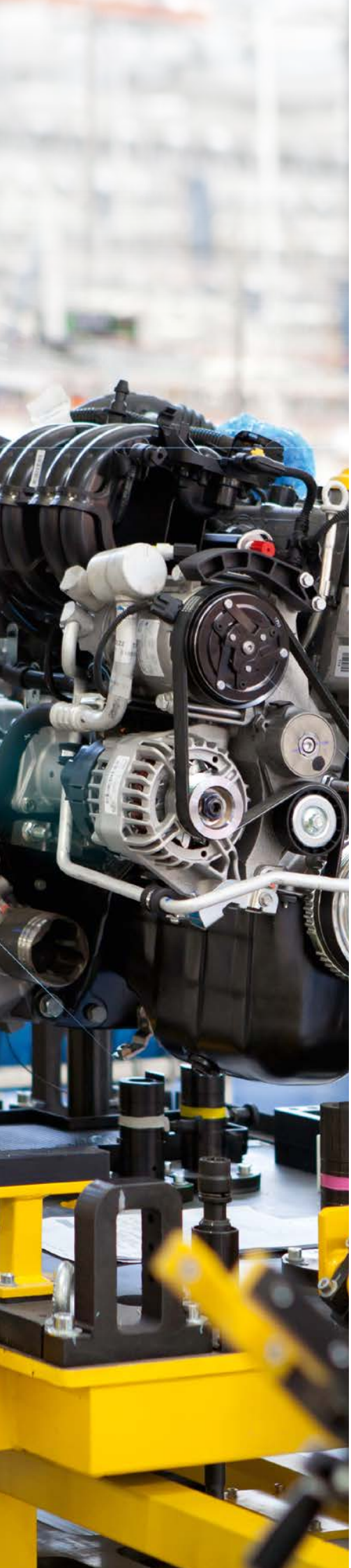


RIFIXX® – Functional modules with pre-integrated fastening elements

RIBE® RIFIXX®

INNOVATIVE FUNCTIONAL MODULES

RIBE®
FASTENING SYSTEMS

Simple and efficient assembly
due to pre-integrated fastening elements

Overhead assembly possible
even with thin-walled mounting parts

RIFIXX® – Functional modules with pre-integrated fastening elements

RIFIXX® – INTEGRATED COST BENEFITS

Assembly processes are of essential importance in the production of complex constructions with regard to total costs. Technical optimization of the design makes it possible to significantly reduce vertical integration and thus overall process costs.

RIFIXX® functional modules consist of a fastening element and at least one additional functional element captively integrated in the mounting part. RIFIXX® is already integrated directly into the mounting part by the Tier1 supplier or OEM and the mounting part is delivered to the assembly line with integrated fastening elements. RIFIXX® not only reduces assembly costs but also procurement and logistic costs.

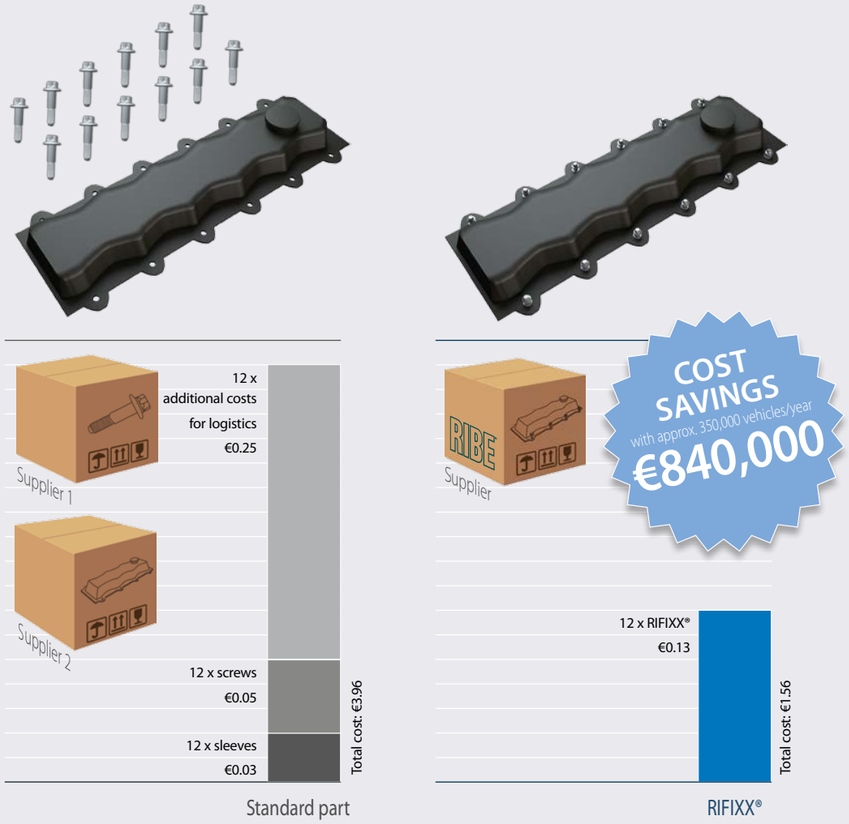
In addition to the cost benefits, RIFIXX® can also incorporate additional features such as a retaining function, vibration damping and many other functions into the mounting part and the fastening point.

RIFIXX® functional modules that meet the most diverse customer-specific requirements are in use worldwide at all leading car manufacturers and OEMs.

RIFIXX® ADVANTAGES AT A GLANCE

- Reduction of assembly costs and assembly time
- Less diversity of parts
- High assembly reliability
- Lower assembly effort
- No more lost parts
- High load capacity of the connection
- Integrated tolerance compensation
- Reduction of procurement and logistics costs
- Elimination of thread-cutting in combination with self-tapping screws
- Exclusion of mix-ups and assembly errors
- Simplified disassembly and reassembly for repairs

RIFIXX®



RIFIXX® solution

Preassembly of element consisting of screw and sleeve

Potentional savings of approx. 60% of procurement/storage and logistics costs per mounting part with RIFIXX®

Example of a cylinder head cover with 12 fastening points

RIFIXX® – Functional modules with pre-integrated fastening elements

OPTIMIZE YOUR PRODUCTION COSTS

All RIFIXX® functional modules have one feature in common: They captively integrate the fastening element in the mounting part so that it cannot be lost – in a wide variety of materials and flange heights. This means that the RIFIXX® benefits can be integrated in nearly every mounting part.

Reducing the number of different parts significantly cuts costs. For example, instead of supplying 12 fastening elements and 12 sleeves for a cylinder head cover, just the cover with the pre-integrated RIFIXX® elements can be delivered to the assembly line – resulting in considerable savings despite the cost of the RIFIXX® element. And the fastening elements are captively pre-mounted in the mounting part so that they cannot be lost, which lowers quality costs by preventing assembly errors, mix-ups and stray parts.

OPTIMIZED WAREHOUSING AND LOGISTICS

Integrating the fastening elements in the respective mounting part reduces the number of individual products the OEM has to keep on stock RIFIXX® also reduces the number of different parts by integrating other functional elements such as decoupling elements into the assembly. This results in significant savings in procurement, storage and logistic costs.

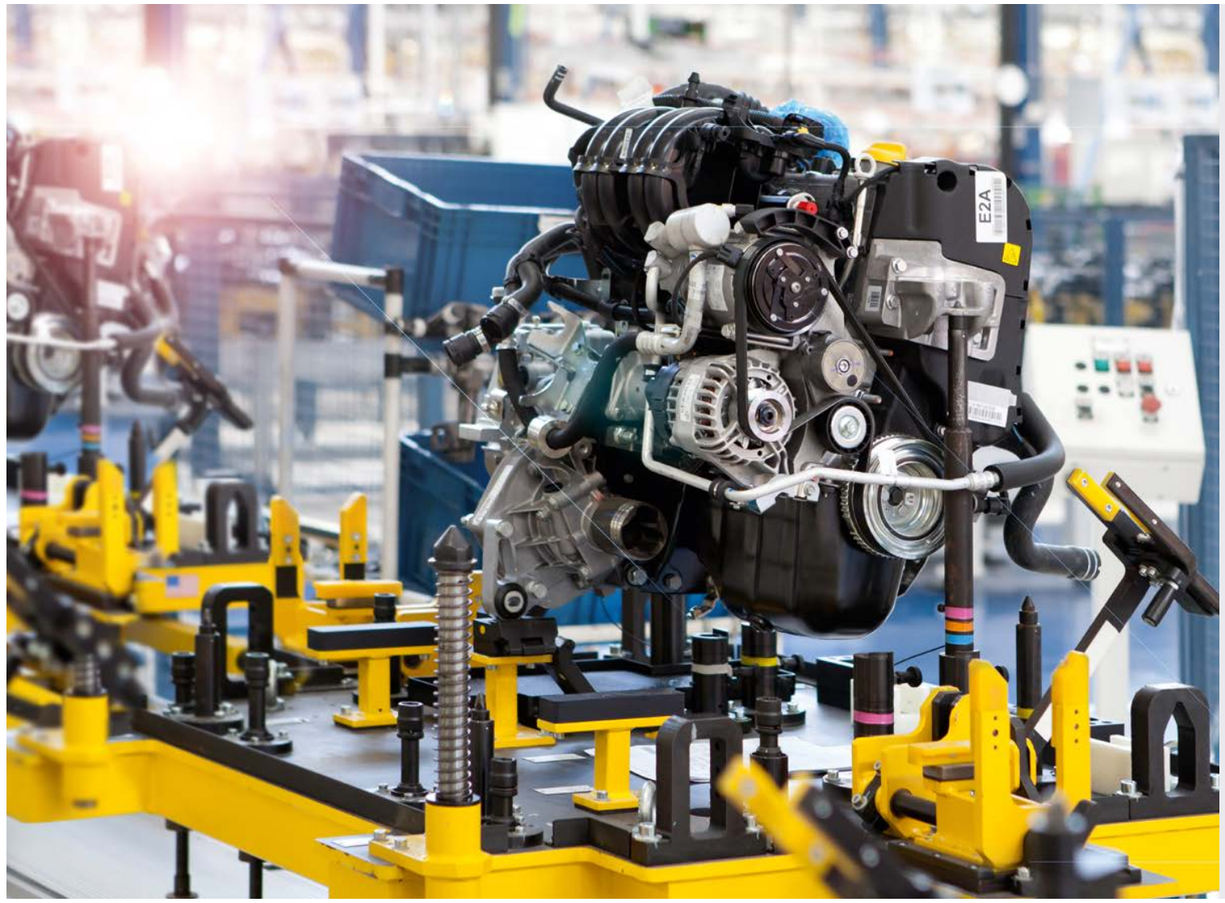
MORE EFFICIENT PRODUCTION

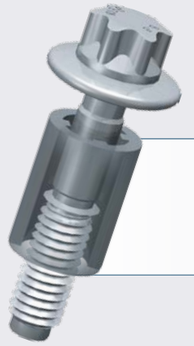
RIFIXX® greatly simplifies the assembly of complex constructions and makes the process more economical. The fastening elements do not need to be feeded so the assembly line can have a more compact design using simple handling and fastening systems.

COST SAVINGS WITH RIFIXX® IN COMBINATION WITH SELF-TAPPING SCREWS

The combination of RIFIXX® with self-tapping screws can create additional cost advantages for fittings in plastic constructions or constructions made of light metals such as aluminum or magnesium. Process steps such as drilling, threading and female thread verification are eliminated as the elements are screwed directly into the cast holes.

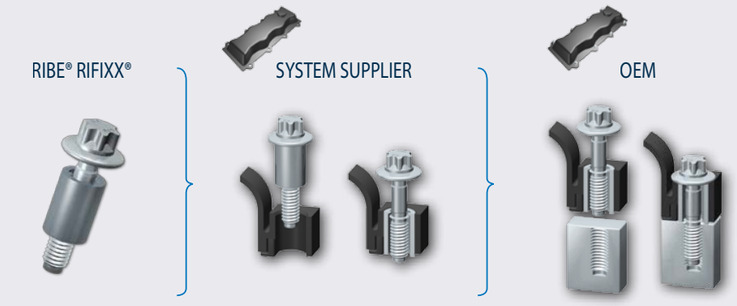
RIFIXX®





SCREW
- Preload force and
- Sealing force applying element
- Optional self-tapping

SLEEVE
- Preload force transferring element
- Limiter
- Transverse tolerance compensation



Design of the RIFIXX® element
- Thread length/screw-in depth
- Length of screw and sleeve
- Mountability (e.g. center offset compensation)

Process flow

Pre-integration of the fastening element in the mounting part

RIFIXX® – Functional modules with pre-integrated fastening elements

PRE-INTEGRATED FUNCTIONAL ADVANTAGES

RIFIXX® functional modules always consist of a fastening element combined with at least one functional element. The fastening element creates a detachable connection to the basic construction while the functional element secures the RIFIXX® element in the mounting part and optionally performs additional functions. RIFIXX® elements are designed based on the respective technical requirements in terms of materials and use. A key factor in the design of the functional element is whether the mounting part material is able to transfer the required preload force or if this has to be done by the functional element. This ensures sufficient load capacity of the connection and easy assembly at all times. RIFIXX® not only optimizes the assembly process, it also makes it possible to create simpler and more efficient designs.

HIGH ASSEMBLY RELIABILITY

RIFIXX® is designed so that the screw thread can be completely immersed into the sleeve when fitting the mounting part. This eliminates any chance of tilting of the screw during assembly.

INTEGRATED TOLERANCE COMPENSATION

Production-related hole displacement and deformation always result in assembly problems. RIFIXX® elements easily compensate for these tolerances up to 2 mm, depending on the version. Compensation of up to 3.5 mm is possible with sleeves in the shape of oblong holes.

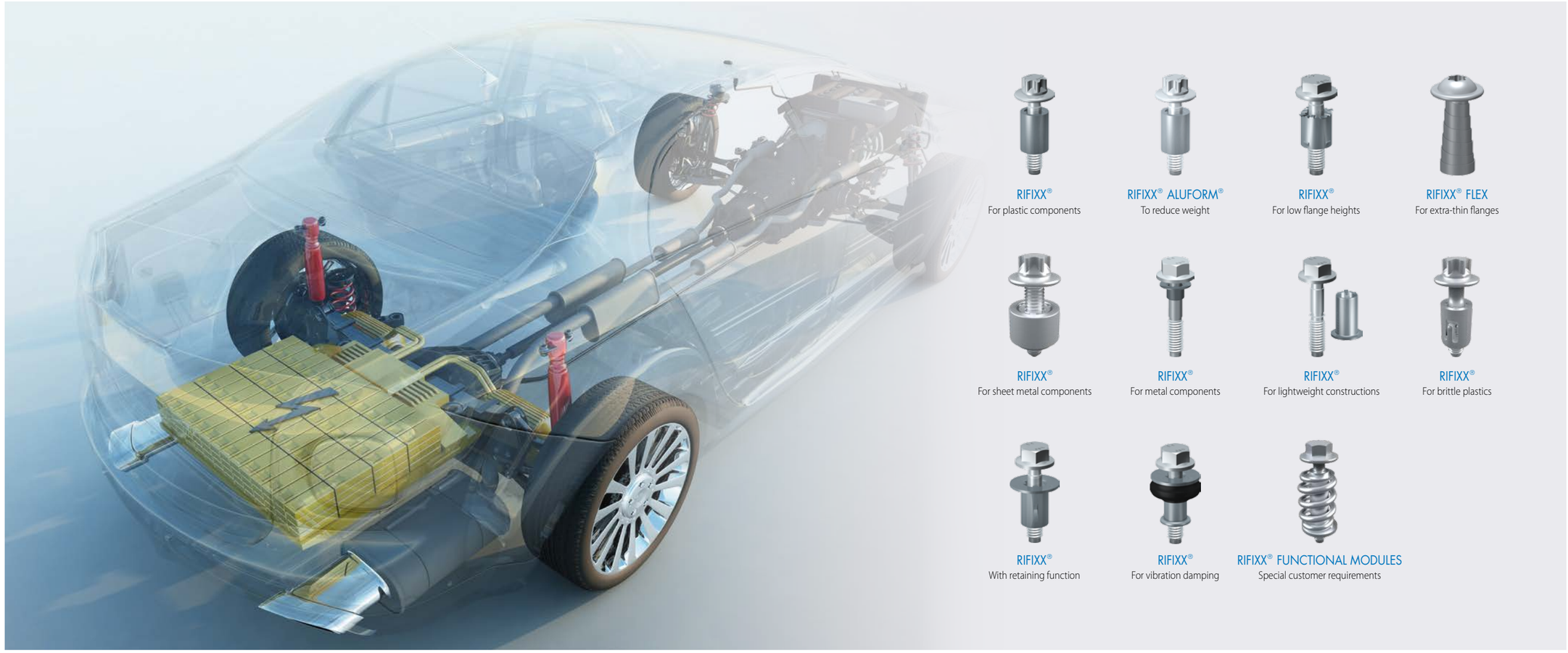
MORE COMPACT DESIGNS

Compact RIFIXX® elements and eliminating clearances for the feeding of the fastening elements make it possible to create complex designs that are more compact and cost effective.

HIGH LOAD CAPACITY

Optimized dimensioning of the RIFIXX® elements enables a high preload force. Large contact surfaces result in low surface pressures and allow tightening on light metals.

RIFIXX®



RIFIXX®
For plastic components

RIFIXX® ALUFORM®
To reduce weight

RIFIXX®
For low flange heights

RIFIXX® FLEX
For extra-thin flanges

RIFIXX®
For sheet metal components

RIFIXX®
For metal components

RIFIXX®
For lightweight constructions

RIFIXX®
For brittle plastics

RIFIXX®
With retaining function

RIFIXX®
For vibration damping

RIFIXX® FUNCTIONAL MODULES
Special customer requirements

❮ Complete overview of the RIFIXX® system

RIFIXX® – Functional modules with pre-integrated fastening elements

FUNCTIONAL ELEMENTS FOR EVERY REQUIREMENT

The RIFIXX® system provides many different versions to cover a wide variety of applications. In terms of materials, RIFIXX® can be integrated in mounting parts made of plastic, brittle plastic, metal and sheet metal. The possibilities are nearly unlimited regarding different flange heights. For example, RIFIXX® FLEX allows applications with extra-thin flange heights. RIFIXX® ALUFORM® is our answer to the increasing demands for lightweight design.

We can develop custom-tailored RIFIXX® functional modules with integrated additional functions for your requirements. Due to our fastening systems know-how and expertise in the production of fastening elements, stamped-bent parts, technical springs and assembly technologies we are able to develop the ideal solution for nearly any requirement.

RIFIXX®

RIFIXX® PREFERRED DIMENSIONS

Taking into account the technical requirements for fastening and assembly, the table below presents the optimized dimensions based on the strength grade of the screws and the material of the female thread. The design of the elements can be adapted with regard to different head types and surface coating to meet the customer requirements.

Screw dimension	Strength grade	Female thread material	Sleeve length (flange thickness)	Sleeve outside Ø	Sleeve inside Ø
M5 x 30	10.9	Aluminum	15.0	10.5	7.5
M5 x 25	10.9	Steel	15.0	10.5	7.5
M6 x 30	8.8	Aluminum	15.0	10.5	7.5
M6 x 22	8.8	Brass/Steel	10.0	10.0	8.1
M6 x 26	F040A	Aluminum	15.0	11.2	8.2
M8 x 34	8.8	Aluminum	16.85	14.0	10.2
M8 x 45	10.9	Steel	30.0	14.0	10.2

FUNCTIONAL ELEMENTS FOR EVERY REQUIREMENT

RIFIXX®

	RIFIXX®	RIFIXX® ALUFORM®	RIFIXX®	RIFIXX® FLEX	RIFIXX®	RIFIXX®	RIFIXX®	RIFIXX®	RIFIXX®	RIFIXX®	RIFIXX® FUNCTIONAL MODULES
	For plastic mounting parts	To reduce weight	For low flange heights	For extra-thin flanges	For sheet metal mounting parts	For metal mounting parts	For lightweight constructions	For brittle plastics	With retaining function	For vibration damping	Special customer requirements
											
	For flange holes with a positive or negative demolding direction	70% weight savings possible vs. comparable part made of steel	Reverse immersion of the screw in the sleeve and the sleeve in the mounting part (telescopic)	Active retaining function for the screw via telescopic spring	Captive screw arrangement on a sheet metal mounting part	For metal flanges with drilled or cast flange holes	For fastening on low-strength base metals such as magnesium	Sleeve with spring clips to reduce radial pressure in the plastic mounting part	Screw is prepositioned to protrude axially upwards	With decoupling element to reduce component vibrations	Special solutions for unique customer requirements
Preload force transfer via sleeve/limiter	×	×	×	×	×		×	×	×	×	
Loss protected (captive)	×	×	×	×	×	×	×	×	×	×	
Retaining function				×	×	×			×		
Vibration damping										×	
Radial clearance	×	×	×	×	×	×	×	×	×	×	
Gentle press-fitting of the sleeve into the flange hole						×		×			
Lightweight element		×					×				
Centering function	×	×						×			
Technical notes	Sleeves with and without a flange, smooth or nibs on shaft, depending on flange hole design	Torque and angle tightening achieves the minimum preload force of a torque-controlled tightened 8.8 steel screw	The sleeve is captively secured in the flange hole and arranged for axial movement	The telescopic spring acts like a sleeve when tightened and transfers the preload force	Mounting parts made of sheet metal such as steel or aluminum with strengths of 150 MPa to 600 MPa and sheet thicknesses of 0.6 mm to 6 mm	The metal sleeve enables radial tolerance compensation and offers the same temperature resistance as the screw	The screw and sleeve are delivered separately and are assembled by the manufacturer of the mounting part	Gentle press-fitting into brittle plastics such as PPS or PP	Different shapes are available based on customer requirements	The decoupling element is part of the overall system and must be adapted to the respective application	Tell us about the requirements for your specific application. We will find the best solution with our shared expertise.

If required, we can implement other variations or combinations of the above features/functions.

RIFIXX®

WE CONNECT THE WORLD

RIBE®
FASTENING SYSTEMS

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