



**System modules – the fastener**

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# The thread

Even if the screw thread has the maximum size and the nut thread has the minimum size, they must still fit. That means, no dimension may exceed zero line or nominal dimension.

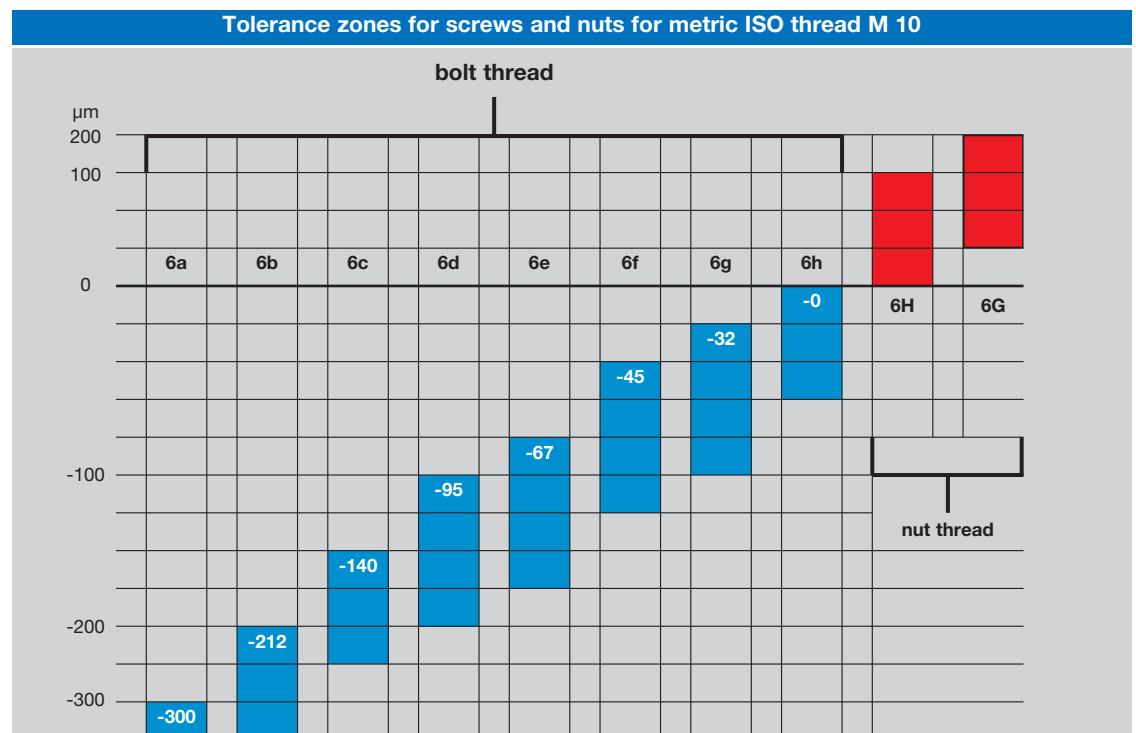
The **tolerance** position at the zero line is indicated by means of a capital H for internal threads and small h for external threads. The letters preceding h (g to a) mean a larger deviation for external threads. At tolerance position e, the bolt diameter is therefore smaller than at g.

The number preceding the letter is the **tolerance grade**, e.g. 6g. The higher the number, the larger the tolerance zone. The dimensions of the tolerance zones depend on the nominal size. So, the bigger the nominal size, the bigger the tolerance zone.

If no specific tolerance zone has been specified for a screw, it was produced according to tolerance zone 6g. All common screws are thus undersize.

This minus tolerance allows subsequent thin galvanic surface coating without exceeding the zero line of the finished thread.

If the protective layer shall be thicker, a tolerance position with a smaller thread diameter is required, e.g. 6e for stronger galvanic layers.



# Thread tolerances of metric tapped holes

## Standard tolerance

According to DIN 8140 Part 2, HELICOIL® holding threads comply with tolerance **6H mod**.  
 6H mod corresponds to accuracy of tolerance **5H** (also see imprint on threaded plug gauge for HELICOIL® tapped hole).  
 After the HELICOIL® Plus thread insert has been installed, the resulting ISO thread complies with tolerance **6H**.

HELICOIL®	Item code – example
Tap	For tolerance classes <b>6H mod</b> and <b>5H</b> , the ninth digit of the item code is <b>1</b> Example: M 10 0141 410 0 <b>1</b> 52
Forming tap	For tolerance classes <b>6H mod</b> and <b>5H</b> , the ninth digit of the item code is <b>0</b> Example: M 10 0144 110 0 <b>0</b> 04
Threaded plug gauges	For tolerance classes <b>6H mod</b> and <b>5H</b> , the ninth digit of the item code is <b>5</b> Example: M 10 0147 310 0 <b>5</b> 00

## Industry-specific tolerance

Maximum operational reliability and economic efficiency are most important for the development in the aerospace industry. That is why the respective standards demand ISO thread tolerance **5H**. Consequently, HELICOIL® tapped hole must comply with tolerance **5H mod** corresponding to accuracy of tolerance **4H**.

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

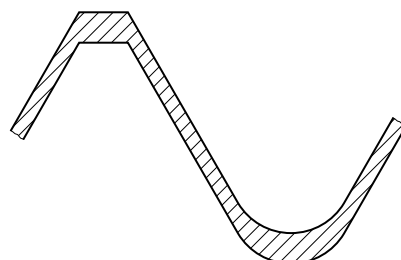


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HELICOIL®	Item code – example
Tap	For tolerance classes <b>5H mod</b> and <b>4H</b> , the ninth digit of the item code is <b>2</b> Example: M 10 0141 410 0 <b>2</b> 52
Forming tap	For tolerance classes <b>5H mod</b> and <b>4H</b> , the ninth digit of the item code is <b>2</b> Example: M 10 0144 110 0 <b>2</b> 04
Threaded plug gauges	For tolerance classes <b>5H mod</b> and <b>4H</b> , the ninth digit of the item code is <b>4</b> Example: M 10 0147 310 0 <b>4</b> 00

## MJ thread (ISO 5855)

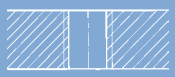
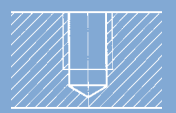
No special HELICOIL® tapped hole is required for the use of threaded bolts with this thread profile.



External MJ thread

## HELICOIL® Plus manual and machine taps

To tap the HELICOIL® Plus tapped hole, system dependent original HELICOIL® taps must be used. We have suitable manual and machine taps on offer. The overview provides all necessary information.

Arrangement	Manual tap Through hole and blind hole	Machine tap		Recommended guide values <sup>①</sup> cutting speed [m/min]*	Cooling/ lubrication
		Through hole 	Blind hole 		
Aluminium and aluminium cast alloys (short-chip)	0140.0 0140.1-2 <sup>②</sup> 0140.3-5 <sup>③</sup>	0141 1XXX XXX	0141 5XXX XXX	10/20	emulsion
Aluminium and aluminium alloys (long-chip)	0140.0 0140.1-2 <sup>②</sup> 0140.3-5 <sup>③</sup>	0141 1XXX XXX	0141 4XXX XXX	15/20	emulsion
Magnesium alloys	0140.0 0140.1-2 <sup>②</sup> 0140.3-5 <sup>③</sup>	0141 1XXX XXX	0141 4XXX XXX	10/20	dry
Steel up to 700 N/mm <sup>2</sup> Cast iron soft $R_m \leq 250 \text{ N/mm}^2$ ** Cast iron hard $R_m > 250 \text{ N/mm}^2$ ** Malleable cast iron	0140.0 0140.1-2 <sup>②</sup> 0140.3-5 <sup>③</sup>	0141 1XXX XXX	0141 5XXX XXX	6/15 8/15 6/12 8/12	oil, emulsion petroleum/emulsion emulsion oil, emulsion
Copper Bronze/red brass Brass, tough Zinc alloy	0140.0 0140.1-2 <sup>②</sup> 0140.3-5 <sup>③</sup>	0141 1XXX XXX	0141 5XXX XXX	10/15 5/12 8/16 8/15	oil, emulsion oil, emulsion oil, emulsion oil, emulsion
Brass, brittle	0140.0 0140.1-2 <sup>②</sup> 0140.3-5 <sup>③</sup>	0141 1XXX XXX	0141 5XXX XXX	10/20	oil dry

① In individual cases, preliminary tapping tests are required for other materials.

② Set of taps (two-piece).

③ Set of taps (three-piece).

We also supply TiN-coated taps.

\* Smaller value for blind holes, higher value for through holes.

\*\* 1 N/mm<sup>2</sup> equals 1 MPa

## HELICOIL® special machine taps

The standard taps from the HELICOIL® system comply with almost all practical requirements. For critical chip removal requirements, such as materials difficult to machine (stainless and heat-resisting steels, different steel and titanium alloys), we offer special machine taps. The overview provides the machine taps for the respective materials including recommended guide values for cutting speed.

Arrangement	Machine tap		Recommended guide values cutting speed [m/min]*	Cooling/lubrication
	Through hole	Blind hole		
Aluminium alloys with a high silicon content Si > 10 %	0141 9XXX 444	0141 9XXX 451	10/20	oil/emulsion
<b>Materials difficult to machine:</b> – Stainless steel – Ferritic/martensitic – Austenitic – Heat-resisting steel	0141 9XXX 444	0141 9XXX 451	3/8 1/4 1/4	oil/emulsion
<b>Hard materials:</b> – Grey cast iron – Spheroidal graphite cast iron	0141 9XXX 418	0141 9XXX 418	8/16 6/12	petroleum/emulsion
<b>Tough, seizing materials:</b> Electrolytic copper Bronze, hard	0141 9XXX 445	0141 9XXX 451	8/12 1/5	oil
Brass, brittle	0141 9XXX 424	0141 9XXX 424	15/25	oil
<b>Titanium alloys:</b> ≤ 700 N/mm <sup>2</sup> ** > 700 N/mm <sup>2</sup> **	0141 9XXX 444 0141 9XXX 447	0141 9XXX 451 0141 9XXX 432	2/8 1/4	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: size M 4: 0141 **9040** 451

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

\* Smaller value for blind holes, higher value for through holes.

\*\* 1 N/mm<sup>2</sup> equals 1 MPa

# Manual taps for **HELICOIL® Plus**



## Typ 0140.0

HELICOIL® manual tap, cutting

For cutting materials with a strength up to 700 N/mm<sup>2\*\*\*</sup>

For through holes

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



## Typ 0140.1, 0140.2

HELICOIL® manual tap, two-piece set with tapered lead threads:

Pre-tap 4-lead chamfer 0140.1...

Finishing tap 2-lead chamfer 0140.2...

For cutting materials with a strength up to 700 N/mm<sup>2\*\*\*</sup>

For through holes and blind holes.



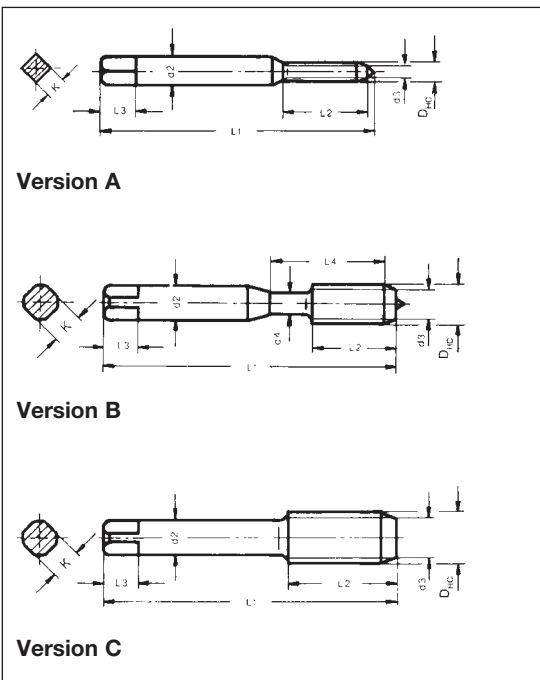
## Typ 0140.3, 0140.4, 0140.5

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

Pre-tap 4-lead chamfer 0140.3...

Intermediate tap 4-lead chamfer 0140.4...

Finishing tap 2-lead chamfer 0140.5...



Version A

Version B

Version C

Nominal thread Ø	Cutting taps for tolerance class 5H (6H mod.)*	Taps for tolerance class 5H (6H mod.)* (1 set)	
		Pre-taps Typ 0140.1 Item No	Finishing taps Typ 0140.2 Item No
d	Typ 0140.0 Item No		
<b>M 2</b>	0140 002 0104	0140 102 0104	0140 202 0102
<b>M 2.5</b>	0140 025 0104	0140 125 0104	0140 225 0102
<b>M 3</b>	0140 003 0104	0140 103 0104	0140 203 0102
<b>M 3.5</b>	0140 035 0104	0140 135 0104	0140 235 0102
<b>M 4</b>	0140 004 0104	0140 104 0104	0140 204 0102
<b>M 5</b>	0140 005 0104	0140 105 0104	0140 205 0102
<b>M 6</b>	0140 006 0104	0140 106 0104	0140 206 0102
<b>M 7</b>	0140 007 0104	0140 107 0104	0140 207 0102
<b>M 8</b>	0140 008 0104	0140 108 0104	0140 208 0102
<b>M 8 x 1</b>	0140 008 3104	0140 108 3104	0140 208 3102
<b>M 9</b>	0140 009 0104	0140 109 0104	0140 209 0102
<b>M 10</b>	0140 010 0104	0140 110 0104	0140 210 0102
<b>M 10 x 1</b>	0140 010 3104	0140 110 3104	0140 210 3102
<b>M 10 x 1.25</b>	0140 010 9104	0140 110 9104	0140 210 9102
<b>M 11</b>	0140 011 0104	0140 111 0104	0140 211 0102
<b>M 12</b>	0140 012 0104	0140 112 0104	0140 212 0102
<b>M 12 x 1</b>	0140 012 3104	0140 112 3104	0140 212 3102
<b>M 12 x 1.25</b>	0140 012 9104	0140 112 9104	0140 212 9102
<b>M 12 x 1.5</b>	0140 012 4104	0140 112 4104	0140 212 4102
<b>M 14</b>	0140 014 0104	0140 114 0104	0140 214 0102
<b>M 14 x 1</b>	0140 014 3104	0140 114 3104	0140 214 3102
<b>M 14 x 1.25</b>	0140 014 9104	0140 114 9104	0140 214 9102
<b>M 14 x 1.5</b>	0140 014 4104	0140 114 4104	0140 214 4102
<b>M 16</b>	0140 016 0104	0140 116 0104	0140 216 0102
<b>M 16 x 1.5</b>	0140 016 4104	0140 116 4104	0140 216 4102
<b>M 18</b>	–	0140 118 0104	0140 218 0102
<b>M 18 x 1.5</b>	0140 018 4104	0140 118 4104	0140 218 4102
<b>M 18 x 2</b>	0140 018 5104	0140 118 5104	0140 218 5102
<b>M 20</b>	–	0140 120 0104	0140 220 0102
<b>M 20 x 1.5</b>	0140 020 4104	0140 120 4104	0140 220 4102
<b>M 20 x 2</b>	0140 020 5104	0140 120 5104	0140 220 5102
<b>M 22</b>	–	0140 122 0104	0140 222 0102
<b>M 22 x 1.5</b>	0140 022 4104	0140 122 4104	0140 222 4102
<b>M 22 x 2</b>	0140 022 5104	0140 122 5104	0140 222 5102
<b>M 24</b>	–	0140 124 0104	0140 224 0102
<b>M 24 x 1.5</b>	0140 024 4104	0140 124 4104	0140 224 4102
<b>M 24 x 2</b>	0140 024 5104	0140 124 5104	0140 224 5102
<b>M 26 x 1.5</b>	0140 026 4104	0140 126 4104	0140 226 4102
<b>M 27</b>	–	0140 127 0104	0140 227 0102
<b>M 27 x 1.5</b>	0140 027 4104	0140 127 4104	0140 227 4102
<b>M 27 x 2</b>	0140 027 5104	0140 127 5104	0140 227 5102
<b>M 28 x 1.5</b>	0140 028 4104	0140 128 4104	0140 228 4102
<b>M 30</b>	–	0140 130 0104	0140 230 0102
<b>M 30 x 1.5</b>	0140 030 4104	0140 130 4104	0140 230 4102
<b>M 30 x 2</b>	0140 030 5104	0140 130 5104	0140 230 5102
<b>M 33</b>	–	0140 133 0104	0140 233 0102
<b>M 33 x 2</b>	0140 033 5104	0140 133 5104	0140 233 5102
<b>M 36**</b>	–	–	–
<b>M 36 x 1.5</b>	0140 036 4104	0140 136 4104	0140 236 4102
<b>M 36 x 2</b>	0140 036 5104	0140 136 5104	0140 236 5102
<b>M 36 x 3</b>	0140 036 6104	0140 136 6104	0140 236 6102

For combined drilling and tapping tools, see page 36/37.

\*\*\* 1 N/mm<sup>2</sup> equals 1 MPa

Version	Min. outside Ø D <sub>HC</sub>	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	Nominal thread Ø  d
A	2.5	2.8	2	40	9	5	2.1	–	–	<b>M 2</b>
B	3.1	3.5	2.5	40	10	6	2.7	13.5	2.6	<b>M 2.5</b>
B	3.6	4	3	45	10	6	3	13.5	3.1	<b>M 3</b>
B	4.3	4.5	3.5	45	12	6	3.4	15.5	3.6	<b>M 3.5</b>
B	4.9	6	4	50	14	8	4.9	17.5	4.2	<b>M 4</b>
B	6.0	6	5	50	16	8	4.9	19.5	5.2	<b>M 5</b>
C	7.3	6	6	56	19	8	4.9	–	–	<b>M 6</b>
C	8.3	7	7	63	19	8	5.5	–	–	<b>M 7</b>
C	9.6	7	8	70	22	8	5.5	–	–	<b>M 8</b>
C	9.3	7	8	63	19	8	5.5	–	–	<b>M 8 x 1</b>
C	10.6	8	9	70	24	9	6.2	–	–	<b>M 9</b>
C	11.9	9	10	75	27	10	7	–	–	<b>M 10</b>
C	11.3	9	10	70	22	10	7	–	–	<b>M 10 x 1</b>
C	11.6	10	9	70	22	10	7	–	–	<b>M 10 x 1.25</b>
C	12.9	11	11	70	22	12	9	–	–	<b>M 11</b>
C	14.3	11	12	80	30	12	9	–	–	<b>M 12</b>
C	13.3	11	12	70	22	12	9	–	–	<b>M 12 x 1</b>
C	13.6	11	12	70	22	12	9	–	–	<b>M 12 x 1.25</b>
C	14.0	11	12	70	22	12	9	–	–	<b>M 12 x 1.5</b>
C	16.6	12	14	80	32	12	9	–	–	<b>M 14</b>
C	15.3	12	14	70	22	12	9	–	–	<b>M 14 x 1</b>
C	15.6	12	14	70	22	12	9	–	–	<b>M 14 x 1.25</b>
C	16.0	12	14	70	22	12	9	–	–	<b>M 14 x 1.5</b>
C	18.6	14	16	80	22	14	11	–	–	<b>M 16</b>
C	18.0	14	16	80	22	14	11	–	–	<b>M 16 x 1.5</b>
C	21.3	16	18	95	40	15	12	–	–	<b>M 18</b>
C	20.0	16	18	80	22	15	12	–	–	<b>M 18 x 1.5</b>
C	20.6	16	18	80	22	15	12	–	–	<b>M 18 x 2</b>
C	23.3	18	20	100	40	17	14.5	–	–	<b>M 20</b>
C	22.0	18	20	80	22	17	14.5	–	–	<b>M 20 x 1.5</b>
C	22.6	18	20	80	22	17	14.5	–	–	<b>M 20 x 2</b>
C	25.3	18	22	110	50	17	14.5	–	–	<b>M 22</b>
C	24.0	18	22	90	22	17	14.5	–	–	<b>M 22 x 1.5</b>
C	24.6	18	22	90	22	17	14.5	–	–	<b>M 22 x 2</b>
C	27.9	20	24	110	50	19	16	–	–	<b>M 24</b>
C	26.0	18	24	90	22	17	14.5	–	–	<b>M 24 x 1.5</b>
C	26.6	20	24	90	22	19	16	–	–	<b>M 24 x 2</b>
C	28.0	20	26	90	22	19	16	–	–	<b>M 26 x 1.5</b>
C	30.9	22	27	125	56	21	18	–	–	<b>M 27</b>
C	29.0	22	27	90	22	21	18	–	–	<b>M 27 x 1.5</b>
C	29.6	22	27	90	22	21	18	–	–	<b>M 27 x 2</b>
C	30.0	22	28	90	22	21	18	–	–	<b>M 28 x 1.5</b>
C	34.6	28	30	125	40	25	22	–	–	<b>M 30</b>
C	32.0	22	30	90	22	21	18	–	–	<b>M 30 x 1.5</b>
C	32.6	25	30	100	22	23	20	–	–	<b>M 30 x 2</b>
C	37.6	28	33	125	40	25	22	–	–	<b>M 33</b>
C	35.6	28	33	125	40	25	22	–	–	<b>M 33 x 2</b>
C	41.2	32	36	150	63	27	24	–	–	<b>M 36</b>
C	38.0	28	36	100	25	25	22	–	–	<b>M 36 x 1.5</b>
C	38.6	32	36	125	40	27	24	–	–	<b>M 36 x 2</b>
C	39.9	32	36	125	40	27	24	–	–	<b>M 36 x 3</b>

Further sizes on request.

\* For tolerance class 4H, the ninth digit of the finishing tap item no changes from 1 to 2. The pre-tap does not change. For details see page 29.

\*\* Set of taps (three-flute), Plus 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 particularly suitable for short-chip materials such as grey cast iron, brass or magnesium.



# Machine taps for **HELICOIL® Plus**



## Type 0141.1

HELICOIL® machine tap, straight-fluted, rake angle 10°, with spiral point 4-lead chamfer for through holes, for blind holes with deeper drilled tap hole. For materials with a strength of max. 850 N/mm<sup>2\*\*</sup>



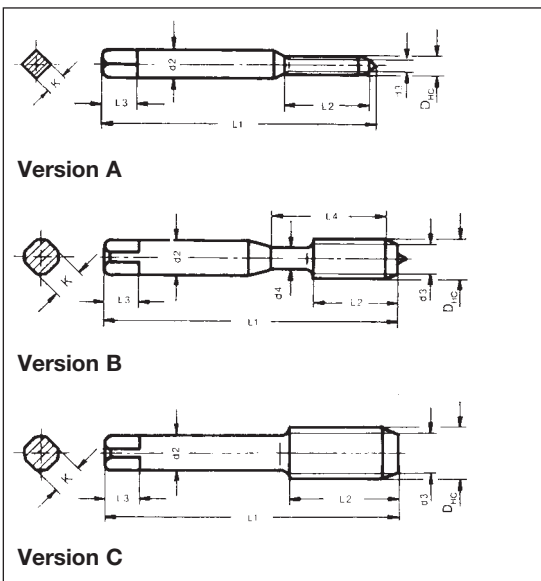
## Type 0141.4

HELICOIL® machine tap, spiral flutes 45° right-hand spiral, rake angle 15°, 2-lead chamfer for blind holes. Also suitable for aluminium casting alloys with a very low content of Si (≤ 2 %). For aluminium wrought alloys with a strength of up to 500 N/mm<sup>2\*\*</sup>. 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/mm<sup>2\*\*</sup>.



## Type 0141.5

HELICOIL® machine tap, spiral flutes 40° right-hand spiral, rake angle 10°, 2–3-lead chamfer for blind holes, for blind holes with deeper drilled tap hole. For steels with a strength from 500 N/mm<sup>2\*\*</sup> to 850 N/mm<sup>2\*\*</sup> maximum. Also suitable for aluminium alloys with an Si content of up to approximately 10 %. For Si-content > 10 % see page 30.



Nominal thread Ø	Taps for tolerance class 5H (6H mod.)*	Taps for tolerance class 5H (6H mod.)*	Taps for tolerance class 5H (6H mod.)*
	Type 0141.1 Item No	Type 0141.4 Item No	Type 0141.5 Item No
d			
<b>M 2</b>	0141 102 0104	0141 402 0152	0141 502 0102
<b>M 2.5</b>	0141 125 0104	0141 425 0152	0141 525 0102
<b>M 3</b>	0141 103 0104	0141 403 0152	0141 503 0102
<b>M 3.5</b>	0141 135 0104	0141 435 0152	0141 535 0102
<b>M 4</b>	0141 104 0104	0141 404 0152	0141 504 0102
<b>M 5</b>	0141 105 0104	0141 405 0152	0141 505 0102
<b>M 6</b>	0141 106 0104	0141 406 0152	0141 506 0102
<b>M 7</b>	0141 107 0104	0141 407 0152	0141 507 0102
<b>M 8</b>	0141 108 0104	0141 408 0152	0141 508 0102
<b>M 8 x 1</b>	0141 108 3104	0141 408 3152	0141 508 3102
<b>M 9</b>	0141 109 0104	0141 409 0152	0141 509 0102
<b>M 10</b>	0141 110 0104	0141 410 0152	0141 510 0102
<b>M 10 x 1</b>	0141 110 3104	0141 410 3152	0141 510 3102
<b>M 10 x 1.25</b>	0141 110 9104	–	0141 510 9102
<b>M 11</b>	0141 111 0104	0141 411 0152	0141 511 0102
<b>M 12</b>	0141 112 0104	0141 412 0152	0141 512 0102
<b>M 12 x 1</b>	0141 112 3104	0141 412 3152	0141 512 3102
<b>M 12 x 1.25</b>	0141 112 9104	–	0141 512 9102
<b>M 12 x 1.5</b>	0141 112 4104	0141 412 4152	0141 512 4102
<b>M 14</b>	0141 114 0104	–	0141 514 0102
<b>M 14 x 1</b>	0141 114 3104	0141 414 3152	0141 514 3102
<b>M 14 x 1.25</b>	0141 114 9104	–	–
<b>M 14 x 1.5</b>	0141 114 4104	0141 414 4152	0141 514 4102
<b>M 16</b>	0141 116 0104	–	0141 516 0102
<b>M 16 x 1.5</b>	0141 116 4104	0141 416 4152	0141 516 4102
<b>M 18</b>	0141 118 0104	–	0141 518 0102
<b>M 18 x 1.5</b>	0141 118 4104	0141 418 4152	0141 518 4102
<b>M 18 x 2</b>	0141 118 5104	–	0141 518 5102
<b>M 20</b>	0141 120 0104	–	0141 520 0102
<b>M 20 x 1.5</b>	0141 120 4104	0141 420 4152	0141 520 4102
<b>M 20 x 2</b>	0141 120 5104	–	0141 520 5102
<b>M 22</b>	0141 122 0104	–	0141 522 0102
<b>M 22 x 1.5</b>	0141 122 4104	0141 422 4152	0141 522 4102
<b>M 22 x 2</b>	0141 122 5104	–	0141 522 5102
<b>M 24</b>	0141 124 0104	–	0141 524 0102
<b>M 24 x 1.5</b>	0141 124 4104	0141 424 4152	0141 524 4102
<b>M 24 x 2</b>	0141 124 5104	–	0141 524 5102
<b>M 26 x 1.5</b>	0141 126 4104	0141 426 4152	0141 526 4102
<b>M 27</b>	0141 127 0104	–	0141 527 0102
<b>M 27 x 1.5</b>	0141 127 4104	0141 427 4152	0141 527 4102
<b>M 27 x 2</b>	0141 127 5104	–	0141 527 5102
<b>M 28 x 1.5</b>	0141 128 4104	0141 428 4152	0141 528 4102
<b>M 30</b>	0141 130 0104	–	0141 530 0102
<b>M 30 x 1.5</b>	0141 130 4104	0141 430 4152	0141 530 4102
<b>M 30 x 2</b>	0141 130 5104	–	0141 530 5102
<b>M 33</b>	0141 133 0104	–	0141 533 0102
<b>M 33 x 2</b>	0141 133 5104	–	0141 533 5102
<b>M 36</b>	0141 136 0104	–	0141 536 0102
<b>M 36 x 1.5</b>	0141 136 4104	0141 436 4152	–
<b>M 36 x 2</b>	0141 136 5104	–	0141 536 5102
<b>M 36 x 3</b>	0141 136 6104	–	0141 536 6102

HELICOIL® special taps for specific applications and materials, see page 31.

\*\* 1 N/mm<sup>2</sup> equals 1 MPa

Version	Min. outside Ø D <sub>HC</sub>	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	Nominal thread Ø d
A	2.5	2.8	2	50	8	4	5	2.1	–	–	<b>M 2</b>
B	3.1	3.5	2.5	56	11	5	6	2.7	18	2.6	<b>M 2.5</b>
B	3.7	4	3	56	13	6	6	2.7	20	3.1	<b>M 3</b>
B	4.3	4.5	3.5	63	13	7	6	3.1	21	3.6	<b>M 3.5</b>
B	4.9	6	4	70	16	8	8	4.9	25	4.2	<b>M 4</b>
B	6.0	6	5	80	17	10	8	4.9	30	5.2	<b>M 5</b>
B	7.3	8	6	90	20	12	9	6.2	35	6.2	<b>M 6</b>
B	8.3	9	7	90	20	12	10	7	35	7.2	<b>M 7</b>
B	9.6	10	8	100	20	14	11	8	39	8.3	<b>M 8</b>
B	9.3	9	8	90	20	12	10	7	35	8.2	<b>M 8 x 1</b>
C	10.6	8	9	100	22	14	9	6.2	–	–	<b>M 9</b>
C	12.0	9	10	110	24/16	16	10	7	–	–	<b>M 10</b>
C	11.3	9	10	100	22	16	10	7	–	–	<b>M 10 x 1</b>
C	11.6	9	10	100	22	16	10	7	–	–	<b>M 10 x 1.25</b>
C	13.0	11	11	100	22/20	20	11	9	–	–	<b>M 11</b>
C	14.3	11	12	110	26/20	20	12	9	–	–	<b>M 12</b>
C	13.3	11	12	100	22/20	20	12	9	–	–	<b>M 12 x 1</b>
C	13.6	11	12	100	22/20	20	12	9	–	–	<b>M 12 x 1.25</b>
C	14.0	11	12	100	22/20	20	12	9	–	–	<b>M 12 x 1.5</b>
C	16.6	12	14	110	28/20	20	12	9	–	–	<b>M 14</b>
C	15.3	12	14	100	22/20	20	12	9	–	–	<b>M 14 x 1</b>
C	15.6	12	14	100	22/20	20	12	9	–	–	<b>M 14 x 1.25</b>
C	16.0	12	14	100	22/20	20	12	9	–	–	<b>M 14 x 1.5</b>
C	18.6	14	16	125	34/25	25	14	11	–	–	<b>M 16</b>
C	18.0	14	16	110	25	25	14	11	–	–	<b>M 16 x 1.5</b>
C	21.3	16	18	140	34/25	25	15	12	–	–	<b>M 18</b>
C	20.0	16	18	125	25	25	15	12	–	–	<b>M 18 x 1.5</b>
C	20.6	16	18	140	34	25	15	12	–	–	<b>M 18 x 2</b>
C	23.3	18	20	140	34/25	25	17	14.5	–	–	<b>M 20</b>
C	22.0	18	20	125	25	25	17	14.5	–	–	<b>M 20 x 1.5</b>
C	22.6	18	20	140	34	25	17	14.5	–	–	<b>M 20 x 2</b>
C	25.3	18	22	160	38/30	30	17	14.5	–	–	<b>M 22</b>
C	24.0	18	22	140	28	28	17	14.5	–	–	<b>M 22 x 1.5</b>
C	24.6	18	22	140	28	28	17	14.5	–	–	<b>M 22 x 2</b>
C	27.9	20	24	160	38/30	30	19	16	–	–	<b>M 24</b>
C	26.0	18	24	140	28	28	17	14.5	–	–	<b>M 24 x 1.5</b>
C	26.6	20	24	140	28	28	19	16	–	–	<b>M 24 x 2</b>
C	28.0	20	26	140	28	28	19	16	–	–	<b>M 26 x 1.5</b>
C	30.9	22	27	180	50	50	21	18	–	–	<b>M 27</b>
C	29.0	22	27	150	28	28	21	18	–	–	<b>M 27 x 1.5</b>
C	29.6	22	27	150	28	28	21	18	–	–	<b>M 27 x 2</b>
C	30.0	22	28	150	28	28	21	18	–	–	<b>M 28 x 1.5</b>
C	34.5	28	30	200	56	56	25	22	–	–	<b>M 30</b>
C	32.0	22	30	150	28	28	21	18	–	–	<b>M 30 x 1.5</b>
C	32.6	25	30	160	30	28	23	20	–	–	<b>M 30 x 2</b>
C	37.5	28	33	200	56	56	25	22	–	–	<b>M 33</b>
C	35.6	28	33	170	30	30	25	22	–	–	<b>M 33 x 2</b>
C	41.2	32	36	200	60	60	27	24	–	–	<b>M 36</b>
C	38.0	28	36	170	30	30	25	22	–	–	<b>M 36 x 1.5</b>
C	38.6	32	36	170	30	30	27	24	–	–	<b>M 36 x 2</b>
C	39.9	32	36	200	60	60	27	24	–	–	<b>M 36 x 3</b>

Further sizes on request.

\* For tolerance class 4H, the ninth digit of the item no changes from 1 to 2.

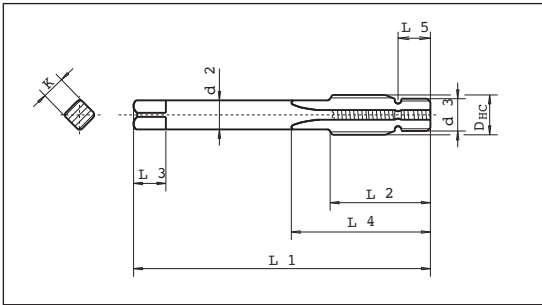
For details see page 29.

## Combined drilling and tapping tools



For tapping HELICOIL® tapped holes in damaged, stripped metric coarse and fine threads.

Pre-drilling of the HELICOIL® tapped holes tap hole is not required. Due to the  $d \times L 5$  guiding unit, it can only be used for blind-hole threads under certain conditions.



Nominal thread Ø	Item No
d	
<b>M 6</b>	0142 006 0102
<b>M 8</b>	0142 008 0102
<b>M 10</b>	0142 010 0102
<b>M 10 x 1</b>	0142 910 3450
<b>M 12</b>	0142 912 0450
<b>M 12 x 1.25</b>	0142 912 9450
<b>M 12 x 1.5</b>	0142 912 4450
<b>M 14</b>	0142 914 0450
<b>M 14 x 1.25</b>	0142 914 9450
<b>M 14 x 1.25</b>	0142 014 9102
<b>M 14 x 1.5</b>	0142 914 4450
<b>M 16</b>	0142 916 0450
<b>M 16 x 1.5</b>	0142 916 4450

## 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:

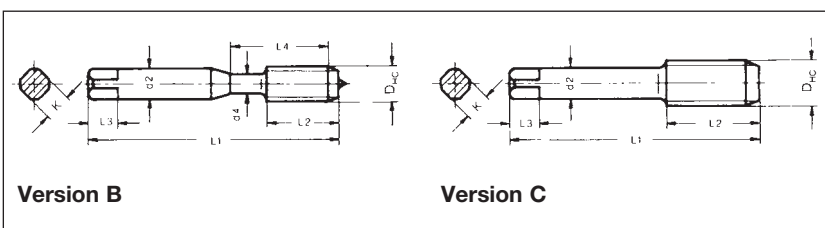
Oil-containing lubricants or grease-containing emulsions.

### Range of materials:

Very ductile materials, such as aluminium, copper or zinc alloys, steel with a strength up to  $700 \text{ N/mm}^2$ \*, soft stainless steels.

For materials with a minimum elongation at break of 10 %.

Nominal thread Ø	Guide value for shaped hole Ø $d_F$	Item No ①
d		
<b>M 3</b>	3.4	0144 103 0004
<b>M 3.5</b>	4.0	0144 135 0004
<b>M 4</b>	4.6	0144 104 0004
<b>M 5</b>	5.6	0144 105 0004
<b>M 6</b>	6.8	0144 106 0004
<b>M 8</b>	9.0	0144 108 0004
<b>M 10</b>	11.2	0144 110 0004
<b>M 12</b>	13.4	0144 112 0004



\*  $1 \text{ N/mm}^2$  equals  $1 \text{ MPa}$

Min. outside Ø D <sub>HC</sub>	Shank Ø h 9 d 2	Chamfer Ø d 3	Total length L 1	Max. thread length L 2	Square length L 3	L 4 min.	Guide thread length L 5	Square h 12 K	Nominal thread Ø  d
7.3	8	M 6	90	26	9	36	6	6.2	<b>M 6</b>
9.7	10	M 8	90	28	11	38	7.5	8	<b>M 8</b>
12.0	12	M 10	100	31	12	42	9	9	<b>M 10</b>
11.3	9	M 10 x 1	92	31	10	42	9	7	<b>M 10 x 1</b>
14.3	11	M 12	92	35	12	43	10	9	<b>M 12</b>
13.7	11	M 12 x 1.25	92	35	12	43	10	9	<b>M 12 x 1.25</b>
13.7	11	M 12 x 1.25	92	35	12	43	10	9	<b>M 12 x 1.5</b>
13.7	11	M 12 x 1.25	92	35	12	43	10	9	<b>M 14</b>
15.7	11	M 14 x 1.25	92	35	12	43	10	9	<b>M 14 x 1.25</b>
15.7	11	M 14 x 1.25	153	35	12	43	10	9	<b>M 14 x 1.25</b>
16.0	11	M 14 x 1.5	92	35	12	43	10	9	<b>M 14 x 1.5</b>
18.7	14	M 16	90	39	14	50	9	11	<b>M 16</b>
18.0	14	M 16 x 1.5	92	39	14	50	10	11	<b>M 16 x 1.5</b>

Version	Min. outside Ø D <sub>HC</sub>	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	Nominal thread Ø  d
B	3.69	4	56	13	6	2.7	20	3.1	<b>M 3</b>
B	4.33	4.5	63	13	6	3.1	21	3.6	<b>M 3.5</b>
B	4.96	6	70	16	8	4.9	25	4.2	<b>M 4</b>
B	6.09	6	80	17	8	4.7	30	5.2	<b>M 5</b>
B	7.37	8	90	20	9	6.2	35	7.2	<b>M 6</b>
B	9.69	10	100	20	11	8	39	8.9	<b>M 8</b>
C	12.02	9	110	24	10	7	–	–	<b>M 10</b>
C	14.37	11	110	26	12	9	–	–	<b>M 12</b>

Further sizes on request.

We also offer TiN-coated forming taps.

① For tolerance class 4H, the ninth digit of the designation changes from 0 to 2.

For details see page 29.

## Threaded plug gauges for **HELICOIL® Plus** holding threads

To check the trueness to gauge of holding threads produced with a HELICOIL® tap, we offer the following threaded plug gauges:



Nominal thread Ø	Thread pitch P	Tolerance class 6H mod or 5H Item No	Tolerance class 5H mod or 4H Item No
M 2	0.4	0147 302 0500	0147 302 0400
M 2.5	0.45	0147 325 0500	0147 325 0400
M 3	0.5	0147 303 0500	0147 303 0400
M 3.5	0.6	0147 335 0500	0147 335 0400
M 4	0.7	0147 304 0500	0147 304 0400
M 5	0.8	0147 305 0500	0147 305 0400
M 6	1	0147 306 0500	0147 306 0400
M 7	1	0147 307 0500	0147 307 0400
M 8	1.25	0147 308 0500	0147 308 0400
M 8 x 1	1	0147 308 3500	0147 308 3400
M 9	1.25	0147 309 0500	0147 309 0400
M 10	1.5	0147 310 0500	0147 310 0400
M 10 x 1	1	0147 310 3500	0147 310 3400
M 10 x 1.25	1.25	0147 310 9500	0147 310 9400
M 11	1.5	0147 311 0500	0147 311 0400
M 12	1.75	0147 312 0500	0147 312 0400
M 12 x 1	1	0147 312 3500	0147 312 3400
M 12 x 1.25	1.25	0147 312 9500	0147 312 9400
M 12 x 1.5	1.5	0147 312 4500	0147 312 4400
M 14	2	0147 314 0500	0147 314 0400
M 14 x 1	1	0147 314 3500	0147 314 3400
M 14 x 1.25	1.25	0147 314 9500	0147 314 9400
M 14 x 1.5	1.5	0147 314 4500	0147 314 4400
M 16	2	0147 316 0500	0147 316 0400
M 16 x 1.5	1.5	0147 316 4500	0147 316 4400
M 18	2.5	0147 318 0500	0147 318 0400
M 18 x 1.5	1.5	0147 318 4500	0147 318 4400
M 18 x 2	2	0147 318 5500	0147 318 5400
M 20	2.5	0147 320 0500	0147 320 0400
M 20 x 1.5	1.5	0147 320 4500	0147 320 4400
M 20 x 2	2	0147 320 5500	0147 320 5400
M 22	2.5	0147 322 0500	0147 322 0400
M 22 x 1.5	1.5	0147 322 4500	0147 322 4400
M 22 x 2	2	0147 322 5500	0147 322 5400
M 24	3	0147 324 0500	0147 324 0400
M 24 x 1.5	1.5	0147 324 4500	0147 324 4400
M 24 x 2	2	0147 324 5500	0147 324 5400
M 26 x 1.5	1.5	0147 326 4500	0147 326 4400
M 27	3	0147 327 0500	0147 327 0400
M 27 x 1.5	1.5	0147 327 4500	0147 327 4400
M 27 x 2	2	0147 327 5500	0147 327 5400
M 28 x 1.5	1.5	0147 328 4500	0147 328 4400
M 30	3.5	0147 330 0500	0147 330 0400
M 30 x 1.5	1.5	0147 330 4500	0147 330 4400
M 30 x 2	2	0147 330 5500	0147 330 5400
M 33	3.5	0147 333 0500	0147 333 0400
M 33 x 2	2	0147 333 5500	0147 333 5400
M 36	4	0147 336 0500	0147 336 0400
M 36 x 1.5	1.5	0147 336 4500	0147 336 4400
M 36 x 2	2	0147 336 5500	0147 336 5400
M 36 x 3	3	0147 336 6500	0147 336 6400

Further sizes on request.

Thread tolerances: For details see page 29.

A calibration certificate will be provided on request: item code 0147 999 9001

## HELICOIL® Plus repair kits and repair range kits



### Rejects recovery and thread repair

- Increased quality and value

### HELICOIL® Plus repair kits M 2.5 – M 16

Repair kits contain:

- HELICOIL® Plus thread inserts of 3 lengths
- Twist drills (up to M 12)
- HSS manual tap
- 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 as well as 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 tap
- Installation mandrel (M 18 to M 24 standard screw thread)
- Installation tool (M 27 to M 33 standard screw thread and M 18 x 1.5 to 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 kits contain:

- HELICOIL® Plus thread inserts of different sizes and lengths
- Twist drills up to M 12 (for M 14 x 1.25 with combined drilling and tapping tool)
- HSS manual taps
- 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 as well as defective oil drain threads M 12 x 1.5 x 9 to M 16 x 1.5 x 24.



For further demand we offer HELICOIL® Plus thread inserts in refill packs.  
Order catalogue No 0180 or download at  
[www.boellhoff.de/en/thread-repair](http://www.boellhoff.de/en/thread-repair)



The **HELICOIL®** system

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# HELICOIL® Plus installation mandrel

HELICOIL® Plus installation mandrels can be used with the following tools:

- Electrical installation tools type E-S 206 and E-S 410
- Battery installation tools type B-S 206 and B-S 824
- Pneumatic installation tools P-S 412 and P-S 1216

## Your benefits

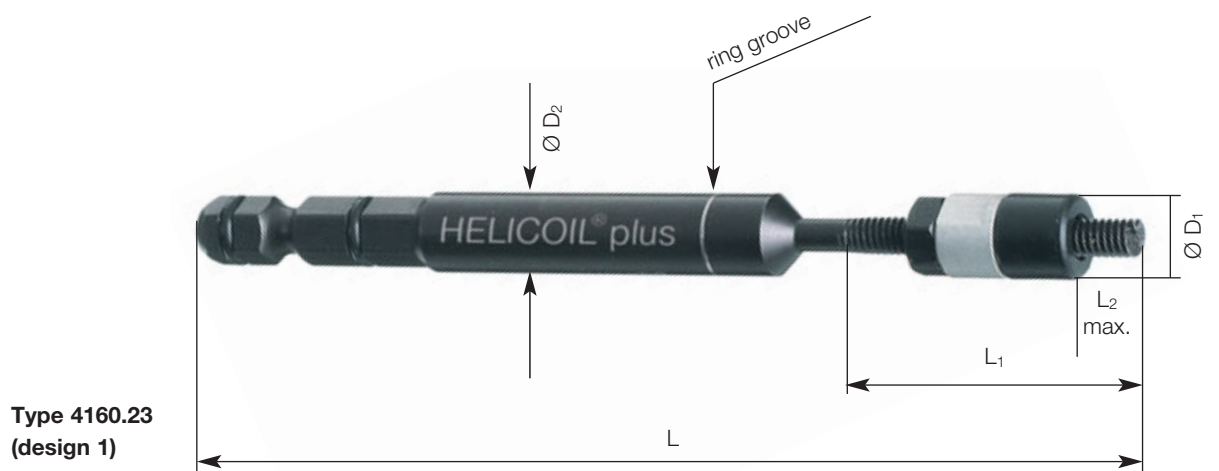
- Quick tool change
- Reduced tool costs
- Sizes M 2 to M 24
- Pick-and-place processing possible

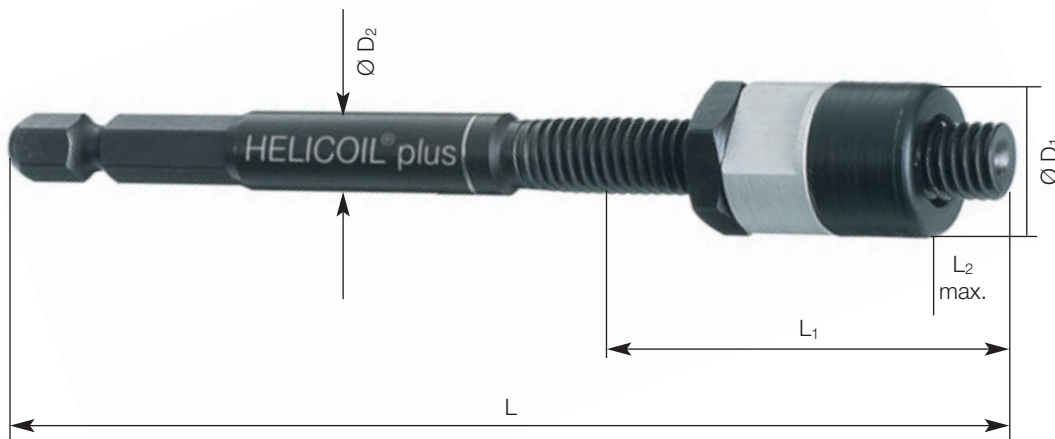
## Installation mandrel with depth stop

Only for installation of HELICOIL® Plus Free Running and Screwlock.  
With external hexagon DIN 3126 – E 6.3/DIN ISO 1173.

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

Nominal thread $\emptyset$	Mandrel Free Running Item No	Mandrel Screwlock Item No	$L_1$	$L_2$ max.	$L$	$D_1$	$D_2$ $\emptyset_{h9}$	Design
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





**Type  
4160.25**

For installation tools types B-S 824, E-S 410, P-S 412 and P-S 1216

Nominal thread Ø	Mandrel Free Running Item No	Mandrel Screwlock Item No	L <sub>1</sub>	L <sub>2</sub> max.	L	D <sub>1</sub>	D <sub>2</sub> Ø <sub>h9</sub>	Design
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 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 12	4160 2512 020	4160 2512 022	70	45	115	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

Adapted tools for inserts of Inconel X 750, Nimonic 90 and aluminium on request.



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

HELICOIL® Plus Screwlock installation mandrels are marked with a ring groove on the guide shaft. HELICOIL® Free Running installation mandrels have a smooth guide shaft.

## Installation tools for **HELICOIL® Plus**

Basically, there are three types of installation tools. Installation tools are chosen based on the volume of HELICOIL® Plus thread inserts to process, the location of the tapped holes in the workpiece and the thread size.

Hence, there are:

- Manual installation tools
- Electrical installation tools
- Electrical installation tools with battery power
- Pneumatic installation tools

### Battery installation tools



#### Battery power pack installation tool type B-S 206

For processing HELICOIL® Plus M 2 to M 6 with HELICOIL® Plus installation mandrel

##### Delivery scope:

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

##### Technical data:

Idle speed:	Two-speed 200 rpm and 600 rpm, reversible
Torque:	Adjustable in 21 steps 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
Item No:	<b>4160 430 0000</b>

##### Spare parts and accessories:

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



#### Battery power pack installation tool type B-S 824

For processing HELICOIL® Plus M 7 to M 24 with HELICOIL® Plus installation mandrel

##### Delivery scope:

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

##### Technical data:

Idle speed:	Speed 1/stepless 65– 450 rpm, reversible Speed 2/stepless 200–1450 rpm, reversible
Torque:	19-step 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
Item No:	<b>4160 350 0000</b>

##### Spare parts and accessories:

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

**Electrical installation tools**



**Type E-S 206**

For quick processing of HELICOIL® Plus thread inserts M 2 to M 6 with HELICOIL® Plus installation mandrel

**Delivery scope:**

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

**Technical data:**

Idle speed: 720 rpm  
 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  
 Item No: **4160 220 0000**

The installation mandrels for all available sizes are provided on page 42/43.



**Type E-S 410**

For quick processing of HELICOIL® Plus thread inserts M 4 to M 10 with HELICOIL® Plus installation mandrel

**Delivery scope:**

- Straight screwdriver with quick-change chuck 1/4" hexagon socket
- Speed control with ramp control on control device EDU 2AE
- Case

**Technical data:**

Idle speed: 1200 rpm (steplessly adjustable)  
 Automatic change-over of the direction of rotation when reaching the screw-in depth  
 Torque: 0.9 to 3 Nm  
 Torque steplessly adjustable on the control device  
 Tool holder: Quick-change chuck 1/4" hexagon socket with radial bearing for installation mandrel  
 Weight: 0.57 kg  
 Item No: **4160 540 0000**

The installation mandrels for all available sizes are provided on page 42/43.



**Type E-PSG 256 with leader cartridge**

For quick processing of HELICOIL® Plus thread inserts M 2.5 to M 6 with HELICOIL® Plus exchange unit

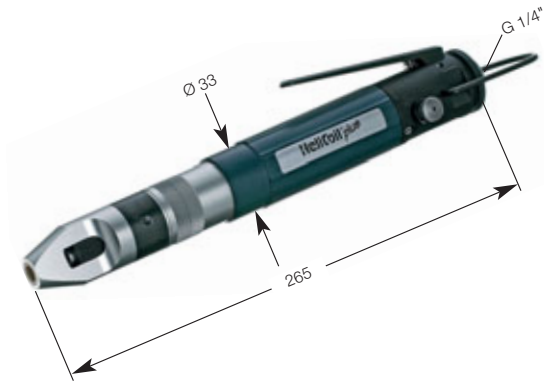
**Delivery scope:** See type E-S 410

**Technical data:**

Idle speed: 1200 rpm (steplessly adjustable)  
 Automatic change-over of the direction of rotation when reaching the screw-in depth  
 Torque: 0.9 to 3 Nm  
 Torque steplessly adjustable on the control device  
 Tool holder: Connection for leader cartridges of P-PSG 256  
 Weight: 0.75 kg  
 Item No: **0160 470 0000**

The exchange units for all available sizes are provided on pages 49 and 51.





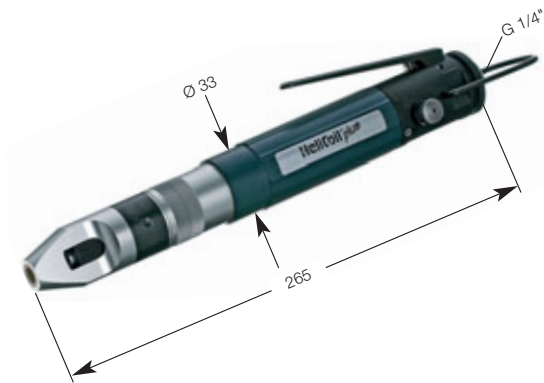
### Pneumatic installation tool type P-S 412

For quick processing of HELICOIL® Plus M 4 to M 12 with HELICOIL® Plus installation mandrel

#### Technical data:

Idle speed:	1500 rpm at p = 6.3 bar Adjustable through 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
Item No:	<b>4160 270 0010</b>

HELICOIL® Plus installation mandrels depending on the size with depth stop must be ordered separately, see page 42/43.



### Pneumatic installation tool type P-S 1216

For quick processing of HELICOIL® Plus M 12 to M 16 with HELICOIL® Plus installation mandrel

#### Technical data:

Idle speed:	950 rpm at p = 6.3 bar Adjustable through 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
Item No:	<b>4160 180 0010</b>

HELICOIL® Plus installation mandrels depending on the size with depth stop must be ordered separately, see page 42/43.

**Spare handle for P-S 1216**

Handle for safe compensation of installation torque for sizes  $\geq$  M 12  
Item No: **4160 180 0006**

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

For horizontal suspension of tools on counterbalance systems  
Item No: **4160 180 0007**

## For **HELICOIL® Classic** and **HELICOIL® Plus** Free Running and Screwlock

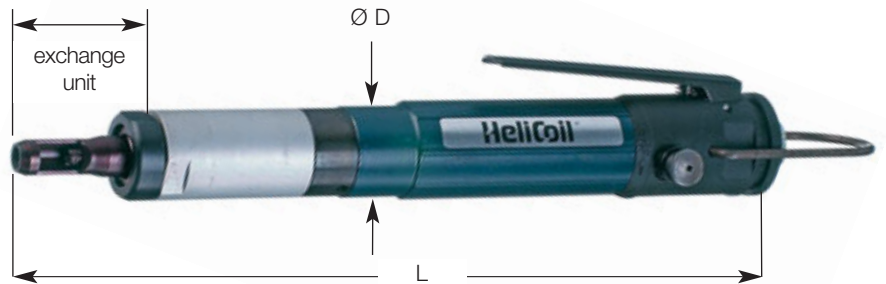
Pitch-controlled HELICOIL® Classic and HELICOIL® Plus installation tool for **bulk material processing**.

The installation tool is equipped with a reversible compressed-air motor and a size-dependent exchange unit.

The HELICOIL® installation depth is adjusted with compensation washers.

We recommend this tool for medium and large scale production.

### Complete tool



Type***	Nominal thread Ø d	Complete tool Item No	Dimensions		Weight kg	Connec-tion bar	**Air consumption l/min.
			Ø D	L			
P-PSG 256	M 2.5	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
P-PSG 714	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	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	0160 281 4900	42	360	1.4	4.0–5.0	282	
P-PSG 1626	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	

#### Important order information:

When you order tools, specify type, size and length of HELICOIL® Plus thread inserts to process. Tools for installation of HELICOIL® Plus thread inserts with lengths > 2.5 d on request. As required by German accident prevention regulations (UVV), types P-PSG 714 and P-PSG 1626 are equipped with a sliding sleeve as finger guard.

This finger guard must not be removed.

Installation tools are equipped with Bosch motors.

\*Basic tool with stronger motor.

\*\*Air consumption at 6.3 bar. (See page 46.)

\*\*\*Exchange units can be interchanged within the individual series.

Adapted tools for inserts of Inconel X 750, Nimonic 90 and aluminium on request.

**Subassemblies**

Exchange unit



Basic tool



Motor



Type***	Nominal thread Ø	Exchange unit	Basic tool	Motor
	d	Item No	Item No	Item No
P-PSG 256	M 3	0160 270 3050	0160 370 0040	0160 370 0010
	M 4	0160 270 4050		
	M 5	0160 270 5050		
	M 6	0160 270 6050		
P-PSG 714	M 7	0160 280 7050	0160 180 0040	0160 180 0010
	M 8	0160 280 8050		
	M 8 x 1	0160 281 8350		
	M 10	0160 281 0050		
	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			
P-PSG 1626	M 16	0160 191 6050	0160 090 0040	0160 090 0011
	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			

**Wear and spare parts**

Prewinder



Installation mandrel



Clutch for installation mandrel



Range of compensation washers



Type***	Nominal thread Ø	Prewinder	Installation mandrel	Clutch for installation mandrel	Range of compensation washers
	d	Item No	Item No	Item No	Item No
P-PSG 256	M 2.5	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		
P-PSG 714	M 7	0160 280 7032	0160 280 7020	0160 180 0006	0160 280 0060
	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	0160 281 0932	0160 281 0920		
	M 10 x 1	0160 281 0332	0160 281 0320		
	M 12	0160 281 2032	0160 281 2020		
	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	0160 281 4932	0160 281 4920			
P-PSG 1626	M 16	0160 191 6032	0160 191 6020	0160 090 0006	0160 190 0060
	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			

Exemplary illustrations.



**For HELICOIL® Classic STRIPFEED® and HELICOIL® Plus STRIPFEED®**

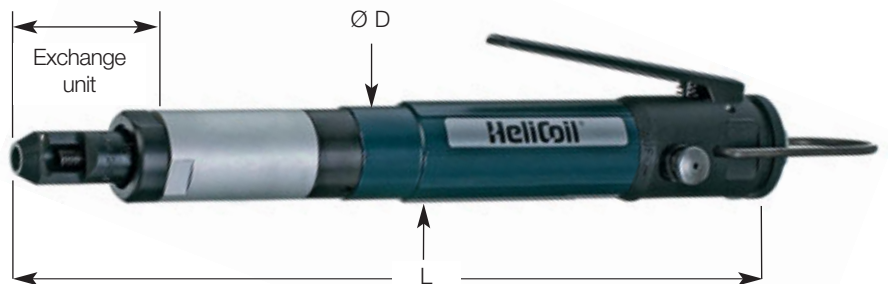
Pitch-controlled HELICOIL® Classic and HELICOIL® Plus installation tool for processing **magazined thread inserts**.

The installation tool is equipped with a reversible compressed-air motor and a size-dependent exchange unit.

The HELICOIL® installation depth is adjusted with compensation washers.

We recommend this tool for medium and large scale production.

**Complete tool**



Type**	Nominal thread Ø d	Complete tool Item No	Max. length	Dimensions		Weight kg	Connec- tion bar	*Air con- sumption l/min.
				Ø D	L			
P-PSG 256 SF	M 2.5	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	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	
P-PSG 714 SF	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	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 order information:**

When you order tools, specify type, size and length of HELICOIL® Plus thread inserts to process. Tools for installation of HELICOIL® Plus thread inserts with lengths > 2.5 d on request. Installation tools are equipped with Bosch motors.

\*Air consumption at 6.3 bar.

\*\*Exchange units can be interchanged within the individual series.

Adapted tools for inserts of Inconel X 750, Nimonic 90 and aluminium on request.

Exchange unit



Basic tool



Motor



**Subassemblies**

Type**	Nominal thread Ø	Exchange unit ≤ 1.25 d	Exchange unit 1.5–2 d	Basic tool	Motor
	d	Item No	Item No	Item No	Item No
P-PSG 256 SF	M 2.5	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		
P-PSG 714 SF	M 7	0160 280 7052	0160 280 7053	0160 180 0040	0160 180 0010
	M 8	0160 280 8052	0160 280 8053		
	M 10	0160 281 0052	0160 281 0053		

Prewinder



Installation mandrel



Clutch for installation mandrel



**Wear and spare parts**

Type**	Nominal thread Ø	Prewinder ≤ 1.25 d	Prewinder 1.5–2.5 d	Installation mandrel	Clutch for installation mandrel
	d	Item No	Item No	Item No	Item No
P-PSG 256 SF	M 2.5	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	
P-PSG 714 SF	M 7	0160 180 7035	0160 180 7033	0160 280 7020	0160 180 0006
	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: Item No 0160 170 0060, ≥ M 8: 0160 280 0060.

Range of compensation washers



Exemplary illustrations.



### Parallel system type S for HELICOIL® Classic and HELICOIL® Plus installation tools

Type	Product characteristics		Item No
S 600	Work radius	130 mm–450 mm	0182 080 0003 (see delivery scope)
	Work height	50 mm–450 mm	
	Weight without tool	8 kg	
	Torque absorption	15 Nm max.	

#### Advantages

- Rationalisation
- Quick and positioning especially for small dimensions
- Easy handling, no operator fatigue
- No return rotation forces
- Absorption of screwdriver weight
- Can be used with electrical and pneumatic HELICOIL® installation tools
- Quick tool change
- 360° rotatable
- Smooth and precise roller guides
- Optimum workstation layout

#### Delivery scope

- 3-axis guiding system
- Tool holder
- 1 counterbalance 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	Item No
Service unit	at 6 bar nominal flow G01" = 700l/min	0182 080 1001
Stationary roller holder for HELICOIL® Plus STRIPFEED®		0182 080 0004
Hose	ID 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



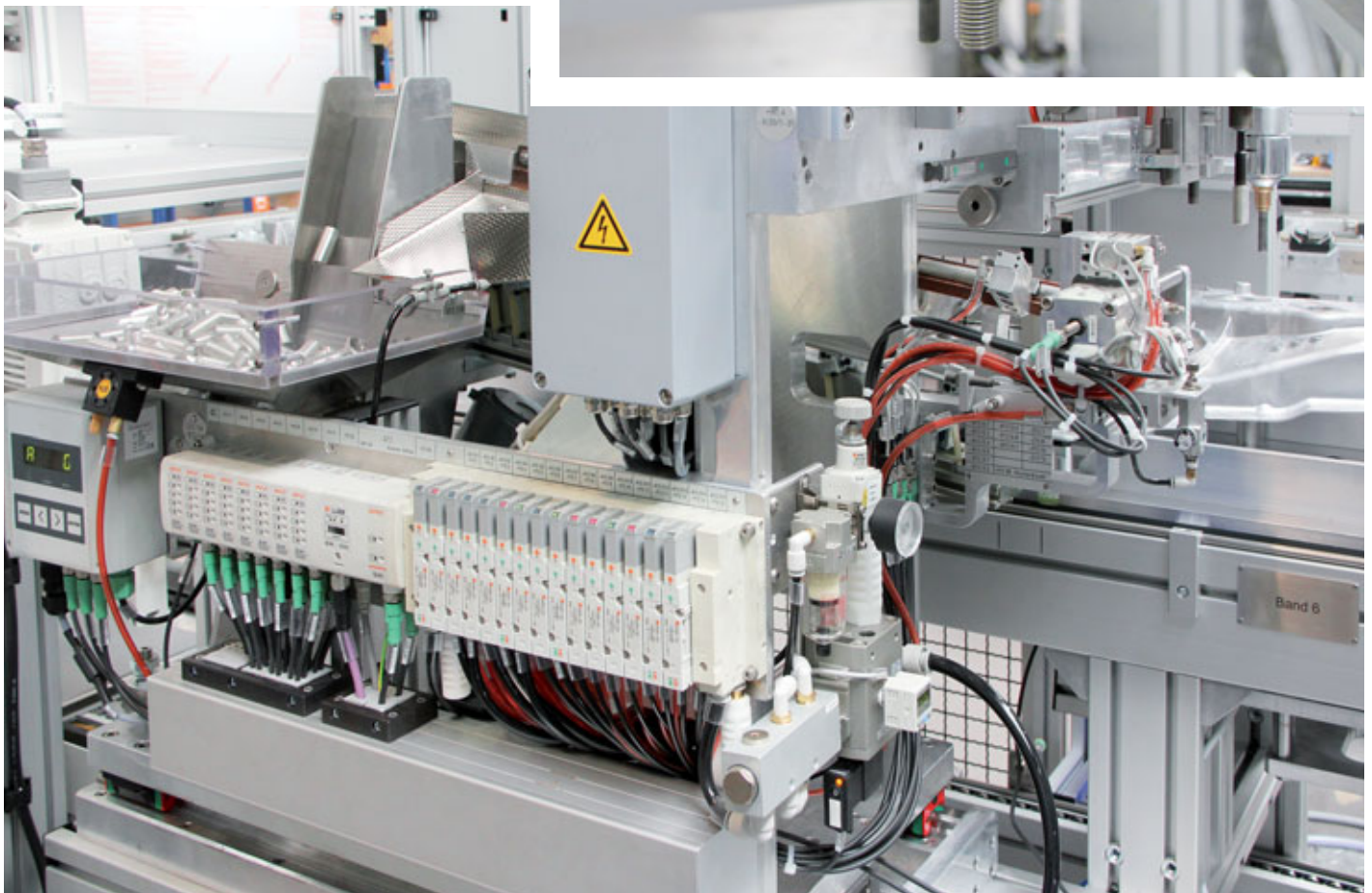
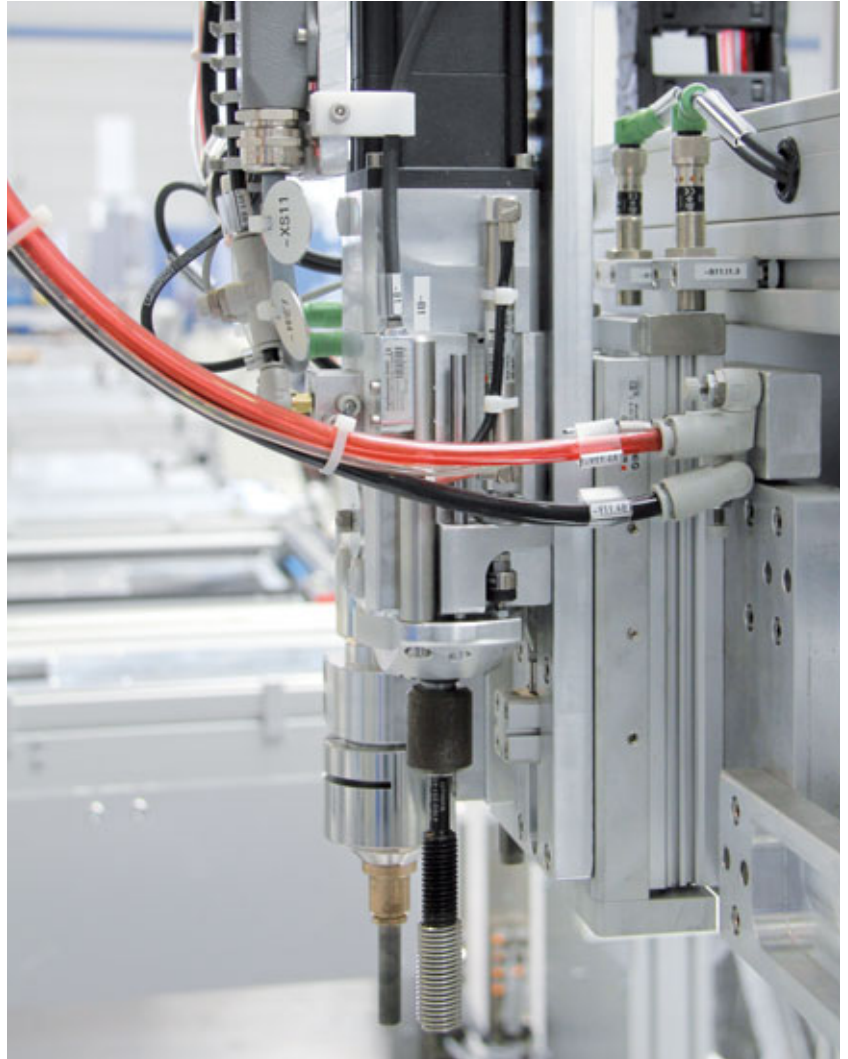
#### Drill chuck with external hexagon

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

## HELICOIL® Plus automatic installation

The economical installation of HELICOIL® Plus thread inserts is just as important as the high quality standard.

That is why we offer modules for integration into automatic processes as well as complete systems.



**Manual installation tool with prewinder for HELICOIL® Classic and HELICOIL® Plus**

**Only required for HELICOIL® Plus for fine screw threads and special applications. Manual installation mandrels are described on page 42 (HELICOIL® Plus installation mandrels).**

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



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



**Fly-over tool for HELICOIL® and HELICOIL® Plus**  
Type **H-M**  
with depth stop  
Item No 0150 07. ...\*



Type **H-PMG**:  
Plain mandrel, pitch-controlled,  
with depth stop  
on request



Type **H-PM**:  
Plain mandrel, without pitch control,  
with depth stop  
on request

\*Adapted tools for thread inserts of Inconel X 750, Nimonic 90 and aluminium on request.

Tang break-off and extraction tools for **HELICOIL®**

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 Item No	Type TB-M Item No	Type TB-P pneumatic system* Item 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.



HELICOIL® extraction tool M 3 to M 5

**HELICOIL® extraction tool**

For manual and machine disassembly of HELICOIL® thread inserts M 3 to M 14 (larger sizes on request).

**Delivery scope:**

- Extracted tool
- Adapter for 1/4" hexagon
- Operating instructions
- Telescoping sleeve

Deep-installed HELICOIL® thread inserts can be extracted without damaging the parent thread:

	Steel	Aluminium R <sub>m</sub> > 200 N/mm <sup>2</sup> **	Aluminium R <sub>m</sub> < 200 N/mm <sup>2</sup> **
Flush-mounted HELICOIL®	OK	OK	OK
Deep-mounted HELICOIL®	OK	OK	limited



HELICOIL® extraction tool M 6 to M 56

Nominal thread Ø	Item No
M 3	0180 603 0000
M 4	0180 604 0000
M 5	0180 605 0000
M 6	0180 606 0000
M 8	0180 608 0000
M 10	0180 610 0000
M 12	0180 612 0000
M 14	0180 614 0000

From M 16 on request

The tool can be assembled using a tap wrench, ratchet or cordless screwdriver. The tool comes complete with an adapter for a cordless screwdriver.

\*\* 1 N/mm<sup>2</sup> equals 1 MPa

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