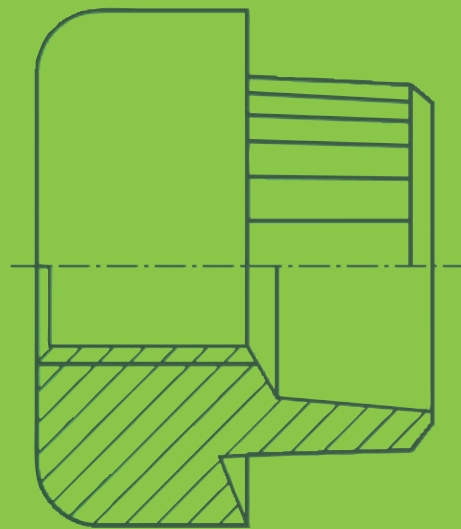


... technologies for a reliable hold

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
- crew locking
- Thread sealing systems
- Insulating plastic coating

Kerb-Konus-Vertriebs-GmbH
Werner-von-Braun-straße 7
Industriegebiet Nord
92224 Amberg, Germany

Phone +49 9621 679-0
Fax +49 9621 679444
e-mail KKV-Amberg@kerbkonus.de

Internet www.kerbkonus.de

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.

Threaded inserts for thin sheet metal parts ...

Di ensions Product features Receiving hole Torque strength Specifications Other details

Threaded inserts fro KerbKonus ...

Tested quality; Test methods | Page 2 to 3
Anchor - Fields of application and product features | Page 4 to 5



Anchor® rivet bushing

M2 to M16	tandard version	pre-punched drilled	high	Works tandard 701 0 to 718 0	Page 7
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Anchor® installation

Tools | Page 6



Anchor®-Mini

M2 to M8	Weight and space-saving	pre-punched drilled	medium	Works tandard 721 to 738	Page 8
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Anchor®-Blind

M3 to M12	Threaded blind hole	pre-punched drilled	high	Works tandard 741 to 758	Page 9
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Clifa® press-in nut and stud

Fields of application, product features and installation instructions | Page 10 and 11



Clifa®-M

M2 to M10	for metal	pre-punched drilled	high	Works tandard 500 0 to 503 0	Page 12
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Clifa®-P

M3 to M6	for metal	pre-punched drilled	high	Works tandard 500 5 to 503 5	Page 13
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Clifa®-AM

M3 to M5	tandoff bushing for metal	pre-punched drilled	high	Works tandard 503 8 to 525 8	Page 14
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Clifa®-AL/-SL

M2 to M5	tandoff bushing for plastics press-in stud	pre-punched drilled	medium	Works tandard 503 6 to 525 6 506 7 to 518 7	Page 15
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Clifa®-ABO

M3 to M5	Press-in standoffs thru hole thread hexagon head	pre-punched drilled	high	Works tandard 570 0 and 570 1	Page 16
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Clifa®-ABG

M3 to M5	Press-in standoffs blind thread hexagon head	pre-punched drilled	high	Works tandard 571 0 and 571 1	Page 17
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Clifa®-SP/-SR/-SPD

M2,5 to M8	for pressing-in flush to the surface. P coarse toothing R fine toothing PD thin metal	pre-punched drilled	medium	Works tandard 506 0 to 534 0 506 1 to 534 1 506 2 to 534 2	Page 18
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Clifa®-SPG/SPS

M2,5 to M5 Ø 5	for pressing-in flush to the surface. PG for small edge distance P quick-fastening thread	pre-punched drilled	medium	Works tandard 506 5 to 534 5 510 3 to 534 3	Page 19
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Clifa®-SA/SAD

M5 to M10	with reforced head A for high loads AD for thin metal	pre-punched drilled	high	Works tandard 510 4 to 534 4 510 9 to 534 9	Page 20
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Clifa® enquiry data sheet

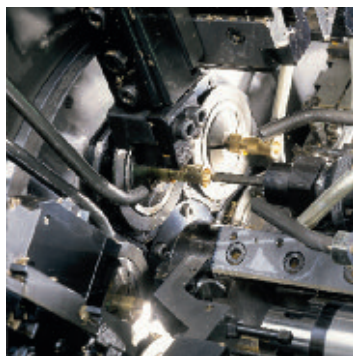
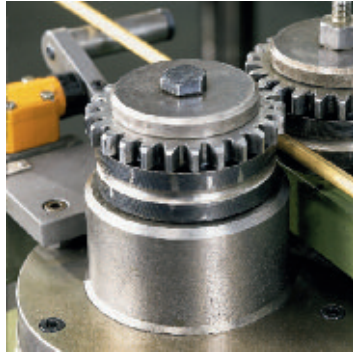
on custom-produced Clifa® press-in studs | Page 21



Clifa®-AL belted

M2 to M5	for plastics	pre-punched drilled	medium	Works tandard 503 6	Page 23
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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.



What really counts: tested quality.

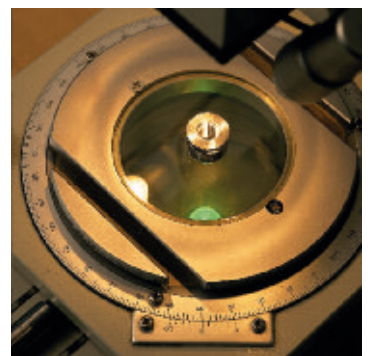
But our high-volume production output in no way compromises flexibility. We are able to quickly and efficiently produce even small batches of non-standard items.

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.

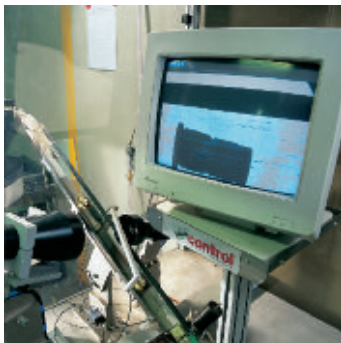


As manufacturer in the metal processing industry we are aware of our responsibility for an environmentally compatible production. With this in mind we follow up a policy of sensible resource spending and environmentalfriendly production both in our process engineering and our product range.



Quality System
DQS Certificate in accordance with
SO 9001:2008 Reg.Nr. 30507428/2
SO/TS 16949:2009 Reg.Nr. 160507011/2
SO 14001:2004 Reg.Nr. 170507049/2

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.

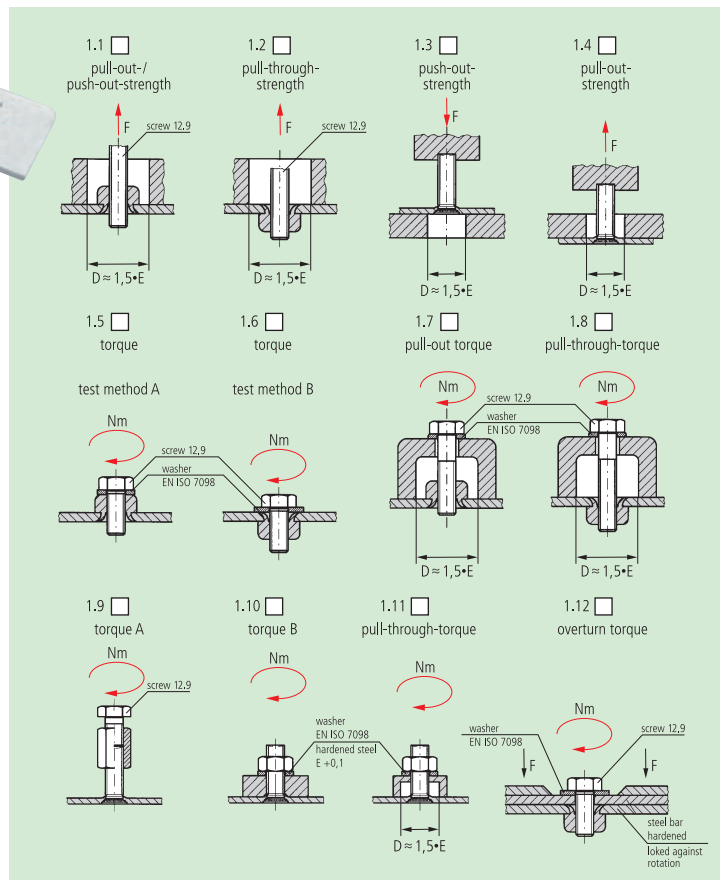
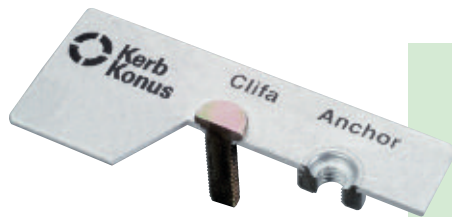
Because we bear this heavy responsibility, our products are tested and monitored in line with the most stringent directives. In the case of particularly critical applications, each and every part is exhaustively tested on state-of-the-art test equipment before it is delivered to you.

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), we provide the designer with a 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.



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 overtorqued.

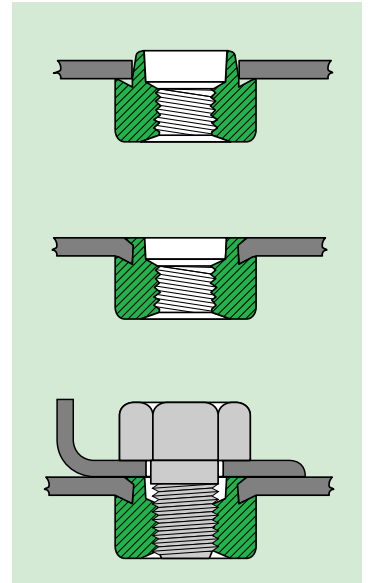


Fields of application

Anchor rivet bushings enjoy universal application, offering a wide variety of design possibilities: for hardwearing screw connections in the automotive industry, for reliable fixture of highly sensitive electronic parts etc.

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.
- The Anchor thread is clean, true to gauge and is wear-resistant. It has a precisely fitted centered seat without the need to use templates or other positioning devices.



Specifications

Works Standard sheets 701 to 758, page 7 - 9

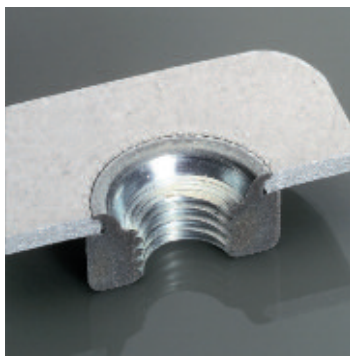
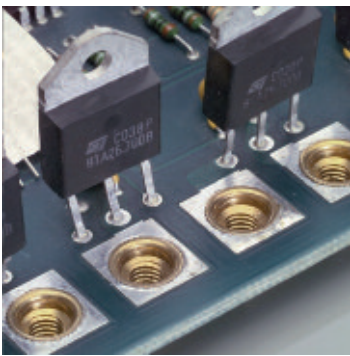
On request:

Special Anchor-S with screw lock TufLok in the internal thread. The captive plastic support serves as a safeguard against the screw working loose of its own accord.

Also available:

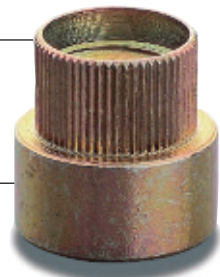
Special Anchor-D with sealing agent precote 5 on the contact surface.





Special request
Space and weight-saving design
Thread seal
Distanced fixture
Support or bearing function
Flush finish to the surface of the metal
Extremely high loads (torque / push-out forces) or seal between the Anchor and the sheet metal
If lower seating strength is sufficient, e.g. in plastic or soft metal panels

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)
Processing using Anchor with tumble or radial rivetting machine, or use Anchor for the next smallest sheet metal thickness
Select a smaller receiving hole and fix Anchor with a hollow punch before rivetting. (Or in a single work process using a combined setting and rivetting tool).
Simply press in Anchor without rivetting. In the case of circuit boards, for example, the shank can also be soldered.

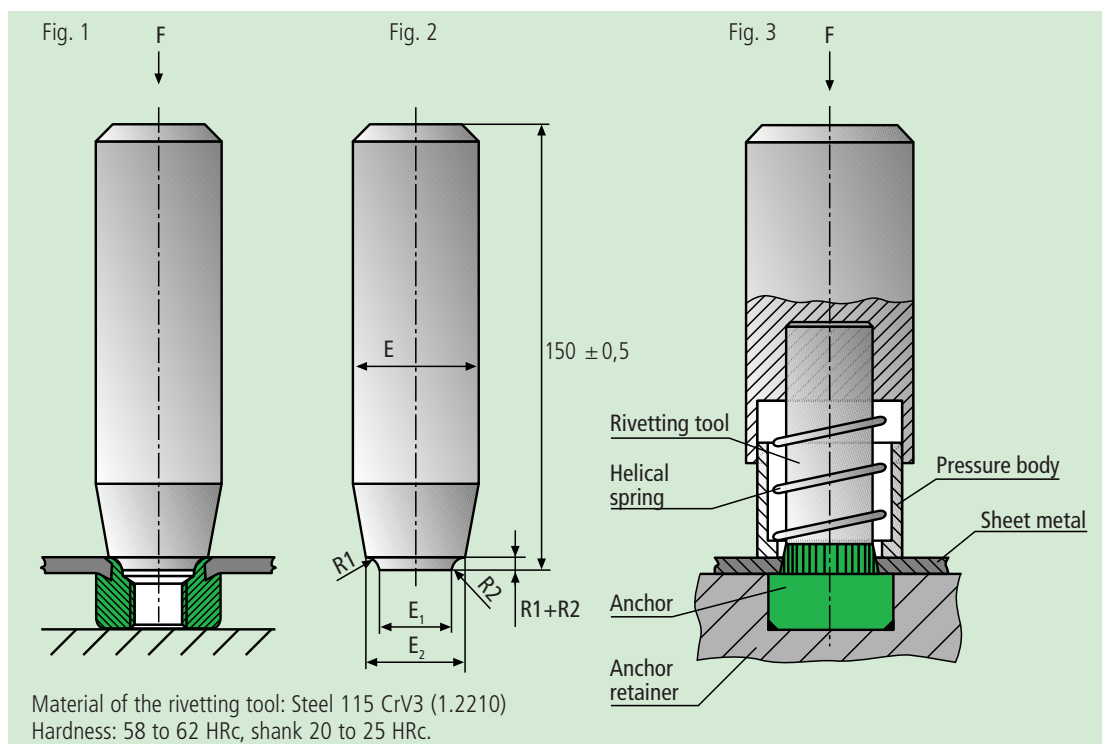


Anchor[®] installation ...

Installation

Punch or drill a hole, insert Anchor and rivet the shank with a simple rivetting tool (Fig. 1 + 2):

- manually
- using a pneumatic manual rivetting hammer
- using a simple press
- by inserting Anchor and rivetting using a tumble or radial rivetting process
- automatic feed in follow-on tools
- with special high-performance installation devices for large-scale series. Output up to 50 parts per minute
- To avoid deformation of thin sheet metal components use a doubleacting rivetting tool (Fig. 3)



Rivetting pressure P 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 - M16		80 to 160 kN

Dimensions of the rivetting tools (Fig. 2):

	Article no. 401 ... for Anchor and Anchor-Blind					Article no. 421 ... for Anchor-Mini				
	E1	R1	R2	E2	E	E1	R1	R2	E2	E
M 2	4,3	0,6	0,5	7,1	12	2,4	0,6	0,5	4,8	12
M 2,5/ M 3	4,3	0,6	0,5	7,1	12	3,2	0,6	0,5	5,5	12
M 3,5/ M 4	5,3	0,7	0,5	8,7	12	4,3	0,6	0,5	7,1	12
M 5	6,7	0,9	0,5	10,3	16	5,3	0,6	0,5	8,7	12
M 6	8,0	1,0	0,6	11,9	16	6,5	0,6	0,6	10,3	12
M 8	11,1	1,1	0,6	15,5	20	8,5	0,6	0,5	11,5	12
M 10	13,5	1,2	0,6	18,3	20	-	-	-	-	-
M 12 - M16	17,1	1,4	0,6	22,2	25	-	-	-	-	-



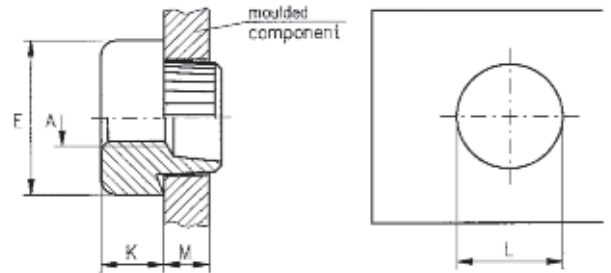
Rivet Bushing
serrated

Anchor®
Works Standard
701 0 to 718 0

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)					

The **first** group of digits is applicable for conventional rivetting; **by problems with the flush processing** (high-strength steel sheet / stainless workpieces) **we recommend using shank lengths for the next smallest sheet metal thickness!**

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

Exemple for finding the article number

Serrated rivet bushing Anchor with internal thread M5
 Steel unhardened, unrefined for sheet thickness (mild steel) 2 mm: Anchor 708 000 050.100
 Steel unhardened, unrefined for sheet thickness (high-strength or stainless steel) 2 mm: Anchor 707 000 050.100

Materials

Steel unhardened, unrefined	Article no. (fourth group of digits) 100
Steel unhardened, zinc plated, blue passivated	Article no. (fourth group of digits) 110
Steel unhardened, zinc plated, yellow chromated	Article no. (fourth group of digits) 120
Steel unhardened, zinc-nickel plated, transparent passivated	Article no. (fourth group of digits) 143
Stainless steel	Article no. (fourth group of digits) 500
Light alloy	Article no. (fourth group of digits) 700
Brass	Article no. (fourth group of digits) 800

Other materials (e.g. steel, strength class 8) and versions (e.g. nut height or shank lengths for deviating sheet metal thicknesses) on request.

Tolerances

SO 2768-m

Thread

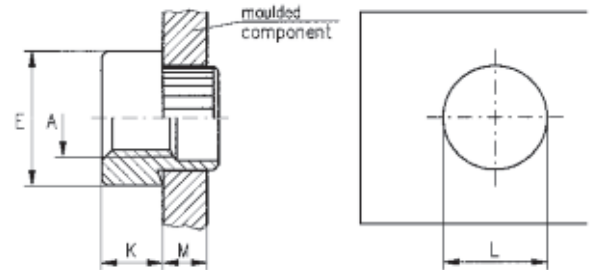
nternal thread A: as per SO 6H

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 second and third 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.

The **first** group of digits is applicable for conventional rivetting; **by problems with the flush processing** (high-strength steel sheet / stainless workpieces) **we recommend using shank lengths for the next smallest sheet metal thickness!**

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

Example for finding the article number

Serrated rivet bushing Anchor with internal thread M5
 Steel unhardened, unrefined for sheet thickness (mild steel) 2 mm: Anchor 728 000 050.100
 Steel unhardened, unrefined for sheet thickness (high-strength or stainless steel) 2 mm: Anchor 727 000 050.100

Materials

Steel unhardened, unrefined*	Article no. (fourth group of digits) 100
Steel unhardened, zinc plated, blue passivated*	Article no. (fourth group of digits) 110
Steel unhardened, zinc plated, yellow chromated*	Article no. (fourth group of digits) 120
Steel unhardened, zinc-nickel plated, transparent passivated*	Article no. (fourth group of digits) 143
Stainless steel	Article no. (fourth group of digits) 500
Light alloy	Article no. (fourth group of digits) 700
Brass	Article no. (fourth group of digits) 800

Other materials and versions and finishing types on request.

*By order quantity up min. 200.000 pieces: **Also available as cold-forming part** with internal thread M4 and M5. Other thread sizes on request.

Tolerances

SO 2768-m

Thread

internal thread A: as per SO 6H



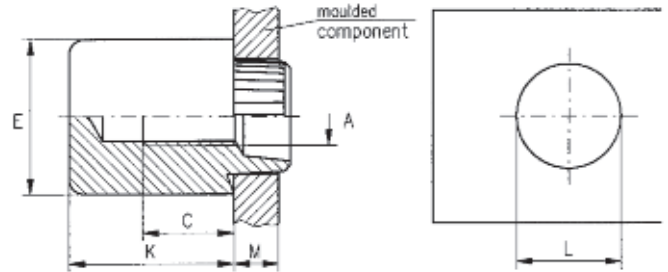
Rivet Bushing
serrated

Anchor®-Blind
Works Standard
741 0 to 758 0

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 second 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)						

The **first** group of digits is applicable for conventional rivetting; **by problems with the flush processing** (high-strength steel sheet / stainless workpieces) **we recommend using shank lengths for the next smallest sheet metal thickness!**

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

Exemple for finding the article number

Serrated rivet bushing Anchor with internal thread M5
 Steel unhardened, unrefined for sheet thickness (mild steel) 2 mm: Anchor 748 000 050.100
 Steel unhardened, unrefined for sheet thickness (high-strength or stainless steel) 2 mm: Anchor 747 000 050.100

Materials

Steel unhardened, unrefined Article no. (**fourth** group of digits) 100
 Steel unhardened, zinc plated, blue passivated Article no. (**fourth** group of digits) 110
 Steel unhardened, zinc plated, yellow chromated Article no. (**fourth** group of digits) 120
 Steel unhardened, zinc-nickel plated, transparent passivated Article no. (**fourth** group of digits) 143
 Stainless steel Article no. (**fourth** group of digits) 500
 Light alloy Article no. (**fourth** group of digits) 700
 Brass Article no. (**fourth** group of digits) 800

Other materials and versions and finishing types on request (e.g. steel, strength 8).

Tolerances

SO 2768-m

Thread

Internal thread A: as per SO 6H

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 nuts and Clifa studs are used to fasten all different types of appliance components, as spacers pins and bushings for plastics, e.g. circuit boards etc.

Product features

- Clifa is torque-proof, wear-resistant and capable of withstanding high loads
- t has minimal outside dimensions for space and weight-saving designs with an attractive appearance
- The thread is wear-resistant, clean and true to gauge
- Clifa is not pressed out during the screwing process
- For sheet metal thicknesses below 1,0 mm: Thin sheet metal press-in studs.

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

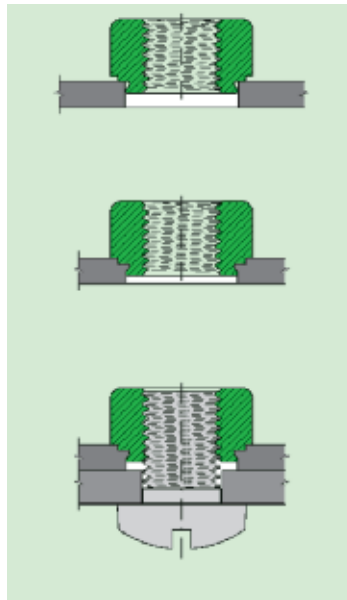
The receiving hole is punched or drilled, **but not deburred or countersunk.**

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 press-in nut comes to rest flat against the surface of the sheet metal.

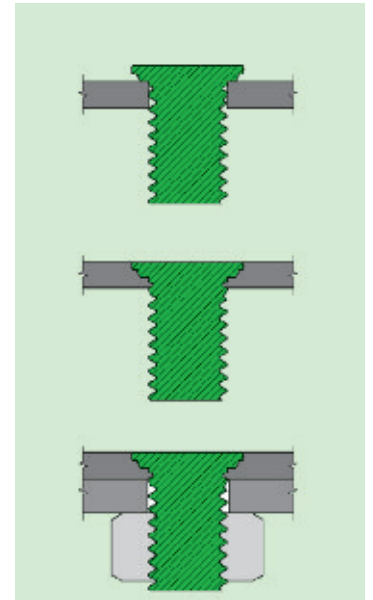
In the case of the Clifa-SP/SPD/SPG/SPS and SR stud, the head must be fully pressed in and come to rest flush with the surface of the sheet metal.

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

Special request

- short length
- standoff bushings for metals
- standoff bushings for plastics
- threaded press-in stud for thin sheet metals < 1,0 mm
- threaded press-in stud for high force
- threaded press-in stud for epoxy resin moulding materials
- 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-SPD (Works Standard 5.. 2)
- Clifa-SA (Works Standard 515 4 to 534 4)
- Clifa-SL (Works Standard 506 7 to 518 7)
- Clifa-SR (Works Standard 5.. 1)

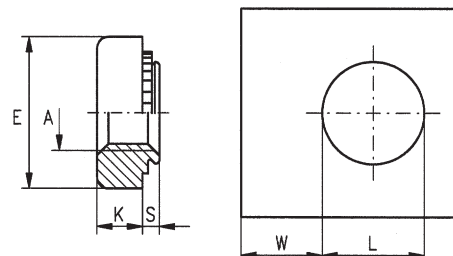


Application

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. S	Article no. of the second and third group of digits	Internal thread A	External diameter E	Nut height K	Hole dia.: Tolerance + 0,05 L	Minimum spacing W
		M	S							
M2 to M5	500	0,8 up to 1,0	0,7	...	000 020 ...	M 2	6,0	1,6	4,2	2,9
	501	1,1 up to 1,4	1,0	...	000 025 ...	M 2,5	6,0	1,6	4,2	2,9
	502	1,5 up to 2,3	1,3	...	000 030 ...	M 3	7,0	1,6	4,75	3,6
	503	from 2,4	2,2	...	000 040 ...	M 4	8,0	2,4	5,4	3,8
M6 and M8	500	1,0 up to 1,3	1,0	...	000 050 ...	M 5	9,0	2,4	6,35	3,8
	501	1,4 up to 2,3	1,35	...	000 060 ...	M 6	11,0	4,4	8,75	4,6
	502	2,4 up to 3,2	2,2	...	000 080 ...	M 8	12,5	6,0	10,5	4,8
	503	from 3,3	3,0	...	000 100 ...	M10	15,0	6,7	12,7	4,8
M10	501	2,4 up to 3,2	2,2							
	502	3,3 up to 6,3	3,0							
	503	from 6,4	6,0							

Example for finding the article number

Self-clinching press-in nut Clifa-M with internal thread M3 made of hardened, zinc plated and yellow chromated steel for sheet metal thickness 1,8 mm: Clifa-M 502 000 030.100

Materials

- Steel hardened, zinc plated, yellow chromated* Article no. (fourth group of digits) 100
- Steel hardened, zinc plated, blue passivated* Article no. (fourth group of digits) 110
- Steel hardened, zinc-nickel plated, transparent passivated* Article no. (fourth group of digits) 143
- Stainless steel Article no. (fourth group of digits) 500
- Light alloy Article no. (fourth group of digits) 700

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

*By order quantity up min. 200.000 pieces: **Also available as cold-forming part** with internal thread M5 and M6. Other thread sizes on request.

Tolerances

SO 2768-m

Thread

Internal thread A: as per SO 6H

ress-in pressure as a guideline value for selection of the press.

Clifa	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

The optimum press-in pressure must be determined by trial and error. In the case of light alloys, depending on the alloy composition and surface properties, higher press-in pressure levels may be necessary. Maximum retention is achieved when adhering precisely to the recommended hole diameter and tolerances.

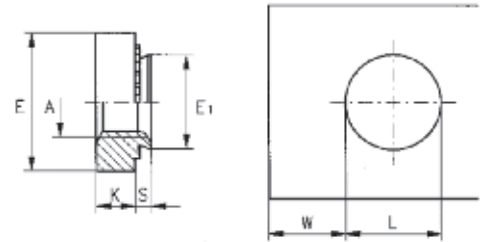


ress-in nut
self-clinching

Clifa®-
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 Ø max.	Hole dia.: Tolerance + 0,08	Minimum spacing
M3 to M5	500 5..	0,8	0,76	... 500 030 ...	M 3	6,3	1,5	4,22	4,25	2,68
	501 5..	1,0	0,97	... 500 040 ...	M 4	7,9	2,0	5,38	5,4	4,2
M6	502 5..	1,4	1,37	... 500 050 ...	M 5	8,7	2,0	6,38	6,4	3,9
	500 5..	1,2	1,15	... 500 060 ...	M 6	11,05	4,08	8,72	8,75	4,23
	501 5..	1,4	1,37							
	502 5..	2,3	2,21							

Example for finding the article number

Self-clinching press-in nut Clifa-P with internal thread M3 made of tempered FK10, zinc plated and blue passivated steel for sheet metal thickness 1,4 mm: Clifa-P 502 500 030.110

Materials

Steel tempered FK10, zinc plated, blue passivated Article no. (fourth group of digits) 110
Steel tempered FK10, zinc-nickel plated, transparent passivated Article no. (fourth group of digits) 143

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

Tolerances

SO 2768-m

Thread

Internal thread A: as per SO 6H

ress-in pressure as a guideline value for selection of the press.

Clifa	For shaped parts made of
	Steel
M 3	5 to 17 kN
M 4	7 to 20 kN
M 5	7 to 25 kN
M 6	15 to 37 kN

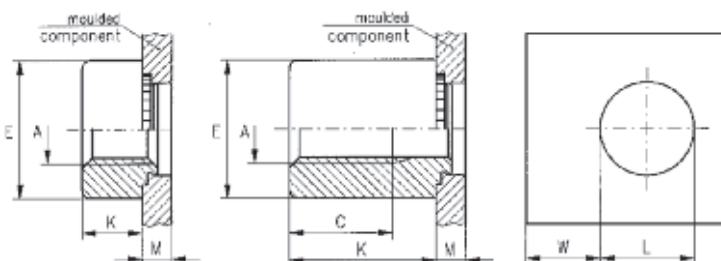
The optimum press-in pressure must be determined by trial and error. In the case of light alloys, depending on the alloy composition and surface properties, higher press-in pressure levels may be necessary. Maximum retention is achieved when adhering precisely to the recommended hole diameter and tolerances.

Application

Clifa 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 no.	sheet metal thickness M	Internal thread A	External diameter E	Hole diameter L +0,05	Minimum spacing W
5.. 800 0.. ...	0,8 to 1,0	M 3	7,0	4,75	3,6
5.. 800 1.. ...	1,1 to 1,4	M 4	8,0	5,40	3,8
5.. 800 2.. ...	1,5 to 2,3	M 5	9,0	6,35	3,8
5.. 800 3.. ...	from 2,4				

Example for finding the article number

Self-clinching press-in nut Clifa-AM with internal thread M3, nut height 8,0 mm, made of hardened, zinc plated and yellow chromated steel for sheet metal thickness 1,8 mm: Clifa-AM 508 800 230.100

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, the seventh digit for subdivision of the sheet metal thickness.

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

Materials

Steel hardened, zinc plated, yellow chromated	Article no. (fourth group of digits) 100
Steel hardened, zinc plated, blue passivated	Article no. (fourth group of digits) 110
Steel hardened, zinc-nickel plated, transparent passivated	Article no. (fourth group of digits) 143
Stainless steel	Article no. (fourth group of digits) 500
Light alloy	Article no. (fourth group of digits) 700


Other finishes or special shapes on request.

Tolerances

SO 2768-m

Thread

internal thread A: as per SO 6H



ress-in nut / standoff bushings
for plastics

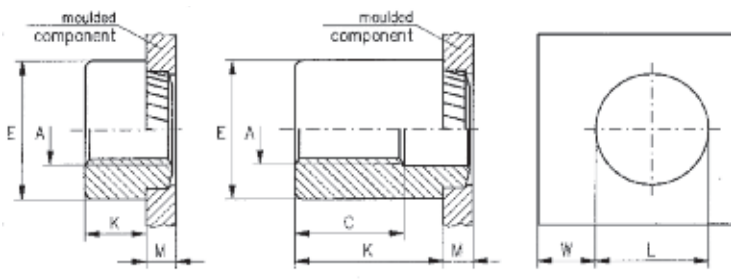
Clifa®-AL
Works Standard
503 6 to 525 6

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 aluminium and magnesium



Dimensions in mm

Article no.	Internal thread	External diameter	Workpiece thickness min.	Hole diameter: Tolerance + 0,1	Minimum spacing
	A	E	M	L	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 Article no. (**fourth** group of digits) 100
 Stainless steel Article no. (**fourth** group of digits) 500
 Other finishes on request.

Tolerances

SO 2768-m

Thread

nternal thread A: as per SO 6H



ress-in stud
for plastics

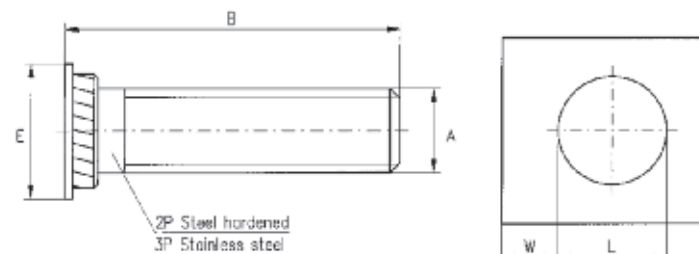
Clifa®-SL
Works Standard
506 7 to 518 7

Application

These Clifa press-in studs with diagonal serrations 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 aluminium and magnesium.



Dimensions in mm

Article no.	Thread	Length	Head diameter	Workpiece thickness min.	Hole dia. Tolerance +0,1	Minimum wall thickness
	A	B	E	M	L	W
5.. 700 030 ...	M 3	6,0 to 16,0	6,0	1,5	4,2	2,4
5.. 700 040 ...	M 4	6,0 to 16,0	7,0	1,5	6,4	3,3
5.. 700 050 ...	M 5	10,0 to 18,0	8,0	1,5	6,4	3,3

Example for finding the article number

Diagonally serrated press-in stud Clifa SL, M3, length B = 10,0 mm, made of hardened, pre copper plated and tinned steel: Clifa-SL 510 700 030.100

Stud length from 6,0 mm to 18,0 mm available in graduations of 1,0 mm.
The second and third digit of the article number is used to identify the length..

Materials

Steel, hardened, pre copper plated and tinned Article no. (**fourth** group of digits) 100
 Stainless steel Article no. (**fourth** group of digits) 500
 Other finishes on request.

Tolerances

SO 2768-m

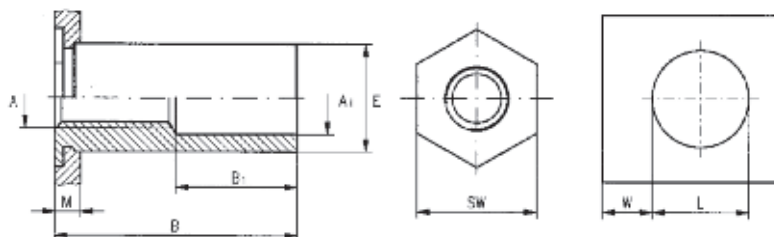
Thread

Stud thread A: as per SO 6g. **Imperial thread available in customary sizes**

Application

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

The hexagon is pressed flush into round mounting holes.



Dimensions in mm

Article no. of the first group of digits	Thread A	width across flats E ₁ (SW)	for sheet metal thickness M	External diameter -0,13 E	counter bore diameter ±0,13 A ₁	Hole diameter + 0,08 L	Minimum spacing 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 no. of the third group of digits	Thread A	bushing length +0,05 / -0,13 B			
		3-8	9-12	16-21	22-25
... .. 030 ...	M 3	3-8	9-12	16-21	22-25
... .. 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 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 distinguish the width across flats E1 for the thread dimension M3; the fifth and sixth digits are used to indicate the bushing length B.

Materials

Steel hardened, zinc plated, blue passivated

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

Other finishes or special shapes on request.

Tolerances

SO 2768-m

Thread

internal thread A: as per SO 6H

press-in pressure as a guideline value for selection of the press

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

The optimum press-in pressure must be determined by trial and error. In the case of light alloys, depending on the alloy composition and surface properties, higher press-in pressure levels may be necessary. Maximum retention is achieved when adhering precisely to the recommended hole diameter and tolerances.



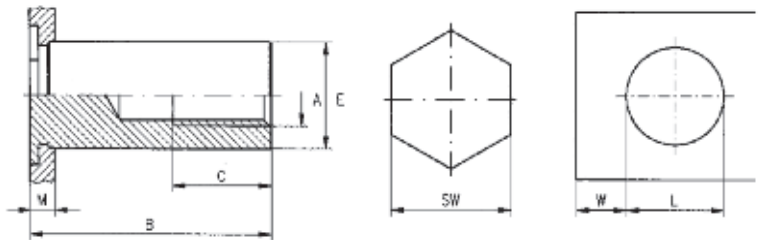
**press-fit threaded standoff bushings
- blind thread -
for metal**

Clifa®-ABG
Works Standard
571 0 to 571 1

Application

CL FA®-ABG is a press-fit threaded bushing with blind tapped hole (sealed thread) for the production of wear-resistant, heavyduty screw-connections in thinwalled moulded parts from thickness 1,0 mm.

The hexagon is pressed flush into round mounting holes.



Dimensions in mm

Article no. of the first group of digits	Thread	width across flats E ₁ (SW)	for sheet metal thickness M	External diameter - 0,13 E	Hole diameter + 0,08 L	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 no. of the third group of digits	Thread A	bushing length +0,05 / -0,13 B			
	 030 ...	M 3	8-11	12-13
... 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 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 distinguish the width across flats E1 for the thread dimension M3; the fifth and sixth digits are used to indicate the bushing length B.

Materials

Steel hardened, zinc plated, blue passivated

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

Other finishes or special shapes on request.

Tolerances

SO 2768-m

Thread

internal thread A: as per SO 6H

press-in pressure as a guideline value for selection of the press

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

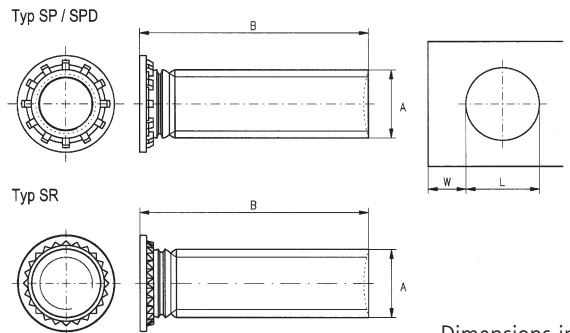
The optimum press-in pressure must be determined by trial and error. In the case of light alloys, depending on the alloy composition and surface properties, higher press-in pressure levels may be necessary. Maximum retention is achieved when adhering precisely to the recommended hole diameter and tolerances.

Application

These Clifa press-in studs are particularly suited for creating torque-resistant screw connections capable of withstanding high loads in thin-walled moulded parts made of

- Steel
- Stainless steel
- Brass
- Copper
- Light alloy etc.

The stud is anchored in the component by the serrations as a result of the press-in process.



Dimensions in mm

Article no. first group of digits (selection series)	Length ±0,2 B*)	Available					
		M2,5	M3	M4	M5	M6	M8
506	6,0	x	x	x	x		
508	8,0	x	x	x	x	x	
510	10,0	x	x	x	x	x	x
512	12,0	x	x	x	x	x	x
515	15,0	x	x	x	x	x	x
518	18,0	x	x	x	x	x	x
520	20,0	x	x	x	x	x	x
.
.
.
534	34,0			x	x	x	x

Article no. second and third group of digits	Thread A	for sheet metal thickness ≥	Hole dia. tolerance +0,05 L	Minimum spacing ≥ W	Tightening torque of the nut (steel sheet) ≤ Nm
... .00 025 ...	M 2,5	1,0	2,5	3,5	0,7
... .00 030 ...	M 3	1,0	3,0	4,0	1,5
... .00 040 ...	M 4	1,0	4,0	5,0	2,9
... .00 050 ...	M 5	1,0	5,0	5,0	6,0
... .00 060 ...	M 6	1,5	6,0	5,0	10,0
... .00 080 ...	M 8	1,5	8,0	6,0	20,0

Other materials, types and finishes on request.

Example for finding the article number

Self-clinching press-in stud Clifa-SP, M3 tempered 9.8, zinc plated and yellow chromated steel, 10 mm long,, with serrations at the head for sheet metal thickness 1,2 mm: Clifa-SP 510 000 030.100

Standard
For lower press in force
For sheet metal ≤ 1,0 mm

Coarse serration at the head Clifa-S
Fine serration at the head Clifa-SR
Thin-metal press-in stud Clifa-S D

Article no. 5.. 000
Article no. 5.. 100
Article no. 5.. 200

Materials

- Steel tempered 9.8, zinc plated, yellow chromated
- Steel tempered 9.8, zinc plated, blue passivated
- Steel tempered 9.8, zinc-nickel plated, transparent passivated
- Stainless steel

- 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

Other finishes or special shapes on request.

Tolerances

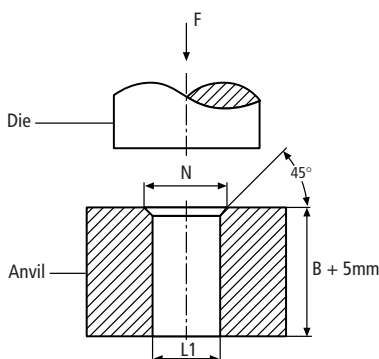
SO 2768-m

Thread

internal thread A: as per SO 6g. **Imperial thread available in all customary sizes.**

***) Length B**


available up to 60 mm



Dimensions en mm

Anvil for Clifa	Hole L ₁	Countersink for serrations N	Press-in pressure	
			SP/SR/SPD/SPS kN	SPG kN
M 2,5	2,6	3,4	8,9 to 12,0	6,0 to 11,0
M 3	3,1	4,0	10,5 to 19,0	8,0 to 15,0
M 4	4,1	5,2	16,0 to 25,0	12,0 to 20,0
M 5	5,1	6,4	29,0 to 30,0	22,0 to 30,0
M 6	6,1	7,6	30,0 to 50,0	—
M 8	8,1	10,2	30,0 to 60,0	—

The press-in pressure 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 ≈ A+0,6 mm.




ress-in stud
for minimal edge distance

Clifa®-S G
Works Standard
506 5 to 534 5

Application

Due to the lower head diameter, the Clifa press-in stud SPG is suitable for use in components with minimal edge distances or space requirements. It is used for the production of wear proof screw joints in thin-walled components made of

- steel
- brass
- copper
- light alloy etc.



Dimensions in mm

Article no. first group of digits	Length ± 0,2 B*)	Available			
		M2,5	M3	M4	M5
506	6,0	x	x	x	x
508	8,0	x	x	x	x
510	10,0	x	x	x	x
512	12,0	x	x	x	x
515	15,0	x	x	x	x
518	18,0	x	x	x	x
520	20,0	x	x	x	x
534	34,0			x	x

Article no. 2nd and 3rd group of digits	Thread A	for sheet metal thickness ≥	Hole dia. tolerance +0,05 L	Minimum Spacing ≥ W	Tightening torque of the nut (steel sheet) ≤ Nm
... 500 025 ...	M 2,5	1,0	2,5	1,55	0,7
... 500 030 ...	M 3	1,0	3,0	1,8	1,5
... 500 040 ...	M 4	1,0	4,0	2,3	2,6
... 500 050 ...	M 5	1,0	5,0	3,1	5,1

Materials see Works Standard 506 Clifa-SP, page 18


Tolerances SO 2768-m

Thread Stud thread A: as per SO 6g

Installation Information for installation (press-in pressure) see page 18

***) Length B available up to 60 mm**

Example for finding the article number Self-clinching press-in stud Clifa-SPG, M3, tempered 9.8, zinc plated, blue passivated steel, 10 mm long with serrations at the head for sheet metal thickness 1,2 mm: Clifa-SPG 510 500 030. 110

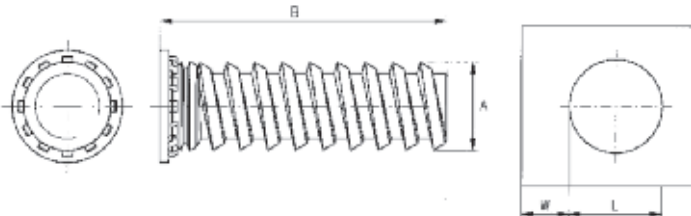


ress-in stud
with quick-fastening thread

Clifa®-S S
Works Standard
510 3 to 534 3

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 no.	Thread A	Length B	Hole dia. tolerance +0,05 L	Hole for anvil L ₁	Minimum spacing W	Tightening torque of the nut (steel sheet) ≤ Nm
5.. 300 500 ...	Ø 5,0 x 1,6	10,0 to 34,0	5,2	5,2	4,7	2,5

Example for finding the article number Self-clinching press-in stud Clifa-SPS, Ø5,0, tempered 9.8, 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 see Works Standard 506 Clifa-SP, page 18

Tolerances SO 2768-m

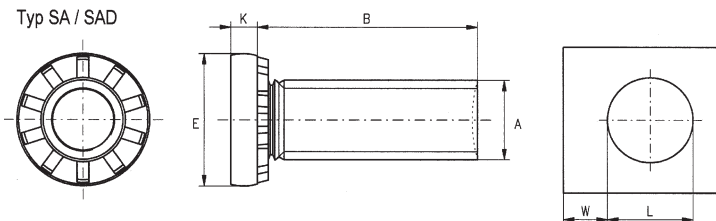
Thread External thread A: as per SO 6g

Application

Clifa press-in studs are used to create wear-free screw connections capable of withstanding high loads in thin-walled moulded components.

The reinforced head shape permits higher loading capacity to be achieved.

Typ SA / SAD



Dimensions in mm

Article no. of the first group of digits	Length ± 0,2 B*)	Preferred size M**					
		3	4	5	6	8	10
510	10	x	x	x	x		
512	12	x	x	x	x	x	
515	15	x	x	x	x	x	x
520	20	x	x	x	x	x	x
525	25	x	x	x	x	x	x
530	30	x	x	x	x	x	x
534	34	x	x	x	x	x	x

Article no. of the second and third group of digits	Thread A	for sheet metal thickness ≥	Head dia. E	Head high ± 0,2 K	Hole dia. +0,1 L	Minimum spacing ≥W	Tightening M _D *** of nut (mild steel) ≤ Nm
... 400 030 ...	M 3	1,0	6,0	0,8	3	8,5	1,3
... 400 040 ...	M 4	1,0	7,5	1,2	4	9,5	2,9
... 400 050 ...	M 5	1,2	8,5	1,5	5	10,5	6,0
... 400 060 ...	M 6	1,2	10	1,5	6	11,5	10
... 400 080 ...	M 8	1,5	12,5	1,75	8	12,5	25
... 400 100 ...	M10	2,0	15,7	2,2	10	13,5	36

Example for finding the article number

Press-in stud Clifa-SA, M5 made of tempered 9.8, zinc plated and yellow chromated steel, 20 mm long: Clifa-SA 520 400 050.110

Materials

Steel tempered 9.8, zinc plated, yellow chromated Article no. (fourth group of digits) 100
 Steel tempered 9.8, zinc plated, blue passivated Article no. (fourth group of digits) 110
 Steel tempered 9.8, zinc/nickel plated, transparent passivated Article no. (fourth group of digits) 143
 Other materials on request.

Standard design For sheet metal ≥ 0,8 mm

Coarse serration at the head Clifa-SA Article no. 5.. 400
Thin metal press-in stud Clifa-SAD Article no. 5.. 900

****) Dimension**

Clifa-SAD only available in thread sizes M5, M6 and M8.

Tolerances

SO 2768-m

Thread

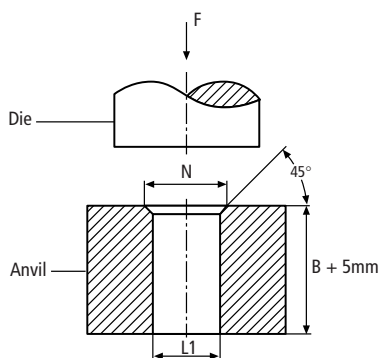
Stud thread A: as per SO 6g
Other dimensions on request.

***) Length B**

available up to 60 mm
ress-in stud with several dog points on request.
See enquiry data sheet on next page.

*****)**

Recommended tightening torque accordingly VDI 2230



Dimensions in mm

Anvil for Clifa	Hole L ₁	Countersink for serrations N	Press-in pressure 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
M10	10,1	12,2	32 to 84

The press-in pressure 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 ≈ A+0,6 mm.

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 fitting/locking of screw-in elements



Riveting nut loosely riveted with TufLok® coating



Press-in nut with double knurling contour





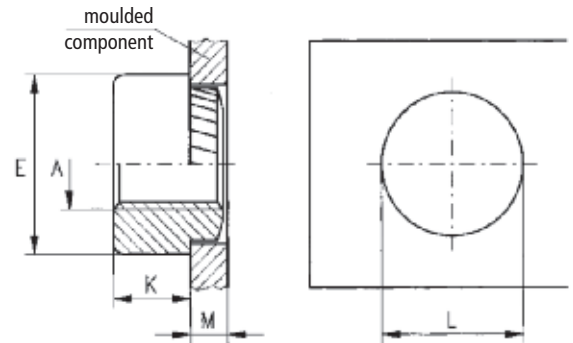
Soldering nuts
– collated version –

Clifa®-AL
Works Standard
503 6

Application

These CL FA® soldering nuts are particularly suited for the Creation of torsion-proof screw unions with high borads. The nuts are fastened by soldering to the pcb. The nuts are supplied collated on a belt and can be using 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	Material thickness min.	External diameter	Nut height	Hole diameter + 0,1
	A	M	E	K	L
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

Materials

Steel hardened, pre copper plated and tinned Article no. 134A
Steel hardened, pre copper plated and tinned and gluing pad Article no. 134B

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

Colation

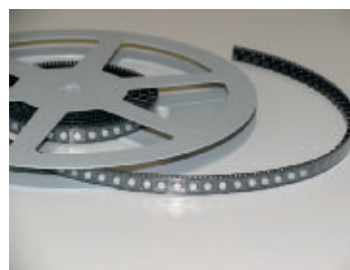
in accordance with D N EN 60286-3 (type blister belt)

Tolerances

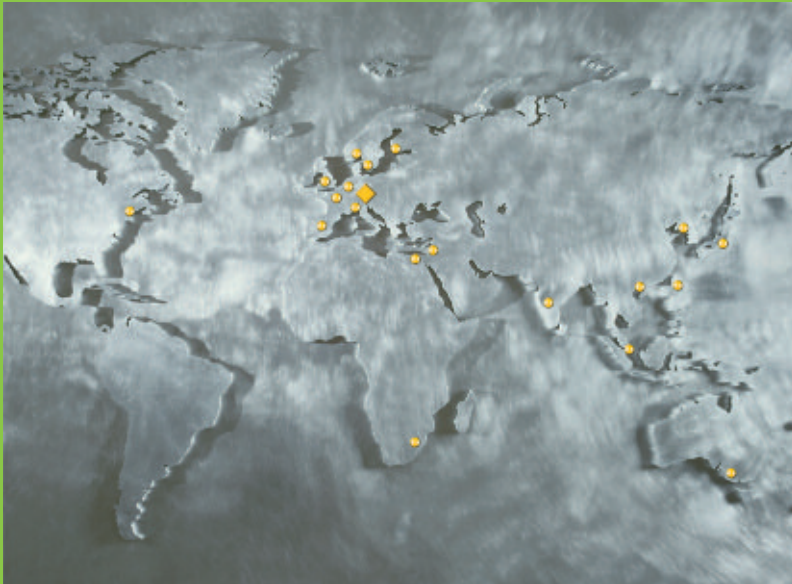
SO 2768-m

Thread

nternal thread A: as per SO 6H



... technologies for a reliable hold



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First and foremost, for you customer proximity means a rapid response to your requirements and the fast, efficient realisation of the right fastening solution for you.

For us, customer proximity is far more than just another watchword - it is an important strategic instrument. Our technical sales consultants are available locally to talk to you around the world, ready to offer sound advice when it comes to the reliable, economical application of modern fastening technology. Advisory activities are coordinated through the headquarters in Amberg.

Kerb-Konus-Vertriebs-GmbH
P.O.Box 16 63
92206 Amberg, Germany

Phone +49 9621 679-0
Fax +49 9621 679444
e-mail KKV-Amberg@kerbkonus.de

internet www.kerbkonus.de

... in Germany

Amberg Headquarters **Production and Sales**
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Werner-von-Braun-Straße 7
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