0140 236 5102
M 36 x 3	0140 036 6104	0140 136 6104	0140 236 6102

Further dimensions on request.

* For tolerance class 4H, the ninth digit of the order No changes from 1 to 2. For details see page 23.

** Set of taps (three-flute), additionally intermediate tap 0140 436 0104.

Types 0140.0 and 0140.2 can, to a limited degree, also be used as machine taps.

Shank Ø tolerance h9. They are especially suitable for short-chip materials such as: grey cast iron, brass or magnesium.

Combined drilling and tapping tools

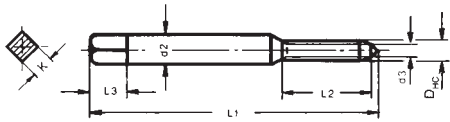


For tapping HELICOIL® holding threads in damaged metric coarse and fine thread.

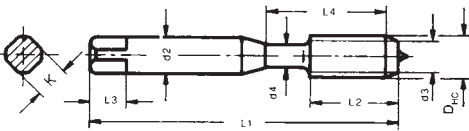
Pre-drilling of the HELICOIL® holding thread tap hole is not required. Due to the guiding unit d 3 x L 5, it can only be used for blind-hole threads under certain conditions.

Nominal thread Ø d	Order No
M 6	0142 006 0102
M 8	0142 008 0102
M 10	0142 010 0102
M 10 x 1	0142 910 3450
M 12	0142 912 0450
M 12 x 1.25	0142 912 9450
M 12 x 1.5	0142 912 4450
M 14	0142 914 0450
M 14 x 1.25*	0142 914 9450
M 14 x 1.25**	0142 014 9102
M 14 x 1.5	0142 914 4450
M 16	0142 916 0450
M 16 x 1.5	0142 916 4450
* L 1 = 92	** L 1 = 153

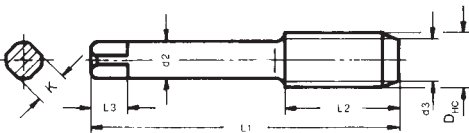
Construction dimensions for manual taps



Version A, see pages 24/25



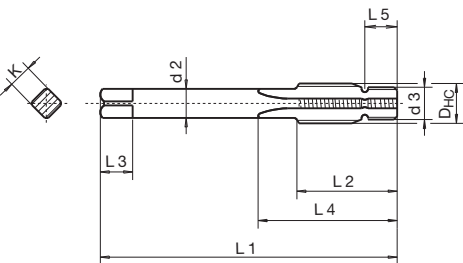
Version B, see pages 24/25



Version C, see pages 24 to 27

Nominal thread \varnothing d	Design	Min outside \varnothing D_{HC}	Shank \varnothing h 9 d 2	Chamfer \varnothing d 3	Total length L 1	Max. thread length L 2	Square length L 3	Square h 12 K	L 4	d 4
M 26 x 1.5	C	28.0	20	26	90	22	19	16	-	-
M 27	C	30.9	22	27	125	56	21	18	-	-
M 27 x 1.5	C	29.0	22	27	90	22	21	18	-	-
M 27 x 2	C	29.6	22	27	90	22	21	18	-	-
M 28 x 1.5	C	30.0	22	28	90	22	21	18	-	-
M 30	C	34.6	28	30	125	40	25	22	-	-
M 30 x 1.5	C	32.0	22	30	90	22	21	18	-	-
M 30 x 2	C	32.6	25	30	100	22	23	20	-	-
M 33	C	37.6	28	33	125	40	25	22	-	-
M 33 x 2	C	35.6	28	33	125	40	25	22	-	-
M 36	C	41.2	32	36	150	63	27	24	-	-
M 36 x 1.5	C	38.0	28	36	100	25	25	22	-	-
M 36 x 2	C	38.6	32	36	125	40	27	24	-	-
M 36 x 3	C	39.9	32	36	125	40	27	24	-	-

Construction dimensions for combined drilling and tapping tools



Nominal thread \varnothing d	Min. outside \varnothing D_{HC}	Shank \varnothing h 9 d 2	Chamfer \varnothing d 3	Total length L 1	Max. thread length L 2	Square length L 3	L 4 min.	Lead Thread Length L 5	Square h 12 K
M 6	7.3	8	M 6	90	26	9	36	6	6.2
M 8	9.7	10	M 8	90	28	11	38	7.5	8
M 10	12.0	12	M 10	100	31	12	42	9	9
M 10 x 1	11.3	9	M 10 x 1	92	31	10	42	9	7
M 12	14.3	11	M 12	92	35	12	43	10	9
M 12 x 1.25	13.7	11	M 12 x 1.25	92	35	12	43	10	9
M 12 x 1.5	13.7	11	M 12 x 1.25	92	35	12	43	10	9
M 14	13.7	11	M 12 x 1.25	92	35	12	43	10	9
M 14 x 1.25	15.7	11	M 14 x 1.25	92	35	12	43	10	9
M 14 x 1.25	15.7	11	M 14 x 1.25	153	35	12	43	10	9
M 14 x 1.5	16.0	11	M 14 x 1.5	92	35	12	43	10	9
M 16	18.7	14	M 16	90	39	14	50	9	11
M 16 x 1.5	18.0	14	M 16 x 1.5	92	39	14	50	10	11

Machine taps for HELICOIL® plus



Type 0141.1

HELICOIL® machine tap, straight-fluted, rake angle 10°, with spiral point 4-pitch chamfer for through holes, for blind holes with deeper drilled tap hole.

For materials with a strength below and above 700 N/mm².



Type 0141.4

HELICOIL® machine tap, spiral flutes 45° right-hand spiral, rake angle 15°, 2-pitch chamfer for blind holes.

For aluminium alloys with a strength of up to 500 N/mm². Up to M 8 2-flute.

From M 9 3-flute and additionally also for soft steels with a strength of up to 450 N/mm².



Typ 0141.5

HELICOIL® machine tap, spiral flutes 40° right-hand spiral, rake angle 10°, 3-flute, 2-pitch chamfer for blind holes, for blind holes with deeper drilled tap hole.

For steels with a strength from 500 N/mm² to 850 N/mm² maximum.

Also suitable for aluminium alloys with an Si content of up to approximately 10%.

HELICOIL® special taps for specific applications and materials, see page 22.

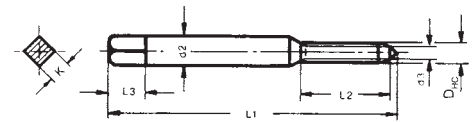
Nominal thread Ø	for tolerance class 5H (6H mod.)*	for tolerance class 5H (6H mod.)*	for tolerance class 5H (6H mod.)*
d	Type 0141.1 Order No	Type 0141.4 Order No	Type 0141.5 Order No
M 2	0141 102 0104	0141 402 0152	0141 502 0102
M 2.5	0141 125 0104	0141 425 0152	0141 525 0102
M 3	0141 103 0104	0141 403 0152	0141 503 0102
M 3.5	0141 135 0104	0141 435 0152	0141 535 0102
M 4	0141 104 0104	0141 404 0152	0141 504 0102
M 5	0141 105 0104	0141 405 0152	0141 505 0102
M 6	0141 106 0104	0141 406 0152	0141 506 0102
M 7	0141 107 0104	0141 407 0152	0141 507 0102
M 8	0141 108 0104	0141 408 0152	0141 508 0102
M 8 x 1	0141 108 3104	0141 408 3152	0141 508 3102
M 9	0141 109 0104	0141 409 0152	0141 509 0102
M 10	0141 110 0104	0141 410 0152	0141 510 0102
M 10 x 1	0141 110 3104	0141 410 3152	0141 510 3102
M 10 x 1.25	0141 110 9104	–	0141 510 9102
M 11	0141 111 0104	0141 411 0152	0141 511 0102
M 12	0141 112 0104	0141 412 0152	0141 512 0102
M 12 x 1	0141 112 3104	0141 412 3152	0141 512 3102
M 12 x 1.25	0141 112 9104	–	0141 512 9102
M 12 x 1.5	0141 112 4104	0141 412 4152	0141 512 4102
M 14	0141 114 0104	–	0141 514 0102
M 14 x 1	0141 114 3104	0141 414 3152	0141 514 3102
M 14 x 1.25	0141 114 9104	–	–
M 14 x 1.5	0141 114 4104	0141 414 4152	0141 514 4102
M 16	0141 116 0104	–	0141 516 0102
M 16 x 1.5	0141 116 4104	0141 416 4152	0141 516 4102
M 18	0141 118 0104	–	0141 518 0102
M 18 x 1.5	0141 118 4104	0141 418 4152	0141 518 4102
M 18 x 2	0141 118 5104	–	0141 518 5102
M 20	0141 120 0104	–	0141 520 0102
M 20 x 1.5	0141 120 4104	0141 420 4152	0141 520 4102
M 20 x 2	0141 120 5104	–	0141 520 5102
M 22	0141 122 0104	–	0141 522 0102
M 22 x 1.5	0141 122 4104	0141 422 4152	0141 522 4102
M 22 x 2	0141 122 5104	–	0141 522 5102
M 24	0141 124 0104	–	0141 524 0102
M 24 x 1.5	0141 124 4104	0141 424 4152	0141 524 4102
M 24 x 2	0141 124 5104	–	0141 524 5102

Further dimensions on request.

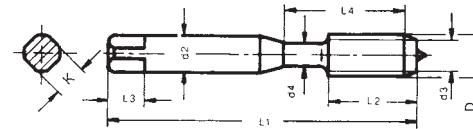
* For tolerance class 4H, the ninth digit of the order No changes from 1 to 2.

For details see page 23.

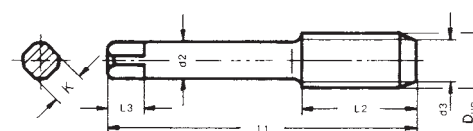
Construction dimensions for machine taps



Version A



Version B



Version C

Nominal thread Ø d	Design	Min. outside Ø D _{hc}	Shank Ø h 9 d 2	Chamfer Ø d 3	Total length L 1	Types 0141.1 / 0141.4 max. thread length L2	Type 0141.5 max. thread length L2	Square length L 3	Square h 12 K	L 4	d 4
M 2	A	2.5	2.8	2	50	8	4	5	2.1	-	-
M 2.5	B	3.1	3.5	2.5	56	11	5	6	2.7	18	2.6
M 3	B	3.7	4	3	56	13	6	6	2.7	20	3.1
M 3.5	B	4.3	4.5	3.5	63	13	7	6	3.1	21	3.6
M 4	B	4.9	6	4	70	16	8	8	4.9	25	4.2
M 5	B	6.0	6	5	80	17	10	8	4.9	30	5.2
M 6	B	7.3	8	6	90	20	12	9	6.2	35	6.2
M 7	B	8.3	9	7	90	20	12	10	7	35	7.2
M 8	B	9.6	10	8	100	20	14	11	8	39	8.3
M 8 x 1	B	9.3	9	8	90	20	12	10	7	35	8.2
M 9	C	10.6	8	9	100	22	14	9	6.2	-	-
M 10	C	12.0	9	10	110	24/16	16	10	7	-	-
M 10 x 1	C	11.3	9	10	100	22	16	10	7	-	-
M 10 x 1.25	C	11.6	9	10	100	22	16	10	7	-	-
M 11	C	13.0	11	11	100	22/20	20	11	9	-	-
M 12	C	14.3	11	12	110	26/20	20	12	9	-	-
M 12 x 1	C	13.3	11	12	100	22/20	20	12	9	-	-
M 12 x 1.25	C	13.6	11	12	100	22/20	20	12	9	-	-
M 12 x 1.5	C	14.0	11	12	100	22/20	20	12	9	-	-
M 14	C	16.6	12	14	110	28/20	20	12	9	-	-
M 14 x 1	C	15.3	12	14	100	22/20	20	12	9	-	-
M 14 x 1.25	C	15.6	12	14	100	22/20	20	12	9	-	-
M 14 x 1.5	C	16.0	12	14	100	22/20	20	12	9	-	-
M 16	C	18.6	14	16	125	34/25	25	14	11	-	-
M 16 x 1.5	C	18.0	14	16	110	25	25	14	11	-	-
M 18	C	21.3	16	18	140	34/25	25	15	12	-	-
M 18 x 1.5	C	20.0	16	18	125	25	25	15	12	-	-
M 18 x 2	C	20.6	16	18	140	34	25	15	12	-	-
M 20	C	23.3	18	20	140	34/25	25	17	14.5	-	-
M 20 x 1.5	C	22.0	18	20	125	25	25	17	14.5	-	-
M 20 x 2	C	22.6	18	20	140	34	25	17	14.5	-	-
M 22	C	25.3	18	22	160	38/30	30	17	14.5	-	-
M 22 x 1.5	C	24.0	18	22	140	28	28	17	14.5	-	-
M 22 x 2	C	24.6	18	22	140	28	28	17	14.5	-	-
M 24	C	27.9	20	24	160	38/30	30	19	16	-	-
M 24 x 1.5	C	26.0	18	24	140	28	28	17	14.5	-	-
M 24 x 2	C	26.6	20	24	140	28	28	19	16	-	-

Machine taps for HELICOIL® plus



Type 0141.1

HELICOIL® machine tap, straight-fluted, rake angle 10°, with spiral point 4-pitch chamfer for through holes, for blind holes with deeper drilled tap hole.

For materials with a strength below and above 700 N/mm².



Type 0141.4

HELICOIL® machine tap, spiral flutes 45° right-hand spiral, rake angle 15°, 2-pitch chamfer for blind holes.

For aluminium alloys with a strength of up to 500 N/mm². Up to M 8 2-flute.

From M 9 3-flute and additionally also for soft steels with a strength of up to 450 N/mm².



Typ 0141.5

HELICOIL® machine tap, spiral flutes 40° right-hand spiral, rake angle 10°, 3-flute, 2-pitch chamfer for blind holes, for blind holes with deeper drilled tap hole.

For steels with a strength from 500 N/mm² to 850 N/mm² maximum.

Also suitable for aluminium alloys with an Si content of up to approximately 10%.

HELICOIL® special taps for specific applications and materials, see page 22.

Nominal thread Ø	for tolerance class 5H (6H mod.)*	for tolerance class 5H (6H mod.)*	for tolerance class 5H (6H mod.)*
d	Type 0141.1 Order No	Type 0141.4 Order No	Type 0141.5 Order No
M 26 x 1.5	0141 126 4104	0141 426 4152	0141 526 4102
M 27	0141 127 0104	–	0141 527 0102
M 27 x 1.5	0141 127 4104	0141 427 4152	0141 527 4102
M 27 x 2	0141 127 5104	–	0141 527 5102
M 28 x 1.5	0141 128 4104	0141 428 4152	0141 528 4102
M 30	0141 130 0104	–	0141 530 0102
M 30 x 1.5	0141 130 4104	0141 430 4152	0141 530 4102
M 30 x 2	0141 130 5104	–	0141 530 5102
M 33	0141 133 0104	–	0141 533 0102
M 33 x 2	0141 133 5104	–	0141 533 5102
M 36	0141 136 0104	–	0141 536 0102
M 36 x 1.5	0141 136 4104	0141 436 4152	–
M 36 x 2	0141 136 5104	–	0141 536 5102
M 36 x 3	0141 136 6104	–	0141 536 6102

Further dimensions on request.

* For tolerance class 4H, the ninth digit of the order No changes from 1 to 2. For details see page 23.

Machine forming taps for HELICOIL® plus



Chipless production of internal threads for blind-hole and through-hole threads.

With oil grooves.

Perfect lubrication even for large depths.

Cutting speeds as for tapping.

Lubrication:
Oil-containing lubricants or grease-containing emulsions.

Range of materials:
Very ductile materials, such as aluminium, copper or zinc alloys, steel up to 700 N/mm², soft stainless steels at an elongation at break of at least 10%.

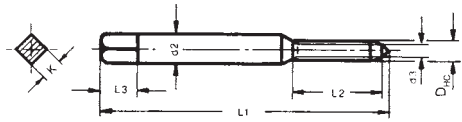
Nominal thread Ø	Guide value for shaped hole Ø	Order No [Ⓞ]
d	d _F	
M 3	3.4	0144 103 0004
M 3.5	4.0	0144 135 0004
M 4	4.6	0144 104 0004
M 5	5.6	0144 105 0004
M 6	6.8	0144 106 0004
M 8	9.0	0144 108 0004
M 10	11.2	0144 110 0004
M 12	13.4	0144 112 0004

Further dimensions on request.

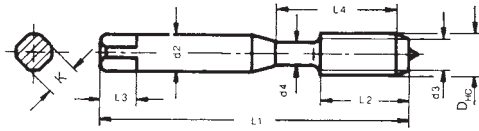
We also supply tin-coated forming taps.

Ⓞ For tolerance class 4H, the ninth digit of the Order No changes from 0 to 2. For details see page 23.

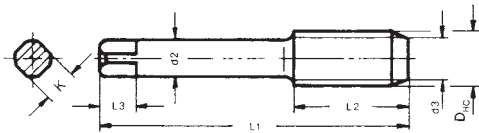
Construction dimensions for machine taps



Version A, see pages 28/29



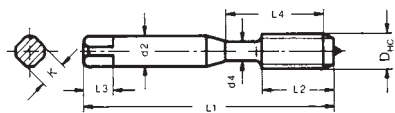
Version B, see pages 28/29



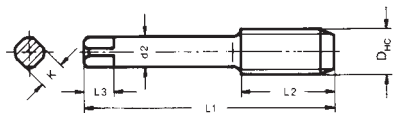
Version C, see also pages 28 to 31

Nominal thread Ø d	Design	Min. outside Ø D _{Hc}	Shank Ø h 9 d 2	Chamfer Ø d 3	Total length L 1	Types 0141.1 / 0141.4 max. thread length L 2	Type 0141.5 max. thread length L 2	Square length L 3	Square h 12 K	L 4	d 4
M 26 x 1.5	C	28.0	20	26	140	28	28	19	16	-	-
M 27	C	30.9	22	27	180	50	50	21	18	-	-
M 27 x 1.5	C	29.0	22	27	150	28	28	21	18	-	-
M 27 x 2	C	29.6	22	27	150	28	28	21	18	-	-
M 28 x 1.5	C	30.0	22	28	150	28	28	21	18	-	-
M 30	C	34.5	28	30	200	56	56	25	22	-	-
M 30 x 1.5	C	32.0	22	30	150	28	28	21	18	-	-
M 30 x 2	C	32.6	25	30	160	30	28	23	20	-	-
M 33	C	37.5	28	33	200	56	56	25	22	-	-
M 33 x 2	C	35.6	28	33	170	30	30	25	22	-	-
M 36	C	41.2	32	36	200	60	60	27	24	-	-
M 36 x 1.5	C	38.0	28	36	170	30	30	25	22	-	-
M 36 x 2	C	38.6	32	36	170	30	30	27	24	-	-
M 36 x 3	C	39.9	32	36	200	60	60	27	24	-	-

Construction dimensions for machine forming taps for HELICOIL® plus



Version B



Version C

Nominal thread Ø d	Design	Min. outside Ø D _{Hc}	Shank Ø h 9 d 2	Total length L 1	Max. thread length L 2	Square length L 3	Square h 12 K	L 4	d 4
M 3	B	3.69	4	56	13	6	2.7	20	3.1
M 3.5	B	4.33	4.5	63	13	6	3.1	21	3.6
M 4	B	4.96	6	70	16	8	4.9	25	4.2
M 5	B	6.09	6	80	17	8	4.7	30	5.2
M 6	B	7.37	8	90	20	9	6.2	35	7.2
M 8	B	9.69	10	100	20	11	8	39	8.9
M 10	C	12.02	9	110	24	10	7	-	-
M 12	C	14.37	11	110	26	12	9	-	-

Further dimensions on request.

We also supply tin-coated forming taps.

© For tolerance class 4H, the ninth digit of the designation changes from 0 to 2.

For details see page 23.

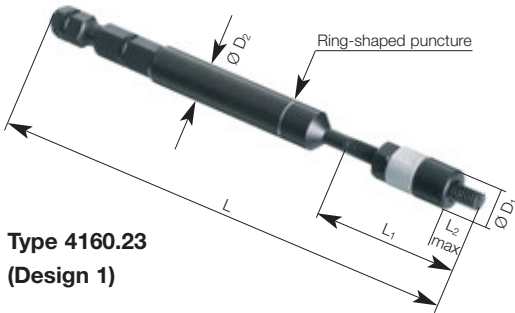
Gauges for HELICOIL®plus holding threads


Nominal thread Ø d	P	Order No*	Nominal thread Ø d	P	Order No*
M 2	0.4	0147 302 0500	M 18 x 1.5	1.5	0147 318 4500
M 2.5	0.45	0147 325 0500	M 18 x 2	2	0147 318 5500
M 3	0.5	0147 303 0500	M 20	2.5	0147 320 0500
M 3.5	0.6	0147 335 0500	M 20 x 1.5	1.5	0147 320 4500
M 4	0.7	0147 304 0500	M 20 x 2	2	0147 320 5500
M 5	0.8	0147 305 0500	M 22	2.5	0147 322 0500
M 6	1	0147 306 0500	M 22 x 1.5	1.5	0147 322 4500
M 7	1	0147 307 0500	M 22 x 2	2	0147 322 5500
M 8	1.25	0147 308 0500	M 24	3	0147 324 0500
M 8 x 1	1	0147 308 3500	M 24 x 1.5	1.5	0147 324 4500
M 9	1.25	0147 309 0500	M 24 x 2	2	0147 324 5500
M 10	1.5	0147 310 0500	M 26 x 1.5	1.5	0147 326 4500
M 10 x 1	1	0147 310 3500	M 27	3	0147 327 0500
M 10 x 1.25	1.25	0147 310 9500	M 27 x 1.5	1.5	0147 327 4500
M 11	1.5	0147 311 0500	M 27 x 2	2	0147 327 5500
M 12	1.75	0147 312 0500	M 28 x 1.5	1.5	0147 328 4500
M 12 x 1	1	0147 312 3500	M 30	3.5	0147 330 0500
M 12 x 1.25	1.25	0147 312 9500	M 30 x 1.5	1.5	0147 330 4500
M 12 x 1.5	1.5	0147 312 4500	M 30 x 2	2	0147 330 5500
M 14	2	0147 314 0500	M 33	3.5	0147 333 0500
M 14 x 1	1	0147 314 3500	M 33 x 2	2	0147 333 5500
M 14 x 1.25	1.25	0147 314 9500	M 36	4	0147 336 0500
M 14 x 1.5	1.5	0147 314 4500	M 36 x 1.5	1.5	0147 336 4500
M 16	2	0147 316 0500	M 36 x 2	2	0147 336 5500
M 16 x 1.5	1.5	0147 316 4500	M 36 x 3	3	0147 336 6500
M 18	2.5	0147 318 0500	–	–	–

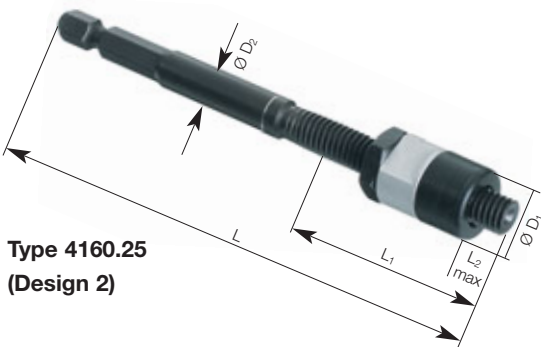
Further dimensions on request.

* For tolerance class 4H, the ninth digit of the order No changes from 5 to 4.
For details see page 23.

HELICOIL® plus installation mandrels for electrical installation tools type E-S 206 and E-S 410, battery installation tool type B-S 206 and B-S 824 as well as for pneumatic installation tools type P-S 412



**Type 4160.23
(Design 1)**



**Type 4160.25
(Design 2)**

Caution:

These installation mandrels can also be used as manual installation mandrels.

screwlock installation mandrels are marked with a ring-shaped puncture on the leading shank. HELICOIL® free running installation mandrels are provided with a smooth guiding shank.

Installation mandrel with depth stop

Only suitable for installation of HELICOIL® plus free running and screwlock. With external hexagon DIN 3126 - E 6.3.

For installation tools types B-S 206, E-S 206, E-S 410, P-S 412

Nominal thread Ø	free running mandrel	screwlock mandrel	L ₁	L ₂ max.	L	D ₁	D ₂ Ø _{H9}	De-sign
	Order No	Order No						
M 2	4160 2302 020	4160 2302 022	25	9	100	8	8	1
M 2,5	4160 2325 020	4160 2325 022	25	9	100	8	8	1
M 3	4160 2303 020	4160 2303 022	30	14	100	8	8	1
M 3.5	4160 2335 020	4160 2335 022	30	14	100	8	8	1
M 4	4160 2304 020	4160 2304 022	35	16	100	8	8	1
M 5	4160 2305 020	4160 2305 022	40	20	105	10	8	1
M 6	4160 2306 020	4160 2306 022	40	20	105	11	8	1

For installation tools types B-S 824, E-S 410, P-S 412

Nominal thread Ø	free running mandrel	screwlock mandrel	L ₁	L ₂ max.	L	D ₁	D ₂ Ø _{H9}	De-sign
	Order No	Order No						
M 7	4160 2507 020	4160 2507 022	55	30	105	13	8	2
M 8	4160 2508 020	4160 2508 022	55	30	105	15	8	2
M 8 x 1	4160 2508 320	4160 2508 322	55	30	105	15	8	2
M 9	4160 2509 020	4160 2509 022	65	40	110	15	8	2
M 10	4160 2510 020	4160 2510 022	60	40	110	16	8	2
M 10 x 1	4160 2510 320	4160 2510 322	65	40	115	16	8	2
M 10 x 1.25	4160 2510 920	4160 2510 922	65	40	115	16	8	2
M 12	4160 2512 020	4160 2512 022	70	45	115	20	8	2
M 12 x 1.25	4160 2512 920	4160 2512 922	70	45	120	20	8	2
M 12 x 1.5	4160 2512 420	4160 2512 422	65	45	115	20	8	2
M 14	4160 2514 020	4160 2514 022	70	50	120	21	8	2
M 14 x 1.5	4160 2514 420	4160 2514 422	70	50	120	21	8	2
M 16	4160 2516 020	4160 2516 022	80	55	135	24	8	2
M 16 x 1.5	4160 2516 420	4160 2516 422	80	55	135	24	8	2
M 18	4160 2518 020	4160 2518 022	90	65	135	30	8	2
M 20	4160 2520 020	4160 2520 022	100	70	145	31	8	2
M 22	4160 2522 020	4160 2522 022	110	80	155	33	8	2
M 24	4160 2524 020	4160 2524 022	120	90	165	35	8	2

For thread inserts of NiCr 15 Fe 7 Ti Al, NiCr 20 Co 18 Ti, AlZn Mg Cu 1.5 adapted tools on request.



Drill chuck with external hexagon

DIN 3126 - E 6.3 for type B-S 206
Order No 4160 000 0100

HELICOIL® plus installation mandrels for quick processing of HELICOIL® plus M 2–M 24 with HELICOIL® plus installation tools. Also suitable for the pick-and-place installation method.



Pick-and-place equipment see page 18.

Advantages:

- Simple installation mandrel
 - for critical installation points
 - quick retooling
 - reduced tool costs
- Dimension M 2 – M 24
 - HELICOIL® plus STRIPFEED® (M 2 – M 10)
 - HELICOIL® plus bulk material (M 2 – M 24)
 - flexible
- Pick-and-place processing
 - easy handling of HELICOIL® plus
 - shorter assembly times
- Easy change-over of direction of rotation
 - easy handling

Electrical and battery installation tools for HELICOIL® plus



Battery power pack installation tool type B-S 206

For processing HELICOIL® plus M 2 – M 6 with HELICOIL® plus installation mandrel

Delivery scope:

- Battery gun-straight installation tool (bendable)
- 2 pieces battery pack 3.6 V; 1.5 Ah
- Quick charger
- Trunk

Technical data:

Speed without load: two levels (200 min⁻¹ and 600 min⁻¹); reversible
 Torque: adjustable at 21 levels 0.3 – 2.9 Nm / 4.4 Nm max.
 Tool holder: 1/4" hexagon socket
 Weight incl. battery: 0.5 kg
 Battery: 3.6 V / 1.5 Ah / charging time 30 min.
 Order No: **4160 430 0000**

Spare parts and accessories:

Spare battery: Order No 4160 430 0200
 Quick charger: Order No 4160 430 0300

Battery power pack installation tool type B-S 824

For processing HELICOIL® plus M 7–M 24 with HELICOIL® plus installation mandrel

Delivery scope:

- Battery gun screwdriver
- 2 pieces battery pack 15.6 V; 3 Ah
- Quick charger
- Trunk

Technical data:

Speed without load: level 1 / stepless 65 – 450 min⁻¹, reversible
 level 2 / stepless 200 – 1450 min⁻¹, reversible
 Torque: 19-speed adjustable 1 – 6.9 Nm / 31.9 Nm max.
 Tool holder: three-jaw chuck 1.0 – 13 mm
 Weight incl. battery: 2.0 kg
 Battery: 15.6 V / 3 Ah / charging time 45 min
 Order No: **4160 350 0000**

Spare parts and accessories:

Spare battery: Order No 4160 350 0200
 Quick charger: Order No 4160 350 0300



Electrical installation tools for HELICOIL® plus



Electrical installation tool type E-S 206

For quick processing of HELICOIL® plus M 2 – M 6
with HELICOIL® plus installation mandrel

Delivery scope:

- Straight screwdriver with 1/4" hexagon
- Power supply for two screwdrivers
- Trunk

Technical data:

Speed without load:	720 min ⁻¹
Output voltage:	35 V DC
Torque:	M = 0,45 – 0,95 Nm steplessly adjustable shut-off clutch
Tool holder:	1/4" hexagon socket with radial bearing
Weight:	0.31 kg
Order No:	4160 220 0000

Dimension-dependent HELICOIL® plus installation mandrels with depth stop must be ordered separately, see page 33.



Electrical installation tool type E-S 410

For quick processing of HELICOIL® plus M 4 – M 10
with HELICOIL® plus installation mandrel

Delivery scope:

- Straight screwdriver with quick-change chuck 1/4" hexagon socket
- Speed regulator with ramp control type CLT 500
- Trunk

Technical data:

Speed without load:	steplessly adjustable at regulator rpm 720 min ⁻¹ Automatic change-over of direction of rotation upon reaching the screw-in depth
Torque:	M = 0.9 – 3.5 Nm steplessly adjustable clutch
Tool holder:	quick-change chuck 1/4" hexagon socket with radial bearing for installation mandrel
Weight:	0.66 kg
Order No:	4160 440 0000

Dimension-dependent HELICOIL® plus installation mandrels with depth stop must be ordered separately, see page 33.

Pneumatic installation tools for HELICOIL® plus

Pneumatic installation tool type P-S 412

For quick processing of HELICOIL® plus M 4 – M 12 with HELICOIL® plus installation mandrel

Technical data:

Speed without load:	1500 min ⁻¹ at p = 6.3 bar adjustable via air pressure
Air consumption:	5.5 L /s at p = 6.3 bar**
Torque:	M = 1.2 – 4.5 Nm steplessly adjustable shut-off clutch
Tool holder:	1/4" hexagon socket with radial bearing
Weight:	0.8 kg
Order No:	4160 270 0010

Dimension-dependent HELICOIL® plus installation mandrels with depth stop must be ordered separately, see page 33.

Pneumatic installation tool type P-S 1216

For quick processing of HELICOIL® plus M 12 – M 16 with HELICOIL® plus installation mandrel

Technical data:

Speed without load:	950 min ⁻¹ at p = 6.3 bar adjustable via air pressure
Air consumption:	5.5 L /s at p = 6.3 bar
Torque:	M = 1.2 – 5.5 Nm steplessly adjustable shut-off clutch
Tool holder:	1/4" hexagon socket with radial bearing
Weight:	0.8 kg
Order No:	4160 180 0010

Dimension-dependent HELICOIL® plus installation mandrels with depth stop must be ordered separately, see page 33.

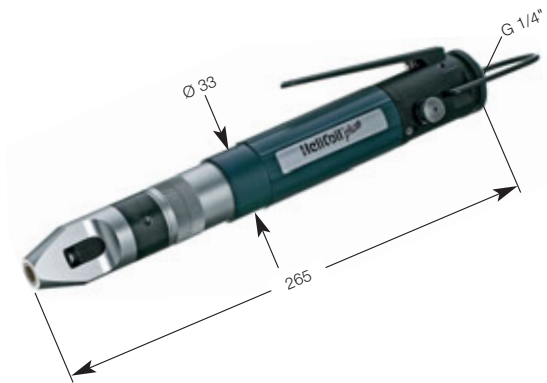
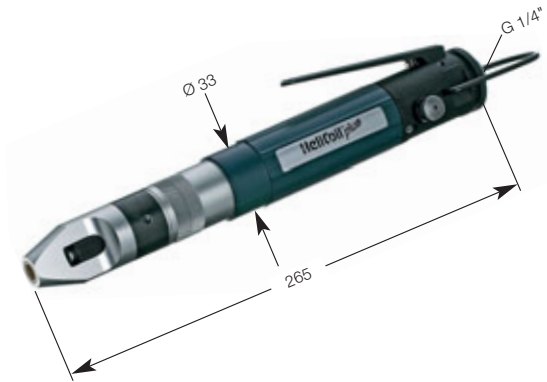
Accessories:

Spare handle for P-S 1216

Handle for safe compensation of installation torque for dimensions ≥ M 12
Order No: 4160 180 0006

Suspension bracket for P-S 412 and P-S 1216

for horizontal suspension of tools at balancer systems
Order No: 4160 180 0007



Mechanical installation tool type P-PSG for HELICOIL® plus

**For HELICOIL® plus
free running and screwlock**

Complete tool



Order example M 6:
P-PSG 256 M 6
Order No 0160 370 6000

Pitch-controlled HELICOIL® and HELICOIL® plus installation tool for **bulk material processing**. The mechanical tap is equipped with a reversible compressed-air motor and a dimension-dependent exchange unit. The HELICOIL® installation depth is adjusted with compensation washers. This tool is recommended for medium- and large-scale series.

Nominal thread Ø	Type	Complete tool Order No	Construction dimensions		Weight kg	Con- nection bar	**Air consumption l/Min.
			Ø D	L			
M 2.5	P-PSG 256	0160 372 5000	28	240	0.6	2.5-4.0	204
M 3		0160 370 3000	28	240	0.6	2.5-4.0	204
M 4		0160 370 4000	28	240	0.6	2.5-4.0	204
M 5		0160 370 5000	28	240	0.6	2.5-4.0	204
M 6		0160 370 6000	28	240	0.6	2.5-4.0	204
M 7		0160 280 7000	42	360	1.4	4.0-5.0	282
M 8		0160 280 8000	42	360	1.4	4.0-5.0	282
M 8 x 1		0160 280 8300	42	360	1.4	4.0-5.0	282
M 10	0160 281 0000	42	360	1.4	4.0-5.0	282	
M 10 x 1.25	P-PSG 714	0160 281 0900	42	360	1.4	4.0-5.0	282
M 10 x 1		0160 281 0300	42	360	1.4	4.0-5.0	282
M 12		0160 281 2000	42	360	1.4	4.0-5.0	282
M 12 x 1.5		0160 281 2400	42	360	1.4	4.0-5.0	282
M 12 x 1.25		0160 281 2900	42	360	1.4	4.0-5.0	282
M 12 x 1		0160 281 2300	42	360	1.4	4.0-5.0	282
M 14*		0160 281 4000	42	360	1.4	4.0-5.0	282
M 14 x 1.5		0160 281 4400	42	360	1.4	4.0-5.0	282
M 14 x 1.25	P-PSG 1626	0160 281 4900	42	360	1.4	4.0-5.0	282
M 16		0160 191 6000	42	440	2.5	4.0-6.0	282
M 16 x 1.5		0160 191 6400	42	440	2.5	4.0-6.0	282
M 18 x 1.5		0160 191 8400	42	440	2.5	4.0-6.0	282
M 20		0160 192 0000	42	440	2.5	4.0-6.0	282
M 20 x 1.5		0160 192 0400	42	440	2.5	4.0-6.0	282
M 22 x 1.5		0160 192 2400	42	440	2.5	4.0-6.0	282
M 24 x 1.5*		0160 192 4400	42	440	2.5	4.0-6.0	282
M 26 x 1.5*	0160 192 6400	42	440	2.5	4.0-6.0	282	

Assemblies

Exchange unit



Basic tool



Engine



Nominal length Ø	Type	Exchange unit Order No	Basic tool Order No	Engine Order No
M 2.5	P-PSG 256	0160 272 5050	0160 370 0040	0160 370 0010
M 3		0160 270 3050		
M 4		0160 270 4050		
M 5		0160 270 5050		
M 6		0160 270 6050		
M 7		0160 280 7050		
M 8		0160 280 8050		
M 8 x 1		0160 280 8350		
M 10	0160 281 0050	0160 180 0040	0160 180 0010	
M 10 x 1.25	0160 281 0950			
M 10 x 1	0160 281 0350			
M 12	0160 281 2050			
M 12 x 1.5	0160 281 2450			
M 12 x 1.25	0160 281 2950			
M 12 x 1	0160 281 2350			
M 14*	0160 281 4050			0160 090 0011
M 14 x 1.5	0160 281 4450	0160 180 0010		
M 14 x 1.25	0160 281 4950	0160 090 0040	0160 090 0011	
M 16	0160 191 6050			
M 16 x 1.5	0160 191 6450			
M 18 x 1.5	0160 191 8450			
M 20	0160 192 0050			
M 20 x 1.5	0160 192 0450			
M 22 x 1.5	0160 192 2450			
M 24 x 1.5*	0160 192 4450			
M 26 x 1.5*	0160 192 6450			

Mechanical installation tool type P-PSG for HELICOIL® plus

Leader cartridge



Installation mandrel



Clutch for installation mandrel



Range of compensation washers



**For HELICOIL® plus
free running and screwlock**

Wear and spare parts

Nominal thread Ø	Type	Leader cartridge	Installation mandrel	Clutch for installation mandrel	Range of compensation washers
d		Order No	Order No	Order No	Order No
M 2.5	P-PSG 256	0160 172 5032	0160 372 5020	0160 170 0006	0160 170 0060
M 3		0160 170 3032	0160 270 3020		
M 4		0160 170 4032	0160 270 4020		
M 5		0160 170 5032	0160 270 5020		
M 6		0160 170 6032	0160 270 6020		
M 7		0160 280 7032	0160 280 7020	0160 170 0066	
M 8	0160 280 8032	0160 280 8020			
M 8 x 1	0160 280 8332	0160 280 8320			
M 10	0160 281 0032	0160 281 0020			
M 10 x 1.25	P-PSG 714	0160 281 0932	0160 281 0920		
M 10 x 1		0160 281 0332	0160 281 0320		
M 12		0160 281 2032	0160 281 2020	0160 180 0006	0160 280 0060
M 12 x 1.5		0160 281 2432	0160 281 2420		
M 12 x 1.25		0160 281 2932	0160 281 2920		
M 12 x 1		0160 281 2332	0160 281 2320		
M 14*	0160 281 4032	0160 281 4020			
M 14 x 1.5	0160 281 4432	0160 281 4420			
M 14 x 1.25	P-PSG 1626	0160 281 4932	0160 281 4920	0160 090 0006	0160 190 0060
M 16		0160 191 6032	0160 191 6020		
M 16 x 1.5		0160 191 6432	0160 191 6420		
M 18 x 1.5		0160 191 8432	0160 191 8420		
M 20		0160 192 0032	0160 192 0020		
M 20 x 1.5		0160 192 0432	0160 192 0420		
M 22 x 1.5	0160 192 2432	0160 192 2420			
M 24 x 1.5*	0160 192 4432	0160 192 4420			
M 26 x 1.5*	0160 192 6432	0160 192 6420			

Important information order:

Upon tool order, specify type, dimension and length of HELICOIL® plus thread inserts to be processed. For installation of HELICOIL® plus thread inserts with lengths > 2.5 d on request. According to German accident prevention regulations (UVV), types P-PSG 714 and P-PSG 1626 are equipped with a sliding sleeve as a finger protection. This finger protection shall not be removed.

Installation tools are equipped with motors of the Bosch company.

**Air consumption at 6.3 bar. (See page 36.)

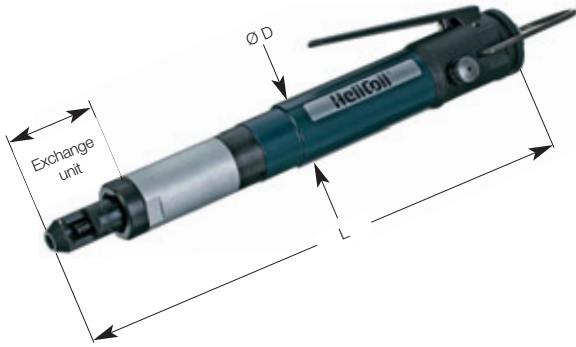
* Basic tool with boosted motor.

For inserts of NiCr15Fe7TiAl, NiCr20Co18Ti and AlZnMgCu1.5, adapted tools on request.

Mechanical installation tool type P-PSG for HELICOIL® plus

For HELICOIL® plus STRIPFEED®

Complete tool



Pitch-controlled HELICOIL® and HELICOIL® plus installation tool for processing **magazined thread inserts**. The mechanical tap is equipped with a reversible compressed-air motor and a dimension-dependent exchange unit. The HELICOIL® installation depth is adjusted with compensation washers. This tool is recommended for medium- and large-scale series.

Nominal thread Ø d	Type	Complete tool Order No	Max. length	Construction dimensions		Weight kg	Con nection bar	**Air consumption l/min.
				Ø D	L			
M 2.5	P-PSG 256 SF	0160 372 5002	≤1.25 d	28	240	0.6	2.5-4.0	204
M 2.5		0160 372 5003	1.5-2.5 d	28	240	0.6	2.5-4.0	204
M 3		0160 370 3002	≤1.25 d	28	240	0.6	2.5-4.0	204
M 3		0160 370 3003	1.5-2.5 d	28	240	0.6	2.5-4.0	204
M 4		0160 370 4002	≤1.25 d	28	240	0.6	2.5-4.0	204
M 4		0160 370 4003	1.5-2.5 d	28	240	0.6	2.5-4.0	204
M 5	P-PSG 714 SF	0160 370 5002	≤1.25 d	28	240	0.6	2.5-4.0	204
M 5		0160 370 5003	1.5-2.5 d	28	240	0.6	2.5-4.0	204
M 6		0160 370 6002	≤1.25 d	28	240	0.6	2.5-4.0	204
M 6		0160 370 6003	1.5-2.5 d	28	240	0.6	2.5-4.0	204
M 7		0160 280 7002	≤1.25 d	42	360	1.4	4.0-5.0	282
M 7		0160 280 7003	1.5-2.5 d	42	360	1.4	4.0-5.0	282
M 8	P-PSG 714 SF	0160 280 8002	≤1.25 d	42	360	1.4	4.0-5.0	282
M 8		0160 280 8003	1.5-2.5 d	42	360	1.4	4.0-5.0	282
M 10		0160 281 0002	≤1.25 d	42	360	1.4	4.0-5.0	282
M 10		0160 281 0003	1.5-2.5 d	42	360	1.4	4.0-5.0	282

Important information order:
 Upon tool order, specify type, dimension and length of HELICOIL® plus thread inserts to be processed. For installation of HELICOIL® plus thread inserts with lengths > 2.5 d on request. Installation tools are equipped with motors of the Bosch company.
 **Air consumption at 6.3 bar. (See page 36.)
 For inserts of NiCr15Fe7TiAl, NiCr20Co18Ti and AlZnMgCu1.5, adapted tools on request.

Assemblies

Exchange unit



Basic tool



Engine



Nominal thread Ø d	Type	Exchange unit ≤1.25 d	Exchange unit 1.5-2 d	Basic tool	Engine
		Order No	Order No	Order No	Order No
M 2.5	P-PSG 256 SF	0160 272 5052	0160 272 5053	0160 370 0040	0160 370 0010
M 3		0160 270 3052	0160 270 3053		
M 4		0160 270 4052	0160 270 4053		
M 5		0160 270 5052	0160 270 5053		
M 6		0160 270 6052	0160 270 6053		
M 7		P-PSG 714 SF	0160 280 7052		
M 8	0160 280 8052		0160 280 8053		
M 10	0160 281 0052		0160 281 0053		

Wear and spare parts

Nominal thread Ø d	Type	Leader cartridge ≤1.25 d	Leader cartridge 1.5-2.5 d	Installation mandrel	Clutch for installation mandrel
		Order No	Order No	Order No	Order No
M 2.5	P-PSG 256 SF	0160 172 5035	0160 172 5033	0160 272 5020	0160 170 0006
M 3		0160 170 3035	0160 170 3034	0160 270 3020	
M 4		0160 170 4035	0160 170 4033	0160 270 4020	
M 5		0160 170 5035	0160 170 5033	0160 270 5020	
M 6		0160 170 6035	0160 170 6033	0160 270 6020	
M 7		P-PSG 714 SF	0160 180 7035	0160 180 7033	
M 8	0160 180 8035		0160 180 8033	0160 280 8020	
M 10	0160 181 0035		0160 181 0033	0160 281 0020	

Range of compensation washers ≤ M 6: Order No 0160 170 0060, ≥ M 8: 0160 280 0060.

Parallel arm stand type S for HELICOIL® and HELICOIL®plus installation tools



Type	Product characteristics		Order No
S 600	work radius	140 mm – 600 mm	0182 080 0003 (see delivery scope)
	work height	50 mm – 430 mm	
	weight without tool	8 kg	
	torque absorption	15 Nm max.	

Benefits

- Rationalisation
- Quick and safe positioning
- Easy handling, no operator fatigue
- No return rotation forces
- Absorption of screwdriver weight
- Can be used with electrical and pneumatic HELICOIL® installation tools
- Quick retooling
- 360° rotatable
- Smooth and precise roller guides
- Optimum work-place layout

Delivery scope

- 3-axis guiding system
- Tool holder
- 1 balancer 1 – 3 kg
- Base plate made of extruded aluminium profile with grooves, dimensions w x h x l: 240 x 40 x 500 mm

Accessories

Type	Size	Order No
Maintenance unit	at 6 bar nominal flow G 1" = 700 l/min	0182 080 1001
Stationary roller holder for HELICOIL® plus STRIPFEED®		0182 080 0004
Hose	LW 6	0196 000 1130
Hose clip	8 – 12 mm	0196 000 1150
Hose tail	G 1/8"-6	0196 000 1151
Hose tail	G 1/4"-6	0196 000 1152
Exhaust air hose	Ø 15 mm	0196 000 1131

Automatic STRIPFEED® unit



For integration into

- assembly lines
- robot/handling systems

This unit is assembled as required by the customer. Please contact us for information on further systems.

Magazined HELICOIL® plus thread inserts provide advantages especially for processing smaller thread inserts.



Automatic processing of HELICOIL® plus M 8 screwlock with vibration singling-out.

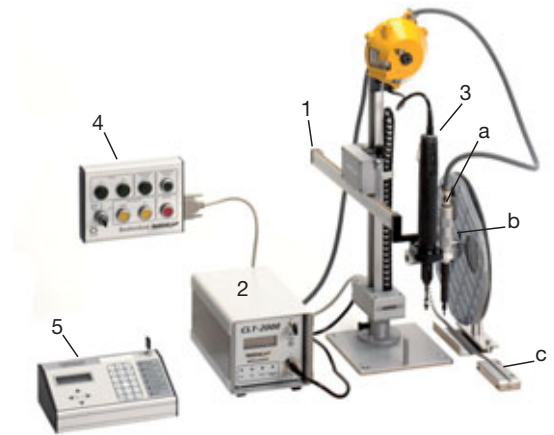
**Parallel arm stand type PR-E
for HELICOIL® and HELICOIL® plus installation tools**

3-axis parallel arm stand with displacement measuring system

Parallel arm stand type PR-E for quick, process-safe and manual positioning of HELICOIL® plus installation tools.

Type PR-E is a universal, flexible and cost-effective system that allows position queries according to a freely programmable pattern.

- Position detection x-axis, y-axis and z-axis
- Monitoring of screw depth, screw positions and process of screwing positions
- 10 programs
- 25 screw positions per program storable
- Control outputs to control of e.g. solenoid valves (24 DC) for pneumatic clamping devices



The PR-E type is suitable for holding the electrical HELICOIL® plus installation tool type E-S410 (see page 36). (Other electrical screwing tools on request.)

With the great extension length it is possible to cover a large working area. The tool is always in vertical position. The user of tool reaction torques is thus disburdened.

Further benefits are:

- Quality assurance. No HELICOIL® plus installation points are left out
- Securing of installation depth
- Registration of installation faults

Type	Order No	Max. work angle	Work height z-axis	Max. tool weight
PR-E 400	0182 100 0001	300°	80 mm – 420 mm	2,0 kg
PR-E 1000	0182 100 0002	Work radius (extension length) y-axis		Total stand weight
		160 mm – 400 mm		6,3 kg

Delivery scope type PR-E

- (1) Stress relief arm with displacement measuring system
- (2) Regulator unit (suitable for networking)
- (3) Electrical screwdriver 0.9–3.5 Nm 730 U/min 1/4" hex. with lever start (figure with E-S 410 for M4 – M10)
- (4) Operation box
- (5) Control unit
- Maintenance unit

Accessories

- (a) Pneumatic tang break-off tool (see page 43)
- (b) Stationary roller holder for HELICOIL® plus STRIPFEED®
- (c) HELICOIL® plus “pick-and-place” system (see page 18)

Manual installation tools for HELICOIL® plus

Manual installation tool with leader cartridge for HELICOIL® and HELICOIL® plus.

Only required for HELICOIL® plus in case of fine screw threads and special applications.

Manual installation mandrels are described on page 33 (HELICOIL® plus installation mandrels).



Type **H-PSG**:
Threaded mandrel, pitch-controlled,
with depth stop
Order No 0150 **01**. ...*



Type **H-PMG**:
Smooth mandrel, pitch-controlled,
with depth stop
Order No 0150 **02**. ...*



Type **H-PM**:
Smooth mandrel, without pitch control,
with depth stop
Order No 0150 **04**. ...*



Fly-over tool for HELICOIL® and HELICOIL® plus
Type **H-M**
with depth stop
Order No 0150 **07**. ...*

Nominal thread Ø	Type	Installation tool with leader cartridge	Fly-over tool Type H-M
		Order No	Order No
M 2	H-PMG M 2	0150 020 2000	-
M 2.5	H-PMG M 2.5	0150 022 5000	-
M 3	H-PMG M 3	0150 020 3000	-
M 3.5	H-PMG M 3.5	0150 023 5000	-
M 4	H-PMG M 4	0150 020 4000	-
M 5	H-PMG M 5	0150 020 5000	-
M 6	H-PM M 6	0150 040 6000	-
M 7	H-PSG M 7	0150 010 7000	-
M 8	H-PM M 8	0150 040 8000	-
M 8 x 1	H-PSG M 8 x 1	0150 010 8300	-
M 9	H-PM M 9	0150 040 9000	-
M 10	H-PM M 10	0150 041 0000	-
M 10 x 1	H-PSG M 10 x 1	0150 011 0300	-
M 10 x 1.25	H-PSG M 10 x 1.25	0150 011 0900	-
M 11	H-PM M 11	0150 041 1000	-
M 12	H-PM M 12	0150 041 2000	-
M 12 x 1	H-PSG M 12 x 1	0150 011 2300	-
M 12 x 1.25	H-PSG M 12 x 1.25	0150 011 2900	-
M 12 x 1.5	H-PSG M 12 x 1.5	0150 011 2400	-
M 14	H-PM M 14	0150 041 4000	-
M 14 x 1	H-PSG M 14 x 1	0150 011 4300	-
M 14 x 1.25	H-PSG M 14 x 1.25	0150 011 4900	-
M 14 x 1.5	H-PSG M 14 x 1.5	0150 011 4400	-
M 16	H-PM M 16	0150 041 6000	-
M 16 x 1.5	H-PMG M 16 x 1.5	0150 021 6400	-
M 18	H-M M 18	-	0150 071 8000
M 18 x 1.5	H-PSG M 18 x 1.5	0150 011 8400	-
M 18 x 2	H-PSG M 18 x 2	0150 011 8500	-
M 20	H-M M 20	-	0150 072 0000
M 20 x 1.5	H-PSG M 20 x 1.5	0150 012 0400	-
M 20 x 2	H-PSG M 20 x 2	0150 012 0500	-
M 22	H-M M 22	-	0150 072 2000
M 22 x 1.5	H-PSG M 22 x 1.5	0150 012 2400	-
M 22 x 2	H-PSG M 22 x 2	0150 012 2500	-
M 24	H-M M 24	-	0150 072 4000
M 24 x 1.5	H-PSG M 24 x 1.5	0150 012 4400	-
M 24 x 2	H-PSG M 24 x 2	0150 012 4500	-
M 26 x 1.5	H-PSG M 26 x 1.5	0150 012 6400	-
M 27	H-M M 27	-	0150 072 7000
M 27 x 1.5	H-PSG M 27 x 1.5	0150 012 7400	-
M 27 x 2	H-PSG M 27 x 2	0150 012 7500	-
M 28 x 1.5	H-PSG M 28 x 1.5	0150 012 8400	-
M 30	H-M M 30	-	0150 073 0000
M 30 x 1.5	H-PSG M 30 x 1.5	0150 013 0400	-
M 30 x 2	H-PSG M 30 x 2	0150 013 0500	-
M 33	H-M M 33	-	0150 073 3000
M 33 x 2	H-PSG M 33 x 2	0150 013 3500	-
M 36	H-M M 36	-	0150 073 6000
M 36 x 1.5	H-PSG M 36 x 1.5	0150 013 6400	-
M 36 x 2	H-PSG M 36 x 2	0150 013 6500	-
M 36 x 3	H-PSG M 36 x 3	0150 013 6600	-

* For thread inserts of NiCr 15 Fe 7 Ti Al, NiCr 20 Co 18 Ti, AlZn Mg Cu 1.5 adapted tools on request.

Tang break-off and extracting tools for HELICOIL® plus

Tang break-off tools for HELICOIL® plus



Tang break-off mandrel



Mechanical tang break-off tool with spring tension **type TB-M**



Pneumatic tang break-off tool with thrust trigger **type TB-P**

Nominal thread Ø	Tang break-off mandrel Order No	Type TB-M Order No	Type TB-P pneumatic* Order No
M 2	0158 040 0000	0158 602 0000	–
M 2,5	0158 040 1000	0158 625 0000	–
M 3	0158 040 1000	0158 603 0000	0168 040 3000
M 3,5	0158 040 2000	0158 635 0000	–
M 4	0158 040 2000	0158 604 0000	0168 040 4000
M 5	0158 040 3000	0158 605 0000	0168 040 5000
M 6	0158 040 3000	0158 606 0000	0168 040 6000
M 7	0158 040 4000	0158 607 0000	0168 040 7000
M 8	0158 040 4000	0158 608 0000	0168 040 8000
M 9	0158 040 4000	0158 609 0000	–
M 10	0158 040 5000	0158 610 0000	0168 041 0000
M 11	0158 040 5000	0158 610 0000	–
M 12	0158 040 6000	0158 612 0000	0168 041 2000

* Operating pressure 3 – 4 bar, connection G 1/4"
From M 14, the tang must be removed with long nose pliers.

Manual extracting tools for HELICOIL® plus



Nominal thread Ø d	Order No	Nominal thread Ø d	Order No
M 2	0180 300 0000	M 18	0180 303 0000
M 2.5		M 18 x 1.5	
M 3		M 18 x 2	
M 3.5		M 20	
M 4	0180 301 0000	M 20 x 1.5	0180 304 0000
M 5		M 20 x 2	
M 6		M 22	
M 7		M 22 x 1.5	
M 8		M 22 x 2	
M 8 x 1		M 24	
M 9	0180 302 0000	M 24 x 1.5	0180 305 0000
M 10		M 24 x 2	
M 10 x 1		M 26 x 1.5	
M 10 x 1.25		M 27	
M 11		M 27 x 1.5	
M 12		M 27 x 2	
M 12 x 1		M 28 x 1.5	
M 12 x 1.25		M 30	
M 12 x 1.5	0180 302 0000	M 30 x 1.5	0180 305 0000
M 14		M 30 x 2	
M 14 x 1		M 33	
M 14 x 1.25		M 33 x 2	
M 14 x 1.5	0180 302 0000	M 36	0180 305 0000
M 16		M 36 x 1.5	
M 16 x 1.5		M 36 x 2	
		M 36 x 3	

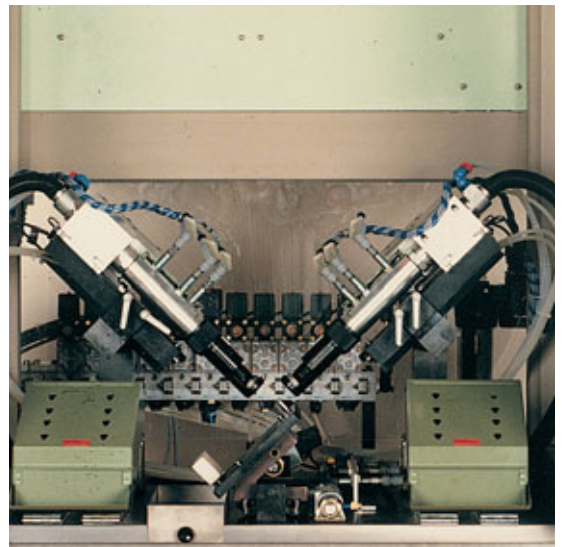
*Mechanical extracting tools for **HELICOIL®** and **HELICOIL® plus***



With 1/4" external hexagon DIN 3126 — E 6.3
for battery power pack installation tool type B-S 206
and type B-S 824.

Nominal thread Ø	Order No
M 2 to M 6	0180 501 0000
M 7 to M 16	0180 502 0000

*Examples of equipment and special machines for semi- and fully automatic installation of **HELICOIL® plus***



HELICOIL® plus repair kits and repair range kits

Rejects recovery and thread repair

HELICOIL® plus repair kits

M 2.5 to M 16

Repair kits contain:

- HELICOIL® plus thread inserts of 3 lengths
twist drills (up to M 12)
- manual tap of HSS
- installation mandrel
- tang break-off tool (up to M 12)

Special repair kits are available for repair of defective spark plug threads M 10 x 1 to M 14 x 1.25 and defective oil drain threads M 12 x 1.5 to M 16 x 1.5.



HELICOIL® plus repair kits

M 18 to M 36 x 1,5

Repair kits contain:

- HELICOIL® plus thread inserts
- manual taps
- installation mandrel (M 18 to M 24 normal screw thread)
- installation tool (M 27–M 33 normal screw thread and M 18 x 1.5–M 36 x 1.5 fine screw thread)

Special repair kits are available for e.g. repair of defective oxygen sensor threads M 18 x 1.5.

HELICOIL® plus repair range kits

M 2,5 to M 6, M 4 to M 10, M 5 to M 12 and M 6 to M 14 x 1,25

Repair range kits contain:

- HELICOIL® plus thread inserts of different dimensions and lengths
- twist drills up to M 12 (for M 14 x 1.25 with combined drilling and tapping tool)
- manual tap of HSS
- installation mandrels
- tang break-off tool

Special repair range kits are available for repair of defective spark plug threads M 10 x 1 to M 14 x 1.25 and defective oil drain threads M 12 x 1.5 x 9 to M 16 x 1.5 x 24.

For further demand we deliver HELICOIL® plus thread inserts in refill packs.

HELICOIL® plus repair kits and repair range kits, HELICOIL® locknuts

Rejects recovery and thread repair

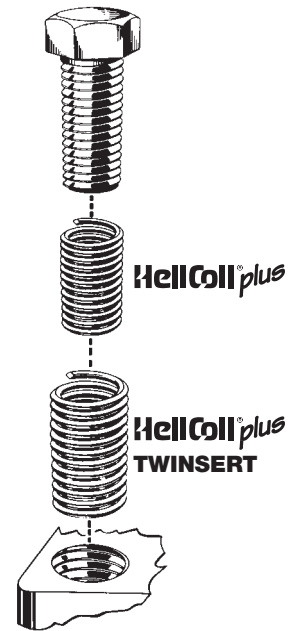
HELICOIL® plus TWINSERT repair kits

If tapped holes are widely torn out, tapped off-centre or too large and yet the construction does not allow to insert a larger bolt diameter, HELICOIL® plus TWINSERT offers repair with "HELICOIL® plus inside HELICOIL® plus".

Dimensions M 2 to M 16 are available.

Feel free to contact our customer service for further information on TWINSERT.

A comprehensive overview of our range for thread repair is provided in our catalogue 0180 — also for imperial dimensions. Just order the catalogue.



HELICOIL® free running and screwlock

HELICOIL® locknuts consist of an installed prevailing torque type HELICOIL® plus screwlock thread insert. Screw locking is realised by one or several polygon windings. These threads clamp the flanks of the screwed-in screw; the result is an elastically resilient frictional locking. The achieved clamping torques can be compared to the specifications in DIN 267 Part 15 HELICOIL® in ISO 2320. HELICOIL® nuts are available in different materials.

Just order our detailed brochure 0560.



Böllhoff. A competent partner of innovative industries.

We closely cooperate with our customers in development and range policy. This mutual dialog is the main basis for product expertise and marketability. Apart from that, the target group-oriented range of products and services with a clear division structure ensures that users from all industries are always supported by a competent contact person.

- Automotive, aerospace industry
- Machines and plants
- Electronics, sheet metal and plastic
- Building and civil engineering
- Furniture and wood



Böllhoff, the international service provider for fastening and assembly technology with company production plants and innovative development.

Technical expertise through own production facilities, application engineering and customer-oriented service. And in addition to that, a worldwide network of high-performance branches with a wide range of more than 120000 articles of certified quality – from standard parts to screwdrivers. Not to forget ECOSIT®, the economical supply systems. A complete range of products and services of the reliable, strong partner of innovative industries.



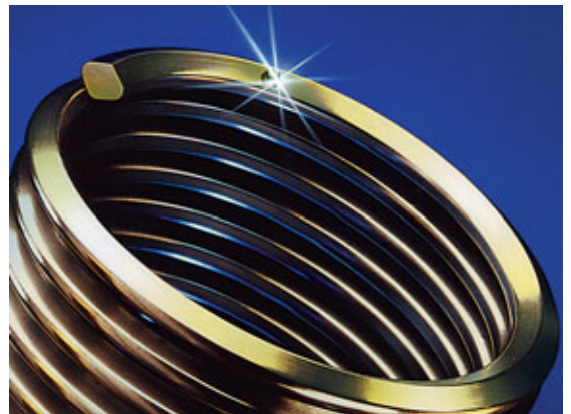
Production of HELICOIL® plus thread inserts

We produce free running und screwlock thread inserts on special wire processing machines. High-precision wire profiles with a rhombic cross section are the basis for the production of all HELICOIL® products. Production includes metric as well as imperial dimensions. The range of dimensions comprises M 2 to M 200 x 6 and corresponding dimensions in inch.



HELICOIL® plus, the original. With the rhombic imprint. Quality since 1956!

Over the decades, they have been installed in millions – from the simple solution to thread repair to high-strength high-tech threads in lowstrength materials. Nothing can replace precision and reliability! Thanks to the internationally licensed HELICOIL® technology from the United States of America, there are sources of service and delivery in all industrial countries.



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