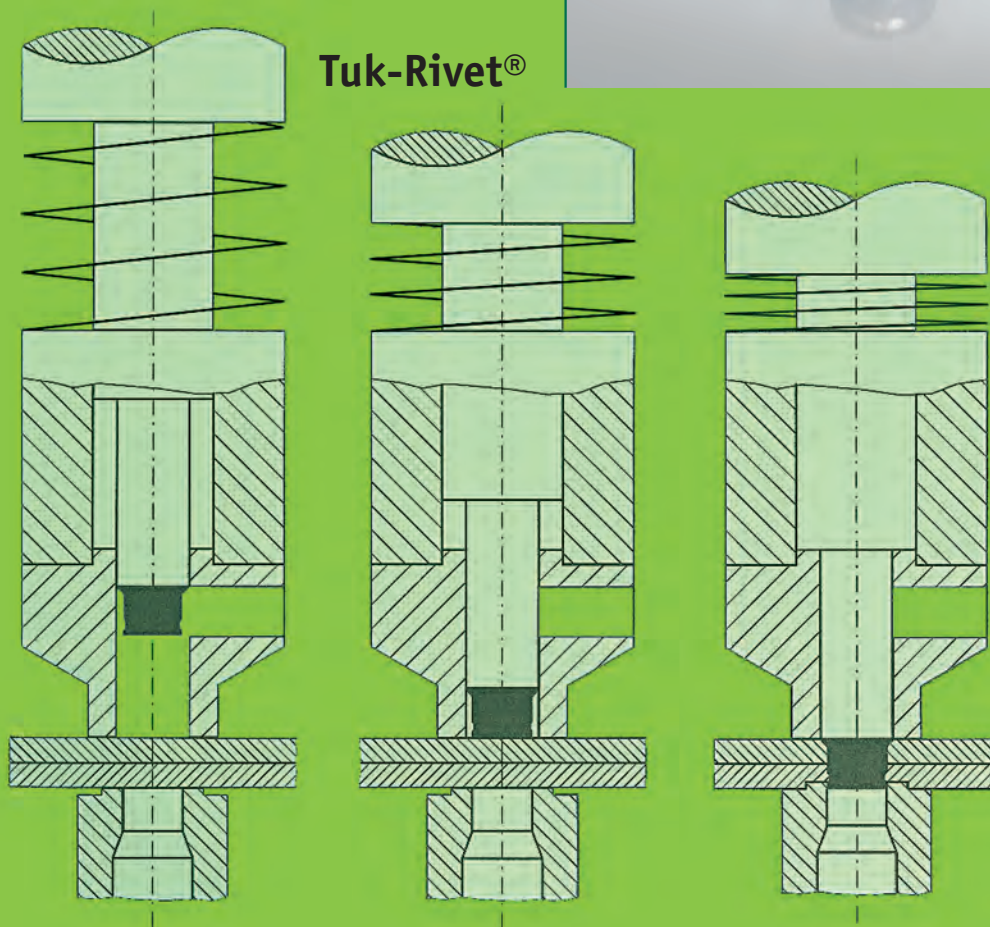


Punched Rivet System for thin metal components



Technical publication

No.45



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

Alongside its renowned threaded inserts, the name KerbKonus also stands for comprehensive products and services in the field of connecting technology. KerbKonus offers its services as a reliable contract coater to prepare threads for a wide range of different requirements:

- Thread locking
- Thread sealing
- Insulating plastic coating

Threaded inserts from KerbKonus have been thoroughly tried and tested over the years and used in a wide variety of applications to create connections you can rely on. Depending on the method of anchoring in the material, KerbKonus offers a variety of different threaded insert versions:

- 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

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.

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Punched rivet ...



Description	Application range	Materials	Specifications	Other details
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Punched rivet from KerbKonus ...

Tested quality	Page 3
Safety	Page 4



Tuk-Rivet®

Punched rivet self-riveting *)	High loading capacity rivet connections	Stainless steel, hardened Free cutting steel, hardened	492 0 493 0	Page 5 to 7
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Tuk-Rivet®-MB

Punched rivet multi-zone rivet self-riveting *)	High loading capacity rivet connections	Stainless steel, hardened Free cutting steel, hardened	492 1 493 1	Page 5 to 7
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Processing devices

Punched rivet and composite material	Page 8
Hand riveting tongs	

Checklist

Data sheet for fax enquiries	Page 9
Strength values for data sheet enquiries	Page 10



Other products for thin-walled mouldings

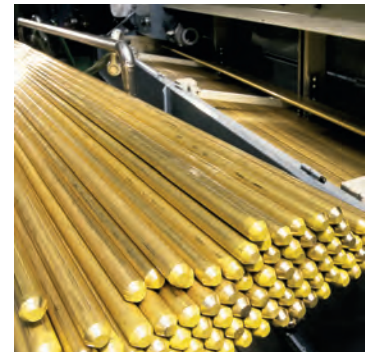
Other products for connection and fastening of thin-walled mouldings	Page 11
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*) protected by numerous national and international patents.

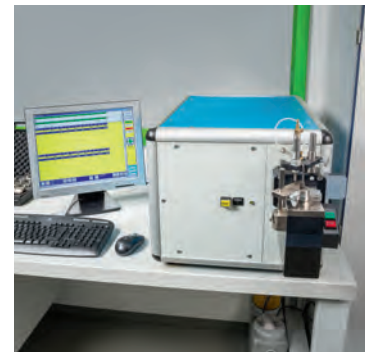
Technical details on KerbKonus products are also provided on our homepage:
www.kerbkonus.de

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..

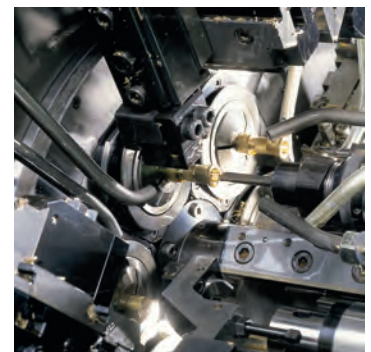
What really counts: tested quality.



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

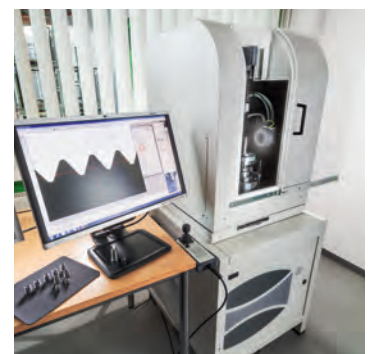


The number of products manufactured over the company's history reaches into the billions. State-of-the-art automation lines manufacture around the clock in a precise and high standard of quality. The efficient and low-cost production of large-scale product series is one of the strengths on which we have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



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

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 environment-friendly production both in our process engineering and our product range.



Quality System
DEKRA Certificat in accordance with
ISO 9001:2015 Reg.No. 30507428
ISO 14001:2015 Reg.No. 170507049
ISO 50001:2011 Reg.No. 181115119

Safety For our customers ...

Punched rivets from KerbKonus are produced in large piece numbers. Despite their small size, these components can often be vital to safeguarding personal safety.

This is why the tests and checks we perform on our products comply to the most stringent guidelines and directives. In the case of particularly critical applications, we check every individual part using state-of-the-art testing facilities. Only once they have passed these rigorous tests are products sent out to our customers.

Our flexibility is reflected particularly in our rapid response to customer requirements. We take responsibility for logistical organization. And when the need arises, even in the event of supply bottlenecks we are able to respond quickly and reliably to ensure delivery capability for our customers.

Our many years of experience as a supplier to the automobile industry have clearly illustrated the need for an interdisciplinary approach to finding solutions to fastening problems.

With its know-how and its comprehensive range of products and services, KerbKonus is a sound, dependable partner when it comes to "technologies for a reliable hold".



Tuk-Rivet® Punched rivet system



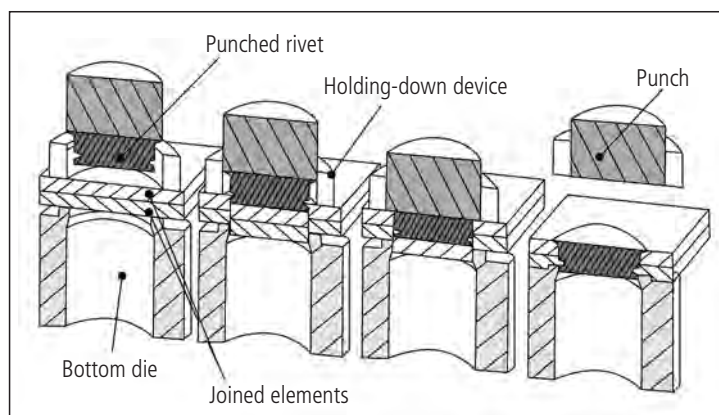
The process

Punch riveting with a solid rivet permits one or more joined elements such as semi-finished product types, sheet, profile and cast components to be fastened together.

During this process, the workpieces are clamped to the bottom die by the hold-down device. They are then punched by the solid Tuk-Rivet® that acts at the same time as the blanking die. When the stop-point is reached both the hold-down device and rivet punch are flush with the workpiece surface.

As a result of the compressive force applied by the rivet punch and the hold-down device the shape of the bottom die forces material into the peripheral shank groove in the Tuk-Rivet®.

This acts against the flow of material generated by the rivet punch and hold-down device.



Schematic sequence diagram

Fig. 1

Field of application

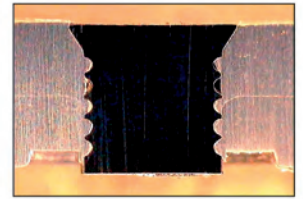
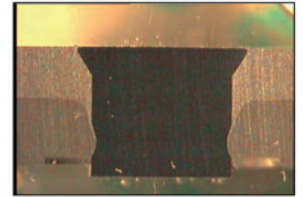
Wherever connections of thin metal mouldings with a high loading capacity have to be produced quickly, the Tuk-Rivet® is the ideal fastening element.

- For joining workpieces made of aluminium to steel as well as rustproof and acid proof sheet steels.
- For joining thin-walled components made of aluminium to sheet steels.
- For joining thick and thin sheets, whereby the lower sheet should have a minimum thickness of 0.9 mm.

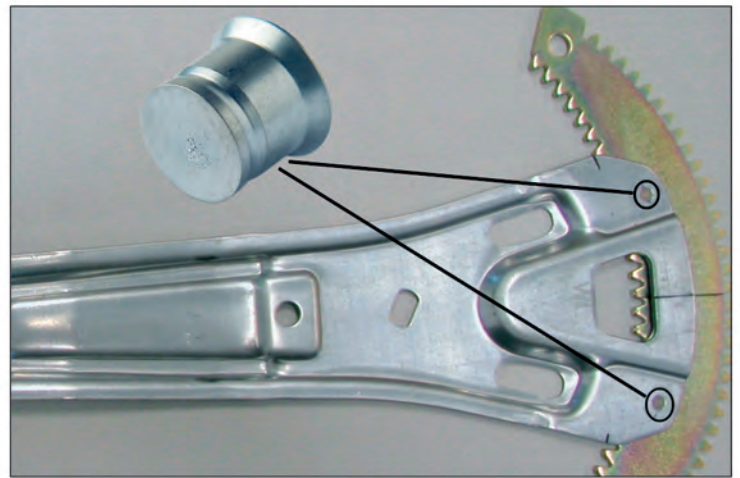
Product characteristics

- Accurate production quality
- Largely flush finish on both sides
- Self-punching, no hole punching problems, reduced installation costs
- High-strength connection
- Ideal for plastic-coated or surface-treated parts
- Suitable for steel, stainless steel and light alloy sheet
- Replaces spot welding, no environmental pollution
- Integration possible in production lines, no separate workplace required
- The rivet head is covered by painting, no additional work stage required
- Hybrid construction possible
- Greater material thickness difference can be processed with multi-zone rivet

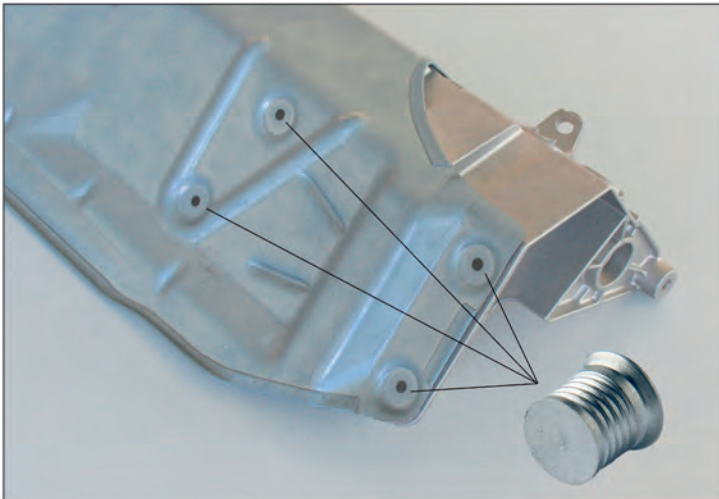
Punched rivets in application ...



Window lift of galvanized steel
(zinc coated)



Heat protection shield
connection of sheet metal
with aluminium diecast



Guide rails in aluminium for electric
windows





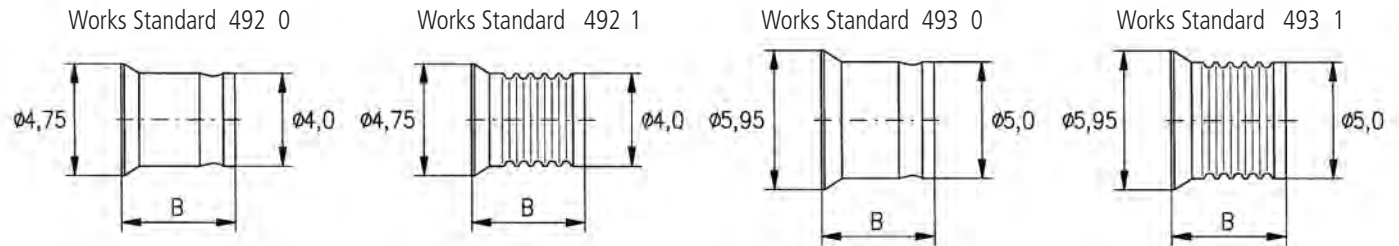
Punched rivet Multi-zone punched rivet self-riveting

Tuk-Rivet®
Works Standard
492 / 492 1 / 493 / 493 1

Application

Tuk-Rivet® is a punched rivet made of rust and acid proof material or steel for the manufacture of highly

load resistant riveted joints in thin section components.



Article number	for total material-thickness		Length
	Works Standard 492 0 / 493 0	Works Standard 492 1 / 493 1	B
49. .00 003 ...	2,5 mm – 2,7 mm	2,1 mm – 2,7 mm	2,7
49. .00 004 ...	2,8 mm – 3,0 mm	1,8 mm – 3,0 mm	3,0
49. .00 005 ...	3,1 mm – 3,3 mm	2,1 mm – 3,3 mm	3,3
49. .00 006 ...	3,4 mm – 3,6 mm	1,8 mm – 3,6 mm	3,6
49. .00 007 ...	3,7 mm – 3,9 mm	2,1 mm – 3,9 mm	3,9
49. .00 008 ...	4,0 mm – 4,2 mm	1,8 mm – 4,2 mm	4,2
49. .00 009 ...	4,3 mm – 4,5 mm	2,1 mm – 4,5 mm	4,5
49. .00 010 ...	4,6 mm – 4,8 mm	2,4 mm – 4,8 mm	4,8
49. .00 011 ...	4,9 mm – 5,1 mm	2,7 mm – 5,1 mm	5,1
49. .00 012 ...	5,2 mm – 5,4 mm	3,0 mm – 5,4 mm	5,4
49. .00 013 ...	5,5 mm – 5,7 mm	3,3 mm – 5,7 mm	5,7
49. .00 014 ...	5,8 mm – 6,0 mm	3,6 mm – 6,0 mm	6,0
49. .00 015 ...	6,1 mm – 6,3 mm	3,9 mm – 6,3 mm	6,3
49. .00 016 ...	6,4 mm – 6,6 mm	4,2 mm – 6,6 mm	6,6
49. .00 017 ...	6,7 mm – 6,9 mm	4,5 mm – 6,9 mm	6,9
49. .00 018 ...	7,1 mm – 7,2 mm	4,8 mm – 7,2 mm	7,2
49. .00 019 ...	7,3 mm – 7,5 mm	5,1 mm – 7,5 mm	7,5

Minimum thickness for lower material: $\geq 0,9$ mm

Example for locating the article number

Stainless steel Tuk-Rivet® for 3.0 mm total material-thickness, Works Standard 492 0:
Tuk-Rivet® 492 000 004.900

Materials

Steel, tempered, zink/nickel-plated, transparent passivated
Stainless steel, hardened
Other finishes upon request

Article no. (**fourth** group of digits) ... 243
Article no. (**fourth** group of digits) ... 900

Tolerances

ISO 2768-m

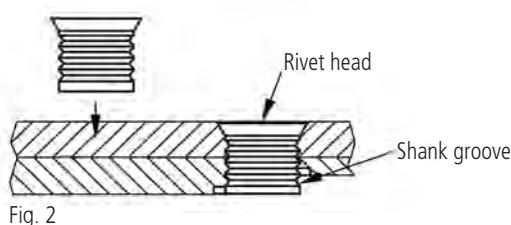


Fig. 2

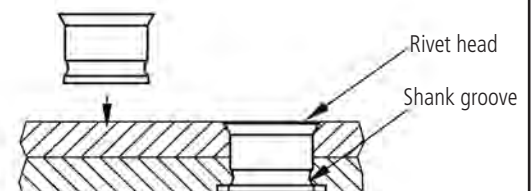
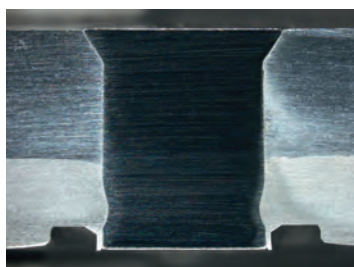


Fig. 3

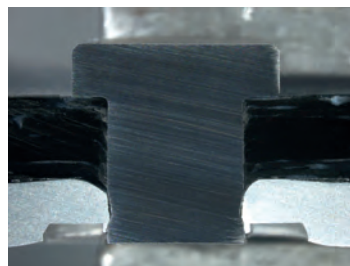
Punching Rivet and Composites ...

Multigrade Rivet according to
Works Standard 492 1
Light-alloy $t = 1,7 \text{ mm} +$
22MnB5 $t = 0,8 \text{ mm} +$
Light-alloy $t = 1,7 \text{ mm}$



Punching Rivet according to
Works Standard 492 0
Magnesium $t = 3,0 \text{ mm} +$
Light-alloy $t = 2,0 \text{ mm}$

Special Rivet according to
Works Standard 492 0
FRP $t = 2,3 \text{ mm} +$
Light-alloy $t = 1,7 \text{ mm}$



Repair with Hand Riveter ...

For small piece numbers or repair jobs, a rechargeable battery-operated manual riveter can be used together with suitable solid punched rivets. One battery charge is sufficient for around 300 riveting operations.

A full charge takes around 60 minutes. The riveter can also be operated directly from a 230V mains connection. The riveting operation requires access on both sides.



Battery Hand Riveter

... Strength values for Data sheet enquiry

Strength values

Material	Thickness above [mm]	Thickness below [mm]	Shear tension [kN]	Cross tension [kN]	Peel tension [kN]
1.4016	1,5	1,5	5,4	2,5	1,3
1.4301	1,5	1,5	6,0	2,8	1,5
1.4003	2,0	2,0	6,8	3,7	2,2
1.4301	2,0	2,0	7,0	3,2	2,0
H260	1,5	1,5	3,5		1,2
H420	1,5	1,5	4,8		1,7
H340	2,0	2,0	5,8		2,1
H420	2,5	2,5	7,5		2,8
AlMg 3 / Al - DG	2,0	2,2	2,7		
Al Mg 3	2,0	2,0	2,6		
Bondal 1.4301	1,5	2,5	5,0	2,4	
H300	1,5	1,5	4,6	1,6	1,4
DC 04	1,5	1,5	3,5	1,4	1,1
AlMg5Mn	1,5	1,5	2,7	1,2	0,8
AC120	1,5	1,5	2,6	1,2	0,8

... Instantly recognisable setting guide for optimum Tuk-Rivet® connections

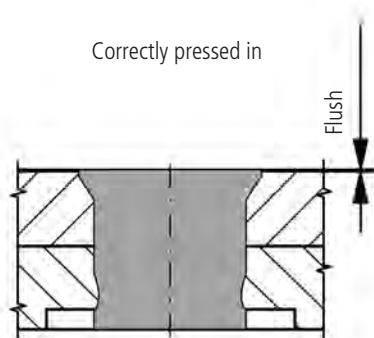


Fig. 4

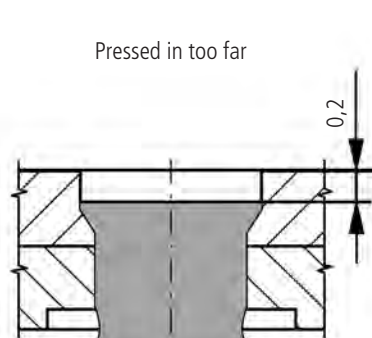


Fig. 5

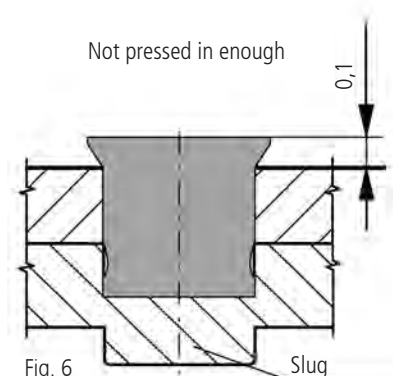


Fig. 6

Rivet too short/sheet thickness too great

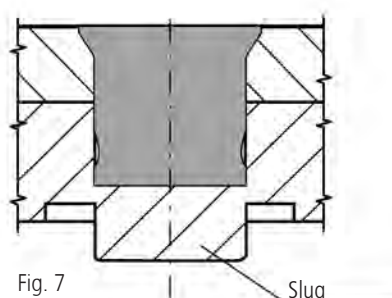


Fig. 7

Rivet too long/sheet thickness too low

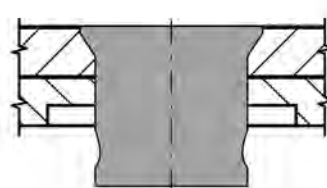


Fig. 8

Rivet length OK
No embossing – insufficient embossing force

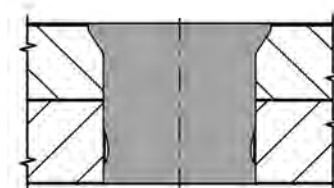


Fig. 9

... Other products for joining and fastening thin section components



Anchor® – serrated rivet bushing

Alongside the punched rivet system Tuk-Rivet®, KerbKonus also offers a number of other matured solutions for fastening thin moulded components.

The Anchor® product family is a rivet bushing made of steel or rustproof materials, brass or light alloy. The shank is countersunk and serrated.

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.

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.



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.

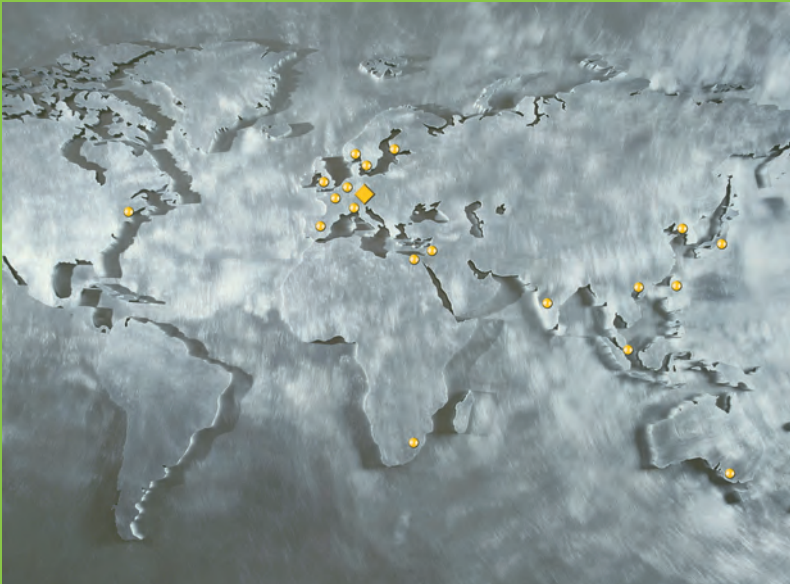
Clifa®-press-in nuts and Clifa®-studs can also be supplied in rust-proof material, and the nuts additionally in light alloy.

Clifa® threaded inserts are pressed into moulded components with pre-punched 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.

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.

**For detailed information on Anchor® and Clifa® refer to our publication 40.
Order your copy by phoning +49 9621 679-0 or by email: kkv-amberg@kerbkonus.de**



KerbKonus – Close to its customers. Around the world. Across every sector of industry.

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.

Detailed informations
for further products and applications
get in our technical publications.



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K.K.V. Corporation Japan
Osaka/Japan

Kerb Konus Espanola S. A.
Navalcarnero, Madrid/Spain

KKV AG
Zug/Switzerland

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Precision Fasteners Inc.
Somerset, New Jersey/USA

Sofrafix
Paris/France

Kerb-Konus Italia s.r.l.
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Other foreign agents in a wide number of countries.
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