

RIBE[®]


FASTENING SYSTEMS



RIBULB[®]

RELIABLE AUTOMATED BLIND RIVETING TECHNOLOGY



RIBULB® – Innovations in blind riveting

RIBULB® is a system of break-mandrel blind rivets from the IR and SR product series and the relevant installation equipment. The system of blind rivet and installation tool guarantees constantly high joining properties and maximum process reliability. The RIBULB® system is therefore used for demanding joining applications mainly in the automotive industry. RIBULB® blind rivets have been developed especially for automatic and reliable installation.

The range of installation tools makes the RIBULB® system suitable for many different production stages – including automated production. Here the robot-controlled RIBULB® R installation tool is used, which can automatically install blind rivets in prepunched components. The RIBULB® system is also a reliable method of blind riveting in combination with adhesive bonding.

RIBULB® stands for more than demanding blind riveting applications and innovative installation equipment. The system also offers proven safety at the high standards required for automotive engineering, where RIBULB® is used in safety components such as crashboxes.



RIBULB® SYSTEM

FASTENERS

INSTALLATION TOOLS



The RIBULB®-system
Blind rivets and
installation equipment
from one source.

RIBULB®



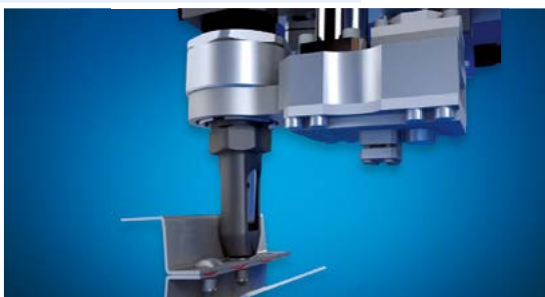
RIBE® sheet metal joining systems – one-stop system solutions

The RIBULB® system impresses with its flexible applications. Our decades of know-how in the development and efficient automatic installation of fasteners mean we can offer our customers innovative solutions for their sheet metal joining tasks.

- Advice on production and function from specialists
- System supplier of blind rivets and tailor-made installation tools
- Sample inspection and determination of parameters

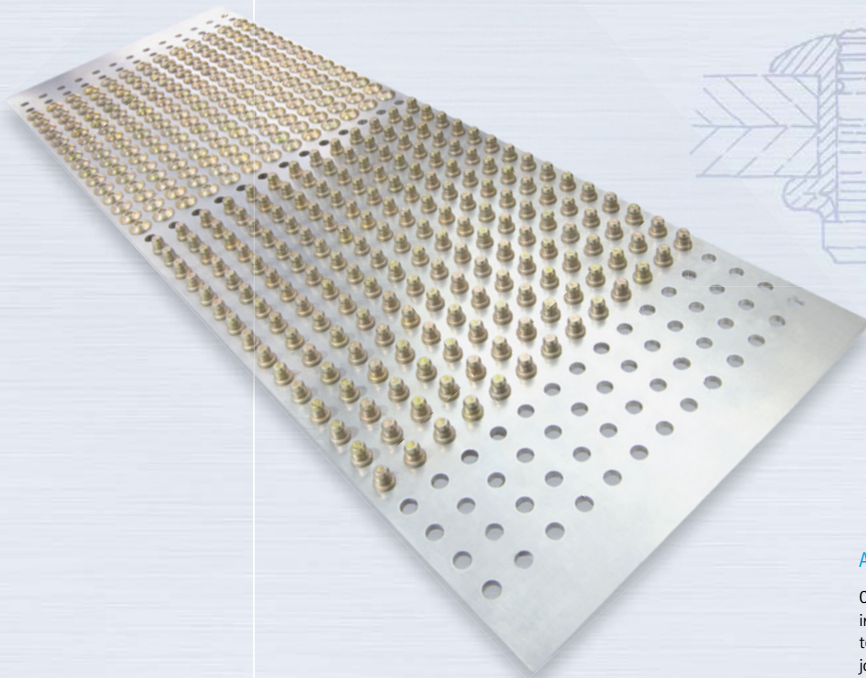
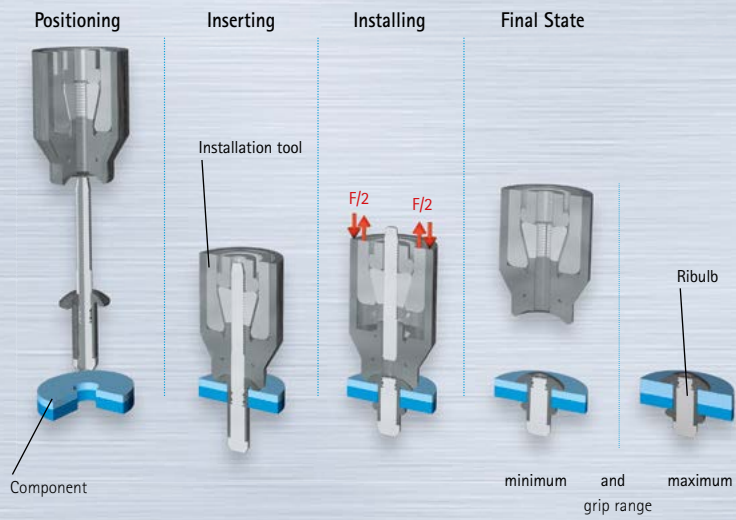
RIBULB® – a system full of potential savings

The RIBULB® blind rivet system offers substantial potential savings and the outstanding production and installation quality guarantees reliable and uniform joining. A broad product spectrum of IR and SR series blind rivets is available with large grip ranges to cut logistics costs. The RIBULB® R, the first system in the world capable of joining prepunched components with blind rivets using robots, can appreciably cut costs. The RIBULB® system with automatic installation and integrated process monitoring documents reliable joints that meet the highest quality standards – our contribution to reducing quality costs.



RIBULB® A SYSTEM FULL OF ADVANTAGES

Riveting with RIBULB®



ALL THE SAME

Outstanding production and installation quality guarantees reliable and uniform joining.

RIBULB®

RIBULB® – Blind rivets for reliable joining

Cold joining techniques that can also be used on components accessible from one side only are becoming increasingly important for achieving maximum possible design freedom. The RIBULB® blind rivet meets this requirement in an optimum way and is also independent of the material properties of the components to be joined.

RIBULB® blind rivets have been specially designed for the high demands of automatic installation:

- Blind rivet geometry designed for high availability of installation tools
- Joining components with different sizes of rivet holes
- Large process window
- Locating tip on stem head for locating hole mechanically

RIBULB® blind rivets are available in two versions: RIBULB® SR and IR.

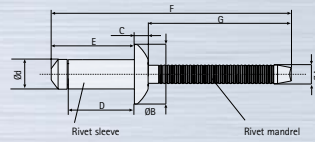
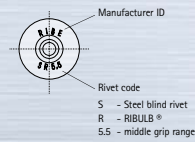
The RIBULB® SR blind rivet is distinguished by its high strength under static and dynamic load, with prestressing forces of up to 6 kN possible in thin components. It ensures uniform properties of the components, irrespective of their thickness. The RIBULB® IR series has been developed for joining tasks with small blind rivets.

RIBULB® blind rivets have proved their reliability millions of times in safety components over the past years. The RIBULB® product range is available in a wide variety of different materials and surface coatings.



RIBULB® TECHNICAL DATA

RIBULB® SR

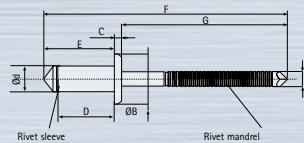


Ød Nominal diameter (mm)	Hole diameter (mm)	Code	Grip range (mm)	ØA ± 0,2	ØB ± 1,0	C ± 0,3	D ± 0,4	E ± 0,8	F ± 1,0	G ± 1,5
6,5 ^{±0,15}	6,7 ^{+0,2}	SR 3,5 SR 5,5 SR 7,5	2,0 ... 5,0 4,0 ... 7,0 6,0 ... 9,0	4,0	13,0	3,0	12,5 14,5 16,5	16,0 18,0 20,0	50,5 52,5 54,5	31,0

Rivet break load; head retention capability and mandrel break load

Code	Shearing load ¹⁾ (N)	Tensile load ¹⁾ (N)	Head retention capability ²⁾ (N)	Mandrel break load (N)
SR 3,5 SR 5,5 SR 7,5	13.000 13.000 13.000	8.500 8.500 8.500	>500	max. 19.000

RIBULB® IR



Ød Nominal diameter (mm)	Hole diameter (mm)	Grip range (mm)	ØA ± 0,2	ØB ± 1,0	C ± 0,3	D ± 0,4	E + 1,5 - 0,5	F ± 1,0	G ± 1,5
4,0 ^{±0,10}	4,1 ^{+0,2}	0,5 ... 2,5 2,5 ... 4,5 4,5 ... 6,5	2,2	7,8	1,0	6,0 8,0 10,0	8,5 10,5 12,5	42,0 44,0 46,0	32,5
4,8 ^{±0,10}	4,9 ^{+0,2}	2,0 ... 4,0 4,0 ... 6,0 6,0 ... 8,0	2,7	9,3	1,4	8,0 10,0 12,0	10,5 12,5 14,5	43,0 45,0 47,0	32,5
4,8 ^{±0,10}	4,9 ^{+0,2}	2,0 ... 4,0 4,0 ... 6,0 6,0 ... 8,0	2,7	13,0	1,4	8,0 10,0 12,0	10,5 12,5 14,5	43,0 45,0 47,0	32,5

Head retention capability and mandrel break load

Ød Nominal diameter	Head retention capability ²⁾ (N)	Mandrel break load (N)
4,0 4,8	>250 >250	max. 8.000 max. 10.000

¹⁾ Shearing loads and tensile loads are dependent on the hole diameter, component thickness and component strength. The strength figures shown in the table are the maximum permissible loads for RIBULB® (without rivet breaking) for pure shearing and tensile load and are determined in test fixtures without the effect of components.

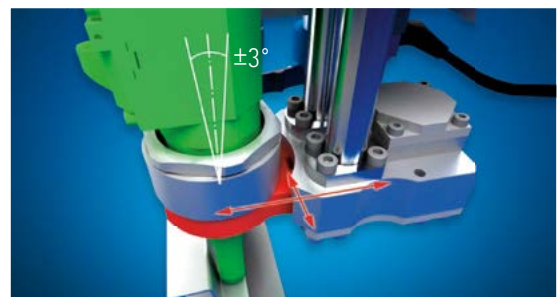
²⁾ The head retention capability is a measure of the mandrel push out resistance.



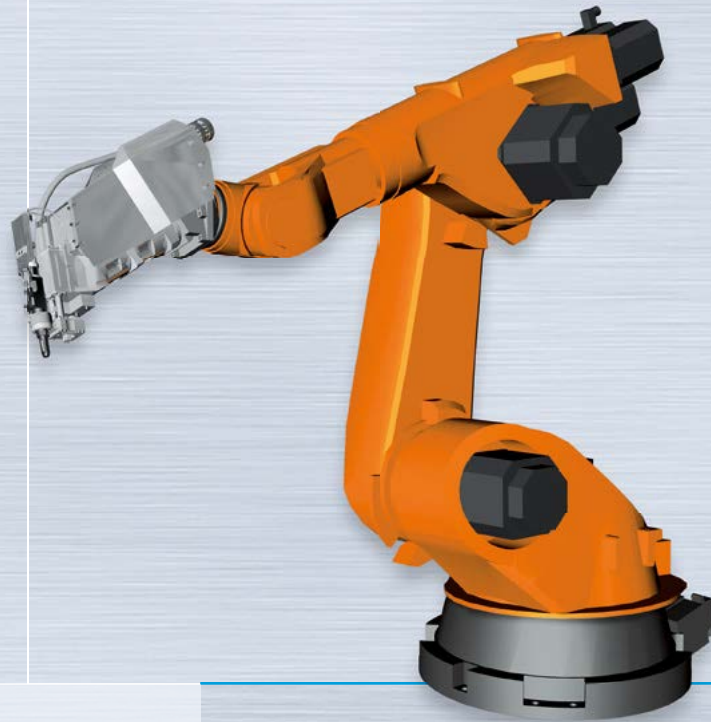
RIBULB® R – Innovation for body shells

RIBULB® R is a system of equipment for automatic installation of blind rivets from the RIBULB® IR and RIBULB® SR series. It is suitable for static use or mobile use on a robot. Its slim compact design enables it to reach even the most inaccessible joining positions.

A cycle time of 4 s per rivet meets even the highest specifications of the automotive industry. Here RIBULB® R takes over control of the complete riveting process once the robot has reached the set position. An insertion unit is used to place the rivet in the mechanically located hole and the process is monitored. The floating bearing of the installation tool together with the locating tip on the rivet head can reliably compensate for variations of ± 1.5 mm and $\pm 3^\circ$ in the position of the rivet holes. The rivet is installed by a hydraulic installation tool equipped with shock-proof, high-resolution force and path sensors for process monitoring. This tool, which is backed by many years of reliable operation, is driven by a small, powerful hydraulic unit integrated into the blind rivet module in front of the sixth axis of the robot. This makes meter-long trailing hydraulic hoses a thing of the past. RIBULB® R has a high availability.



RIBULB® INSTALLATION EQUIPMENT



RIBULB® R

Automatic installation tool with integrated process monitoring.



RIBULB® RH100 MP

Manual installation tool with integrated process monitoring.



RIBULB® RH100

Blind rivet installation module for joining without recording process reliability.



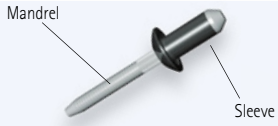

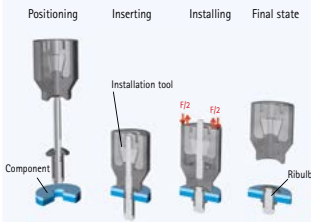
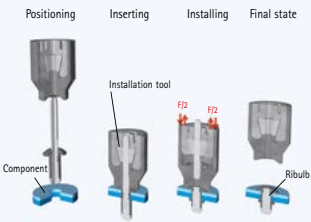

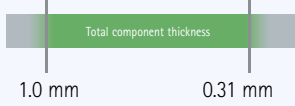
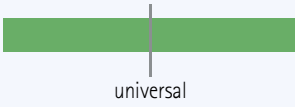
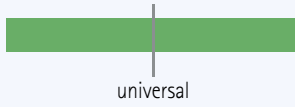
RIBULB® RH100, RH100MP and MS75

The RH100 and RH100MP installation modules have been developed for manual installation of RIBULB® blind rivets. The RIBULB® RH100MP system provides continuous documented process monitoring for manual installation of RIBULB® high-strength, break-mandrel blind rivets. The guaranteed reproducible joining quality of the RIBULB® system means it can be used to join any component needing process documentation. The manually initiated installation process is controlled by a stored-program controller. An integrated two-channel evaluation unit processes the data sent from the installation tool and indicates defective riveted joints via a warning lamp. Visualization of the installation process and all control parameters on an LC display is also available as an option. The RH100MP can be integrated into the production network via the Profibus interface.



The RIBULB® RH100 is a hydraulic pump powered by an electric motor for operating RS2025 blind rivet installation tools without process monitoring. The whole installation process is controlled by a stored-program controller.

The MS75 pneumatic installation tool is recommended for small series.



RIBULB®	RIBULB® SR	RIBULB® IR
Element		
Description	High-strength break-mandrel blind rivet for universal application	High-strength break-mandrel blind rivet for universal application
Joining procedure		
Component thickness (t)		
Component strength (R _m)		
Joining strength	Shearing load: 13 kN / tensile load: 8.5 kN Leaflet DVS/EFB 3430 "Blind riveting"	Shearing load: 10 kN / tensile load: 6.0 kN Depending on rivet version Leaflet DVS/EFB 3430 "Blind riveting"
Accessibility	one side	one side
Installation equipment	automated, semi-automated and manual	automated, semi-automated and manual

Installation modules

	RIBULB® R	RH100 RH100MP
		
	robot-aided – automatic	manual

RIBEF[®]

MADE TO **fit**

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