RIBE®

ELECTRICAL FITTINGS

Catenary Fittings for Electric Railways

RIBE® catenary fittings –
System solutions for demanding requirements

The constantly increasing volume of traffic and transportation of passengers and freight throughout the world requires continuous improvement of the infrastructure and expansion of the transportation routes. Here rail transport is gaining in importance due to the growing overload on the road networks.

The RIBE® range of catenary fittings has been designed as a modular system. Our customers profit from our more than 60 years of experience in the design and production of these fittings and we also supply customized fittings made in our own companies to meet specific customer requirements. This ensures a high degree of flexibility in design, development and delivery. Our customers therefore include railway companies, general contractors, building contractors and industrial railway operators, for which we provide application engineering support and many services ranging from planning and product development to finished production. RIBE® fittings are designed for a wide range of applications, so they can be used in virtually all railway systems. Our fittings are adapted to individual customer needs and special local conditions and this great flexibility brings us orders from all over the world. For example, we have been decisively involved in the expansion of long-distance transport in the Netherlands, Germany, China and Spain. RIBE® fittings have been in service in many European railway systems for decades. We played a leading role in revitalizing the tram in Bucharest and in the return of the tram in Athens for the Olympic Games.

Fittings for local and long-distance transport

Railway fittings and lines must be designed for their specific tasks. Whereas local transport routes are used exclusively by low-speed means of transport, high-speed railways need specially designed railway equipment, particularly for the contact wire.

Aluminum alloy fittings and cantilevers

To withstand the demands that occur at higher speeds in long-distance transport, we have developed a range of aluminum alloy fittings comprising steady arms, messenger wire clamps and complete cantilevers. This range covers all the requirements for the construction of catenary systems for long-distance transport. RIBE® aluminum alloy fittings have been developed with lightweight design and easy installation in mind and their extremely high load ratings appreciably cut the life cycle costs of contact wires.

Complete range of CuNiSi clamps

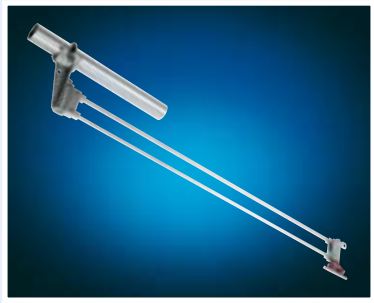
The RIBE® range of CuNiSi clamps is made from a climate-resistant copper alloy that has been proved in decades of service in countries such as the Netherlands. CuNiSi has outstanding mechanical strength and electrical conductivity. RIBE® CuNiSi clamps are manufactured in a drop forging press and are ideal in terms of weight, durability and power transmission.

Innovative fitting solutions

RIBE® tension wheel with integrated cable brake – For smooth braking

Tension wheels are used on the contact wires of electric railways to keep the height of the wire constant and prevent the cast concrete or steel masses contacting the ground if the messenger wire or contact wire breaks. If conventional equipment is used, the catenary system may be damaged by the jerk when the weights engage. The innovative design of the tension wheel with integrated cable brake ensures smooth braking of the weight cable in the guide channel without distorting the catenary system. This careful application of the load can largely prevent consequential damage.

RIBE® parallelogram-type steady arm – For a defined constant position of the contact wire



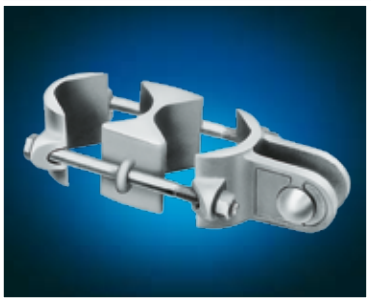
RIBE® parallelogram-type steady arms, which can be compressed and tensioned, have been developed to minimize wear of the contact wire in catenary systems. The contact wire is not turned when it is lifted by the pantograph of the locomotive. RIBE® parallelogram-type steady arms therefore ensure high availability of the contact wire especially at demanding cantilever points. The use of climate-resistant materials makes sure the contact wire remains exactly in the defined position especially in exposed places and under difficult conditions, such as on bridges and in tunnels.

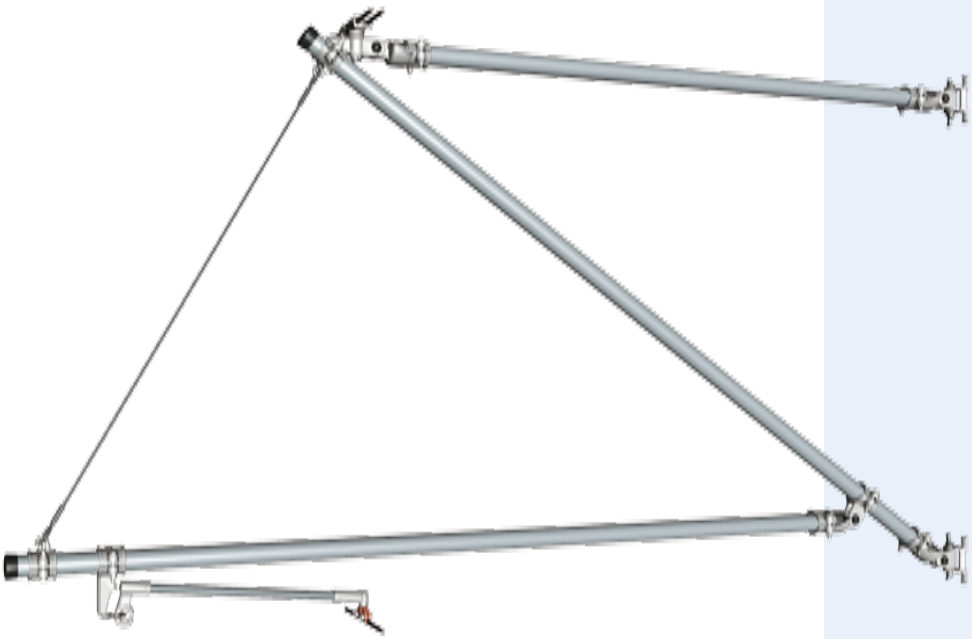
Fittings for local transport

In cooperation with AEG, RIBE® has developed a range of fittings specifically for local transport systems that ideally meets the special requirements of these systems. The modular design of the fittings enables all the necessary subassemblies for a local transport line to be provided from a small number of different corrosion-resistant components.

The range of fittings is based on the following features:

- Installation of tensioned contact wires with bridle-type suspension
- Use of GRP steady arms and curve pull-offs
- Creation of cross-span equipment with Minoroc ropes (all-insulated) or metal ropes with double or triple insulation
- Use of GRP rods or GRP tubes with a diameter of 55 or 70 mm for cantilevers
- Use of only one type of clamp for both diameters of the GRP rod or GRP tube
- Fixing to the pole with pole cable loops, with swivel brackets and hinges for cantilevers and stainless steel punch-lock band or wall fixing.





RIBE® railway fittings – References that speak for themselves

- Betuweroute

  Application: Architecturally designed RIBE® aluminum cantilevers, section insulators, tension wheels and CuNiSi clamps

- Hanover – Würzburg: "Rombachtal Bridge"

  Conditions: Increased wind load with difficult installation conditions

  Application: RIBE® parallelogram-type steady arms

- Routes: Hanover – Berlin, Cologne – Frankfurt/Main, Nuremberg – Ingolstadt

  Application: RIBE® CuNiSi clamps

- Tram in Athens

  Route length: 37 km

  Application: RIBE® GRP cantilevers and fittings

- Bucharest – Constanta

  Application: RIBE® tension wheel with integrated cable brake and CuNiSi clamps

- ZhengXu project

  Route length: 200 km

  Application: RIBE® aluminum cantilevers, rectangular tube steady arms and CuNiSi clamps

- Engineering for high-speed routes

  Mechanical fatigue tests by RIBE® Engineering on droppers for almost all contact wire designs


TÜV CERT

CERTIFICATE

The TÜV CERT Certification Body for QM-Systems of RWTÜV Systems GmbH hereby certifies in accordance with TÜV CERT procedure that Richard Bergner Elektroarmaturen GmbH & Co. KG with the places Schwabach and Radebeul RIBE Elektroarmaturen GmbH Dombirn has established and applies a quality system for

Fittings and engineering services for electrical power industry, Catenary wire systems, Telecommunication appliance and substation clamps

An audit was performed, Report No. ... 20401665

RIBE® Engineering – 100 years of development and experience

Since RIBE® was founded over 100 years ago, it has always been part of our corporate philosophy to not only develop and optimize new fittings in our own test laboratories and facilities, but to use our expertise to solve application problems as well. A fully equipped indoor vibration test bed with three test spans (2 x 40 m, 1 x 30 m) and an automated dropper test bed with adjustable load to suit the requirements are available for our expert engineering team to perform vibration tests to international standards and customer specifications. All tests specifically required for railway fittings can be carried out in the test bed, such as:

- Dynamic tests on tension wheels
- Proof of tension wheel efficiency
- Fatigue tests in the outdoor test bed as proof of functional operation.

We also carry out corrosion tests according to international standards such as EN ISO 9227 : 2006 in artificial atmospheres, e.g. sulfur, brine and acetic acid.

Our laboratories use flexible state-of-the-art measuring systems for mechanical and electrical tests to verify the specific properties required by customers. RIBE® Engineering can solve the customer's application problems using its own calculation programs or programs created in close cooperation with noted universities such as the Technical University of Dresden or the Technical University of Darmstadt.

RIBE®

MADE TO fit

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