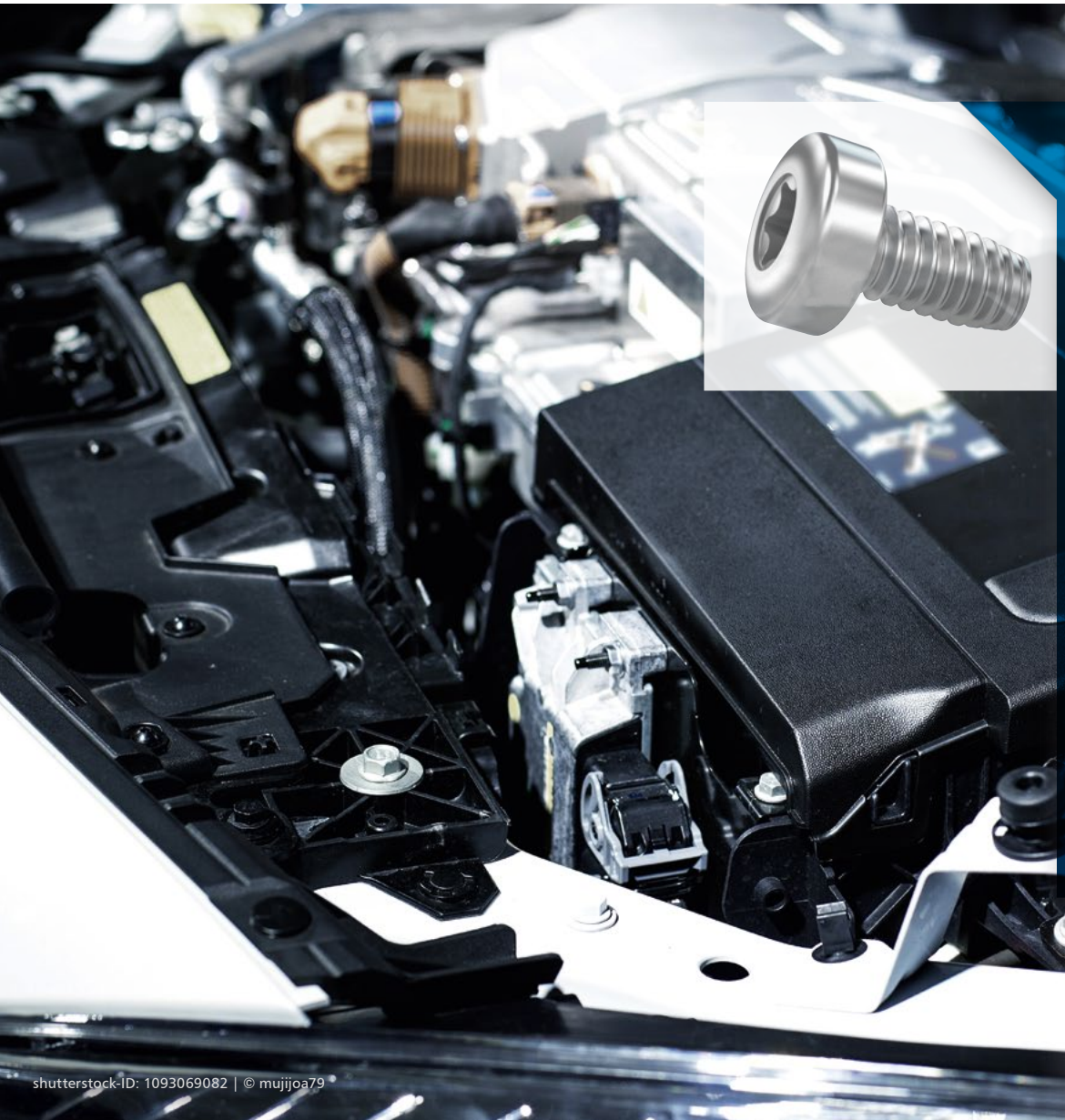
State 03.2026
www.arnold-fastening.com

ARNOLD®
BlueFastening Systems



TAPTITE 2000®

Thread-forming in metals

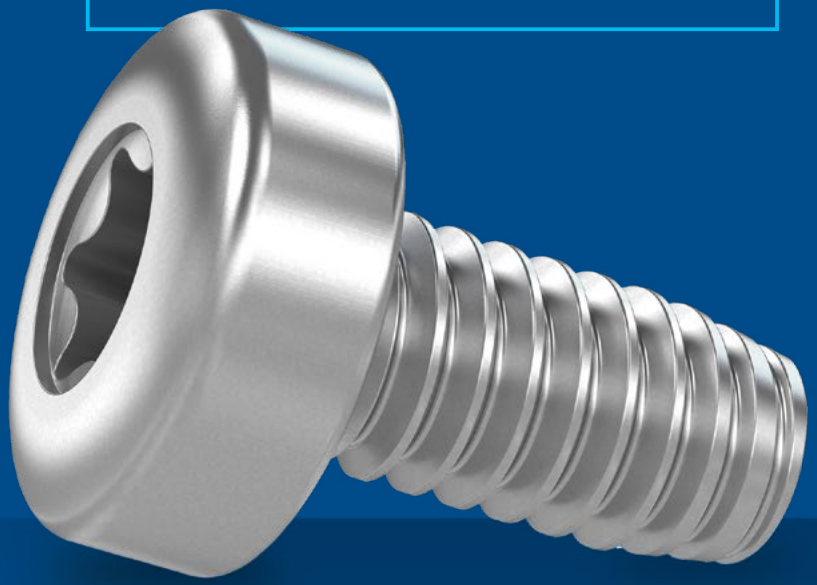
- Low thread-forming torque
- High preload level
- High assembly reliability
- Chipfree thread-forming
- Total cost of fastening reduced by up to 85%

shutterstock-ID: 1093069082 | © mujijoa79

50%

Thread-forming torque halved

With the unique radius profile and the triangular (TRILOBULAR®) cross-section, the thread-forming torque of TAPTITE 2000® is up to 50% below that of conventional thread-forming screws compliant with DIN 267-part 30 and DIN 75000-1.



The TAPTITE 2000® effect

High preloads

↘ The thread profile is similar to the involute shape of a gearwheel. Put together with the TRILOBULAR® cross-section geometry of the screw shaft, it greatly improves thread-forming torques.

High assembly reliability

↘ Due to the major difference between the low thread-forming torques M_F of TAPTITE 2000® and the tightening torque M_A (Delta M_A - M_F) you can achieve improved assembly security and a higher preload.

Chipfree thread-forming

↘ The TRILOBULAR® cross-section of the screw shaft ensures a chipfree formed metric thread.

Total cost of fastening reduced by up to 85%

↘ In metal-joining applications eliminate work processes such as thread cutting and the use of additional locking elements.

Drive

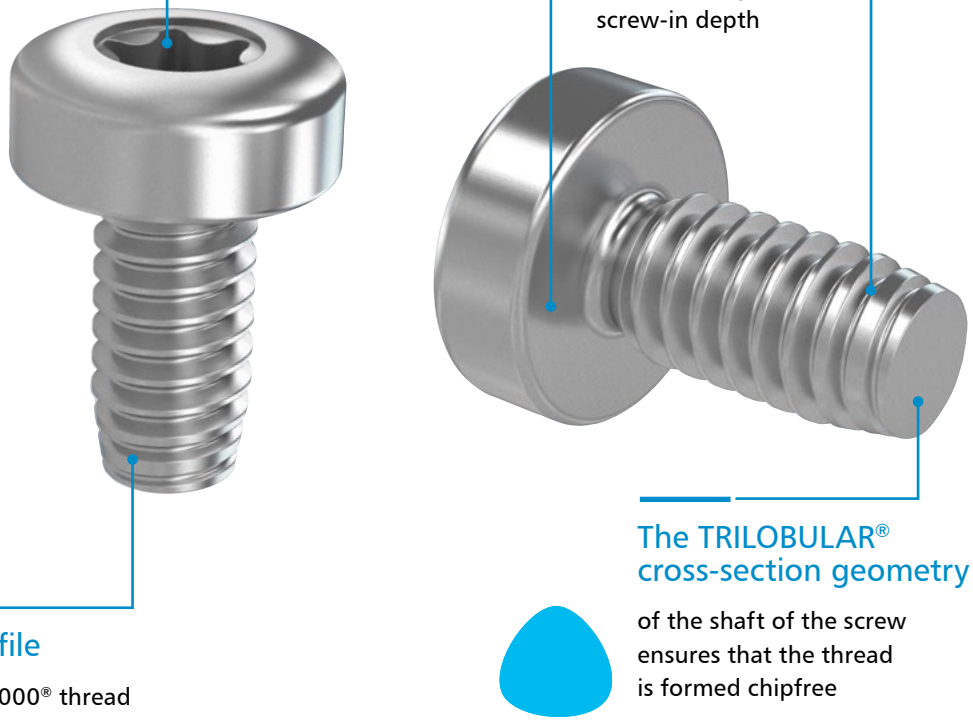
Transfer of torque and revolution

Defined head setting

Calculable surface pressure

SPA™ thread-forming zone

Short Point Advanced for optimum hole location and optimal use of installation space relating to screw-in depth



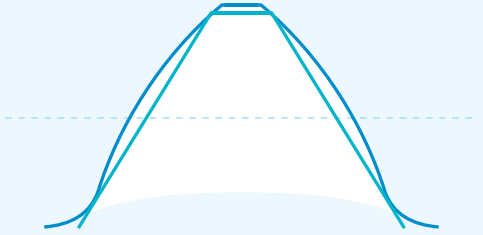
Radius profile

The TAPTITE 2000® thread profile is similar to the involute shape of a gearwheel.

The TRILOBULAR® cross-section geometry

of the shaft of the screw ensures that the thread is formed chipfree





— Radius profile of TAPTITE 2000®

— ISO metric screw thread

Technical advantages of TAPTITE 2000®

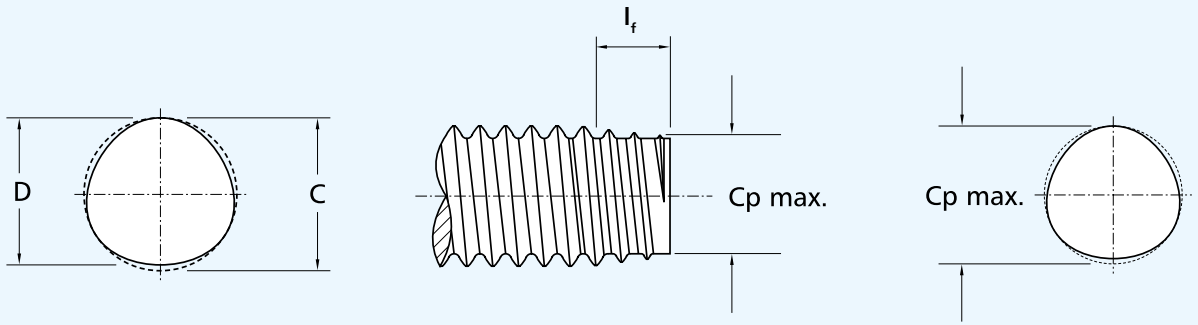
With fewer steps towards the goal – Comparison of assembly steps



TAPTITE 2000® Top Features

- High operational reliability of the mounted components
- Little increase in total coefficient of friction compared with metric screws
- High assembly reliability
- Can be used in aluminum, steel, sheet metal and magnesium
- If necessary, can be replaced by metric screw during a service
- Repeat screw fastening possible

The optimised thread geometry of TAPTITE 2000® SPA™

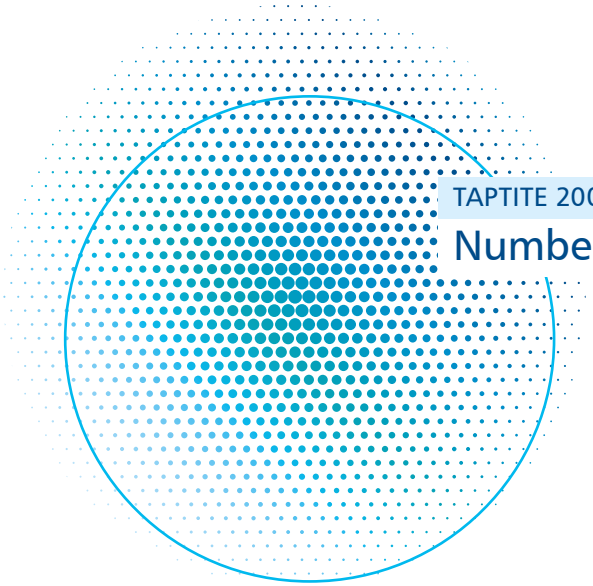


Thread-forming zone

By optimising the length of the thread-forming zone l_f and the permitted dimension Cp max., enables an optimum positioning of the screw with a high number of load-bearing threads.

Nominal thread Ø TAPTITE 2000®		M2.5	M3	M3.5	M4	M5	M6	M8	M10
Length of thread-forming zone l_f [mm]		1.35	1.50	1.80	2.10	2.40	3.00	3.75	4.50
Tolerance l_f [mm]		±0.225	±0.25	±0.30	±0.35	±0.40	±0.50	±0.625	±0.75
Pitch p [mm]		0.45	0.50	0.60	0.70	0.80	1.00	1.25	1.50
Circumference C	max. [mm]	2.52	3.02	3.52	4.02	5.02	6.03	8.03	10.03
	min. [mm]	2.43	2.93	3.42	3.92	4.91	5.90	7.87	9.85
Distance D	max. [mm]	2.46	2.97	3.46	3.93	4.92	5.91	7.87	9.84
	min. [mm]	2.37	2.87	3.35	3.83	4.81	5.78	7.71	9.66
Cp	max. [mm]	2.13	2.58	3.00	3.40	4.31	5.12	6.91	9.07

TAPTITE 2000®
Important values



TAPTITE 2000®

Numbers. Data. Facts

Minimum breaking torque

Tightening torques depend on the screw's minimum breaking torques, on tool stability, core hole diameter, screw-in depth and coefficient of friction.
Specific values should always be determined by trials on original production parts. Our Fastener Testing Center is available to you at any time.

Minimum breaking torques in Nm (free torsion break)								
Nominal thread-Ø TAPTITE 2000®	**M2.5**	**M3**	**M3.5**	**M4**	**M5**	**M6**	**M8**	**M10**
Strength class 8.8	0.82	1.50	2.40	3.60	7.60	13.00	33.00	66.00
Strength class 10.9	1.00	1.90	3.00	4.40	9.30	16.00	40.00	81.00
Strength class E.H.	1.00	1.80	2.80	4.10	8.70	15.00	37.00	75.00

Strength classes

8.8 for all coloured metals and light metal alloys up to Rm = 360 MPa
10.9 for all metals up to Rm = 415 MPa
E.H. for steel up to RM ~ 600 MPa
10.9 Corflex® I™ for steel up to Rm ~ 600 MPa*

*) 10.9 with inductive hardened tip

Safety information

All screws with
Rm > 1000 MPa
are at risk of hydrogen-induced brittle fracture

Thread overlap

Percentage of overlap between formed nut and screw thread in radial direction

Nominal thread Ø Taptite 2000®	M2.5	M3	M3.5	M4	M5	M6	M8	M10
Pitch p	0.45	0.50	0.60	0.70	0.80	1.00	1.25	1.50
Thread engagement 100 %	2.21	2.68	3.11	3.55	4.48	5.35	7.19	9.03
Thread engagement 95 %	2.22	2.69	3.13	3.57	4.51	5.38	7.23	9.07
Thread engagement 90 %	2.24	2.71	3.15	3.59	4.53	5.42	7.27	9.12
Thread engagement 85 %	2.25	2.72	3.17	3.61	4.56	5.45	7.31	9.17
Thread engagement 80 %	2.27	2.74	3.19	3.64	4.58	5.48	7.35	9.22
Thread engagement 75 %	2.28	2.76	3.21	3.66	4.61	5.51	7.39	9.27
Thread engagement 70 %	2.30	2.77	3.23	3.68	4.64	5.55	7.43	9.32
Thread engagement 65 %	2.31	2.79	3.25	3.70	4.66	5.58	7.47	9.37
Thread engagement 60 %	2.32	2.81	3.27	3.73	4.69	5.61	7.51	9.42
Thread engagement 55 %	2.34	2.82	3.29	3.75	4.71	5.64	7.55	9.46
Thread engagement 50 %	2.35	2.84	3.31	3.77	4.74	5.68	7.59	9.51
Thread engagement 45 %	2.37	2.85	3.32	3.80	4.77	5.71	7.63	9.56
Thread engagement 40 %	2.38	2.87	3.34	3.82	4.79	5.74	7.68	9.61
Thread engagement 35 %	2.40	2.89	3.36	3.84	4.82	5.77	7.72	9.66
Thread engagement 30 %	2.41	2.90	3.38	3.86	4.84	5.81	7.76	9.71

Application in cast aluminum

Influence of screw's cross-section on thread-forming torques and preload

For thread-forming fastenings in cast aluminum (AlSi-9Cu3 (Fe) alloy) a round screw cross-section generated a thread-forming torque $M_{F\text{-}round}$ of 25.7 Nm. Because of the small difference to the tightening torque M_A = 34 Nm the preload $F_{v\text{-}round}$ was only 7.2 kN. The TAPTITE 2000® SPA™ screw achieved with $F_{V\text{-}TT2000}$ = 19.1 kN a much higher preload with a thread-forming torque $M_{F\text{-}TT2000}$ of 13.55 Nm and the same tightening torque. As a result, the TAPTITE 2000® SPA™ has an advantage over thread-forming screws with a round cross-section: Due to the lower thread-forming torques and little spread, TAPTITE 2000® SPA™ generates preload at a higher level with much less preload spread.

TAPTITE 2000® SPA™
Preload

19.1 kN

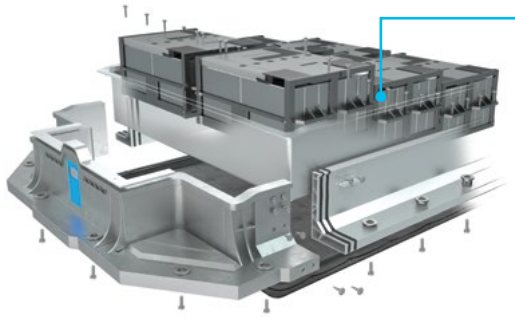
instead of

7.2 kN

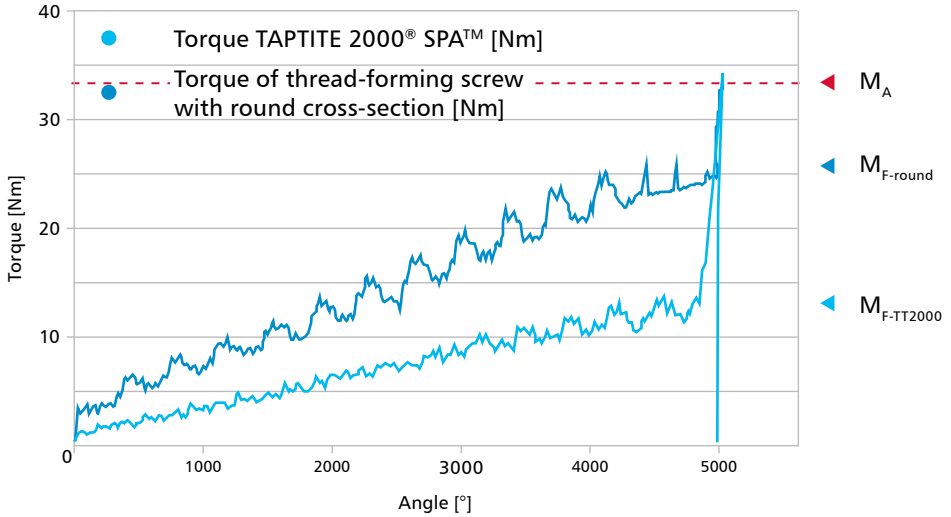
$F_{V\text{-}Round}$

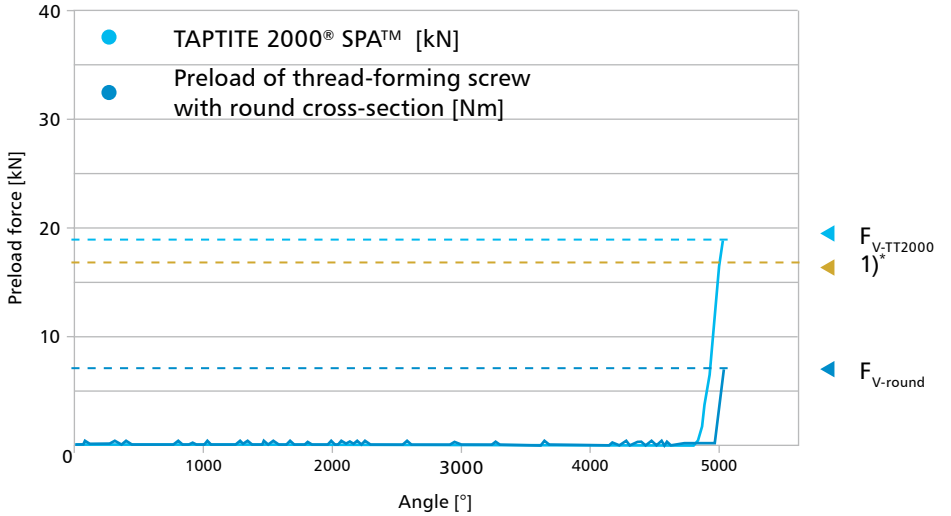
1)* ▶

Typical minimum preload of metric screws during torque-controlled 16kN assembly



During the strain hardening process, the mechanical values of the material can be increased by around 30%.

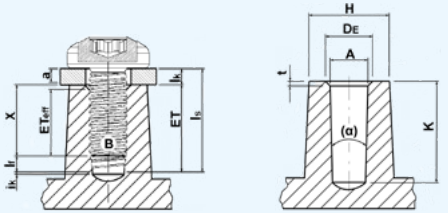




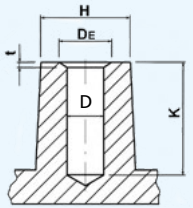
Core hole recommendations for applications in cast aluminium

Nominal-Ø	*)	M2.5	M3	M3.5	M4	M5	M6	M8	M10
cast effective screw-in depth = 2.0 x d	A [mm]	2.35±0.03	2.84±0.03	3.30±0.04	3.76±0.04	4.73±0.05	5.65±0.06	7.58±0.07	9.51±0.08
	X [mm]	5.45	6.50	7.60	8.70	10.80	13.00	17.25	21.50
	B [mm]	2.25±0.03	2.72±0.03	3.17±0.04	3.61±0.04	4.54±0.05	5.42±0.06	7.27±0.07	9.13±0.08
	ET [mm]	6.80	8.00	9.40	10.80	13.20	16.00	21.00	26.00
	ET_{eff} [mm]**)	5.00	6.00	7.00	8.00	10.00	12.00	16.00	20.00
	K_{min} [mm]***)	~7.75	~9.05	~10.45	~11.85	~14.35	~17.15	~22.15	~27.30
cast effective screw-in depth = 1.5 x d	A [mm]	2.32±0.03	2.81±0.03	3.27±0.04	3.72±0.04	4.68±0.05	5.60±0.06	7.50±0.07	9.41±0.08
	X [mm]	4.20	5.00	5.85	6.70	8.30	10.00	13.25	16.50
	B [mm]	2.25±0.03	2.72±0.03	3.17±0.04	3.61±0.04	4.54±0.05	5.42±0.06	7.27±0.07	9.13±0.08
	ET [mm]	5.55	6.50	7.65	8.80	10.70	13.00	17.00	21.00
	ET_{eff} [mm]**)	3.75	4.50	5.25	6.00	7.50	9.00	12.00	15.00
	K_{min} [mm]***)	~6.5	~7.55	~8.7	~9.85	~11.85	~14.15	~18.15	~22.3
cast effective screw-in depth = 1.2 x d	A [mm]	2.31±0.03	2.79±0.03	3.25±0.04	3.70±0.04	4.66±0.05	5.56±0.06	7.46±0.07	9.36±0.08
	X [mm]	3.45	4.10	4.80	5.50	6.80	8.20	10.85	13.50
	B [mm]	2.25±0.03	2.72±0.03	3.17±0.04	3.61±0.04	4.54±0.05	5.42±0.06	7.27±0.07	9.13±0.08
	ET [mm]	4.80	5.60	6.60	7.60	9.20	11.20	14.60	18.00
	ET_{eff} [mm]**)	3.00	3.60	4.20	4.80	6.00	7.20	9.60	12.00
	K_{min} [mm]***)	~5.70	~6.60	~7.60	~8.60	~10.35	~12.55	~16.15	~19.75
additional information	lf [mm]	1.35	1.50	1.80	2.10	2.40	3.00	3.75	4.50
	D_E [mm]	2.65	3.18	3.71	4.24	5.3	6.36	8.48	10.60
	t [mm]	0.45	0.50	0.60	0.70	0.80	1.00	1.25	1.50
	H_{min} [mm]	4.20	5.0	5.8	6.7	8.4	10.00	13.40	16.70
	α [°]	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
drilled	D^{H11} [mm]	$2.27^{+0.06}$	$2.75^{+0.06}$	$3.20^{+0.075}$	$3.65^{+0.075}$	$4.60^{+0.075}$	$5.50^{+0.09}$	$7.38^{+0.09}$	$9.25^{+0.11}$

Cast core hole:



Drilled core hole:



The actual values must be investigated on the original components. Our Fastener Testing Center is available to you at any time. For questions about the design of the core holes, please do not hesitate to contact our sales department.

*) For an explanation of terms please see page 18.

**) The recommended effective screw-in depth into aluminium corresponds to 2 x d (effective screw-in depth ETeff =total screw-in depth - chamfer depth - length of the thread-forming zone). For screw fastenings with reduced requirements regarding preload the screw-in depth can be selected smaller.

***) The calculation for K_{min} was made with screw length tolerances ± 0.45 (M2.5), ± 0.55 (M3.5-M5), ± 0.65 (≥M6). For a precise calculation of K_{min} you need also to consider the clamping thickness tolerances and any differing screw length tolerances.

Application in cast magnesium

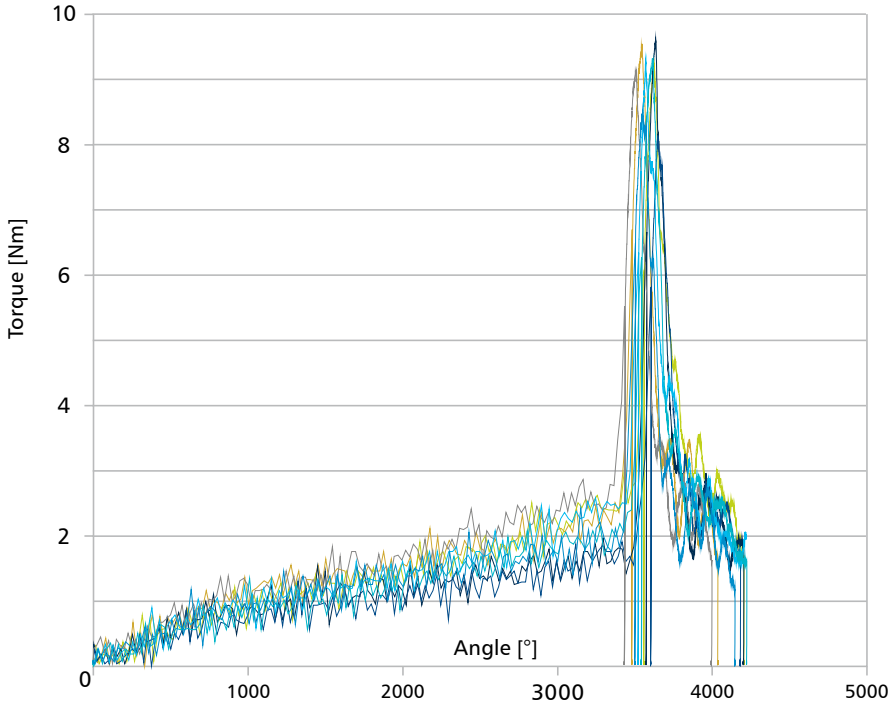
Excellent security during screw-in process.

The TAPTITE 2000® M5 fastening into precast core holes in Mg AZ91 pressure cast was made at thread-forming torques M_F < 3 Nm and overturn torque M_O > 9 Nm.
A high level of process reliability is achieved for the screwing process because of the large delta between thread-forming torque and overturn torque.

TAPTITE 2000® SP™
Thread-forming torques
M_F
< 3 Nm

Overturn torque
M_O
> 9 Nm

Destructive test with TAPTITE 2000® SP™ M5
Curve of torque in cast magnesium



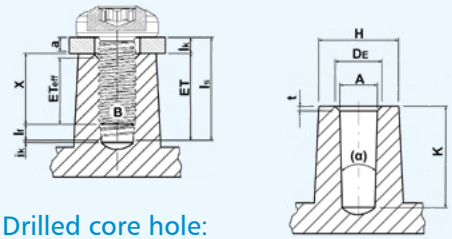


fotolia-ID: 89638212 | © shara

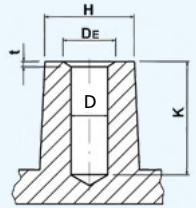
Core hole recommendation for applications in cast magnesium

Nominal-Ø	*)	M2.5	M3	M3.5	M4	M5	M6	M8	M10
cast effective screw-in depth = 2.0 x d	A [mm]	$2.31^{+0.08}$	$2.80^{+0.08}$	$3.25^{+0.08}$	$3.73^{+0.08}$	$4.71^{+0.08}$	$5.62^{+0.10}$	$7.60^{+0.12}$	$9.53^{+0.12}$
	B [mm]	$2.20^{+0.08}$	$2.67^{+0.08}$	$3.10^{+0.08}$	$3.54^{+0.08}$	$4.47^{+0.08}$	$5.33^{+0.10}$	$7.17^{+0.12}$	$9.01^{+0.12}$
	L [mm]	8.05	9.50	11.15	12.80	15.70	19.00	25.00	31.00
	K_{min} [mm]***)	9.05	10.70	12.40	14.00	17.20	20.50	26.70	32.80
	X [mm]	6.70	8.00	9.35	10.70	13.30	16.00	21.30	26.50
cast effective screw-in depth = 1.5 x d	A [mm]	$2.29^{+0.08}$	$2.77^{+0.08}$	$3.22^{+0.08}$	$3.69^{+0.08}$	$4.66^{+0.08}$	$5.56^{+0.10}$	$7.50^{+0.12}$	$9.43^{+0.12}$
	B [mm]	$2.20^{+0.08}$	$2.67^{+0.08}$	$3.10^{+0.08}$	$3.54^{+0.08}$	$4.47^{+0.08}$	$5.33^{+0.10}$	$7.17^{+0.12}$	$9.01^{+0.12}$
	L [mm]	6.80	8.00	9.40	10.80	13.20	16.00	21.00	26.00
	K_{min} [mm]***)	7.80	9.20	10.60	12.00	14.70	17.50	22.70	27.80
	X [mm]	5.45	6.50	7.60	8.70	10.80	13.00	17.25	21.50
cast effective screw-in depth = 1.2 x d	A [mm]	$2.27^{+0.08}$	$2.74^{+0.08}$	$3.19^{+0.08}$	$3.65^{+0.08}$	$4.61^{+0.08}$	$5.50^{+0.10}$	$7.40^{+0.12}$	$9.33^{+0.12}$
	B [mm]	$2.20^{+0.08}$	$2.67^{+0.08}$	$3.10^{+0.08}$	$3.54^{+0.08}$	$4.47^{+0.08}$	$5.33^{+0.10}$	$7.17^{+0.12}$	$9.01^{+0.12}$
	L [mm]	5.55	6.50	7.65	8.80	10.70	13.00	17.00	21.00
	K_{min} [mm]***)	6.55	7.50	8.65	9.80	11.70	14.00	18.00	22.00
	X [mm]	4.20	5.00	5.85	6.70	8.30	10.00	13.25	16.50
additional information	C [mm]	$2.7^{+0.08}$	$3.2^{+0.08}$	$3.7^{+0.08}$	$4.3^{+0.08}$	$5.3^{+0.08}$	$6.3^{+0.08}$	$8.5^{+0.08}$	$10.5^{+0.08}$
	t [mm]	$0.55_{-0.2}$	$0.60_{-0.2}$	$0.70_{-0.2}$	$0.80_{-0.2}$	$0.90_{-0.2}$	$1.10_{-0.2}$	$1.30_{-0.2}$	$1.70_{-0.3}$
	R_{max} [mm]	0.40	0.40	0.40	0.40	0.50	0.50	0.60	0.70
	H_{min} [mm]	4.20	5.00	5.80	6.70	8.30	10.00	13.30	16.60
	α [mm]	1.10	1.10	1.10	1.10	1.20	1.20	1.30	1.30
drilled	D^{H11} [mm]	2.25	2.74	3.19	3.64	4.58	5.48	7.35	9.22

Cast core hole:



Drilled core hole:



The actual values must be investigated on the original components. Our Fastener Testing Center is available to you at any time.
For questions about the design of the core holes, please do not hesitate to contact our sales department.

*) For an explanation of terms please see page 18.

**) The recommended. effective penetration depth into aluminium corresponds to 2 x d (effective penetration depth = penetration depth - length of forming zone - relief bore depth). For components with low loading the effective drive depth ET_{eff} can be selected to be less.

***) The calculation for K_{min} was made with screw length tolerances ± 0.45 (M2.5), ± 0.55 (M3.5-M5), ± 0.65 (≥M6) . For a precise calculation of K_{min} you need also to consider the clamping thickness tolerances and any differing screw length tolerances.

Application in solid steel

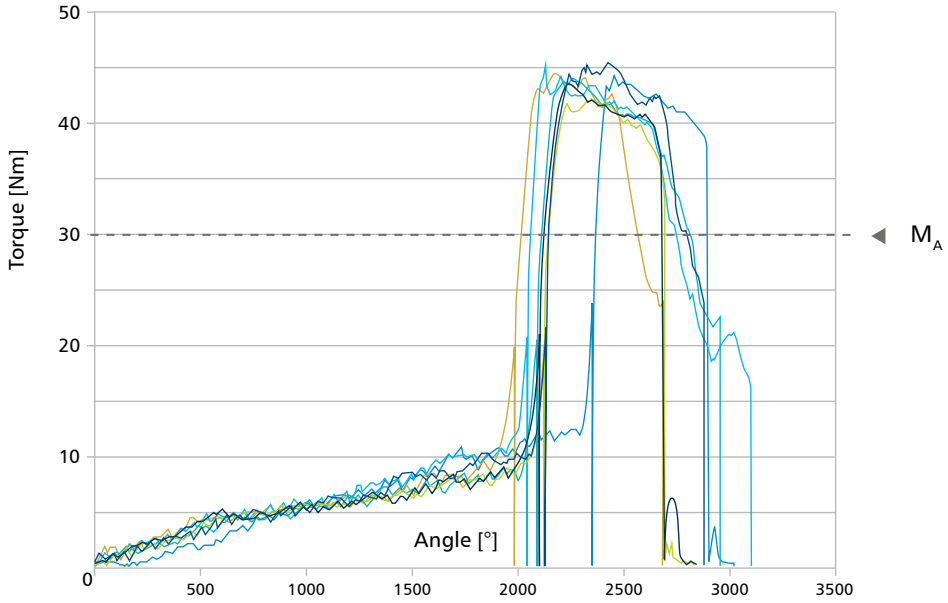
Screw fastening for ABS sensor made with TAPTITE 2000® M8-10.9-Corflex® I™

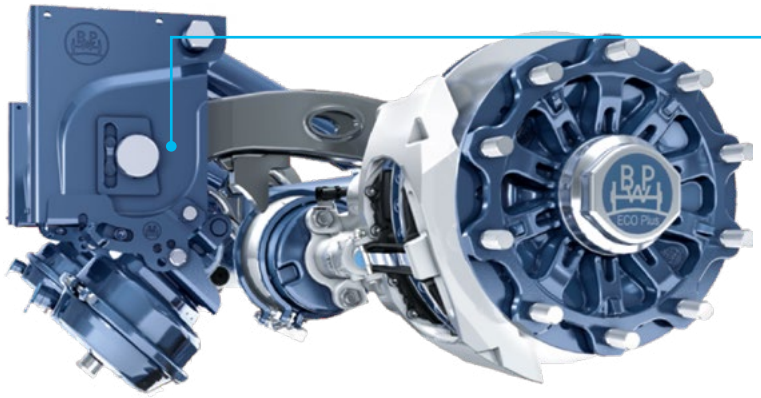
In this individual case, by using hardening technology to adapt the thread-forming zone, it is still possible to use the TAPTITE 2000® M8-10.9-Corflex® I™ in a steering knuckle hardened and tempered to tensile strength Rm ~ 900 MPa. This shows a good suitability of the TAPTITE 2000® for thread-forming in relatively hard materials. It is possible to make a screw fastening with a typical tightening torque of ~ 30 Nm while the thread-forming torques were at a low level (approx. 9-13 Nm).

TAPTITE 2000® M8 10.9 Corflex® I™

Low thread-forming torque despite high strength of the screw-in material

Destructive test on TAPTITE 2000® M8-10.9-Corflex I™
Curve of torque in heat-treated steel of 900 MPa and core hole -Ø 7.40+ 0.1 mm



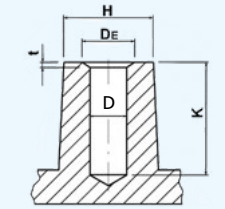


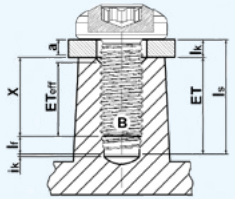
During the strain hardening process, the mechanical values of the material can be increased by around 50%.

Core hole recommendation for applications in solid steel

Effective screw-in depth ET_{eff}	Thread overlap in %	Nomi-nal-Ø [mm]	M2.5	M3	M3.5	M4	M5	M6	M8	M10
0.3 x d	90 %	ET_{eff} [mm]	0.5 – 0.9	0.5 – 1.1	0.6 – 1.4	0.8 – 1.4	1.0 – 2.1	1.2 – 2.4	1.6 – 3.1	1.9 – 3.9
		Hole	2.24	2.71	3.15	3.59	4.53	5.42	7.27	9.12
0.5 x d	80 %	ET_{eff} [mm]	0.9 – 1.5	1.1 – 1.7	1.4 – 2.0	1.4 – 2.4	2.1 – 2.9	2.4 – 3.6	3.1 – 4.9	3.9 – 5.9
		Hole	2.27	2.74	3.19	3.64	4.58	5.48	7.35	9.22
0.75 x d	70 %	ET_{eff} [mm]	1.5 – 2.1	1.7 – 2.7	2.0 – 2.9	2.4 – 3.3	2.9 – 4.4	3.6 – 4.9	4.9 – 6.9	5.9 – 8.3
		Hole	2.30	2.77	3.23	3.68	4.64	5.55	7.43	9.32
1.0 x d	65 %	ET [mm]	2.1 – 2.7	2.7 – 3.3	2.9 – 3.8	3.3 – 4.4	4.4 – 5.9	4.9 – 6.9	6.9 – 8.9	8.3 – 10.9
		Hole	2.31	2.79	3.25	3.70	4.66	5.58	7.47	9.37
1.20 x d	60 %	ET [mm]	2.7 – 3.5	3.3 – 4.0	3.8 – 4.5	4.4 – 5.5	5.9 – 7.1	6.9 – 8.1	8.9 – 10.9	10.9 – 12.9
		Hole	2.32	2.81	3.27	3.73	4.69	5.61	7.51	9.42

Drilled core hole





The actual values must be investigated on the original components. Our Fastener Testing Center is available to you at any time.
For questions about the design of the core holes, please do not hesitate to contact our sales department.

Application in steel sheet metal rim hole

Secure screw fastenings into sheet steel

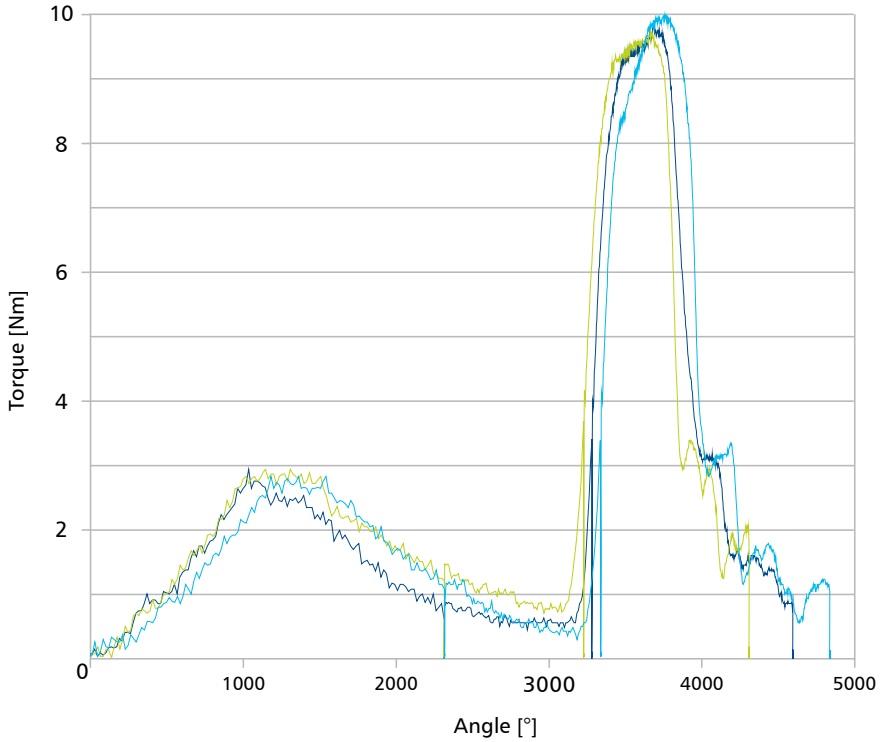
Low thread-forming torques M_F, high tightening torques M_A and overturn torques M_O ensure secure processing for the screw fastening. A higher level of component security in fastenings for low-strength steels of strength class Rm ~ 400 MPa was achieved by using TAPTITE 2000® M5 in strength class 10.9.

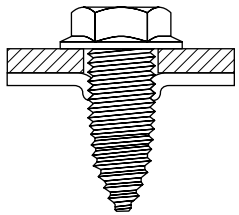
A higher level of component security when fastening low-strength steels and TAPTITE 2000® M5



Shutterstock-ID: 126199460

Destructive test with TAPTITE 2000® M5
Curve of torque in steel sheet metal rim hole



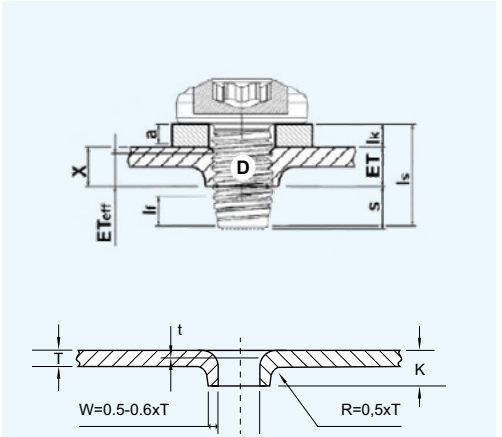


TAPTITE 2000® M5 CA-Tip

- for fastening thin sheets
- forms a sheet metal rim hole
- High assembly reliability with a large delta between the thread-forming and overturn torques
- Simplified assembly possible with special tips such as the CA tip

Core hole recommendations for applications in steel sheet metal rim holes

Sheet thickness T (mm)		Hole diameter (mm)									
	K/T	M2.0	M2.2	M2.5	M3.0	M3.5	M4.0	M5.0	M6.0	M8.0	M10.0
0.50	2.00	1.74									
0.60	1.60	1.74									
0.60	1.80	1.74	1.94								
0.60	2.00	1.74	1.94	2.21							
0.80	1.60	1.74	1.94	2.21							
0.80	1.80	1.75	1.94	2.21							
0.80	2.00	1.75	1.95	2.21	2.68						
1.00	1.60	1.75	1.95	2.21	2.68						
1.00	1.80	1.75	1.95	2.20	2.68	3.11					
1.00	2.00			2.20	2.68	3.11	3.55				
1.20	1.60			2.20	2.68	3.11	3.55				
1.20	1.80			2.20	2.69	3.11	3.55				
1.20	2.00				2.69	3.13	3.55	4.48			
1.50	1.60				2.69	3.13	3.55	4.48			
1.50	1.80				2.69	3.13	3.57	4.48			
1.50	2.00						3.57	4.48	5.35		
2.00	1.60						3.57	4.48	5.35		
2.00	1.80						3.57	4.51	5.35		
2.00	2.00							4.51	5.35	7.19	
2.50	1.60							4.51	5.35	7.19	
2.50	1.80							4.51	5.38	7.19	
2.50	2.00								5.38	7.19	9.03
3.00	1.60								5.38	7.19	9.03
3.00	1.80								5.38	7.23	9.03
3.00	2.00									7.23	9.03
4.00	1.60									7.23	9.03
4.00	1.80									7.23	9.07
4.00	2.00										9.07

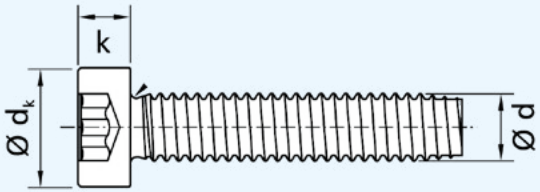


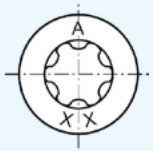
The actual values must be investigated on the original components. Our Fastener Testing Center is available to you at any time.
For questions about the design of the core holes, please do not hesitate to contact our sales department.

Based on DIN 7852-1

Factory Standards TAPTITE 2000®

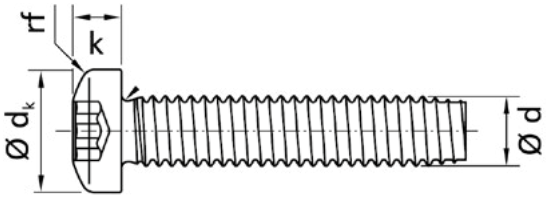
Cylinder head screw AWN-01-01-01

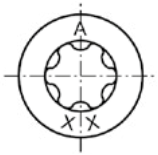




Nominal-Ø d		M2.5	M3	M4	M5	M6	M8	M10
Head diameter d_k [mm]		$4.50_{-0.18}$	$5.50_{-0.18}$	$7.00_{-0.22}$	$8.50_{-0.22}$	$10.00_{-0.22}$	$13.00_{-0.27}$	$16.00_{-0.27}$
Head height k [mm]		$1.85_{-0.14}$	$2.40_{-0.14}$	$3.10_{-0.18}$	$3.65_{-0.18}$	$4.40_{-0.30}$	$5.80_{-0.30}$	$6.90_{-0.36}$
TORX®	Size	T8	T10	T20	T25	T30	T45	T50
TORX PLUS® AUTOSERT®	Size	8IP	10IP	20IP	25IP	30IP	45IP	50IP

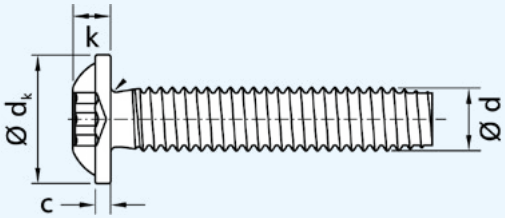
Pan head screw AWN-01-01-02

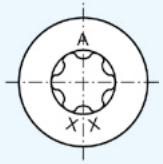




Nominal-Ø d		M2.5	M3	M3.5	M4	M5	M6	M8	M10
Head diameter d_k [mm]		$5.00_{-0.30}$	$5.60_{-0.30}$	$7.00_{-0.36}$	$8.00_{-0.36}$	$9.50_{-0.36}$	$12.00_{-0.43}$	$16.00_{-0.43}$	$20.00_{-0.52}$
Head height k [mm]		$2.10_{-0.14}$	$2.40_{-0.14}$	$2.60_{-0.14}$	$3.10_{-0.18}$	$3.70_{-0.18}$	$4.60_{-0.30}$	$6.00_{-0.30}$	$7.50_{-0.36}$
TORX®	Size	T8	T10	T15	T20	T25	T30	T45	T50
TORX PLUS® AUTOSERT®	Size	8IP	10IP	15IP	20IP	25IP	30IP	45IP	50IP

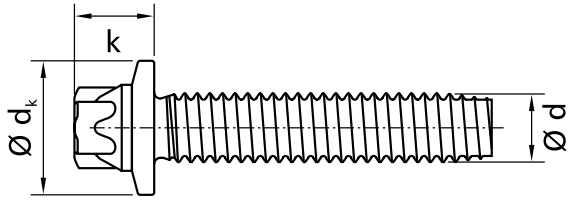
Mushroom head screw AWN-01-01-03

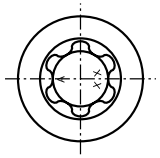




Nominal-Ø d		M2.5	M3	M3.5	M4	M5	M6	M8	M10
Head diameter d_k [mm]		$6.00_{-0.30}$	$7.50_{-0.58}$	$9.00_{-0.58}$	$10.00_{-0.58}$	$11.50_{-0.70}$	$14.50_{-0.70}$	$19.00_{-0.84}$	$24.00_{-0.84}$
Head height k [mm]		$2.40_{-0.25}$	$2.52_{-0.24}$	$2.80_{-0.25}$	$3.25_{-0.30}$	$3.95_{-0.30}$	$4.75_{-0.30}$	$6.15_{-0.30}$	$7.40_{-0.30}$
TORX®	Size	T8	T10	T15	T20	T25	T30	T40	T50
TORX PLUS AUTOSERT®	Size	8IP	10IP	15IP	20IP	25IP	30IP	40IP	50IP

External TORX® screw AWN-01-01-06





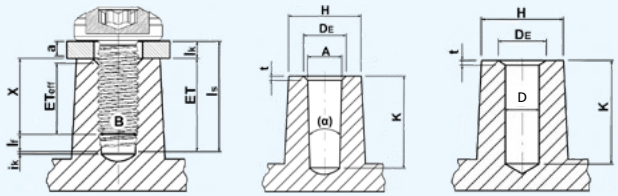
Nominal-Ø d		M4	M5	M6	M8	M10	M12
Head diameter d_k [mm]		7.66	11.80	14.20	17.90	21.80	26.00
Head height k [mm]		$4.50_{-0.25}$	$6.50_{-0.25}$	$7.50_{-0.25}$	$10.00_{-0.25}$	$12.00_{-0.25}$	$14.00_{-0.25}$
External TORX®	Size	E5	E8	E10	E12	E14	E18

Explanation of terms:
Core hole recommendations for direct screw fastening

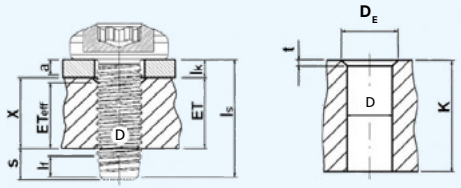
Term	Explanation
A	Core hole diameter in depth t [mm]
a	Length of thread runout [mm]
B	Core hole diameter in cast hole (depth x) [mm]
D	Core hole diameter in cylindrical hole [mm]
d	Nominal screw diameter [mm]
D_E	Chamfer diameter [mm] As an option cylindrical centering holes are also permitted
ET	Screw-in depth = screw length - clamping thickness [mm]
ET_{eff}	Effective screw-in depth = ET - lf - t [mm]
l_k	Clamping thickness [mm]

Term	Explanation
i_k	Distance of threaded end to base of core hole [mm]
K	Core hole depth / height of sheet metal rim hole
l_f	Length of thread-forming zone (tolerance median) ~ 3 x p [mm]
l_s	Screw length [mm]
s	Protrusion of screw
T	Sheet thickness
t	Depth of relief bore [mm]
x	Depth of first fully load-bearing thread pitch
α	Total demolding angle [°] (information only)

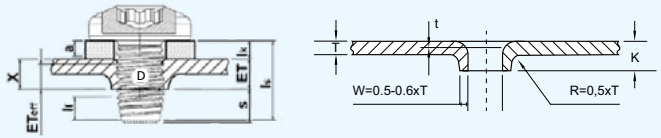
Blind hole screw fastening



Rim hole screw fastening



Sheet metal rim hole screw fastening



ARNOLD® BlueFastening Systems

Notes



ARNOLD®
BlueFastening Systems

The ARNOLD GROUP

www.arnold-fastening.com

Wherever customers need us.

ARNOLD – this name is internationally renowned for efficient and sustainable fastening systems at the highest level.

With a foundation of many years of expertise in the production of intelligent fastening systems and very complex extruded parts, the ARNOLD GROUP has developed over a number of years into a comprehensive supplier and development partner for complex fastening systems. With our positioning of "BlueFastening Systems", this development process will continue under a united and harmonised structure. Engineering, services, fasteners and functional parts, together with feeding and processing systems, all from a single source – efficient, sustainable and international.

ARNOLD UMFORMTECHNIK GmbH & Co. KG
Carl-Arnold-Straße 25
74670 Forchtenberg-Ernsbach
Germany
T +49 7947 821-0
F +49 7947 821-111

ARNOLD UMFORMTECHNIK GmbH & Co. KG
Im Weitblick 1
74670 Forchtenberg-Rauhbusch
Germany
T +49 7947 821-0
F +49 7947 821-111

ARNOLD UMFORMTECHNIK GmbH & Co. KG
Max-Planck-Straße 19
74677 Dörzbach
Germany
T +49 7947 821-0
F +49 7947 821-111

ARNOLD UMFORMTECHNIK GmbH & Co. KG
Logistics center
Dörzbach plant
Germany
T +49 7947 821-0
F +49 7947 821-111

ARNOLD FASTENING SYSTEMS Inc.
1873 Rochester Industrial Ct.
Rochester Hills, MI 48309-3336
USA
T +1 248 997-2000
F +1 248 475-9470

ARNOLD FASTENERS (SHENYANG) Co., Ltd.
No. 119-2 Jianshe Road
110122 Shenyang
China
T +86 2488 90633
F +86 2488 90999

ARNOLD TECHNIQUE FRANCE SAS
267 Route Nationale 7
38150 Salaise sur Sanne
France
T +33 (0)427 698177
F +33 (0)427 698178











Technical changes reserved · Any reprinting, including extracts, requires permission.

AUM · Hela · ARN_2026_045 03/26 © by ARNOLD UMFORMTECHNIK GmbH & Co. KG