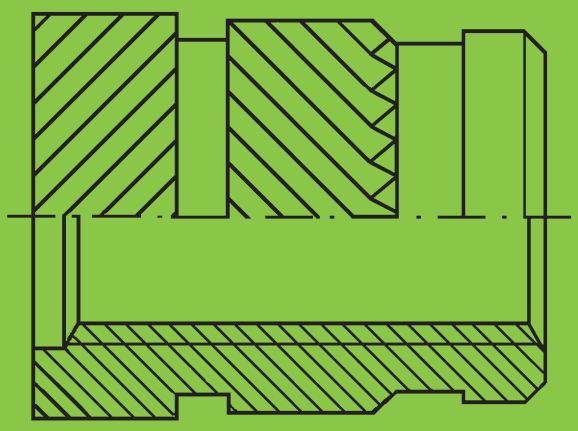
... technologies for a reliable hold



Threaded inserts for plastic and wood

Ensat®
B-LOK®
Mubux®-A
S-LOK®



Technical publication

No.30

Kerb Konus



Fastening technology from KerbKonus is in successful application 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 ultrasound embedding
- Threaded inserts for screwing into an internal thread
- Threaded inserts for riveting

Alongside its long-standing, proven spectrum of threaded inserts for a wide variety of applications, KerbKonus also offers a range of 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.

Kerb-Konus-Vertriebs-GmbH
Wernher-von-Braun-Straße 7
Gewerbegebiet Nord
92224 Amberg, Germany

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

Internet **www.kerbkonus.de**

Technical details of KerbKonus products are provided on our website: **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 plastic and wood ...

Kerb Konus

Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details

Threaded inserts from KerbKonus ...

Tested quality; Test methods — Page 2 and 3
Ensat – the self-tapping threaded insert; Pull-out strength; Installation — Page 4 to 6

Ensat®-S 302 / -SI 302 2



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M2 to M30	self-tapping with cutting-slot	pre-formed or drilled	very high	Works Standard 302	Page 8 and 9
M4 to M12	with hexagonal socket			302 2	

Ensat®-SB 307 / 308 and Ensat®-SBI 307 2 / 308 2



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M3 to M16	self-tapping with three cutting bores	pre-formed or drilled	very high	Works Standard 307 / 308	Page 10
M4 to M12	with hexagonal socket			307 2 / 308 2	

Ensat®-SD 303 and Ensat®-SBD 347 / 348



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M3 to M10	as 302/307/308 but in a special thin-walled version	pre-formed or drilled	high	Works Standard 303	Page 11
M3,5 to M12				347 / 348	

Ensat®-SH/SHI 309 / 309 2



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M2,5 to M16	self-tapping or thread forming	pre-formed or drilled	very high	Works Standard 309	Page 12
M4 to M12	with hexagonal socket			309 2	

Ensat®-3F 305



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M3 to M6	thread forming	pre-formed or drilled	high	Works Standard 305	Page 13

Mubux®-A



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M2 to M10 also as threaded pin	press-in insert with helically knurled locking profile	pre-formed or drilled	medium	Works Standard 850 to 857	Page 14 to 16

B-Lok®



Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M2 to M8	expansion insert with screw locking effect	pre-formed or drilled	medium	Works Standard 812 to 842	Page 17 to 20

S-Lok®



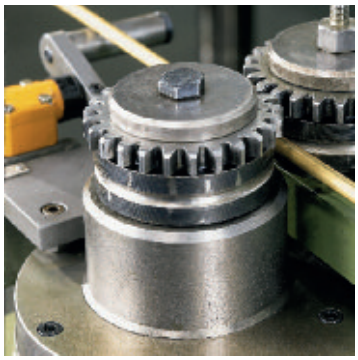
Dimensions	Product features	Receiving hole	Pull-out strength	Specifications	Other details
M2 to M10 also as threaded pin	for embedding using ultrasound or heat transmission	pre-formed or drilled	high	Works Standard 860 to 867	Page 21 to 26

Screw-in tools ...

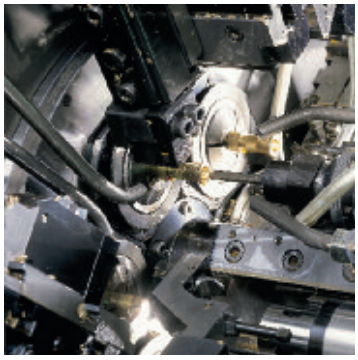
Tools 620 / 621 / 610 / 6102 — Page 6

Ensat installation ...

Machine installation — Page 7







What really counts: tested quality.



Quality System
DEKRA Certificat in accordance with
ISO 9001:2008 Reg.No. 30507428/2
ISO/TS 16949:2009 Reg.No. 160507011/2
ISO 14001:2004 Reg.No. 170507049/2

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 strenghts 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.

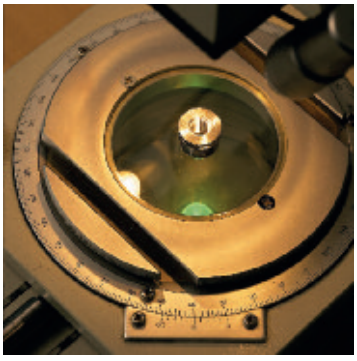
We are particularly proud of a cost-to-performance ratio which ensures satisfied customers the world over. This has made KerbKonus a reputable and respected partner to industry in the global marketplace.

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.

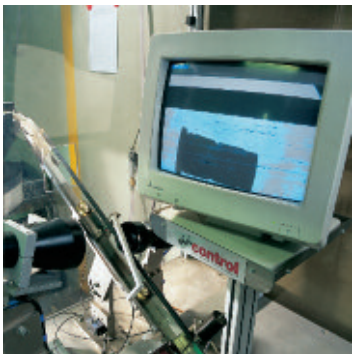
As manufacturer in the metal processing industry we are aware of our responsibility for an environmentally compatible production. With this in mind we follow up a policy of sensible resource spending and environmental friendly production both in our process engineering and our product range.







Applications on the test stand ...



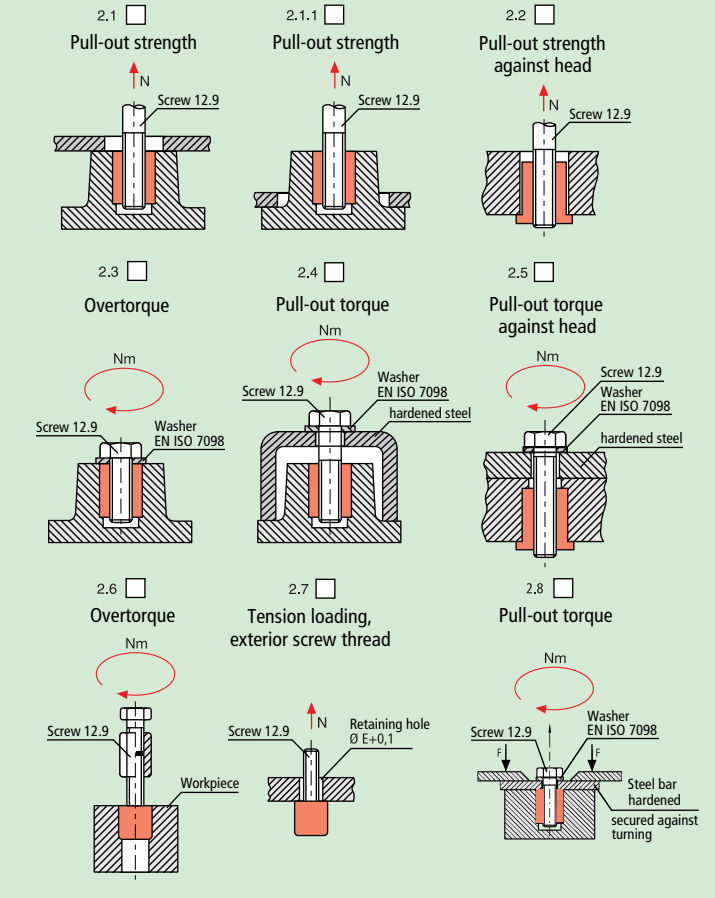
Threaded inserts from KerbKonus are manufactured in large piece numbers. Human lives and safety can often depend upon these tiny components, for instance in the case of airbag receiving fasteners.

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.





The Ensat® self-tapping threaded insert ...

Ensat® is a self-tapping threaded insert with external and internal threads, cutting slots or cutting bores.

A continuous process of further development has brought about a number of major improvements to product characteristics. These inserts are protected by German and also foreign patents. The Ensat is screwed into a pre-formed or pre-drilled receiving hole and so automatically taps its own thread into the hole wall. This ensures a backlash-free fit with extreme loading capacity.

Ensat®-3F 305 is a thread forming insert with 3 longitudinal grooves around its periphery

Fields of application

The Ensat is used throughout the whole of the metal and plastics processing industry.

Automotive industry
A wide range of supply parts such as wing mirrors, engines, transmissions

Household appliance and office machinery production
Vacuum cleaners, cameras, sun lamps, drills etc.

Electrical and laboratory supplies
Capacitors, radio and telecommunication systems, dental technology equipment.

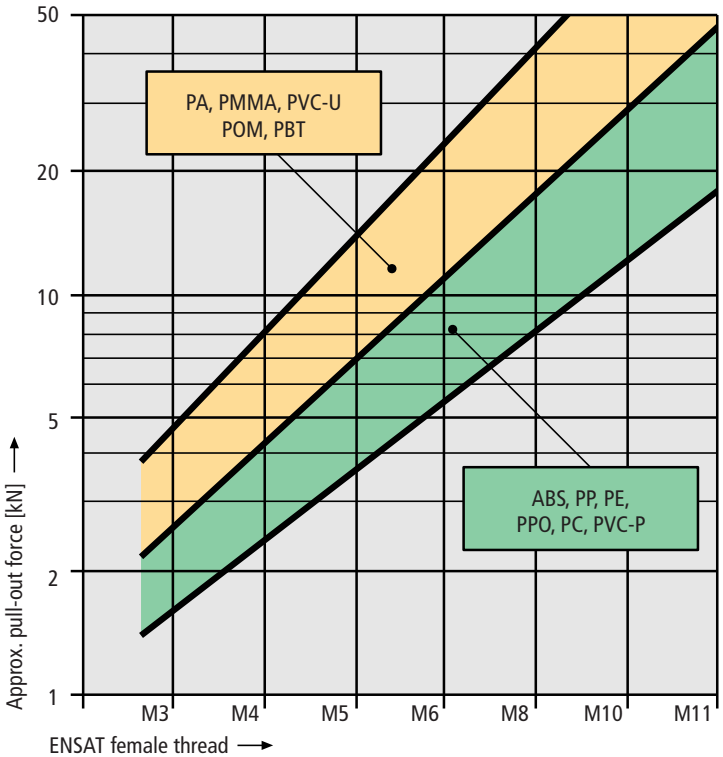
Plant and equipment construction
Flange connections etc.

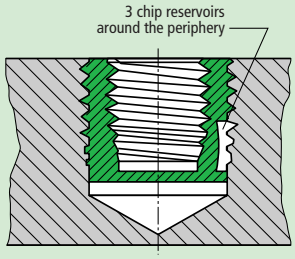
Sports equipment
Tennis rackets, ski bindings etc.

Product features

- Universal application for all types of plastic, thermoset plastics, thermoset plastics, PU/PUR foam, fibreglass reinforced plastics, for hardwood and plywood, hard paper and metal.
- Maximum strength values in comparison to other systems. The diagram illustrates the withdrawing force in thermoplastic materials: In thermoset plastics and glass fibre reinforced plastics, the values tend to be higher.
- Thin-walled Ensat for restricted space conditions (residual wall thicknesses), and also suitable for screwing in using a thread tapping machine (same inside and outside pitch).

Slot version WN 303
Three-hole version WN 347/348
page 11





Ensat®-SBS 337/338
These cutting bores are shaped to serve as chip reservoirs. The chips created during the driving process are stored here and cannot drop into sensitive equipment parts.
For additional sealing from below:
Ensat with closed floor
Works Standard 357/358
see publication no. 20, page 15

The Ensat®
in the workpiece ...

Installation recommendation

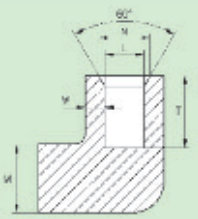
The Ensat should be processed appr. 0,1 - 0,2 mm recessed. After processing, the Ensat can be immediately subjected to load. If the component material permits subsidence of the Ensat under load, the Ensat can only execute an axial movement of 0,1 to 0,2 mm. In other words, the pretension of the screw union is largely retained, loosening of the screw connection under dynamic load is impeded.

Retaining hole

The receiving hole can be simply drilled or already provided for in the casting.

Countersinking the borehole is recommended in order to:

- Prevent the workpiece surface from being raised
- Permit screwing in to a greater depth
- Ensure improved initial cutting characteristics

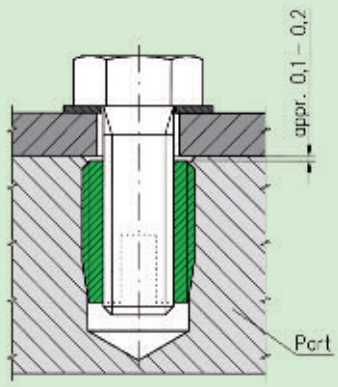


Design of moulded part and receiving hole

Guideline values for countersink:
N = (0,06 to 0,08 x E) +E

Material thickness:
Smallest admissible material thickness ≥ length of the Ensat.

Depth of the blind hole T:
see Works Standard sheets, page 8 to 27



Borehole diameter
Brittle, tough and hard materials call for a larger borehole than soft or elastic materials. For guideline values, see the table above.

Edge distance
The smallest still admissible edge distance depends on the planned stress level and the elasticity of the material into which the Ensat is screwed.
Guideline values for plastic:
W ≥ 0,25 to 0,9 E

In moulded parts made of glass fibre reinforced plastic, a high pull-out resistance is reached if the casting skin is removed in the receiving hole by drilling open.

Avoid any tilting between the Ensat and the screw – under the head or in the thread. For this reason, in the case of adjusting screws the Ensat is driven in to a depth of >=1 mm. Studs must be fixed against the floor surface of the blind hole.

Example

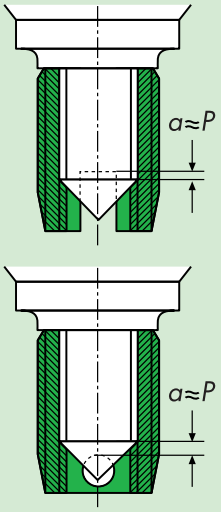
Female thread M8, recommended borehole diameter for

Ensat®-S 302:
10,9 to 11,2 mm
Ensat®-SB 307/308:
11,1 to 11,3 mm
(see Works Standard sheets)

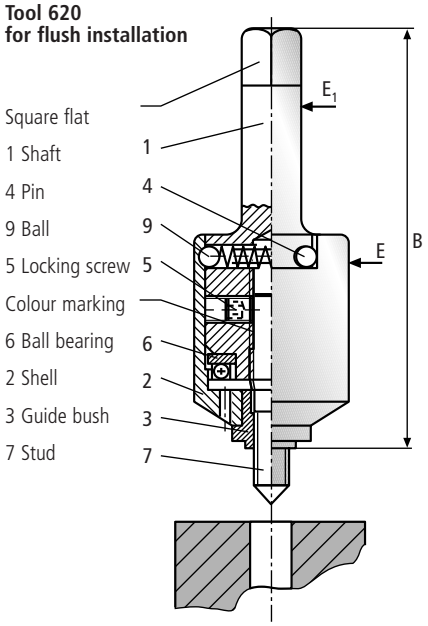
In case of processing problems (e.g. extreme screw-in torque levels), it is generally of no consequence to choose the next highest column for the diameter data. In case of doubt, it is worth testing this.

The correct length of the stud for the Ensat with cutting slot / cutting bore results from the pitch of the internal thread (see also illustration below; P=pitch of the internal thread).

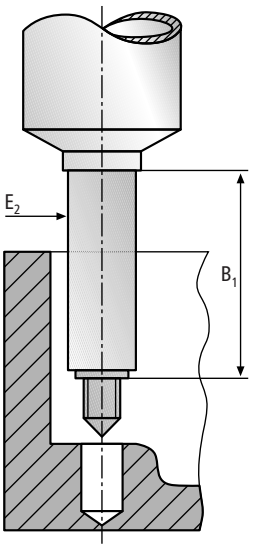
Ensat®– driving tools ...



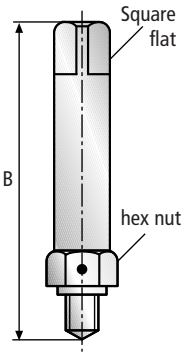
Tool 620
for flush installation



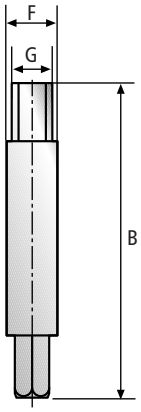
Tool 621
For deep receiving holes



Tool 610
for manual installation



Tool 6102
for Ensat-SBI



Set or exchange the stud

- Pull off the shell (2) downwards off the shaft (1).
- Release the locking screw (5).
- Screw the stud (7) in or out. Yellow colour marking indicates the flattened surfaces for the locking screws.
- When assembling, tighten both screws (5) evenly.
- Insert the ball bearing (6).
- Push on the shell (2) until the ball stop locks into place. To ensure that the tool functions perfectly, it must be possible to easily rotate the shell. For short Ensats, grind down the thread of tool 610 accordingly.
- If you wish the Ensat to be driven deeper than 0,2 mm below the workpiece surface, screw off the guide bush (3) at the front.

Diameter: 0,1 to 0,2 mm smaller than the Ensat receiving hole.

For mounting the thin-walled Ensat (Page 11), modified guide bushes should be used. (available on request)

Dimensions [mm]

For Ensat	Tool 620 Article-no.							Square SW D	Length ≈ B	Tool 621 Article-no.			Manual assembly tool Article-no.	Length ≈ B	Square SW D	Collar Sw D	For Ensat-SBI	Tool 6102 Machine/Hand Article-no.	Length ≈ B	Square SW G	Shank Ø F
			Whitworth	UNC	UNF	E	E1				B1	E2									
M 2	-	620 000 020	-	-	-	18	8	6,3	78	621 000 020	40	7	610 000 020	55	5	7	M 2	-	-	-	-
M 2,5	-	620 000 025	-	-	-	18	8	6,3	78	621 000 025	40	7	610 000 025	55	5	7	M 2,5	-	-	-	-
M 3	Nr. 4	620 000 030	-	620 000 604	620 000 704	18	8	6,3	78	621 000 030	40	7	610 000 030	55	5	7	M 3	-	-	-	-
M 3,5	Nr. 6	620 000 035	-	620 000 606	620 000 706	18	8	6,3	78	621 000 035	40	7	610 000 035	60	5	7	M 3,5	-	-	-	-
M 4	Nr. 8	620 000 040	-	620 000 608	620 000 708	18	8	6,3	78	621 000 040	40	7	610 000 040	60	5	7	M 4	610 200 040	80	4,9	6
M 5	Nr. 10	620 000 050	-	620 000 610	620 000 710	24	12,5	10	95	621 000 050	50	9	610 000 050	75	8	13	M 5	610 200 050	90	6,2	8
M 6	1/4"	620 000 060	620 000 525	620 000 625	620 000 725	24	12,5	10	95	621 000 060	50	10	610 000 060	75	8	13	M 6	610 200 060	100	8	10
M 8	5/16"	620 000 080	620 000 531	620 000 631	620 000 731	24	12,5	10	95	621 000 080	50	12	610 000 080	75	8	13	M 8	610 200 080	100	8	10
M 10	3/8"	620 000 100	620 000 537	620 000 637	620 000 737	32	16	12,5	118	621 000 100	60	15	610 000 100	95	12,5	19	M 10	610 200 100	110	9	12
M 12	7/16"	620 000 120	620 000 544	620 000 644	620 000 744	32	16	12,5	118	621 000 120	60	18	610 000 120	95	12,5	19	M 12	610 200 120	125	11	14
M 14	1/2"	620 000 140	620 000 550	620 000 650	620 000 750	50	25	20	145	621 000 140	60	20	610 000 140	95	12,5	19	M 14	-	-	-	-
M 16	5/8"	620 000 160	620 000 562	620 000 662	620 000 762	50	25	20	145	621 000 160	60	22	-	-	-	-	M 16	-	-	-	-
M 18	-	620 000 180	-	-	-	50	25	20	145	621 000 180	60	24	-	-	-	-	M 18	-	-	-	-
M 20	-	620 000 200	-	-	-	58	25	20	169	621 000 200	60	26	-	-	-	-	M 20	-	-	-	-
M 22	-	620 000 220	-	-	-	58	25	20	169	621 000 220	60	28	-	-	-	-	M 22	-	-	-	-
M 24	-	620 000 240	-	-	-	70	30	25	198	621 000 240	60	32	-	-	-	-	M 24	-	-	-	-
M 27	-	620 000 270	-	-	-	70	30	25	198	621 000 270	60	35	-	-	-	-	M 27	-	-	-	-
M 30	-	620 000 300	-	-	-	70	30	25	198	621 000 300	60	38	-	-	-	-	M 30	-	-	-	-

Tools 620 and 621 also fit within the coloured lines for other thread dimensions, if the guide bush and stud are exchanged

Machine installation ...

Machine driving process

1. Precisely position the workpiece to ensure that the hole and machine spindle are in exact alignment (do not tilt). Set the machine to the precise driving depth (appr. 0,1 – 0,2 mm below the surface of the workpiece).

2. Turn the machine to clockwise rotation. At the start of the driving process, the rotatable external shell of the tool must be resting against the external visible stop pins in such a way that it is driven by the pins in the clockwise direction.

3. Feed the Ensat towards the tool **(slot or cutting bore facing downwards)** and grip for the duration of 2 to 4 revolutions.

4. Actuate the operating lever of the machine until the Ensat cuts into the borehole. The remainder of the driving process takes place without actuating the feed.

5. Switch on the reversing function. Always avoid setting the tool down hard on the workpiece, as this can lead breaking of both the tool and the Ensat.
Excessively hard contact of the tool can damage the play-free fit of the Ensat and so reduce the pull-out strength. If necessary, the driving speed may have to be adapted in line with the necessary reversal time.



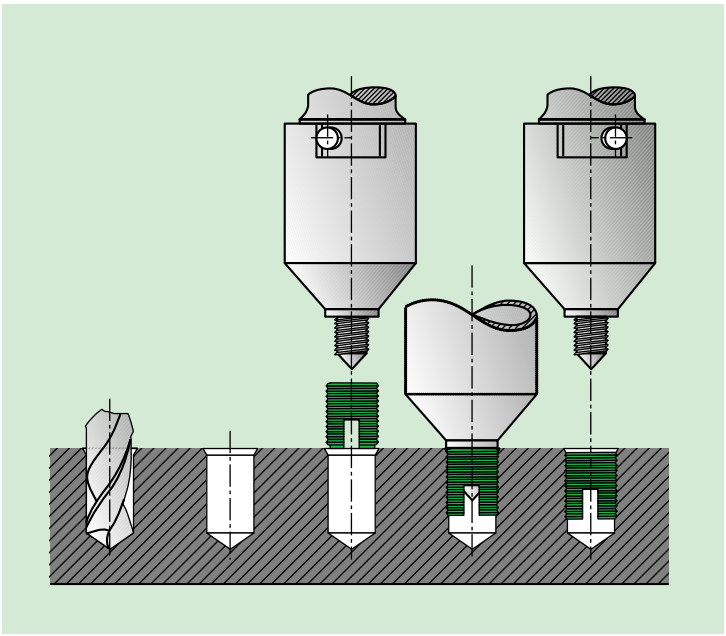


Machine installation takes place with production tool 620 or 621, integrated in a:

- **Thread tapping machine**
- **Use a drill press** fitted with a reversing tapping attachement or a tapping machine which is not pitch controlled.
  Important: Never exceed the maximum admissible driving torque.
- **Special manual machine** with bit stop and reversing system.

For large-scale series:

- **Single or multiple installation machines**
  with pneumatic or electric drive, semi or fully automatic (CNC).
  Attention of different pitches.



Torque M
The maximum admissible torque depends on:
1. The axial load capacity of the tool stud
2. The pressure resistance capacity of the Ensat in the axial direction.

Recommended speed values for plastic:

Ensat® Internal thread	Speed [min^{-1}]
M 2,5 / M 3	800 - 1300
M 4 / M 5	600 - 900
M 6 / M 8	400 - 700
M 10 / M 12	300 - 450
M 14 / M 16	240 - 350
M 18 / M 20	180 - 300
M 22 / M 24	160 - 250
M 27 / M 30	140 - 200

Guideline value for installation torque

Ensat® M 2,5	1,5 Nm
Ensat® M 3	2,5 Nm
Ensat® M 4	5,5 Nm
Ensat® M 5	10 Nm
Ensat® M 6	15 Nm
Ensat® M 8	28 Nm
Ensat® M 10	40 Nm
Ensat® M 12	60 Nm

Threaded insert
self tapping / with hexagonal socket
metric inner thread

Ensat®-S/SI
Works Standard
302 0 / 302 2

Application

The threaded insert Ensat-S/SI with cutting slot is a self-tapping fastener for the creation of wear-free, vibration resistant screw joints with high loading capacity in materials with low shearing strength.
It is suitable for installation in the following materials:
- Aluminium and aluminium alloys
- Magnesium alloys
- Cast iron, brass, bronze
- Duroplastics, thermoplastics (with the exception of rubber-soft thermoplastics < 100 Shore A)

Ensat-SI

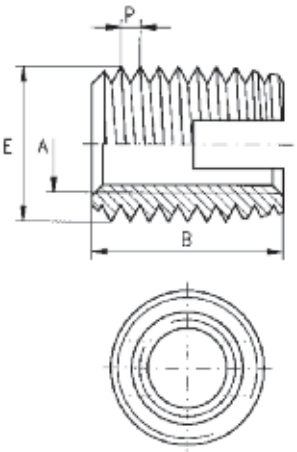
The Ensat is inserted via the hexagonal socket, permitting the achievement of short installation times.
Other benefits: More simple driving tools and machines which require only clockwise rotation.

The Ensat can be extracted without problems before the recycling process, resulting in lower costs.

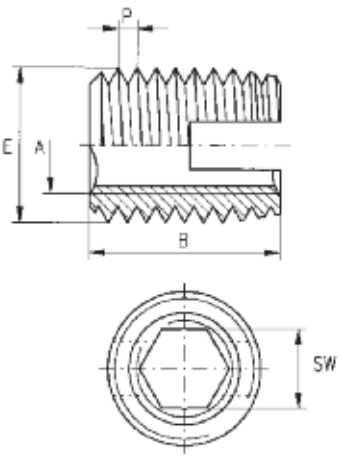
Available M4 to M12

For technical information see Publication 20.

Ensat-S 302 0



Ensat-SI 302 2



Dimensions in mm

Article no. **second** group of digits … 000 …	Internal thread A	External thread E	External thread P	Length B	Hexagonal socket SW +0,1 **second** group of digits … 200 …	Guideline values for receiving hole dia. L	Minimum borehole depth for blind holes T
302 … 020 …	M 2	4,5	0,5	6	–	4,1 to 4,2	8
302 … 025 …	M 2,5	4,5	0,5	6	–	4,1 to 4,2	8
302 … 030 …	M 3	5	0,5	6	–	4,6 to 4,7	8
302 … 035 …	M 3,5	6	0,75	8	–	5,5 to 5,6	10
302 … 040 …	M 4	6,5	0,75	8	3,2	6,0 to 6,1	10
302 … 050 …	M 5	8	1	10	4,1	7,3 to 7,5	13
302 … 061 …	M 6 (a)	9	1	12	–	8,3 to 8,5	15
302 … 060 …	M 6	10	1,5	14	4,9	8,9 to 9,2	17
302 … 080 …	M 8	12	1,5	15	6,6	10,9 to 11,2	18
302 … 100 …	M 10	14	1,5	18	8,3	12,9 to 13,2	22
302 … 120 …	M 12	16	1,5	22	10,1	14,9 to 15,2	26
302 … 140 …	M 14	18	1,5	24	–	16,9 to 17,2	28
302 … 160 …	M 16	20	1,5	22	–	18,9 to 19,2	27
302 … 180 …	M 18	22	1,5	24	–	20,9 to 21,2	29
302 … 200 …	M 20	26	1,5	27	–	24,9 to 25,2	32
302 … 220 …	M 22	26	1,5	30	–	24,9 to 25,2	36
302 … 240 …	M 24	30	1,5	30	–	28,9 to 29,2	36
302 … 270 …	M 27	34	1,5	30	–	32,9 to 33,2	36
302 … 300 …	M 30	36	1,5	40	–	34,9 to 35,2	46

Example for finding the article number
Self-tapping threaded insert Ensat-S to Works Standard series 302 0 with internal thread A = M5 made of case-hardened, zinc plated and yellow chromated steel: Ensat-S 302 000 050. 160;
with hexagonal socket: Ensat-SI 302 200 050. 160

Materials

Unhardened steel	Article no. (**fourth** group of digits) … … … 100
Case-hardened steel, zinc plated, blue passivated	Article no. (**fourth** group of digits) … … … 110
Case-hardened steel, zinc-nickel plated, transparent passivated	Article no. (**fourth** group of digits) … … … 143
Case-hardened steel, zinc plated, yellow chromated	Article no. (**fourth** group of digits) … … … 160
Stainless steel	Article no. (**fourth** group of digits) … … … 500
Brass	Article no. (**fourth** group of digits) … … … 800
Other materials, designs and finishes on request.	

Tolerances
ISO 2768-m

Thread
Internal thread A: as per ISO 6H
External thread E: metric, Tolerances in accordance with Works Standard
Internal thread UNC, UNF, Whitworth or fine threads see page 9.

Please note
M2 / M2,5 are only suitable for low-strength materials, as the shear resistance of studs in the driving tools may be insufficient.

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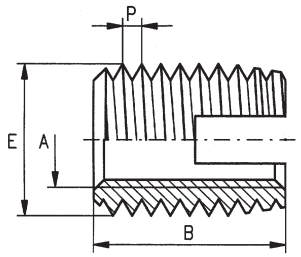
Kerb Konus

Threaded insert
self-tapping
imperial thread

Ensat®-S
Works Standard
302

Application

Threaded insert with cutting slot and Whitworth, UNC or UNF internal thread.



Dimensions in mm

	Article no.	Internal thread inch	External thread mm		Length mm	Guideline values for receiving hole dia.	Minimum drill hole depth in case of blind holes
		A	E	P	B	L	T
Whitworth B.S.84 Internal thread tolerance class medium	302 000 525 ...	1/4	10	1,5	14	8,9 to 9,2	17
	302 000 531 ...	5/16	12	1,5	15	10,9 to 11,2	18
	302 000 537 ...	3/8	14	1,5	18	12,9 to 13,2	22
	302 000 544 ...	7/16	16	1,5	22	14,9 to 15,2	26
	302 000 550 ...	1/2	18	1,5	22	16,9 to 17,2	26
	302 000 562 ...	5/8	20	1,5	22	18,9 to 19,2	27
UNC Unified Coarse Thread ANSI B1.1/BS 1580 Internal thread tolerance class 2B	302 000 604 ...	4 - 40	5	0,5	6	4,6 to 4,7	8
	302 000 606 ...	6 - 32	6	0,75	8	5,5 to 5,6	10
	302 000 608 ...	8 - 32	6,5	0,75	8	6,0 to 6,1	10
	302 000 610 ...	10 - 24	8	1	10	7,3 to 7,5	13
	302 000 625 ...	1/4 - 20	10	1,5	14	8,9 to 9,2	17
	302 000 631 ...	5/16 - 18	12	1,5	15	10,9 to 11,2	18
	302 000 637 ...	3/8 - 16	14	1,5	18	12,9 to 13,2	22
	302 000 644 ...	7/16 - 14	16	1,5	22	14,9 to 15,2	26
	302 000 650 ...	1/2 - 13	18	1,5	22	16,9 to 17,2	28
	302 000 662 ...	5/8 - 11	20	1,5	22	18,9 to 19,2	27
UNF Unified Fine Thread ANSI B1.1/B 1580 Internal thread tolerance class 2B	302 000 704 ...	4 - 48	5	0,5	6	4,6 to 4,7	8
	302 000 706 ...	6 - 40	6	0,75	8	5,5 to 5,6	10
	302 000 708 ...	8 - 36	6,5	0,75	8	6,0 to 6,1	10
	302 000 710 ...	10 - 32	8	1	10	7,3 to 7,5	13
	302 000 725 ...	1/4 - 28	10	1,5	14	8,9 to 9,2	17
	302 000 731 ...	5/16 - 24	12	1,5	15	10,9 to 11,2	18
	302 000 737 ...	3/8 - 24	14	1,5	18	12,9 to 13,2	22
	302 000 744 ...	7/16 - 20	16	1,5	22	14,9 to 15,2	26
	302 000 750 ...	1/2 - 20	18	1,5	22	16,9 to 17,2	28
	302 000 762 ...	5/8 - 18	20	1,5	22	18,9 to 19,2	27

Example for finding the article number

Self-tapping threaded insert Ensat-S to Works Standard series 302 with internal thread A = UNF 1/4" made of case-hardened, zinc plated and yellow chromated, steel: Ensat-S 302 000 725.160

Materials

Unhardened steel	Article no. (**fourth** group of digits) 100
Case-hardened steel, zinc plated, blue passivated	Article no. (**fourth** group of digits) 110
Case-hardened steel, zinc-nickel plated, transparent passivated	Article no. (**fourth** group of digits) 143
Case-hardened steel, zinc plated, yellow chromated	Article no. (**fourth** group of digits) 160
Stainless steel	Article no. (**fourth** group of digits) 500
Brass	Article no. (**fourth** group of digits) 800
Other materials, designs and finishes on request.	

Tolerances

ISO 2768-m

Thread

External thread E: metric, tolerances in accordance with Works Standard

Threaded insert
self-tapping / with hexagonal socket

Ensat®-SB/SBI
Works Standard
307 0 / 307 2 and 308 0 / 308 2

Application

Threaded insert Ensat-SB/SBI with cutting bores is a self-tapping fastener for the creation of wear-free, vibration resistant screw joints with high loading capacity in materials with higher shearing strength. It is suitable for installation in the following materials:
- Aluminium and aluminium alloys
- Magnesium alloys
- Cast iron, brass, bronze
- Duroplastics, thermoplastics (with the exception of rubber-soft thermoplastics < 100 Shore A)

Ensat-SBI

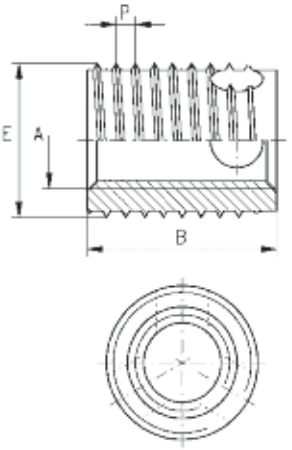
The Ensat is inserted via the hexagonal socket, permitting the achievement of short installation times.
Other benefits: More simple driving tools and machines which require only clockwise rotation.

The Ensat can be extracted without problems before the recycling process, resulting in lower costs.

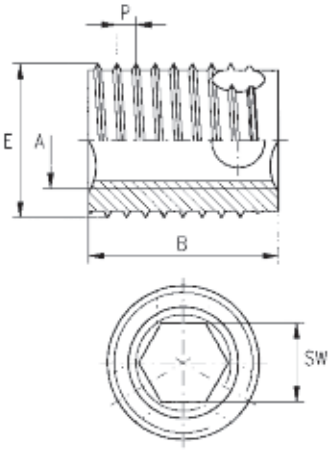
Available M4 to M12

Technical information is provided in Publication 20.

Ensat-SB 307 0 / 308 0



Ensat-SBI 307 2 / 308 2



Dimensions in mm

Article no. **second** group of digits … 000 …	Internal thread A	External thread Special thread E	P	Length B	Hexagonal socket SW +0,1 **second** group of digits … 200 …	receiving hole dia. for plastics (guideline values) L	Minimum borehole depth for blind holes T
307 … 030 … 308 … 030 …	M 3	5	0,6	4 6	–	4,6 to 4,7	6 8
307 … 035 … 308 … 035 …	M 3,5	6	0,8	5 8	–	5,5 to 5,6	7 10
307 … 040 … 308 … 040 …	M 4	6,5	0,8	6 8	3,2	6,0 to 6,1	8 10
307 … 050 … 308 … 050 …	M 5	8	1	7 10	4,1	7,4 to 7,6	9 13
307 … 060 … 308 … 060 …	M 6	10	1,25	8 12	4,9	9,3 to 9,5	10 15
307 … 080 … 308 … 080 …	M 8	12	1,5	9 14	6,6	11,1 to 11,3	11 17
307 … 100 … 308 … 100 …	M 10	14	1,5	10 18	8,3	13,1 to 13,3	13 22
307 … 120 … 308 … 120 …	M 12	16	1,75	12 22	10,1	15,0 to 15,2	15 26
307 … 140 … 308 … 140 …	M 14	18	2	14 24	–	17,0 to 17,2	17 28
307 … 160 … 308 … 160 …	M 16	20	2	14 24	–	19,0 to 19,2	17 28

Example for finding the article number
Self-tapping threaded insert Ensat-SB to Works Standard series 307 0 with internal thread A = M5 made of case-hardened, zinc plated and yellow chromated steel: Ensat-SB 307 000 050.160; with hexagonal socket: Ensat-SBI 307 200 050. 160

Short design
Works Standard 307

Long design
Works Standard 308

Materials

Unhardened steel	Article no. (**fourth** group of digits) … … … 100
Case-hardened steel, zinc plated, blue passivated	Article no. (**fourth** group of digits) … … … 110
Case-hardened steel, zinc-nickel plated, transparent passivated	Article no. (**fourth** group of digits) … … … 143
Case-hardened steel, zinc plated, yellow chromated	Article no. (**fourth** group of digits) … … … 160
Stainless steel	Article no. (**fourth** group of digits) … … … 500
Brass	Article no. (**fourth** group of digits) … … … 800
Other materials, designs and finishes on request.	

Tolerances
ISO 2768-m

Thread
Internal thread A: as per ISO 6H
External thread E: Special thread with flattened thread root, tolerances in accordance with Works Standard
Internal thread UNC, UNF, Whitworth or fine thread on request.

Special applications
For chip-sensitive applications (e.g. electronic appliances): Also available **with three closed cutting bores serving as chip reservoirs.** Works Standard 337 / 338 – see page 13 **technical publication no. 20**.

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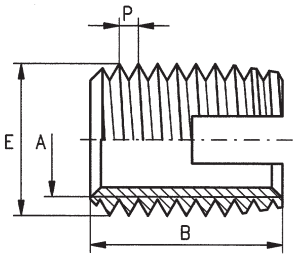
Thin-walled threaded insert
self-tapping, cutting slot

Ensat®-SD
Works Standard 303

Application

Threaded insert Ensat with cutting slot in a special thin-walled and shortened version.
Particularly suitable for plastic with thin residual walls and for light-weight constructions.

These versions are designed primarily for processing on thread tapping machines, as the pitch of the outside and internal thread is identical.



Dimensions in mm

Article no.	Internal thread	External thread		Length	Guideline values for receiving hole dia.		Minimum drill hole depth in case of blind holes
					Soft plastics, hardwood	Hard, brittle plastics	
	A	E	P	B	L	L	T
303 000 030 ...	M 3	4,5	0,5	6	4,0 to 4,1	4,1 to 4,2	8
303 000 035 ...	M 3,5	5	0,6	6	4,5 to 4,6	4,6 to 4,7	8
303 000 040 ...	M 4	6	0,7	6	5,3 to 5,4	5,5 to 5,6	8
303 000 050 ...	M 5	7	0,8	8	6,3 to 6,4	6,5 to 6,6	10
303 000 060 ...	M 6	8	1,0	10	7,1 to 7,2	7,3 to 7,5	13
303 000 080 ...	M 8	10	1,25	12	8,6 to 8,8	8,9 to 9,2	15
303 000 100 ...	M 10	12	1,5	15	10,6 to 10,8	10,9 to 11,2	18

Example for finding the article number Self-tapping thin-walled insert Ensat-SD slot to Works Standard series 303 with internal thread A = M5 made of case-hardened, zinc plated and yellow chromated, steel: Ensat-SD 303 000 050.160

Materials, tolerances, thread see Works Standard 302, Page 8 and 9; material ...500 on request.

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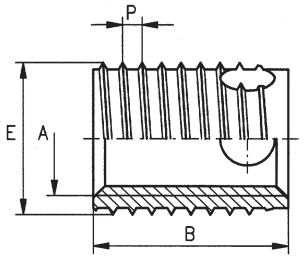
Thin-walled threaded insert
self-tapping, cutting bore

Ensat®-SBD
Works Standard 347/348

Application

Threaded insert Ensat with three cutting bores in a special thin-walled version.
Particularly suitable for plastic with thin residual walls and for light-weight constructions.
These versions are designed primarily for processing on thread tapping machines, as the pitch of the outside and internal thread is identical. For processing thin-walled inserts in metals, the tensile strength / hardness of the base material is the determining factor.

In critical cases, lubrication using suitable means is recommended in order to prevent breakage of the thin-walled inserts.



Dimensions in mm

Article no.	Internal thread	External thread Special thread		Length B Works Standard		Receiving hole dia. for plastics (guideline values)	Minimum drill hole depth T (blind holes) Works Standard	
	A	E	P	347	348	L	347	348
3.. 000 035 ...	M 3,5	5	0,6	5	8	4,6 to 4,7	7	10
3.. 000 040 ...	M 4	6	0,7	6	8	5,4 to 5,6	8	10
3.. 000 050 ...	M 5	6,5	0,8	7	10	6,0 to 6,1	9	13
3.. 000 060 ...	M 6	8	1	8	12	7,4 to 7,6	10	15
3.. 000 080 ...	M 8	10	1,25	9	14	9,3 to 9,5	11	17
3.. 000 100 ...	M 10	12	1,5	10	18	11,1 to 11,3	13	22
3.. 000 120 ...	M 12	14	1,75	12	22	13,1 to 13,3	15	26

Short design Works Standard 347
Long design Works Standard 348
Materials, tolerances, thread see Works Standard 307/308, Page 10; material ...500 on request.

Threaded insert
self-tapping or thread forming with hexagonal socket

Ensat®-SH/SHI
Works Standard
309 / 309 2

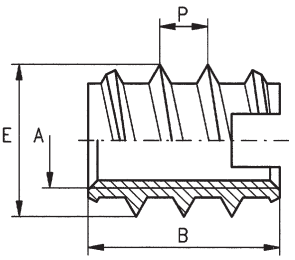
Application

Threaded insert Ensat 309 with cutting slot is a fastener designed to create wear- and vibration-resistant screw connections capable of withstanding high loads in:
- Hardwood
- Softwood
- Soft plastic and Composite materials

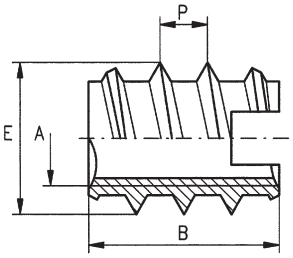
Installation

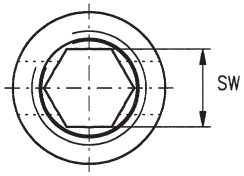
1. **Self-tapping**
   Installation with cutting slot facing **down** (normal application)
2. **Thread forming**
   Installation with cutting slot facing **up** (in very soft materials)
3. **With internal hexagon thread (M4 to M10):**
   For installation information please see page 8.

Ensat SH 309



Ensat SHI 309 2





Dimensions in mm

Article no.	Internal thread	Special thread		Length	Hexagonal socket	Guideline values for receiving hole dia.		Minimum drill hole depth (blind holes)
						Softwood ≥	Plastic Hardwood	
	A	E	P	B	SW +0,1	L	L	T
309 000 025 ...	M 2,5	5	1,6	6	–	3,5	3,6 to 3,8	8
309 000 030 ...	M 3	5,5	1,6	6	–	4,1	4,2 to 4,3	8
309 000 035 ...	M 3,5	6,5	1,6	8	–	4,6	4,7 to 4,8	10
309 000 040 ... 309 200 040 ...	M 4	7	2,5	10	– 3,2	5,1	5,2 to 5,3	13
309 000 050 ... 309 200 050 ...	M 5	9	3	12	– 4,1	6,6	6,7 to 6,9	15
309 000 060 ... 309 200 060 ...	M 6	10	4	14	– 4,9	7,6	7,7 to 7,9	17
309 000 080 ... 309 200 080 ...	M 8	13	4	20	– 6,6	9,9	10,1 to 10,3	23
309 000 100 ... 309 200 100 ...	M 10	16	5	23	– 8,3	12,4	12,6 to 12,8	26
309 000 120 ...	M 12	19	5	26	–	15,4	15,6 to 15,8	30
309 000 140 ...	M 14	22	5	26	–	18,4	18,6 to 18,8	30
309 000 160 ...	M 16	24	5	26	–	20,4	20,6 to 20,8	30

Example for finding the article number

Self-tapping threaded insert Ensat to Works Standard series 309 with internal thread A = M5 made of brass:
Ensat 309 000 050. 800, with hexagonal socket: Ensat SHI 309 200 050.800

Materials

Unhardened steel	Article no. (**fourth** group of digits) 100
Unhardened steel, zinc plated, blue passivated	Article no. (**fourth** group of digits) 110
Unhardened steel, zinc plated, yellow chromated	Article no. (**fourth** group of digits) 160
Brass	Article no. (**fourth** group of digits) 800

Tolerances

ISO 2768-m

Thread

Internal thread A: as per ISO 6H
External thread E: Wood thread, Tolerances in accordance with the Works Standard

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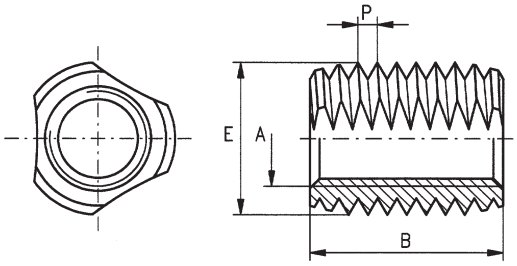
Threaded insert
thread forming

Ensat®-3F
Works Standard
305

Application

For the manufacture of wear-resistant screw fastenings capable of withstanding high loads in plastic, preferably thermosetting plastics.

The outside thread is interrupted by three longitudinal grooves which permit the Ensat 3F-305 to form the thread into the receiving hole.



Dimensions in mm

Article no.	Internal thread	External thread		Length	Receiving hole dia. (guideline values)	Minimum drill hole depth (blind holes)
	A	E	P	B		T
305 000 030.800	M 3	5	0,5	6	4,6 to 4,7	7
305 000 040.800	M 4	6,5	0,75	8	6,0 to 6,1	9
305 000 050.800	M 5	8	1	10	7,3 to 7,4	11
305 000 060.800	M 6	10	1,5	14	9,0 to 9,2	15

Example for finding the article number
Self-tapping threaded insert Ensat to Works Standard series 305 with internal thread A = M5 made of brass:
Ensat-3F 305 000 050. 800

Materials
Brass
Other materials, designs and finishes on request.

Article no. (**fourth** group of digits) … … … 800

Tolerances
ISO 2768-m

Thread
Internal thread A: as per ISO 6H
External thread E: metric, tolerances in accordance with the Works Standard
Internal thread UNC, UNF, Whitworth on request

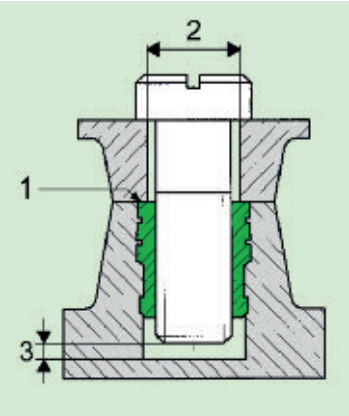


Mubux®-A – pressed-in threaded insert/stud ...

The Mubux-A is a threaded insert or stud with multiple helically knurled rings, a tapered anchorage profile and a pilot end for easy push in.

Field of application

For all moulded parts made of hard plastic.



Product features

- Fast and easy to install.
  A special pilot end prevents insertion problems.
- Relatively small diameter and minimal installation length
- Particularly cost-effective

Design of the shaped component and receiving hole

The part requiring fastening should be flush with the threaded insert, see (1) For this reason the borehole (2) should be closely dimensioned and not countersunk. The Mubux-A press in flush into the formed part (1).

Hole diameter and wall thicknesses are dependent on the material used for the formed part. Please enquire or ascertain by testing. For guideline values, see the works standard sheets.

Hole depth
≥ Length of the Mubux-A + 1mm.
The screw must not under any circumstances come to rest at the bottom of the hole (3).

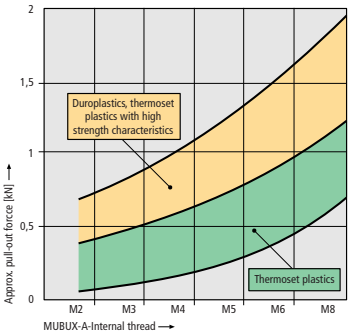
Available versions
- Standard length
- Shortened version
- Contact head for electrical contacts or simultaneous fastening of several parts
- Stud with and without contact head

Installation

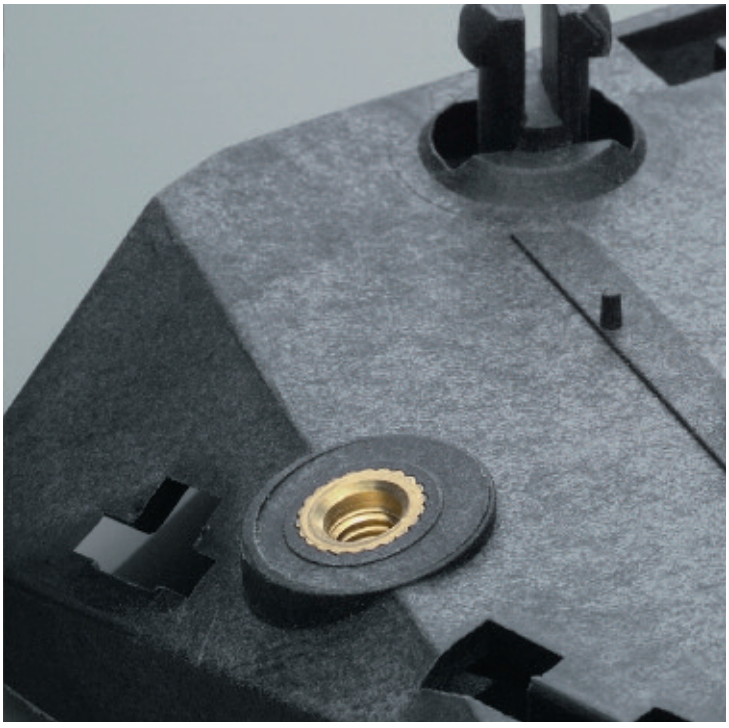
Insert the Mubux-A with pilot start **downwards** into the receiving hole and press in with the hand lever or a small press. Never knock in Mubux-A with a hammer!

Mubux-A achieves outstanding pull-out resistance if inserted into moulded components immediately after removal from the mould, when the component has not yet fully cooled down.

Mubux-A has also proven successful in some thermo plastic materials if embedded using ultrasound technology.



All table values apply only if the screw is inserted to at least 50% of its length in the threaded insert.



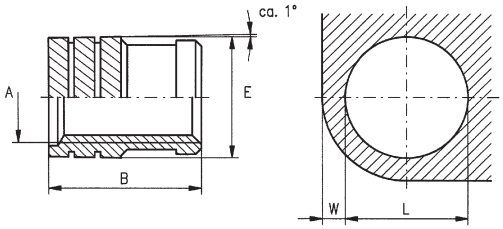
Kerb Konus

Pressed-in threaded inserts

Mubux®-A
Works Standard
850

Application

For the manufacture of wear-resistant screw fasteners with high loading capacity in hard plastic.



Dimensions in mm

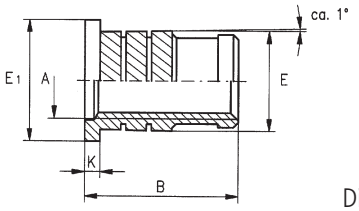
Article no.	Internal thread A	External dia. E	Length B	Minimum wall thickness W	Hole dia. (guideline values) L
850 000 020.800	M 2	3,35	4,0	1,6	3,1
850 000 025.800	M 2,5	4,2	5,3	2,0	3,8
850 000 030.800	M 3	4,2	5,3	2,0	3,8
850 000 035.800	M 3,5	5,0	6,3	2,5	4,6
850 000 040.800	M 4	5,8	7,4	2,5	5,4
850 000 050.800	M 5	6,6	8,3	2,5	6,2
850 000 060.800	M 6	8,2	9,2	2,8	7,8
850 000 080.800	M 8	9,7	9,2	3,8	9,3
850 000 100.800	M 10	12,0	9,2	5,5	11,6

Example for finding the article number
Pressed-in threaded insert Mubux®-A to Works Standard 850 with internal thread A = M 4 made of brass: Mubux-A 850 000 040.800

Kerb Konus

Pressed-in threaded inserts

Mubux®-AK
Works Standard 852



Dimensions in mm

Article no.	Internal thread A	External dia. (excluding head) E	Head dia. E_1	Head height K	Length B
852 000 020.800	M 2	3,35	4,8	0,6	4,6
852 000 025.800	M 2,5	4,2	5,6	0,6	5,9
852 000 030.800	M 3	4,2	5,6	0,6	5,9
852 000 035.800	M 3,5	5,0	6,4	0,8	7,1
852 000 040.800	M 4	5,8	7,2	0,8	8,2
852 000 050.800	M 5	6,6	8,0	1,0	9,3
852 000 060.800	M 6	8,2	9,5	1,3	10,5
852 000 080.800	M 8	9,7	11,0	1,3	10,5
852 000 100.800	M 10	12,0	14,0	1,6	10,8

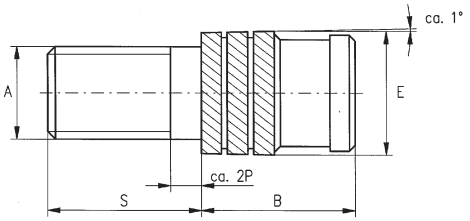
For receiving hole diameter, see Article no. 850 … … …

Material Brass
Tolerances ISO 2768-m
Thread Internal thread A: as per ISO 6H

Article no. (**fourth** group of digits) … … … 800

Pressed-in threaded studs

Mubux®-AS
Works Standard
856



Article no.	Thread A	External dia. E	insert length B
856 000 020.8..	M 2	3,35	4,0
856 000 025.8..	M 2,5	4,2	5,3
856 000 030.8..	M 3	4,2	5,3
856 000 035.8..	M 3,5	5,0	6,3
856 000 040.8..	M 4	5,8	7,4
856 000 050.8..	M 5	6,6	8,3
856 000 060.8..	M 6	8,2	9,2
856 000 080.8..	M 8	9,7	9,2

Available stud lengths
(other lengths on request)

Dimensions in mm

Article no. (eleventh digit)	Length S	Available M 2 M 2,5	Available M 3 M 3,5 M 4	Available M 5 M 6 M 8
... ... .20	6	X	X	X
... ... .40	10	X	X	X
... ... .60	16	X	X	X
... ... .80	25	X	X	X

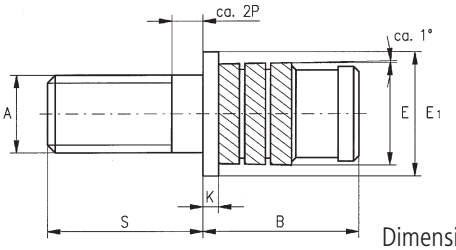
Thread length = S - 2P
P = Thread pitch

For receiving hole diameter, see article no. 850…

Example for finding the article number Pressed-in threaded insert Mubux®-A to Works Standard 856, length of the threaded stud S = 10 mm made of brass: Mubux-A 856 000 040.840

Pressed-in threaded studs

Mubux®-ASK
Works Standard 857



Dimensions in mm

Article no.	Thread A	External dia. (excluding head) E	Head dia. E_1	Head height K	Length B
857 000 020.8..	M 2	3,35	4,8	0,6	4,6
857 000 025.8..	M 2,5	4,2	5,6	0,6	5,9
857 000 030.8..	M 3	4,2	5,6	0,6	5,9
857 000 035.8..	M 3,5	5,0	6,4	0,8	7,1
857 000 040.8..	M 4	5,8	7,2	0,8	8,2
857 000 050.8..	M 5	6,6	8,0	1,0	9,3
857 000 060.8..	M 6	8,2	9,5	1,3	10,5
857 000 080.8..	M 8	9,7	11,0	1,3	10,5

Available stud lengths: See table

For the receiving hole diameter, see article no. 850 … ... ...

Material Brass

Article no. (**fourth** group of digits) … … … 800

Tolerances ISO 2768-m

Thread External thread A: as per ISO 6g

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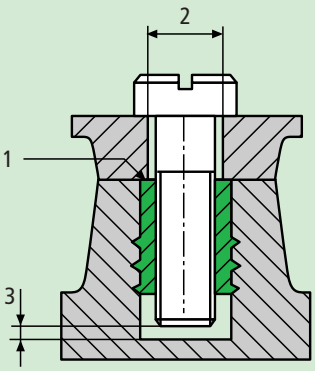
Kerb Konus







B-Lok® self-locking threaded insert



The B-Lok is a threaded insert with different external profiles, which guarantee optimum anchorage in all types of moulded plastic components

Product features

- Unbeatably short installation times
- Screw is secured automatically against loosening
- Cost savings for locking elements

B-Lok® *)
Registered Trademark
*) protected by numerous national and international patents.

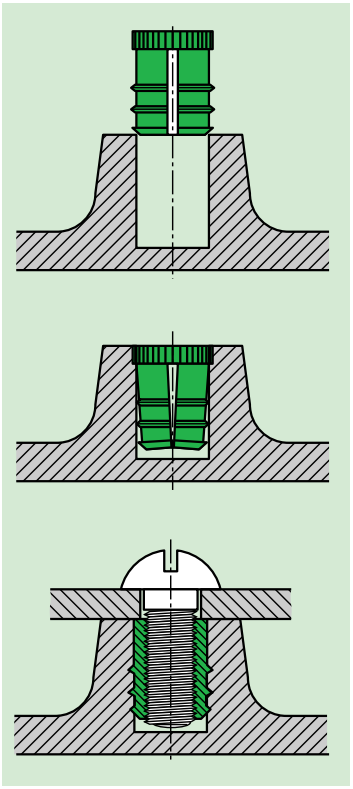
Design of the moulded component and receiving hole

The part requiring fastening should be flush with the threaded insert, see (1). For this reason, the borehole (2) should be closely dimensioned and not countersunk.The B-Lok press in flush into the formed part (1).

The screw length must be selected so that the B-Lok is completely expanded.

Hole diameter and wall thicknesses are dependent on the material used for the formed part. Please enquire or ascertain by testing. For guideline values, see the Works Standard sheets. Conicity 0,5° to max. 1°.
For B-Lok, we recommend the smallest possible hole diameter in which it is still possible to reliably insert the screw. Although a larger hole means that the screw is less stiff running, at the same time reduces pull-out resistance and torque safety.

Hole depth. This should be overdimensioned if possible. The screw must not under any circumstances come to rest at the bottom of the hole, see (3).



Installation

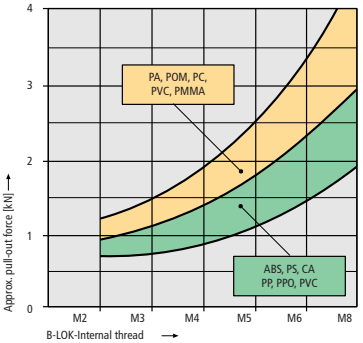
1. The B-Lok is pressed into the receiving hole, during which process the segments bend inwards.
2. When inserting the screw, the segments resume their original shape, in which process the external profile becomes anchored in the hole wall. The residual tension acts to lock the screw in place.

In the case of small-scale series, the B-Lok is embedded with a simple manual levering device (possibly a small press or drill at a standstill).

For large series: Single or multiple installation machines on request.

Selection of the correct B-Lok type:

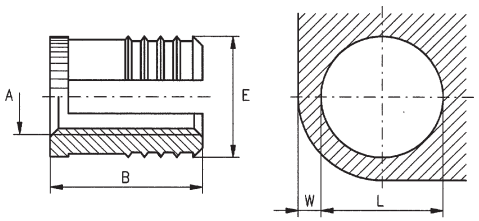
Material	B-Lok	Works Standard	Page
Thermoset plastic	-MV or -E	812/815, 830/831	18, 19
Duroplastic	-R	841	20
PU/PUR-foam	-R, -MV or -E	841, 812/815 830/831	20, 18, 19
Wood	-F or -E	821/823, 830/831	19
Through holes in laminate materials or side walls	-RK	842	20



We recommend practical testing.
All table values apply only if the screw is inserted to at least 50% of its length in the threaded insert.

Application

For creation of wear and vibration-resistant screw fastenings with high load capacity in plastic moulded components, preferably thermoset plastic. The insert is anchored in the moulded component by precision anchoring vanes, and torque safety is provided by a gear ring. The screw is rendered resistant to vibration by the clamping action of the two segments.



Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B	Number of vanes	Minimum wall thickness W	Hole dia. (guideline values) L
812 000 020.800	M 2	3,45	4,0	2	1,6	3,2
813 000 025.800	M 2,5	4,3	4,8	3	2,0	4,0
813 000 030.800	M 3	4,3	4,8	3	2,0	4,0
813 000 035.800	M 3,5	5,1	6,4	3	2,4	4,8
814 000 040.800	M 4	5,9	8,0	4	2,8	5,6
815 000 050.800	M 5	6,7	9,5	5	3,2	6,4
815 000 060.800	M 6	8,3	12,7	5	4,0	8,0
815 000 080.800	M 8	9,9	12,7	5	4,8	9,5

[1]) Max. conicity + 0,04 mm

Example for finding the article number
Self-locking threaded insert B-Lok-MV with internal thread M5 and 5 vanes in brass:
B-Lok-MV 815 000 050.800

Materials
Brass
Article no. (**fourth** group of digits) … … … 800

Tolerances
ISO 2768-m

Thread
Internal thread A: as per ISO 6H
Other internal threads (left-handed, unified or BA sizes, multiple threads), special dimensions and different numbers of vanes with the same length and same internal thread on request.

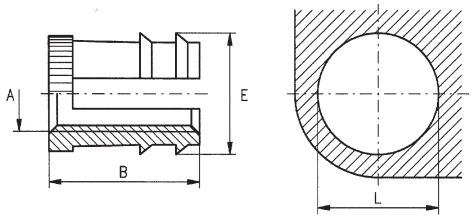
Kerb Konus

Expansion inserts
self-locking

B-Lok®-F
Works Standard
821/823

Application

For creation of wear and vibration-resistant screw fastenings with high load capacity in
- Soft plastic
- Wood / fibreboard
- Composite materials



Dimensions in mm

Article no.	Internal thread A	Biggest external dia. E	Length B	Number of vanes	Hole dia. (guideline values) L
821 000 025.800	M 2,5	5,35	4,8	1	4,5 to 4,7
821 000 030.800	M 3	5,35	4,8	1	4,5 to 4,7
821 000 035.800	M 3,5	6,0	4,8	1	5,2 to 5,4
822 000 040.800	M 4	6,65	9,5	2	5,8 to 6,0
822 000 050.800	M 5	7,35	9,5	2	6,5 to 6,7
822 000 060.800	M 6	9,05	9,5	2	8,2 to 8,4
823 000 080.800	M 8	12,45	14,3	3	11,8 to 12,0

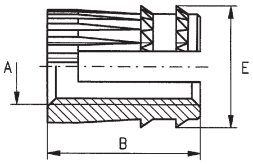
Different lengths and numbers of vanes with the same internal thread on request. This changes the guideline values for hole diameters.

Example for finding the article number Self-locking threaded insert B-Lok-F with internal thread M5 and 2 vanes in brass: B-Lok-F 822 000 050.800

Kerb Konus

Expansion inserts
self-locking

B-Lok®-E
Works Standard 830/831



Dimensions in mm

Article no.	Internal thread A	Biggest external dia. E	Length B	Number of vanes	Hole dia. (guideline values) L
830 000 020.800	M 2	3,9	3,5	1	3,4 to 3,5
830 000 025.800	M 2,5	4,4	4	1	3,9 to 4,0
830 000 030.800	M 3	5,5	5	1	4,9 to 5,0
830 000 040.800	M 4	6,5	5	1	5,9 to 6,0
830 000 050.800	M 5	7,6	6	1	6,9 to 7,0
830 000 060.800	M 6	8,6	7	1	7,9 to 8,0

Article no.	Biggest external dia. E	Length B	Number of gear rings
831 000 030.80	5,5	8	2
831 000 040.80	6,5	8	2
831 000 050.80	7,6	9	2
831 000 060.80	8,6	9	2

Example for finding the article number Self-locking threaded insert B-Lok-E with internal thread M6 and 2 vanes in brass: B-Lok-E 831 000 060.800

Materials Brass — Article no. (**fourth** group of digits) … … … 800

Tolerances ISO 2768-m

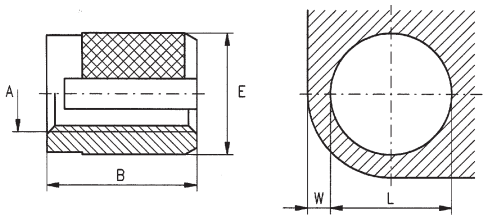
Thread Internal thread A: as per ISO 6H

Expansion inserts
self-locking

B-Lok®-R
Works Standard
841

Application

For creation of wear and vibration-resistant screw fastenings with high load capacity in plastic, preferably duroplastics.



Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B	Minimum wall thickness W	Hole dia. (guideline values) L
841 000 020.800	M 2	3,55	4,0	2,4	3,2 to 3,3
841 000 025.800	M 2,5	4,3	4,8	3,2	4,0 to 4,1
841 000 030.800	M 3	4,3	4,8	3,2	4,0 to 4,1
841 000 035.800	M 3,5	5,1	6,4	3,6	4,7 to 4,8
841 000 040.800	M 4	6,0	8,0	4,0	5,5 to 5,6
841 000 050.800	M 5	6,8	9,5	4,8	6,3 to 6,4
841 000 060.800	M 6	8,4	12,7	6,0	7,9 to 8,0
841 000 080.800	M 8	9,9	12,7	7,0	9,5 to 9,6

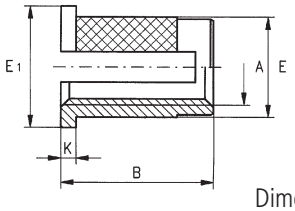
Example for finding the article number Self-locking threaded insert B-Lok-R with internal thread M5 in brass: B-Lok-R 841 000 050.800

Expansion inserts
self-locking

B-Lok®-RK
Works Standard 842

Application

With additional countering head, used in through holes in laminates and housing walls.



Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B	Head dia. E_1	Head height K	Minimum wall thickness W	Hole dia. (guideline values) L
842 000 020.800	M 2	3,55	4,0	4,8	0,6	2,4	3,2 to 3,3
842 000 025.800	M 2,5	4,3	4,8	5,6	0,6	2,8	4,0 to 4,1
842 000 030.800	M 3	4,3	4,8	5,6	0,6	3,2	4,0 to 4,1
842 000 035.800	M 3,5	5,1	6,4	6,4	0,8	3,6	4,7 to 4,8
842 000 040.800	M 4	6,0	8,0	7,2	0,8	4,0	5,5 to 5,6
842 000 050.800	M 5	6,8	9,5	8,0	1,0	4,8	6,3 to 6,4
842 000 060.800	M 6	8,4	12,7	9,5	1,3	6,0	7,9 to 8,0
842 000 080.800	M 8	9,9	12,7	11,0	1,3	6,0	9,5 to 9,6

Example for finding the article number Self-locking threaded insert B-Lok-E with internal thread M5 B-Lok-RK 842 000 050.800

Materials Brass

Tolerances ISO 2768-m

Thread Internal thread A: as per ISO 6H

Article no. (**fourth** group of digits) … … … 800

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Kerb Konus



S-Lok®– threaded insert and stud ...

The S-Lok is a threaded insert / stud with a graduated opposing herringbone knurl on the outside and a pilot end for problem-free insertion.

Its unique shape has been tailored to the requirements of the material and was developed especially for insertion into plastic components by means of ultrasonic vibration or heat transfer.

Well-known manufacturers of ultrasonic welding machines recommend S-Lok due to the low energy requirement, the short insertion time and the problem-free production.

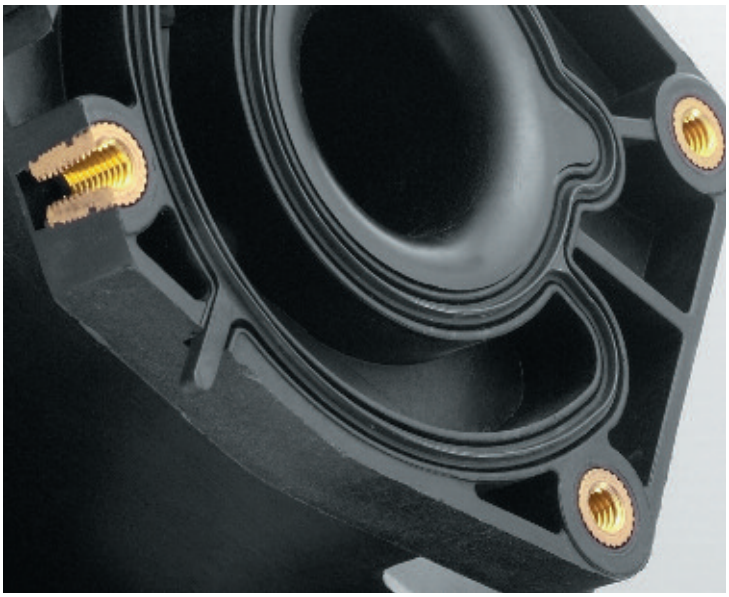
Product features

- Also suitable for thin-wall thicknesses, elimination of material tension.
- The firm seating is largely insensitive to borehole tolerances and material shrinkage.



Field of application

For all moulded parts made of thermoset plastics.



Design of the moulded component and receiving hole

Hole diameter (L) and wall thicknesses (W) are dependent on the material used for the formed part, the insertion method and the requirements imposed on pull-out resistance / torque safety. Please inquire or ascertain by testing. For guideline values, see the works standard sheets.

If the component offers easy mould removal, cylindrical receiving holes are recommended. For conical receiving holes: 0,5° to 4° (see Works Standard 853/1 and 855/1 also 853 2 and 885 2).

Countersinking (N) is recommended if embedding takes place within a taper of a ≤ 1°30' using heat.

Countersinking diameter = S-Lok outside diameter E.

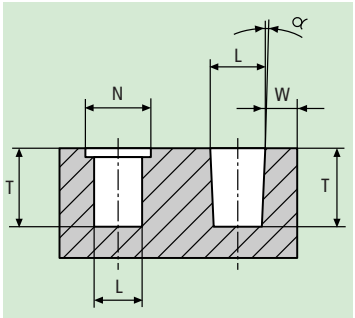
Countersinking depth:

M 2	~ 0,4 mm
M 2,5 / M 3,5	~ 0,5 mm
M 4 / M 5	~ 0,7 mm
M 6 / M 8	~ 1,1 mm
M 10	~ 1,4 mm

Hole depth:
(T) ≥ length of the S-Lok + 1 mm

Available versions

- Standard length
- Shortened version
- Contact head for electrical contacts or simultaneous fastening of several parts
- Stud with and without contact head

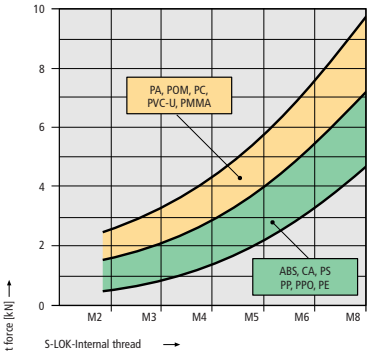


Installation

Inserts are installed by means of ultrasonic or heat transfer. This causes the plastic to soften so that it flows into the knurl profile of the S-Lok.
On subsequent cooling, a firm seat is obtained which is capable of withstanding high loads.

The pull-out resistance is generally higher than is the case with moulded-in components, and depends on the plastic, the size of the receiving hole, the wall thickness, the edge distance and the correct setting of the installation equipment.

Installation machine on request.



All table values apply only if the screw is inserted to at least 50% of its length in the threaded insert.



S-Lok® *)
Registered Trademark
*) protected by numerous national and international patents.

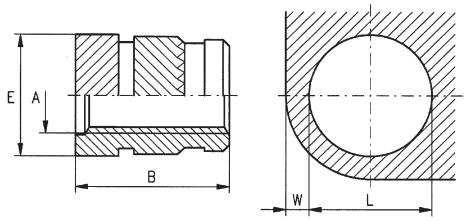
Kerb Konus

Threaded inserts
for heat or ultrasonic embedding

S-Lok®
Works Standard
860 / 861

Application

For the manufacture of wear and vibration-resistant screw fasteners with high loading capacity in plastic, preferably thermoset plastics. The inserts are pressed into pre-formed receiving holes while the hole wall is softened using heat or ultrasound.



Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B	Hole dia. (Guideline values) L +0,1	Minimum wall depth (with ABS) W
860 000 020.800	M 2	3,6	4,0	3,2	2,0
860 000 025.800	M 2,5	4,6	5,8	4,0	2,3
860 000 030.800	M 3	4,6	5,8	4,0	2,3
860 000 035.800	M 3,5	5,4	7,2	4,8	2,5
860 000 040.800	M 4	6,3	8,2	5,6	2,5
860 000 050.800	M 5	7,0	9,5	6,4	2,7
860 000 060.800	M 6	8,6	12,7	8,0	3,0
860 000 080.800	M 8	10,2	12,7	9,6	3,5
860 000 100.800	M10	12,3	12,7	11,7	4,0

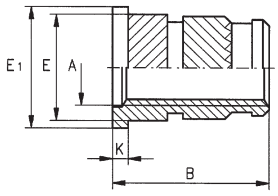
Article no. **short** version	Length B
861 000 025.800	4,0
861 000 030.800	4,0
861 000 035.800	5,8
861 000 040.800	7,2
861 000 050.800	8,2
861 000 060.800	9,5
861 000 080.800	9,5
861 000 100.800	9,5

Example for finding the article number Threaded insert S-Lok without head with internal thread M3 in brass: S-Lok 860 000 040.800

Kerb Konus

Threaded inserts
for heat or ultrasonic embedding

S-Lok®-K
Works Standard 862



Dimensions in mm

Article no.	Internal thread A	External dia. (excluding head) E	Head dia. E_1	Head height K	Length B
862 000 020.800	M 2	3,6	4,8	0,6	4,6
862 000 025.800	M 2,5	4,6	5,6	0,6	6,4
862 000 030.800	M 3	4,6	5,6	0,6	6,4
862 000 035.800	M 3,5	5,4	6,4	0,8	8,0
862 000 040.800	M 4	6,3	7,2	0,8	9,0
862 000 050.800	M 5	7,0	8,0	1,0	10,5
862 000 060.800	M 6	8,6	9,5	1,3	14,0
862 000 080.800	M 8	10,2	11,0	1,3	14,0
862 000 100.800	M 10	12,3	14,0	1,3	14,0

For receiving hole diameter, see article no. 860 … … …

Materials Brass
Other materials, e.g. steel or light alloy, on request.

Article no. (**fourth** group of digits) … … … 800

Tolerances ISO 2768-m

Thread Internal thread A: as per ISO 6H

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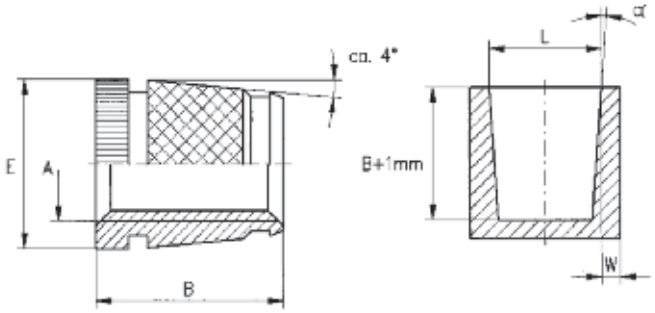
Kerb Konus

Threaded inserts
for heat or ultrasonic embedding

S-Lok®-KOH
Works Standard
853 2 / 854 2

Application

For the manufacture of wear and vibration-resistant screw fasteners with high loading capacity in plastic, preferably thermoset plastics.
The inserts are pressed into pre-formed receiving holes with 4° demoulding incline during softening of the hole wall by means of heating or ultrasonic technology.



Dimensios in mm

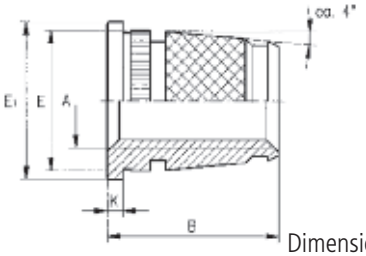
Article no.	Internal thread A	External dia. E	Length B	Hole dia. (guideline values) L	Minimum wall depth +0,1 W	Article no. **short** version	Length B
853 200 020.800	M 2	4,1	5,0	3,8	1,5		
853 200 025.800	M 2,5	4,1	5,0	3,8	1,5		
853 200 030.800	M 3	4,7	5,5	4,4	1,8	854 200 030. 800	5,0
853 200 035.800	M 3,5	5,5	6,0	5,2	1,8	854 200 035. 800	5,5
853 200 040.800	M 4	6,1	7,5	5,8	2,0	854 200 040. 800	6,0
853 200 050.800	M 5	7,3	9,0	6,9	2,5	854 200 050. 800	7,0
853 200 060.800	M 6	8,9	10,0	8,5	2,5	854 200 060. 800	9,0
853 200 080.800	M 8	11,3	12,0	10,9	3,0		

Example for finding the article number Threaded insert S-Lok-KOH to Works Standard series 853 2 with demoulding incline 4°, Internal thread M4, length 7,5 mm made of brass: SonicLok 853 200 040.800

Kerb Konus

Threaded inserts
for heat or ultrasonic embedding

S-Lok®-KOHK
Works Standard
855 2



Dimensions in mm

Article no.	Internal thread A	External dia. (excluding head) E	Head dia. E_1	Head heigth K	Length B
855 200 020.800	M 2	4,1	5,0	0,6	5,6
855 200 025.800	M 2,5	4,1	6,4	0,6	5,6
855 200 030.800	M 3	4,7	6,4	0,6	6,1
855 200 035.800	M 3,5	5,5	7,0	0,8	6,8
855 200 040.800	M 4	6,1	8,0	0,8	8,3
855 200 050.800	M 5	7,3	8,5	1,0	10,0
855 200 060.800	M 6	8,9	10,0	1,0	11,0
855 200 080.800	M 8	11,3	12,5	1,3	13,3

For receiving hole diameter, see article no. 853 2.. … …

Materials Brass
Tolerances ISO 2768-m
Thread Internal thread A: as per ISO 6H

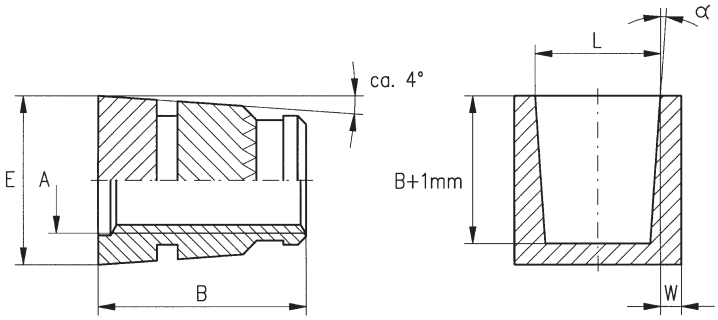
Article no. (**fourth** group of digits) … … … 800

Threaded inserts
for heat or ultrasonic embedding

S-Lok®-KO
Works Standard
853 1 / 854 1

Application

For the manufacture of wear and vibration-resistant screw fasteners with high loading capacity in plastic, preferably thermoset plastics. The inserts are pressed into pre-formed receiving holes with 4° demoulding incline during softening of the hole wall by means of heating or ultrasonic technology.



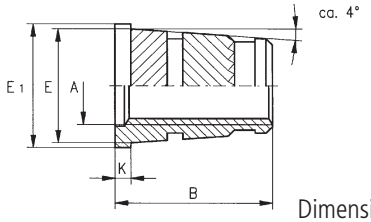
Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B	Hole dia. (Guideline values) L +0,1	Minimum wall depth W	Article no. **short** version	Length B
853 100 020.800	M 2	4,1	5,0	3,8	1,5		
853 100 025.800	M 2,5	4,1	5,0	3,8	1,5		
853 100 030.800	M 3	4,6	5,5	4,4	1,8	854 1 030.80	5,0
853 100 035.800	M 3,5	5,4	6,0	5,2	1,8	854 1 035.80	5,5
853 100 040.800	M 4	6,0	7,5	5,8	2,0	854 1 040.80	6,0
853 100 050.800	M 5	7,2	9,0	6,9	2,0	854 1 050.80	7,5
853 100 060.800	M 6	8,8	10,0	8,5	2,5	854 1 060.80	9,0
853 100 080.800	M 8	11,2	12,0	10,9	3,0	854 1 080.80	10,0

Example for finding the article number Threaded insert S-Lok-KO to Works Standard series 853 1 with demoulding incline 4°, internal thread M4, length 7,5 mm in brass: S-Lok-KO 853 100 040.800

Threaded inserts
for heat or ultrasonic embedding

S-Lok®-KOK
Works Standard 855 1



Dimensions in mm

Article no.	Internal thread A	External dia. (excluding head) E	Head dia. E_1	Head height K	Length B
855 100 020.800	M 2	4,1	5,6	0,6	5,6
855 100 025.800	M 2,5	4,1	5,6	0,6	5,6
855 100 030.800	M 3	4,6	6,4	0,6	6,1
855 100 035.800	M 3,5	5,4	7,2	0,8	6,8
855 100 040.800	M 4	6,0	8,0	0,8	8,3
855 100 050.800	M 5	7,2	9,0	1,0	10,0
855 100 060.800	M 6	8,8	10,0	1,3	11,3
855 100 080.800	M 8	11,2	12,5	1,3	13,3

For receiving hole diameter, see article no. 853 … … …

Materials Brass — Article no. (**fourth** group of digits) … … … 800

Tolerances ISO 2768-m

Thread Internal thread A: as per ISO 6H

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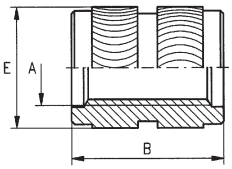
Kerb Konus

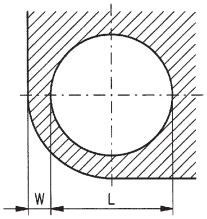
Threaded inserts
for heat or ultrasonic embedding

S-Lok®-R
Works Standard
863

Application

For the manufacture of wear and vibration-resistant screw fasteners with high loading capacity in plastic, preferably materials subject to cracking (age cracks) such as polycarbonate.





Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B	Hole dia. (Guideline values) L +0,1	Minimum wall depth W
863 000 020.800	M 2	3,5	4,0	3,2	1,50
863 000 025.800	M 2,5	4,4	5,8	4,0	1,80
863 000 030.800	M 3	4,4	5,8	4,0	1,80
863 000 035.800	M 3,5	5,2	7,2	4,8	2,20
863 000 040.800	M 4	6,0	8,2	5,6	2,50
863 000 050.800	M 5	6,8	9,5	6,4	3,00
863 000 060.800	M 6	8,4	12,7	8,0	3,50
863 000 080.800	M 8	10,0	12,7	9,6	4,50
863 000 100.800	M 10	12,3	12,7	11,9	5,50

Example for finding the article number: Threaded insert S-Lok-R to Works Standard series 863 with internal thread M4 in brass: S-Lok-R 863 000 040.800

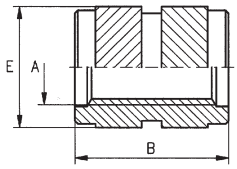
Kerb Konus

Threaded inserts
for heat or ultrasonic embedding

S-Lok®-RB
Works Standard 864

Application

Easily sortable due to their symmetrical shape and usable on both sides, suitable for all applications in thermoset plastics.



Dimensions in mm

Article no.	Internal thread A	External dia. E	Length B
864 000 020.800	M 2	3,6	4,0
864 000 025.800	M 2,5	4,6	5,8
864 000 030.800	M 3	4,6	5,8
864 000 035.800	M 3,5	5,4	7,2
864 000 040.800	M 4	6,3	8,2
864 000 050.800	M 5	7,0	9,5
864 000 060.800	M 6	8,6	12,7
864 000 080.800	M 8	10,2	12,7
864 000 100.800	M 10	12,5	12,7

For receiving hole diameter, see article no. 863 … … …

Materials Brass

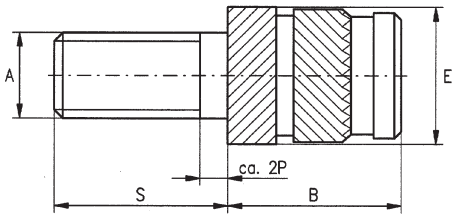
Tolerances ISO 2768-m

Thread Internal thread A: as per ISO 6H

Article no. (**fourth** group of digits) … … … 800

Threaded studs
for heat or ultrasonic embedding

S-Lok®-S
Works Standard
866



Available stud lengths
(other lengths on request)

Dimensions in mm

Article no.	Thread A	External dia. E	Inserted length B
866 000 020.8..	M 2	3,6	4,0
866 000 025.8..	M 2,5	4,6	5,8
866 000 030.8..	M 3	4,6	5,8
866 000 035.8..	M 3,5	5,4	7,2
866 000 040.8..	M 4	6,3	8,2
866 000 050.8..	M 5	7,0	9,5
866 000 060.8..	M 6	8,6	12,7
866 000 080.8..	M 8	10,2	12,7

Article no. (eleventh digit)	Length S	Available M 2 M 2,5	Available M 3 M 3,5 M 4	Available M 5 M 6 M 8
... ... .20	6	X	X	X
... ... .40	10	X	X	X
... ... .60	16	X	X	X
... ... .80	25	X	X	X

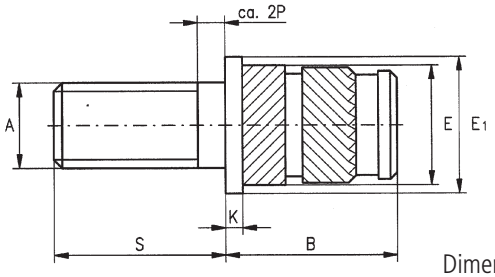
Thread length = S - 2P
P = Threaded pitch

For receiving hole diameter, see article no. 860 … ... ...

Example for finding the article number S-Lok-S stud M4 to Works Standard series 866, length of the stud S = 10 mm in brass: S-Lok-S 866 000 040.840

Threaded studs
for heat or ultrasonic embedding

S-Lok®-SK
Works Standard 867



Dimensions in mm

Article no.	Thread A	External dia. (excluding head) E	Head dia. E_1	Head height K	Length B
867 000 020.8..	M 2	3,6	4,8	0,6	4,6
867 000 025.8..	M 2,5	4,6	5,6	0,6	6,4
867 000 030.8..	M 3	4,6	5,6	0,6	6,4
867 000 035.8..	M 3,5	5,4	6,4	0,8	8,0
867 000 040.8..	M 4	6,3	7,2	0,8	9,0
867 000 050.8..	M 5	7,0	8,0	1,0	10,5
867 000 060.8..	M 6	8,6	9,5	1,3	14,0
867 000 080.8..	M 8	10,2	11,0	1,3	14,0

Available stud lengths: See table

For receiving hole diameter, see article no. 860 … … …

Materials Brass
Other materials, e.g. steel or light alloy, on request.

Article no. (**fourth** group of digits) … … … 800

Tolerances ISO 2768-m

Thread External thread A: as per ISO 6g

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Addresses on request or under www.kerbkonus.de

Kerb-Konus-Vertriebs-GmbH
P.O.Box 1663
92206 Amberg, Germany

Telefon +49 9621 679-0
Telefax +49 9621 679444
e-mail KKV-Amberg@kerbkonus.de

Internet **www.kerbkonus.de**

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This publication is not subject to the updating service / Publication no. 30.0514