

Fasteners for thin sheet metal

Anchor®
Clifa®



Technical publication

No.40

**Kerb
Konus**





Fastening technology from KerbKonus are in successful applications in a wide variety of different industrial sectors around the world.

State-of-the-art production facilities provide our customers with the assurance of quality and reliable delivery, and sophisticated fastening solutions for every conceivable field of application are implemented by our own Research and Development Department.

Close cooperation and exchange of experience and expertise on an international level ensure that our company stays at the cutting edge of technological development.

With independent branches and agencies operating in a number of countries around the world we are a truly reliable partner when it comes to secure fastening technology.

... our products and services

Depending on the required anchoring method in the material, KerbKonus offers a variety of threaded insert options:

- self-tapping threaded inserts for metal, wood and plastics,
- Threaded inserts for cold embedding
- Threaded inserts for hot or sound embedding
- Threaded inserts for screwing into an internal thread
- Threaded inserts for riveting

Alongside its long-standing, proven spectrum of threaded for a wide variety of applications, KerbKonus also offers fastening technology-related products and services:

- Punched rivet system for thin mouldings
- Screw locking
- Thread sealing systems
- Insulating plastic coating

If you have a specific problem related to the field of fastening technology – with its rich fund of expertise and comprehensive product range, KerbKonus has the solution for you.

Technical details on KerbKonus products are also provided on our homepage: **www.kerbkonus.de**

To access design data, go to the download portal of our website. Here, you will be able to download product data in any required formats or as CAD files.

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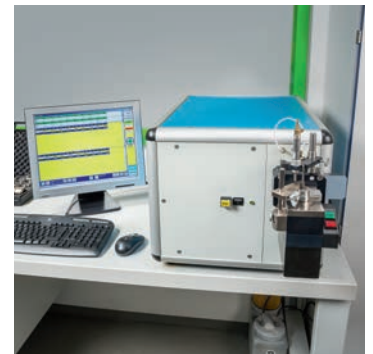


What really counts: tested quality.

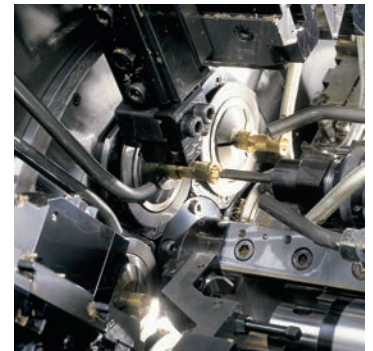


At our parent plant in Amberg, we produce threaded inserts using efficient production methods. A team of qualified and highly motivated staff guarantees a consistent, high standard of production.

The number of products manufactured over the company's history reaches into the billions. State-of-the-art automation lines manufacture around the clock in a precise and high standard of quality. The efficient and low-cost production of large-scale product series is one of the strengths on which we have based our success.

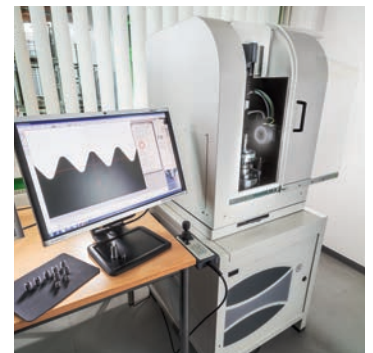


But our high-volume production output in no way compromises flexibility. We are able to quickly and efficiently produce even small batches of nonstandard items.



Our state-of-the-art stock control system permits the reliable, prompt delivery of standard products, keeping your production running to schedule at all times and helping to minimize your warehousing costs.

We are particularly proud of a cost-to-performance ratio which ensures satisfied customers the world over. This has made KerbKonus a reputable and respected partner to industry in the global marketplace.



Quality and environment are top priority issues at KerbKonus. Quality consciousness is a continuous thread running through every aspect of the company's work and all its products and services. Quality is lived and breathed at KerbKonus.



As manufacturer in the metal processing industry we are aware of our responsibility for an environmentally compatible production. With this in mind we follow up a policy of sensible resource spending and environmental friendly production both in our process engineering and our product range.



Quality System
DEKRA Certificat in accordance with
ISO 9001:2008 Reg.No. 30507428
ISO 14001:2004 Reg.No. 170507049
ISO 50001:2011 Reg.No. 181115119

Applications on the test stand ...



Threaded inserts from KerbKonus are manufactured in large piece numbers. Human lives and safety can often depend upon these tiny components, for instance in the case of airbag receiving fasteners.

Because we bear this heavy responsibility, our products are tested and monitored in line with the most stringent directives. In the case of particularly critical applications, each and every part is exhaustively tested on state-of-the-art test equipment before it is delivered to you e.g. dimensional check, foreign particles. For Example:

- dimensional check
- foreign particles

Test methods

The loading capacity of a thread depends primarily on the surface shell of the component which is exposed to shearing stress.

By selecting just the right threaded insert for each application, maximum reliability can be achieved. Using tried and tested, practically oriented test methods (see the table below) set of reliable specifications to ensure safe, reliable compliance with any application requirement, however unusual. In most cases, this can even be achieved using standard threaded inserts.

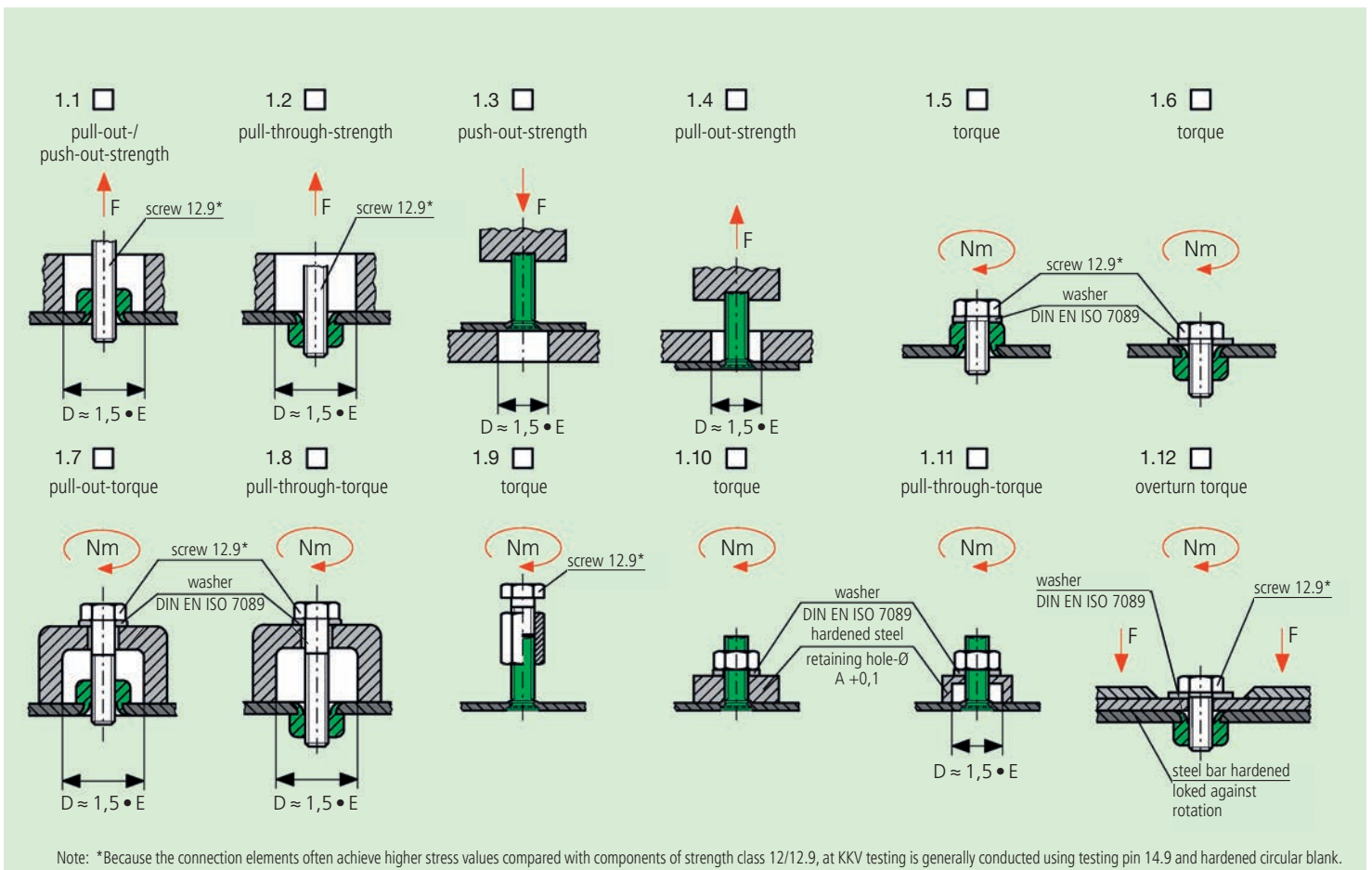
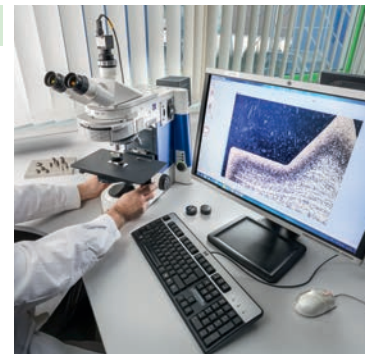
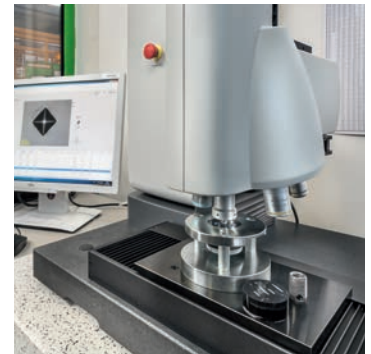


Fig. 1
40.0718

Anchor® – serrated rivet bushing ...

The Anchor® rivet bushing is a threaded insert made of steel or rustproof material, brass or light alloy with a counter-bored and serrated shank.

Anchor® is riveted into thin-walled moulded parts with pre-punched receiving holes. During this process, the riveted serrations of the shank cut into the side wall, creating an absolutely secure fastening.

The special shape of the shank and the countersinking at the bottom protect the thread from damage during installation. In almost all application cases, overload testing indicated that Anchor® remains firmly seated even if the thread is completely overtightened.



Fields of application

Anchor® rivet nuts can be applied universally. They provide a multitude of constructive solutions for robust screw fittings. Anchor® is used in almost all fields of the metal processing industry, for example in the automotive, railway and electrical fields.

Product features

- Anchor® is torque-resistant and capable of loads applied from both sides.
- Anchor® can be used in surface-treated, ready-plated parts, so eliminating the need for time-consuming cleaning of internal threads and reworking damage at the surface.
- When turning in the screw, it is impossible for the Anchor® to be forced out of the hole. This saves incalculable time losses.
- Anchor® sits with a precise centric fit without the use of templates or other positioning devices.
- Anchor® is also suitable for application in high-quality materials.

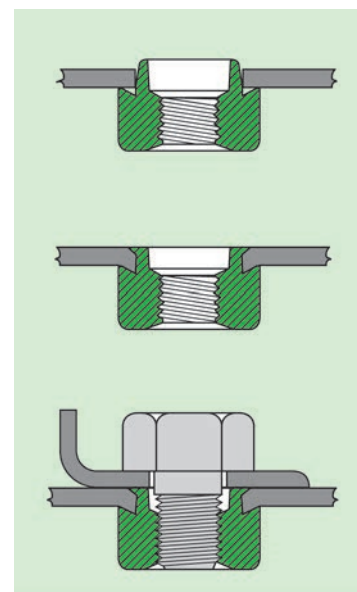


Fig. 2

Specifications

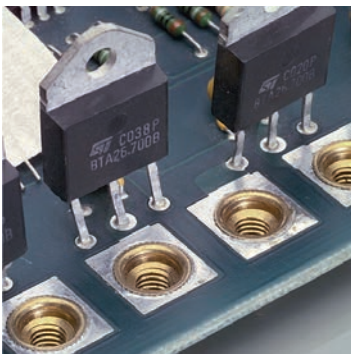
Works Standard sheets 701 to 758,
page 7 – 9

On request:

Anchor® with TufLok® screw lock in the female thread. The captive plastic coating serves as a security against the screw working loose.

Anchor® with sealing agent precote 5 on the support surface.





Special request

Space and weight-saving design

Thread closed on one side

Distant fixture

Support or bearing function

Flush finish to the surface of the metal

Loading on both sides

Can also be processed in FRP

We recommend

Anchor®-Mini with small outer dimensions (Works Standard 721 to 738)

Anchor®-Blind with blind thread (Works Standard 741 to 758)

Anchor® in special lengths

Anchor® without internal thread (special version)

No bead required in the component material.

Anchor® can be loaded from both sides, it is practically impossible for it to be levered out.

Delamination is largely avoided in fibre-reinforced plastic (FRP).



Anchor[®] – installation ...

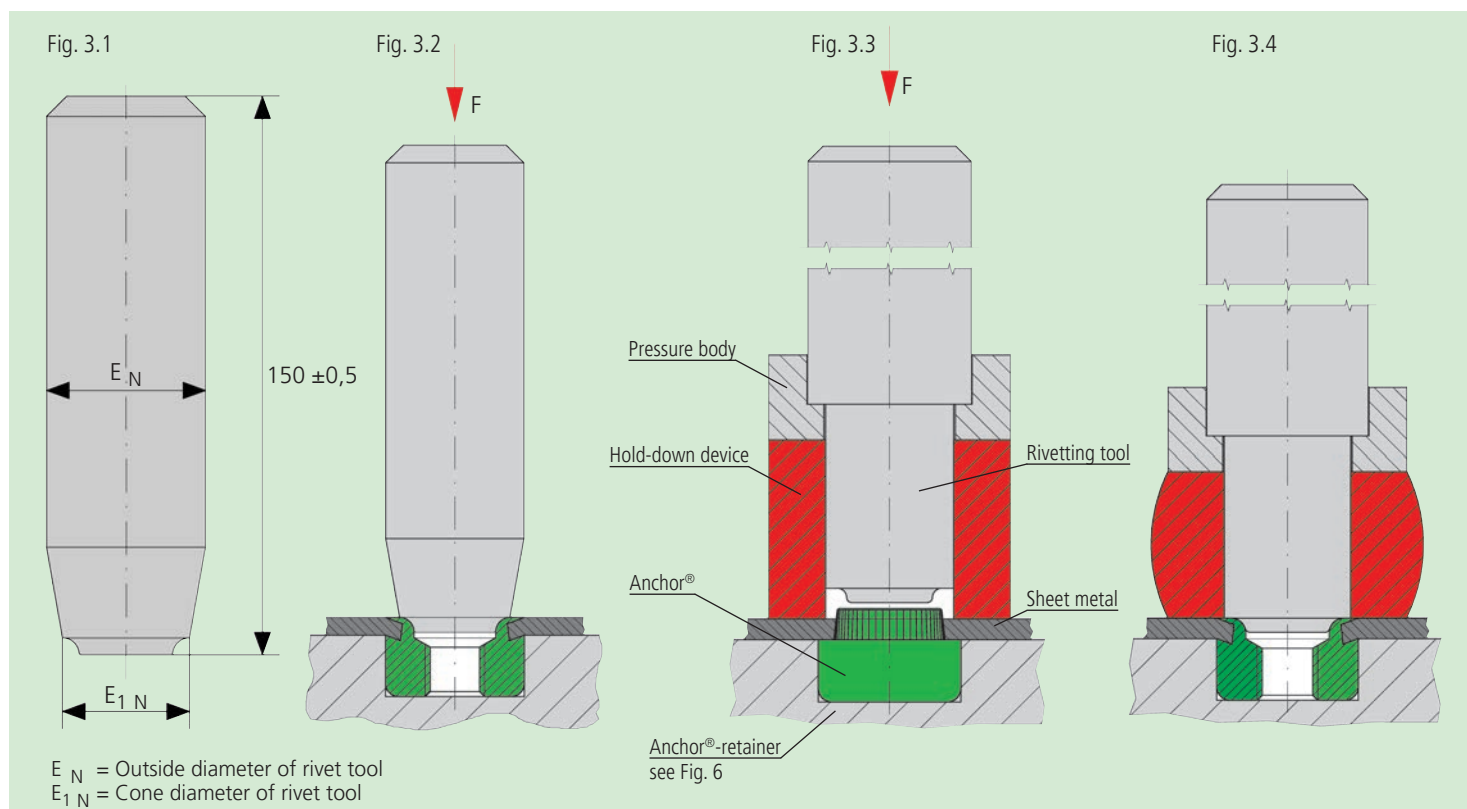


Fig. 3

Installation

Punch, lasing or drill hole, insert anchor and rivet the shank with a simple rivetting tool (Fig. 3.2).

- manually
- using a simple press
- by inserting Anchor[®] and rivetting using a tumble or radial riveting process
- automatic feed in follow-on tools
- to prevent deformation of thin mouldings, use a tool with holding-down device (Fig. 3.3 and 3.4).

Riveting force

with mechanical rivetting
 (Anchor[®] made of steel)

M 2 / M 3	appr. 15 to 27 kN
M 4	20 to 30 kN
M 5	22 to 42 kN
M 6	30 to 54 kN
M 8	45 to 81 kN
M 10	65 to 97 kN
M 12 to M 16	80 to 160 kN

Fig. 4

Dimensions of the rivetting tools (Fig. 3.1):

	Article no. 401 for Anchor [®] and Tanktyp		Article no. 421 for Anchor [®] -Mini	
	E_N	E_{1N}	E_N	E_{1N}
M 2	12	7,1	12	4,8
M 2,5 / M 3	12	7,1	12	5,5
M 3,5 / M 4	12	8,7	12	7,1
M 5	16	10,3	12	8,7
M 6	16	11,9	12	10,3
M 8	20	15,5	12	11,5
M 10	20	18,3	–	–
M 12 to M 16	25	22,2	–	–

Fig. 5

Dimensions of the Anchor[®] mounting

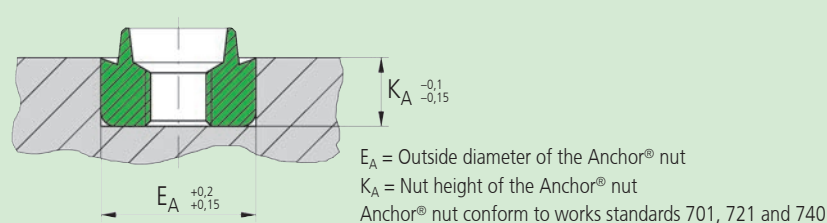


Fig. 6

Animation

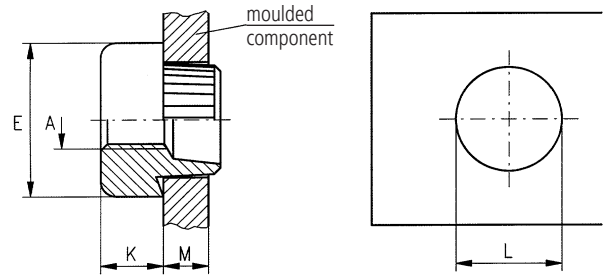


Application

Anchor® is a rivet bushing for captive, torque-resistant screw connections capable of withstanding loads from both sides in thin-walled workpieces (0,5 to 5 mm thickness).

The Anchor® is suitable for thin-walled moulded components made of

- steel,
- alloy,
- NF metals and
- plastic.



Dimensions in mm

Article no. of the first group of digits	for sheet metal thickness M	Article no. of the second and third group of digits	Internal thread A	External diameter E	Nut height K	Recommended hole diameter L +0,1
701	0,5 to 0,6 1)	... 000 020 ...	M 2	8,0	3,2	6,0
702	0,7 1)	... 000 025 ...	M 2,5	8,0	3,2	6,0
703	0,8 1)	... 000 030 ...	M 3	8,0	3,2	6,0
704	0,9 to 1,0 1)	... 000 035 ...	M 3,5	9,5	3,8	7,0
705	1,1 to 1,3 1)	... 000 040 ...	M 4	9,5	3,8	7,0
706	1,4 to 1,6 1)	... 000 050 ...	M 5	11,0	4,4	8,4
707	1,7 to 1,9 2)	... 000 060 ...	M 6	12,5	5,7	9,7
708	2,0 to 2,2 2)	... 000 080 ...	M 8	16,0	6,4	13,2
709	2,3 to 2,5 2)	... 000 100 ...	M 10	19,0	7,6	15,5
710	2,6 to 2,8 2)	... 000 120 ...	M 12	25,4	10,2	19,6
711	2,9 to 3,1 2)	... 000 140 ...	M 14	25,4	10,2	19,6
712	3,2 to 3,4 2)	... 000 160 ...	M 16	25,4	10,2	19,6
713	3,5 to 3,7 2)					
714	3,8 to 4,0 2)					
715	4,1 to 4,3 2)					
716	4,4 to 4,6 2)					
717	4,7 to 4,9 2)					
718	5,0 2)					

1) Shoulder 20° undercut
2) Surfaced shoulder

Exemple for finding the article number

Anchor® serrated rivet bushing with female thread M5; steel, galvanized, blue passivated for sheet thickness 2 mm (sheet steel) Anchor® 708 000 050. 110 *)

Materials

Steel, unrefined
Steel, zinc plated, blue passivated
Stahl, zinc-nickel plated, transparent passivated
Stainless steel 1.4305
Light alloy
Brass

Article no. (fourth group of digits) 100
Article no. (fourth group of digits) 110
Article no. (fourth group of digits) 143
Article no. (fourth group of digits) 500
Article no. (fourth group of digits) 700
Article no. (fourth group of digits) 800

Other materials and designs (e.g. nut height, shank lengths of deviating sheet metal thicknesses) on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

*) Remark

For applications in high-strength steel sheet or stainless steel sheet, or when using the stainless steel rivet nut, we recommend – for flush riveting – the rivet nut of the next smallest shank length: 707 000 050.110 (sheet thickness: 2 mm stainless steel sheet or high-strength steel sheet).

Animation

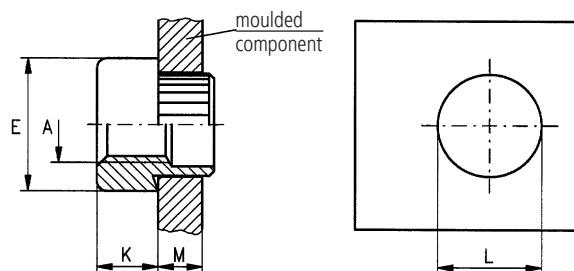


Application

Anchor®-Mini is a rivet bushing for captive, torque-resistant screw connections capable of withstanding loads from both sides in thin-walled workpieces (0,5 to 5 mm thickness) made of

- steel,
- light alloy,
- NF metals and,
- plastic.

The Anchor®-Mini is particularly weight and space-saving due to its minimal outside dimensions.



Dimensions in mm

Article no. of the first group of digits	for sheet metal thickness M	Article no. of the <u>second</u> and <u>third</u> group of digits	Internal thread A	External diameter E	Nut height K	Recommended hole diameter L +0,05
721	0,5 to 0,6 1)	... 000 020 ...	M 2	5,0	2,3	3,5
722	0,7 1)	... 000 025 ...	M 2,5	5,5	2,8	4,2
723	0,8 1)	... 000 030 ...	M 3	5,5	2,8	4,2
724	0,9 to 1,0 1)	... 000 035 ...	M 3,5	7,0	3,2	5,5
725	1,1 to 1,3 1)	... 000 040 ...	M 4	7,0	3,2	5,5
726	1,4 to 1,6 1)	... 000 050 ...	M 5	8,5	3,8	6,5
727	1,7 to 1,9 2)	... 000 060 ...	M 6	10,0	5,1	7,7
728	2,0 to 2,2 2)	... 000 080 ...	M 8	12,0	6,5	9,7
729	2,3 to 2,5 2)					
730	2,6 to 2,8 2)					
731	2,9 to 3,1 2)					
732	3,2 to 3,4 2)					
733	3,5 to 3,7 2)					
734	3,8 to 4,0 2)					
735	4,1 to 4,3 2)					
736	4,4 to 4,6 2)					
737	4,7 to 4,9 2)					
738	5,0 2)					

For optimum strength values, installation using the tumble or radial rivetting process is recommended.

- 1) Shoulder 20° undercut
- 2) Surfaced shoulder

Exemple for finding the article number

Anchor®-Mini serrated rivet bushing with female thread M5; steel, galvanized, blue passivated for sheet thickness 2 mm (sheet steel) Anchor®-Mini 728 000 050. 110 *)

Materials

Steel, unrefined
Steel, zinc plated, blue passivated
Stahl, zinc-nickel plated, transparent passivated
Stainless steel 1.4305
Light alloy
Brass

Article no. (fourth group of digits) 100
Article no. (fourth group of digits) 110
Article no. (fourth group of digits) 143
Article no. (fourth group of digits) 500
Article no. (fourth group of digits) 700
Article no. (fourth group of digits) 800

Other materials and designs (e.g. nut height, shank lengths of deviating sheet metal thicknesses) on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

*) Remark

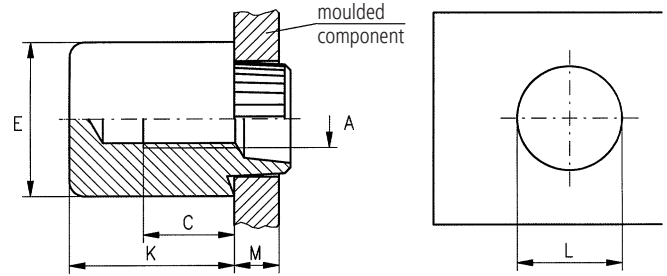
For applications in high-strength steel sheet or stainless steel sheet, or when using the stainless steel rivet nut, we recommend – for flush riveting – the rivet nut of the next smallest shank length: 727 000 050.100 (sheet thickness: 2 mm stainless steel sheet or high-strength steel sheet).

Application

Anchor®-Blind is a rivet bushing with a threaded blind hole (sealed thread) for captive, torqueresistant screw connections in thin-walled workpieces. (0,5 to 5 mm thickness)

the Anchor® is suitable for thin-walled moulded parts made of

- steel,
- light alloy,
- NF metal and
- plastic.



Dimensions in mm

Article no. of the first group of digits	for sheet metal thickness M	Article no. of the <u>second</u> and third group of digits	Internal thread A	External diameter E	Nut height K	Recommended hole diameter L +0,1	Thread depth min. C
741	0,5 to 0,6 1)	... 000 030 ...	M 3	8,0	8,5	6,0	3,0
742	0,7 1)	... 000 035 ...	M 3,5	9,5	9,0	7,0	4,0
743	0,8 1)	... 000 040 ...	M 4	9,5	9,0	7,0	4,0
744	0,9 to 1,0 1)	... 000 050 ...	M 5	11,0	10,0	8,4	5,0
745	1,1 to 1,3 1)	... 000 060 ...	M 6	12,5	10,5	9,7	5,5
746	1,4 to 1,6 1)	... 000 080 ...	M 8	16,0	12,0	13,2	5,5
747	1,7 to 1,9 2)	... 000 100 ...	M 10	19,0	13,5	15,5	6,0
748	2,0 to 2,2 2)	... 000 120 ...	M 12	25,4	19,0	19,6	7,0
749	2,3 to 2,5 2)						
750	2,6 to 2,8 2)						
751	2,9 to 3,1 2)						
752	3,2 to 3,4 2)						
753	3,5 to 3,7 2)						
754	3,8 to 4,0 2)						
755	4,1 to 4,3 2)						
756	4,4 to 4,6 2)						
757	4,7 to 4,9 2)						
758	5,0 2)						

- 1) Shoulder 20° undercut
2) Surfaced shoulder

Exemple for finding the article number

Anchor®-Blind serrated rivet bushing with female thread M5; steel, galvanized, blue passivated for sheet thickness 2 mm (sheet steel) Anchor®-Blind 748 000 050. 110 *)

Materials

Steel, unrefined
Steel, zinc plated, blue passivated
Stahl, zinc-nickel plated, transparent passivated
Stainless steel 1.4305
Light alloy
Brass

Article no. (fourth group of digits) 100
Article no. (fourth group of digits) 110
Article no. (fourth group of digits) 143
Article no. (fourth group of digits) 500
Article no. (fourth group of digits) 700
Article no. (fourth group of digits) 800

Other materials and designs (e.g. nut height, shank lengths of deviating sheet metal thicknesses) on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

*) Remark

For applications in high-strength steel sheet or stainless steel sheet, or when using the stainless steel rivet nut, we recommend – for flush riveting – the rivet nut of the next smallest shank length: 747 000 050.100 (sheet thickness: 2 mm stainless steel sheet or high-strength steel sheet).

Clifa® press-in nut/stud ...

Clifa®-press-in nuts and Clifa® studs are threaded inserts made of steel with a specially formed shank or head.

Clifa®-press-in nuts and Clifa® studs can also be supplied in rust-proof material, and the nuts additionally in light alloy.

Clifa®-threaded inserts are pressed into moulded components with prepunched receiving holes. During this process, the material flows out of the area of the hole wall into the gear ring / the annular grooves of the Clifa® threaded inserts. A permanent connection is formed.

Several Clifa® inserts can be installed in a single work process. The fastening screw is always screwed in from the opposite side.

Fields of application

Clifa® press-in elements serve as a screw point mainly on moulded parts of steel or light metal. They may also be used as spacers.

Product features

- Clifa® is torque-proof, capable of withstanding high loads.
- It has minimal outside dimensions for space and weight-saving
- The thread is wear-resistant, clean and true to gauge
- Mounting in drilled, punched or lasered receiving holes
- Do not countersink drill holes in the component
- Can be used in surface-treated, galvanized or unweldable materials
- Clifa® is not pressed out during the screwing process.
- The component material must be softer than the Clifa® element



Specifications

Works Standard sheets Clifa®
Pages 11 to 20

High-performance installation equipment for short cycle times in largescale production on request.



Clifa® installation ...

Installation

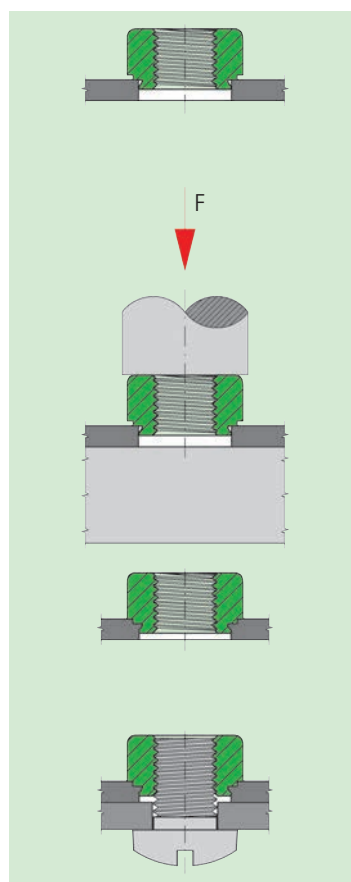
The receiving hole is punched, lasered or drilled **but not deburred or countersunk**.

With punched holes, Clifa® is pressed in from the punching burr side. The press-in process takes place on a plane parallel basis using a customary press with adjustable pressure level, until the surface of the shoulder in the Clifa® pressin nut comes to rest flat against the surface of the sheet metal.

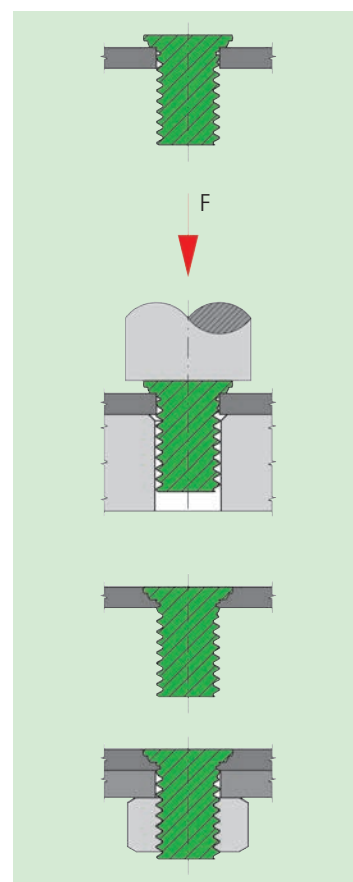
In the case of the Clifa®-SP/SPD/SPS stud, the head must be fully pressed in and come to rest flush with the surface of the sheet metal.

Pressure which is too high or applied only on one side as well as inclined support surfaces must be avoided wherever possible.

Examples for mounting



Press-in nut Clifa®



Press-in stud Clifa®-SP

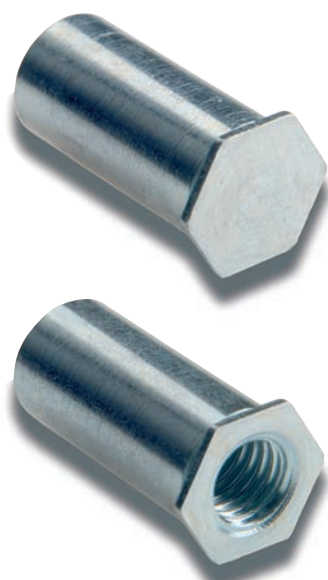
Fig. 8

Special request

short length
standoff bushings for metals
standoff bushings for plastics
threaded press-in stud
Flush surface on the press-in side of the nut element (/- thread closed on one side)
Grub screw for thin sheet thicknesses
Grub screw for high load values
threaded press-in stud for lower press-in force

We recommend

Clifa®-M	(Works Standard 500 0 to 503 0)
Clifa®-AM	(Works Standard 503 8 to 525 8)
Clifa®-AL	(Works Standard 503 6 to 525 6)
Clifa®-ABO/-ABG	(Works Standard 570 0 to 571 0)
Clifa®-SPD	(Works Standard 5.. 2)
Clifa®-SA	(Works Standard 515 4 to 534 4)
Clifa®-SAD	(Works Standard 515 9 to 534 9)

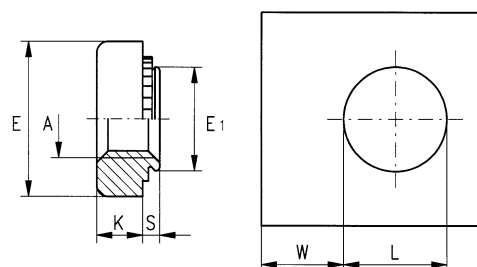


Application

Clifa®-press-in nuts are used to create wear-free screw connections capable of withstanding high loads in thin-walled moulded components from 0,8 mm in thickness made of

- steel,
- light alloy,
- NF metal (up to hardness HRB 80).

The nut is anchored in the component as a result of the press-in process.



Dimensions in mm

	Article no. of the first group of digits	for sheet metal thickness	Shank height max.	Article no. of the second and third group of digits	Internal thread	External diameter	Nut height	Collar	Hole diameter	Minimum spacing
		M	S		A	E	K	E ₁ ±0,05	L +0,05	W
M3 to M5	500 0..	0,8 to 1,0	0,7	... 000 020 ...	M 2	6,0	1,6	4,15	4,2	2,9
	501 0..	1,1 to 1,4	1,0	... 000 025 ...	M 2,5	6,0	1,6	4,15	4,2	2,9
	502 0..	1,5 to 2,3	1,3	... 000 030 ...	M 3	7,0	1,6	4,7	4,75	3,6
	503 0..	from 2,4	2,2	... 000 040 ...	M 4	8,0	2,4	5,35	5,4	3,8
M6 to M8	500 0..	1,0 to 1,3	1,0	... 000 050 ...	M 5	9,0	2,4	6,3	6,35	3,8
	501 0..	1,4 to 2,3	1,35	... 000 060 ...	M 6	11,0	4,4	8,7	8,75	4,6
	502 0..	2,4 to 3,2	2,2	... 000 080 ...	M 8	12,5	6,0	10,45	10,5	4,8
	503 0..	from 3,3	3,0	... 000 100 ...	M 10	15,0	6,7	12,6	12,7	4,8
M10	501 0..	2,4 to 3,2	2,2							
	502 0..	3,3 to 6,3	3,0							
	503 0..	from 6,4	6,0							

Example for finding the article number

Press-in nut Clifa®-M with internal thread M3 made of hardened, zinc plated and blue passivated steel for sheet metal thickness 1,8 mm: Clifa®-M 502 000 030.110

Materials

Steel hardened, zinc plated, blue passivated *
Steel hardened, zinc-nickel plated, transparent passivated *
Stainless steel 1.4305
Light alloy

Article no. (fourth group of digits) 110
Article no. (fourth group of digits) 143
Article no. (fourth group of digits) 500
Article no. (fourth group of digits) 700

Other finishes or special shapes on request; standoff bushings see page 14.

* Also available as a cold-forming part (steel, tempered FK10).

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

Press-in force as a guideline value for selection of the press.

Clifa®-M, Clifa®-AM, Clifa®-P	For shaped parts made of:
	Steel
M 2 / M 2,5	5 to 15 kN
M 3	5 to 17 kN
M 4	7 to 20 kN
M 5	7 to 25 kN
M 6	15 to 37 kN
M 8	17 to 40 kN
M 10	20 to 50 kN

Animation



The required press-in force must be determined by trial and error. For different material qualities and surfaces, higher press-in force may be required. The firmest fit is achieved if the recommended hole diameters and tolerances are precisely adhered to.

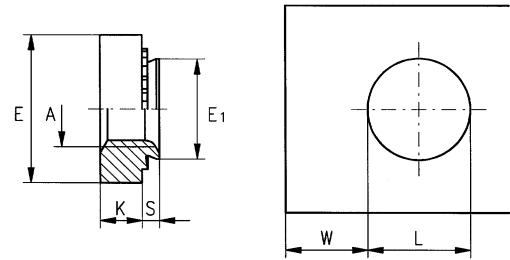


Press-in nut self-clinching

Clifa®-P
Works Standard
500 5 to 502 5

Application

Clifa®-press-in nuts are used to create wear-free screw connections in thin-walled moulded components from 0,8 mm in thickness.



Dimensions in mm

	Article no. of the first group of digits	for sheet metal thickness	Shank height max.	Article no. of the second and third group of digits	Internal thread	External diameter	Nut height	Collar max.	Hole diameter	Minimum spacing
		M	S		A	E	K	E ₁	L +0,08	W
M4 to M5	500 5..	0,8	0,76	... 500 040 ...	M 4	7,9	2,0	5,38	5,4	3,8
	501 5..	1,0	0,97	... 500 050 ...	M 5	8,7	2,0	6,38	6,4	3,9
	502 5..	1,4	1,37	... 500 060 ...	M 6	11,05	4,08	8,72	8,75	4,2
M6	500 5..	1,2	1,15	... 500 080 ...	M 8	12,65	5,47	10,47	10,5	4,4
	501 5..	1,4	1,37	... 500 100 ...	M 10	16,50	7,9	12,67	12,7	5,6
	502 5..	2,3	2,21							
M8	501 5..	1,4	1,38							
	502 5..	2,3	2,21							
M10	501 5..	1,5	1,48							
	502 5..	2,3	2,21							

Example for finding the article number

Press-in nut Clifa®-P with internal thread M4 made of tempered FK10, zinc plated and blue passivated steel for sheet metal thickness 1,4 mm: Clifa®-P 502 500 040.110

Materials

Steel tempered FK10, zinc plated, blue passivated

Steel tempered FK10, zinc-nickel plated, transparent passivated

Article no. (**fourth** group of digits) 110

Article no. (**fourth** group of digits) 143

Other finishes or special shapes on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

Press-in force

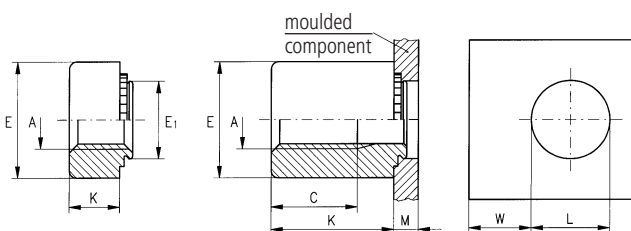
Guideline values for press-in force, see page 12

Application

Clifa®-press-in nuts/standoff bushings are used to create wearfree screw connections capable of withstanding high loads in thin-walled moulded components from 0,8 mm in thickness made of

- steel,
- light alloy,
- NF metal (up to hardness HRB 80).

The nut is anchored in the component as a result of the press-in process.



Dimensions in mm

Article number	for sheet metal thickness M	Internal thread A	Internal thread E	Collar diameter E ₁	Hole diameter L +0,05	Minimum spacing W
5.. 800 0.. ...	0,8 to 1,0	M 3	7,0	4,7	4,75	3,6
5.. 800 1.. ...	1,1 to 1,4	M 4	8,0	5,35	5,40	3,8
5.. 800 2.. ...	1,5 to 2,3	M 5	9,0	6,3	6,35	3,8
5.. 800 3.. ...	from 2,4					

Example for finding the article number

Press-in nut Clifa®-AM with internal thread M3, nut height 8,0 mm, made of hardened, zinc plated and blue passivated steel for sheet metal thickness 1,8 mm: Clifa®-AM 508 800 230.110

Nut height K available between 3,0 and 25 mm in 1,0 mm graduations

The **second** and **third** digit of the article number (503 800...; 504 800; 505 800...; ...; 525 800...) are used to identify the nut height K, the **seventh** digit to differentiate the sheet thickness (503 800 130...; 503 800 230...; 503 800 330...).

With nut heights > 8,0 mm, the usable thread length remains C 7,5 mm.

Materials

Steel hardened, zinc plated, blue passivated
Steel hardened, zinc-nickel plated, transparent passivated
Stainless steel 1.4305
Light alloy

Article no. (**fourth** group of digits) ... 110
Article no. (**fourth** group of digits) ... 143
Article no. (**fourth** group of digits) ... 500
Article no. (**fourth** group of digits) ... 700

Other finishes or special shapes on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

Press-in force

Guideline values for press-in force, see page 12



Press-in nut / standoff bushings for plastics

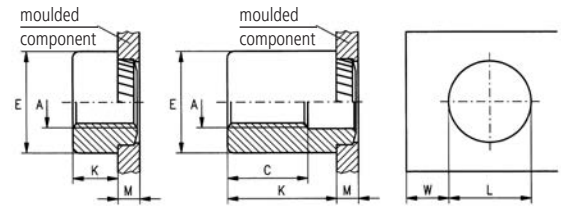
Clifa®-AL
Works Standard
503 6 to 525 6

Application

These Clifa®-press-in nuts are particularly suited for creating torque-resistant screw connections capable of withstanding high loads in thin-walled moulded parts from 1,5 mm in thickness.

- Epoxy glass fibre
- Phenolic resin,
- Fibreglass (e.g. printing plates).

Also suitable for non-ferrous metals.



Dimensions in mm

Article number	Internal thread A	External diameter E	Workpiece thickness min. M	Hole diameter L +0,1	Minimum spacing W
5.. 600 020...	M 2	6,0	1,5	3,7	2,2
5.. 600 025...	M 2,5	6,0	1,5	4,2	2,4
5.. 600 030...	M 3	7,0	1,5	4,2	2,4
5.. 600 040...	M 4	8,0	1,5	6,4	3,3
5.. 600 050...	M 5	9,0	1,5	6,8	4,1

Example for finding the article number

Diagonally serrated press-in nut Clifa®-AL with internal thread M3, nut height 8,0 mm, made of hardened, pre copper plated and tinned steel: Clifa®-AL 508 600 030.100

Nut height K available between 3,0 and 25 mm in 1,0 mm graduations

The second and third digit of the article number is used to identify the nut height K.
With nut heights > 9,0 mm, the usable thread length remains C 9,0 mm.

Materials

Steel, hardened, pre copper plated and tinned
Stainless steel 1.4305

Article no. (fourth group of digits) ... 100
Article no. (fourth group of digits) ... 500

Other versions on request.

Tolerances

ISO 2768-m

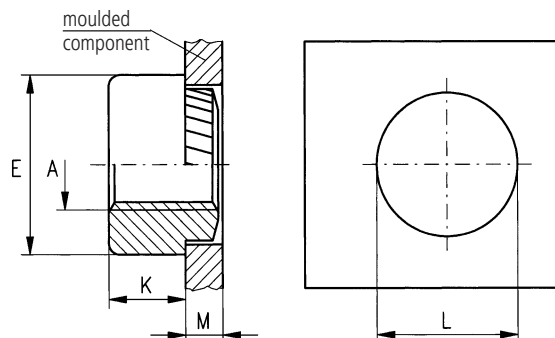
Thread

Internal thread A: as per ISO 6H

Anwendung

These Clifa®-AL soldering nuts are particularly suited for the creation of torsion-proof screw unions with high boards. The nuts are fastened by soldering to the pcb. The nuts are supplied collated on a belt and can be used with customary automatic SMD assembly devices.

- Cost saving due to processing with automatic SMD assembly devices
- no damage to pcbs (press-in process is eliminated)
- Process reliable assembly



Dimensions in mm

Article no.	Thread	Workpiece thickness min.	External diameter	Nut height	Hole diameter
	A	M	E	K	L +0,1
535 000 020 ...	M 2	1,5	5,5	1,5	4,3
535 000 025 ...	M 2,5	1,5	5,5	1,5	4,8
536 100 030 ...	M 3	1,5	5,5	1,5	4,8
538 100 040 ...	M 4	1,5	8,75	2,0	7,0
537 000 050 ...	M 5	1,5	9,5	3,0	7,5

Material

Steel hardened, pre copper plated and tinned
Steel hardened, pre copper plated and tinned and gluing pad

Article no. (fourth group of digits) ... 134A
Article no. (fourth group of digits) ... 134B

Other finishes or special shapes (e.g. standoff bushings) on request.

Colation

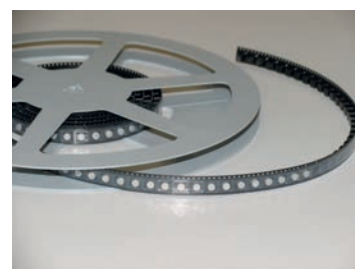
in accordance with DIN EN 60286-3 (type II blister belt)

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H





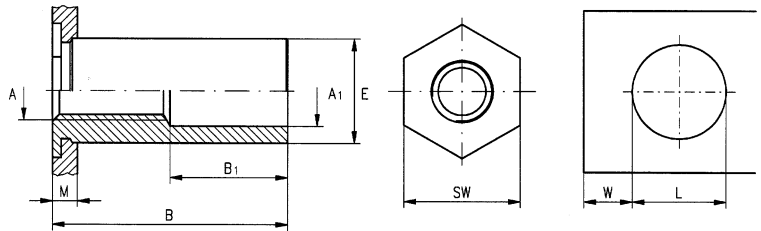
Press-fit threaded standoff bushings – thru-hole-thread – for metal

Clifa®-ABO
Works Standard
570 0 to 570 1

Application

Clifa®-ABO press-fit threaded bushings are intended for the production of wear-resistant screw-connections in thinwalled moulded parts from thickness 1,0 mm.

The hexagon is pressed flush into round mounting holes.



Dimensions in mm

Article number of the first group of digits	Internal thread	Hexagon	for sheet metal thickness	External diameter	Counter bore diameter	Hole diameter	Minimum spacing
	A	SW	M	E – 0,13	A ₁ ± 0,13	L + 0,08	W
570 0... ..	M 3	4,8	from 1,0	4,19	3,2	4,2	3,9
570 1... ..	M 3	6,4	from 1,0	5,38	3,2	5,4	4,1
570 0... ..	M 4	7,9	from 1,3	7,11	4,8	7,2	4,4
570 0... ..	M 5	7,9	from 1,3	7,11	5,35	7,2	4,4

Article number of the first group of digits	Internal thread	Bushing length			
	A	B + 0,05/– 0,13			
... .. 030 ...	M 3	3 – 8	9 – 12		
... 1.. 030 ...	M 3				
... .. 040 ...	M 4	3 – 8	9 – 15	16 – 21	22 – 25
... .. 050 ...	M 5				
Bore depth B ₁		none	4	8	11

Example for finding the article number

Press-fit threaded bushing Clifa®-ABO with internal thread M4, bushing length 10, made of hardened, zinc plated, blue passivated steel for metal sheet thicknesses from 1,3 mm: Clifa®-ABO 570 010 040. 110

Bushing length B available from 3,0 to 25 mm in intervals of 1,0 mm.

The **fourth** digit of the article number is used to differentiate the across-flats SW measurement for the thread dimension M3, the **fifth** and **sixth** digit to identify the bushing length B (570 003...; 570 004...; 570 005...; 570 ...).

Materials

Steel hardened, zinc plated, blue passivated

Article no. (**fourth** group of digits) 110

Other finishes or special shapes on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

Press-in force as a guideline value for selection of the press

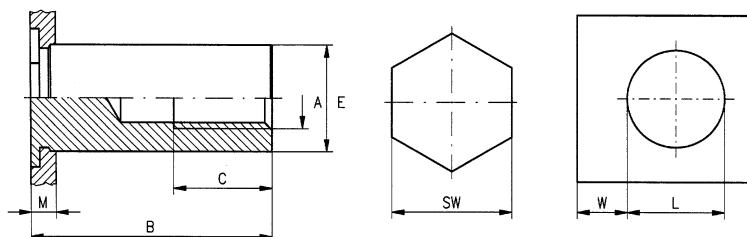
Clifa® ABO	Press-in force
M 3	20 to 25 kN
M 4	30 to 40 kN
M 5	40 to 50 kN

The required press-in force must be determined by trial and error. For different material qualities and surfaces, higher press-in force may be required. The firmest fit is achieved if the recommended hole diameters and tolerances are precisely adhered to.

Application

Clifa®-ABG is a press-fit threaded bushing with blind tapped hole (sealed thread) for the production of wearresistant, heavyduty screwconnections in thinwalled moulded parts from thickness 1,0 mm.

The hexagon is pressed flush into round mounting holes.



Dimensions in mm

Article number of the first group of digits	Internal thread A	Hexagon SW	for sheet metal thickness M	External diameter E – 0,13	Hole diameter L + 0,08	Minimum spacing W
571 0... ..	M 3	4,8	from 1,0	4,19	4,2	3,9
571 1... ..	M 3	6,4	from 1,0	5,38	5,4	4,1
571 0... ..	M 4	7,9	from 1,3	7,11	7,2	4,4
571 0... ..	M 5	7,9	from 1,3	7,11	7,2	4,4

Article number of the first group of digits	Internal thread A	Bushing length B + 0,05/– 0,13			
		8 – 11	12 – 13	14 – 17	18 – 25
... .. 030 ...	M 3	8 – 11	12 – 13	14 – 17	18 – 25
... 1.. 030 ...	M 3				
... .. 040 ...	M 4	8 – 11	12 – 13	14 – 17	18 – 25
... .. 050 ...	M 5				
Thread length C		4	5	6,5	9,5

Example for finding the article number

Press-fit threaded bushing Clifa®-ABG with internal thread M4, bushing length 10, made of hardened, zinc plated, blue passivated steel for metal sheet thicknesses from 1,3 mm: Clifa®-ABG 571 010 040.110

Bushing length B available from 8,0 to 25 mm in intervals of 1,0 mm.

The **fourth** digit of the article number is used to differentiate the across-flats SW measurement for the thread dimension M3, the **fifth** and **sixth** digit to identify the bushing length B (571 003...; 571 004...; 571 005...; 571 ...).

Materials

Steel hardened, zinc plated, blue passivated

Article no. (**fourth** group of digits) 110

Other finishes or special shapes on request.

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H

Press-in force as a guideline value for selection of the press

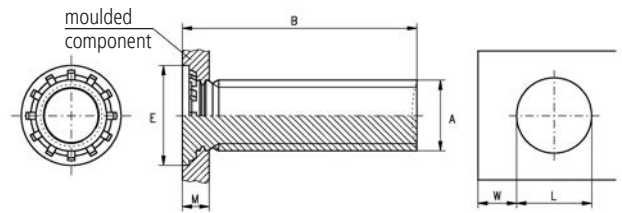
Clifa® ABG	Press-in force
M 3	20 to 25 kN
M 4	30 to 40 kN
M 5	40 to 50 kN

The required press-in force must be determined by trial and error. For different material qualities and surfaces, higher press-in force may be required. The firmest fit is achieved if the recommended hole diameters and tolerances are precisely adhered to.

Application

Clifa®-SP press-in grub screws are processed flush with the surface – see diagram –, and are used to manufacture wear-resistant, highly resilient screw connections in thin-walled moulded parts made of:

- Steel
- Stainless steel
- Brass
- Copper
- Light metal, etc.



Dimensions in mm

Article number	Internal thread	Workpiece thickness	External diameter	Hole diameter	Minimum spacing	Tightening torque of the nut (guideline values for sheet metal) ≤ Nm
	A	≥ M	E	L +0,05	≥ W	
5.. 000 025 ...	M 2,5	1,0	4,0	2,5	3,5	0,7
5.. 000 030 ...	M 3	1,0	4,6	3,0	4,0	1,5
5.. 000 040 ...	M 4	1,0	5,9	4,0	5,0	2,9
5.. 000 050 ...	M 5	1,0	6,5	5,0	5,0	6,0
5.. 000 060 ...	M 6	1,5	8,5	6,0	5,0	10,0
5.. 000 080 ...	M 8	1,5	10,0	8,0	6,0	20,0

Article number first group of digits (selection series)	Length B*) ±0,2	Available					
		M 2,5	M 3	M 4	M 5	M 6	M 8
506 000	6,0	X	X	X	X		
508 000	8,0	X	X	X	X	X	
510 000	10,0	X	X	X	X	X	X
515 000	15,0	X	X	X	X	X	X
520 000	20,0	X	X	X	X	X	X
525 000	25,0	X	X	X	X	X	X
530 000	30,0			X	X	X	X
534 000	34,0			X	X	X	X

Example for finding the article number

Press-in stud Clifa®-SP, M3 tempered, zinc plated and blue passivated steel, 10 mm long, with serrations at the head for sheet metal thickness 1,2 mm: Clifa®-SP 510 000 030.110

Materials

Steel tempered, zinc plated, blue passivated **

Steel tempered, zinc-nickel plated, transparent passivated **

Stainless steel

Article no. (fourth group of digits) 110

Article no. (fourth group of digits) 143

Article no. (fourth group of digits) 500

Further dimensions on request.

Threaded ends

Press-in grub screws with differing threaded ends on request, see data sheet, page 25.

Tolerances

ISO 2768-m

Thread

Stud thread A: as per ISO 6g, imperial thread available in all customary sizes.

Press-in force

Guideline values for press-in force, see page 24

*) Length B

available up to 60 mm

**)

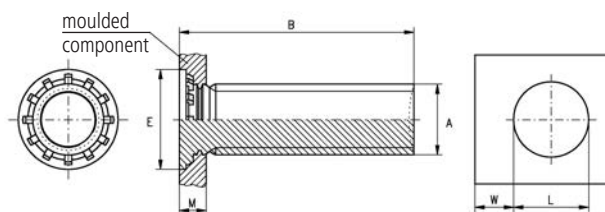
Press-in stud in tempered steel, available in customary strength classes.

Application

Clifa®-SPD press-in grub screws are processed flush with the surface – see diagram –, and are used to manufacture wear-resistant, highly resilient screw connections in thin-walled moulded parts made of:

- Steel
- Stainless steel
- Brass
- Copper
- Light metal, etc.

Due to the low height of the serrations, Clifa®-SPD is suitable for use in lower moulding strengths than necessary with Clifa®-SP.



Dimensions in mm

Article number	Internal thread	Workpiece thickness	External diameter	Hole diameter	Minimum spacing	Tightening torque of the nut (guideline values for sheet metal) ≤ Nm
	A	≥ M	E	L +0,05	≥ W	
5.. 200 025 ...	M 2,5	0,8	4,0	2,5	3,5	0,7
5.. 200 030 ...	M 3	0,8	4,6	3,0	4,0	1,5
5.. 200 040 ...	M 4	0,8	5,9	4,0	5,0	2,9
5.. 200 050 ...	M 5	0,8	6,5	5,0	5,0	6,0
5.. 200 060 ...	M 6	0,8	8,5	6,0	5,0	10,0
5.. 200 080 ...	M 8	0,8	10,0	8,0	6,0	20,0

Article number first group of digits (selection series)	Length B*) ±0,2	Available					
		M 2,5	M 3	M 4	M 5	M 6	M 8
506 200	6,0	X	X	X	X		
508 200	8,0	X	X	X	X	X	
510 200	10,0	X	X	X	X	X	X
515 200	15,0	X	X	X	X	X	X
520 200	20,0	X	X	X	X	X	X
525 200	25,0	X	X	X	X	X	X
530 200	30,0			X	X	X	X
534 200	34,0			X	X	X	X

Example for finding the article number

Press-in stud Clifa®-SPD, M3 tempered, zinc plated and blue passivated steel, 10 mm long, with serrations at the head for sheet metal thickness 0,8 mm: Clifa®-SPD 510 200 030.110

Materials

Steel tempered, zinc plated, blue passivated **

Steel tempered, zinc-nickel plated, transparent passivated **

Stainless steel

Article no. (fourth group of digits) 110

Article no. (fourth group of digits) 143

Article no. (fourth group of digits) 500

Further dimensions on request.

Threaded ends

Press-in grub screws with differing threaded ends on request, see data sheet, page 25.

Tolerances

ISO 2768-m

Thread

Stud thread A: as per ISO 6g, imperial thread available in all customary sizes.

Press-in force

Guideline values for press-in force, see page 24

*) Length B

available up to 60 mm

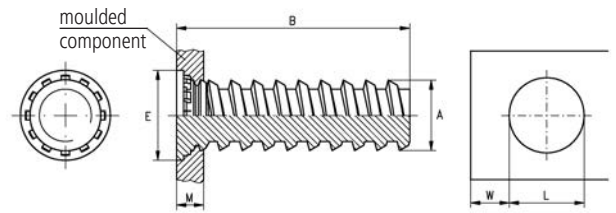
**)

Press-in stud in tempered steel, available in customary strength classes.

Application

Clifa®-press-in stud with quick-fastening thread is used to produce wear-proof screw connections. The coarse thread allows fixing elements such as clips, quick

fasteners or assembly nuts to be simply pushed or turned on, eliminating the need for laborious screwing. Further benefit: Higher coating thicknesses do not impair the thread function.



Dimensions in mm

Article number	Thread	Workpiece thickness	Length	Head diameter	Hole diameter	Hole for anvil	Minimum spacing
	A	$\geq M$	B*	$E \pm 0,2$	$L + 0,05$	$L_1 + 0,1$	$\geq W$
5.. 300 500 ...	$\emptyset 5,0 \times 1,6$	1,0	10,0 to 34,0	6,4	5,2	5,2	4,7

Example for finding the article number

Press-in stud Clifa®-SPS, $\emptyset 5,0$, made from zinc plated, blue passivated steel, 10 mm long with serrations at the head for sheet metal thickness 1,2 mm: Clifa®-SPS 510 300 500. 110

Stud length available from 10,0 mm to 34,0 mm in 1,0 mm graduations.

The second and third digit of the article number used for identification of the length B.

Materials

Steel tempered, zinc plated, blue passivated **

Steel tempered, zinc-nickel plated, transparent passivated **

Article no. (fourth group of digits) 110

Article no. (fourth group of digits) 143

Further dimensions on request.

Tolerances

ISO 2768-m

Press-in force

Guideline values for press-in force, see page 24

*) Length B

available up to 60 mm

**)

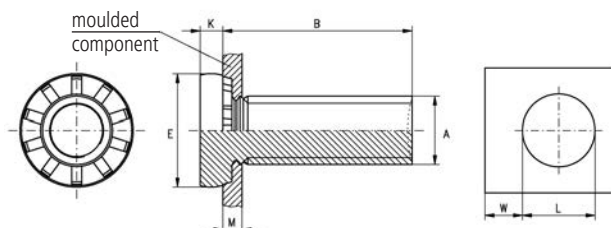
Press-in stud in tempered steel, available in customary strength classes.

Application

Clifa®-SA press-in grub screws are processed protruding at the head – see diagram –, and are used to manufacture wear-resistant, highly resilient screw connections in thin-walled moulded parts made of:

- Steel
- Stainless steel
- Brass
- Copper
- Light metal, etc.

Clifa®-SA has a strengthened head shape, making it more resilient to threading than Clifa®-SP.



Dimensions in mm

Article number	Internal thread	Workpiece thickness	External diameter	Head height	Hole diameter	Minimum spacing	Tightening torque of the nut (guideline values for sheet metal) ≤ Nm
	A	≥ M	E	K ±0,1	L +0,1	≥ W	
5.. 400 030 ...	M 3	1,0	6,0	0,8	3	8,5	1,3
5.. 400 040 ...	M 4	1,0	7,5	1,2	4	9,5	2,9
5.. 400 050 ...	M 5	1,2	8,5	1,5	5	10,5	6,0
5.. 400 060 ...	M 6	1,2	10,0	1,5	6	11,5	10,0
5.. 400 080 ...	M 8	1,5	12,5	1,75	8	12,5	25,0
5.. 400 100 ...	M 10	2,0	15,7	2,2	10	13,5	36,0

Article number first group of digits (selection series)	Length B*) ±0,2	Available					
		M 3	M 4	M 5	M 6	M 8	M 10
510 400	10,0	X	X	X	X		
512 400	12,0	X	X	X	X	X	
515 400	15,0	X	X	X	X	X	X
520 400	20,0	X	X	X	X	X	X
525 400	25,0	X	X	X	X	X	X
530 400	30,0	X	X	X	X	X	X
534 400	34,0	X	X	X	X	X	X

Example for finding the article number

Press-in stud Clifa®-SA, M5 made of tempered, zinc plated and blue passivated steel, 20 mm long: Clifa®-SA 520 400 050.110

Materials

Steel tempered, zinc plated, blue passivated **
Steel tempered, zinc/nickel plated, transparent passivated **
Stainless steel

Article no. (fourth group of digits) 110
Article no. (fourth group of digits) 143
Article no. (fourth group of digits) 500

Other dimensions on request

Threaded ends

Press-in stud with several dog points on request. See data sheet on page 25.

Tolerances

ISO 2768-m

Thread

Stud thread A: as per ISO 6g

Press-in force

Guideline values for press-in force, see page 24

*) Length B

available up to 60 mm

**)

Press-in stud in tempered steel, available in customary strength classes.

Animation





Press-in stud

Press-fit geometrie processed protruding at the head

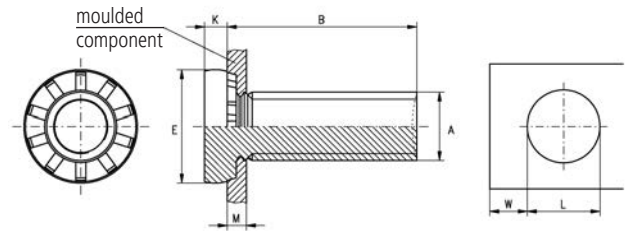
Clifa®-SAD
Works Standard
506 9 to 534 9

Application

Clifa®-SAD press-in grub screws are processed protruding at the head – see diagram –, and are used to manufacture wear-resistant, highly resilient screw connections in thin-walled moulded parts made of:

- Steel
- Stainless steel
- Brass
- Copper
- Light metal, etc.

Due to the low height of the serrations, Clifa®-SAD is suitable for use in lower moulding strengths than necessary with Clifa®-SA.



Clifa®-SAD has a strengthened head shape, making it more resilient to threading than Clifa®-SPD.

Dimensions in mm

Article number	Internal thread	Workpiece thickness	External diameter	Head height	Hole diameter	Minimum spacing	Tightening torque of the nut (guideline values for sheet metal) ≤ Nm
	A	≥ M	E	K ±0,1	L +0,1	≥ W	
5.. 900 050 ...	M 5	1,0	8,5	1,5	5	10,5	6,0
5.. 900 060 ...	M 6	1,0	10,0	1,5	6	11,5	10,0
5.. 900 080 ...	M 8	1,2	12,5	1,75	8	12,5	25,0
5.. 900 100 ...	M 10	1,2	15,7	2,2	10	13,5	36,0

Article number first group of digits (selection series)	Length B*) ±0,2	Available			
		M 5	M 6	M 8	M 10
510 900	10,0	X	X		
512 900	12,0	X	X	X	
515 900	15,0	X	X	X	X
520 900	20,0	X	X	X	X
525 900	25,0	X	X	X	X
530 900	30,0	X	X	X	X
534 900	34,0	X	X	X	X

Example for finding the article number

Press-in stud Clifa®-SAD, M5 made of tempered, zinc plated and blue passivated steel, 20 mm long: Clifa®-SAD 520 900 050.110

Materials

Steel tempered, zinc plated, blue passivated **
Steel tempered, zinc/nickel plated, transparent passivated **
Stainless steel

Article no. (fourth group of digits) 110
Article no. (fourth group of digits) 143
Article no. (fourth group of digits) 500

Other dimensions on request

Threaded ends

Press-in stud with several dog points on request. See data sheet on page 25.

Tolerances

ISO 2768-m

Thread

Stud thread A: as per ISO 6g

Press-in force

Guideline values for press-in force, see page 24

*) Length B

available up to 60 mm

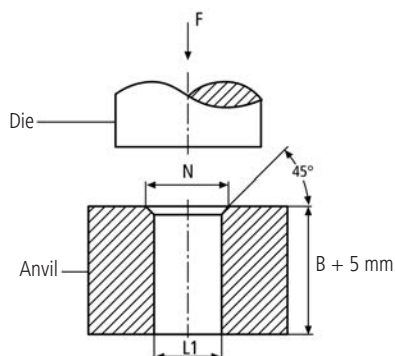
**)

Press-in stud in tempered steel, available in customary strength classes.

Animation



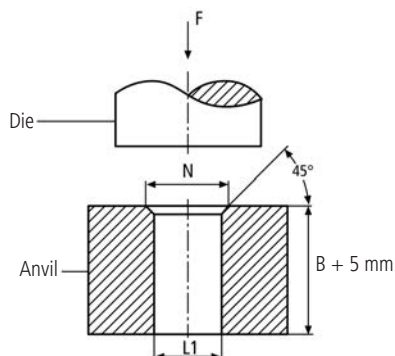
Dimensions in mm



Anvil for: Clifa®	Hole L1 +0,1	Countersink for serrations N +0,1	Press-in force kN
M 2,5	2,6	3,4	8,9 to 12
M 3	3,1	4,0	10,5 to 19
M 4	4,1	5,2	16 to 25
M 5	5,1	6,4	29 to 35
M 6	6,1	7,6	30 to 50
M 8	8,1	10,2	30 to 60

The press-in force F is dependent on the Clifa® dimension, the material and the thickness of the shaped component and also the type of serration at the head. The Clifa® head must be fully embedded and must come to rest flush with the surface of the sheet metal. Excessive force must be avoided. The hole diameter of the part to be screwed on $\approx A + 0,6$ mm.

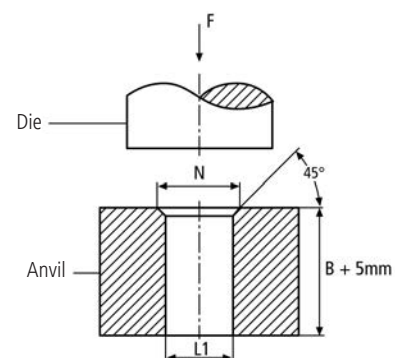
Dimensions in mm



Anvil for: Clifa®	Hole L1 +0,1	Countersink for serrations N +0,1	Press-in force kN
Ø 5,0	5,1	6,4	29 to 35

The press-in force F is dependent on the Clifa® dimension, the material and the thickness of the shaped component and also the type of serration at the head. The Clifa® head must be fully embedded and must come to rest flush with the surface of the sheet metal. Excessive force must be avoided. The hole diameter of the part to be screwed on $\approx A + 0,6$ mm.

Dimensions in mm



Anvil for: Clifa®	Hole L1 +0,1	Countersink for serrations N +0,1	Press-in force kN
M 3	3,1	4,0	9,0 to 15,0
M 4	4,1	5,2	14,5 to 38
M 5	5,1	6,4	21 to 42
M 6	6,1	7,6	21 to 50
M 8	8,1	10,2	21 to 60
M 10	10,1	12,2	32 to 84

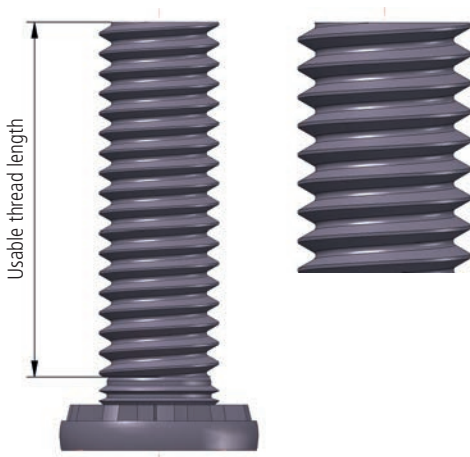
The press-in force F is dependent on the Clifa® dimension, the material and the thickness of the shaped component and also the type of serration at the head. Excessive force must be avoided. The hole diameter of the part to be screwed on $\approx A + 0,6$ mm.

Application

Depending on the demands placed on the Clifa® press-in grub screws, we offer a variety of threaded ends. Further threaded ends on request.

Sub-function	Type of threaded end			
	KKV	KK	PN	KK-MAG
Protection of start of thread	↘	↗	↗	↗
Larger displacement when fastening	↘	→	↗	↗
Prevention of tilting when fastening	↘	→	→	↗
Usable thread length (Version for components of the same length)	↗	→	→	↘

Type of threaded end: **KKV**
DIN EN ISO 4753 (RL)



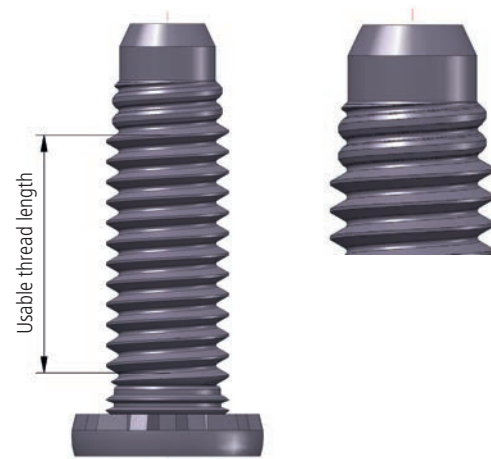
Type of threaded end: **KK**



Type of threaded end: **PN**



Type of threaded end: **KK-MAG**



Fasteners for special applications ...

Press-in stud with special part-end



Rivet bushing with Double riveting contour



Press-in nut with Three cross-holes



Press-in stud with segmented head



Rivet bushing with fine thread on outer diameter



Rivet bushing with special sealing contour



Bolt with t-groove for fixing/locking of screw-in elements



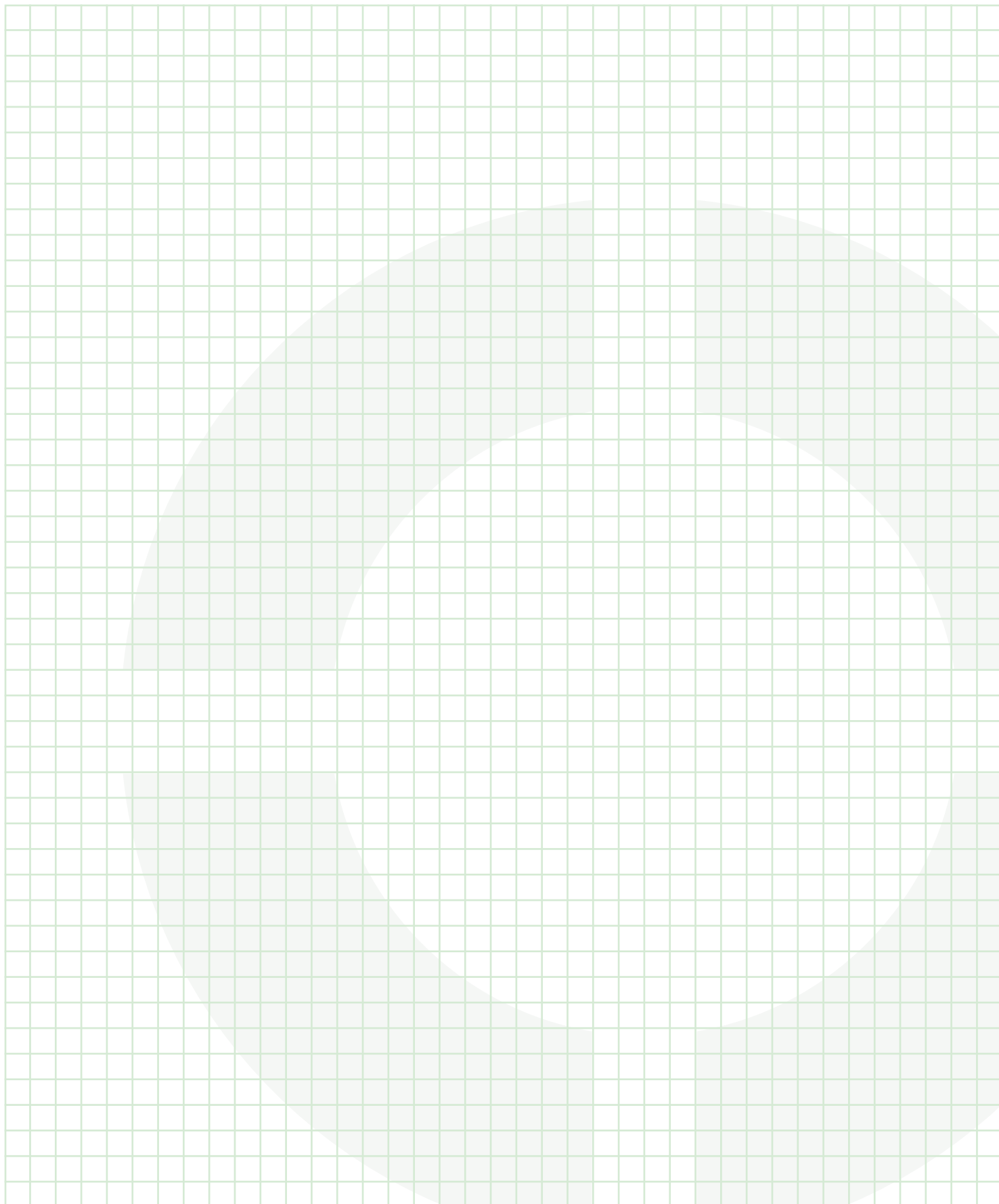
Press-in nut with hexagonal head



Press-in nut with three knurls on outer diameter



Notes





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