EXCELLENCE ON RAILS
SYSTEMS FOR SAFE TRACTION POWER SUPPLY
FOR UNDERGROUND/SUBURBAN RAILWAYS
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As a sector specialist, competent systems and development partner, innovative idea contributor and reliable supplier, REHAU is positioned in a variety of industrial sectors. Permanent, successful products made from polymer materials have evolved from creative ideas. Functionality, ecological solutions and design, distinguish this business area.

With an increasing density of traffic in large towns and urban areas, modern, local public transport is taking on a greater importance. In the area of traction power supply using 3rd rail, REHAU systems made from polymer materials have held a prime position for over 40 years. Whether for tunnels or the outside areas, REHAU systems for underground and suburban rail systems can be successfully used, even under difficult climatic conditions.

In addition to the development of complete modular systems, REHAU’s development expertise and system diversity also make customer specific solutions possible. Covers and system components for traction power supply are created from a variety of production processes, materials and cross-sections – of course all are from one source and specific to the system: Live-rail insulated supports – height-adjustable and rigid – for top, side and bottom contact live rails, live-rail cover profiles, spacers, accessories and the aluminium 3rd rail itself.

For example, complete REHAU systems were developed for the underground and suburban rail systems in Berlin, Cairo, Munich, Vienna, Hamburg, Helsinki, Warsaw and Istanbul.

Stringent quality controls to DIN EN ISO 9001, from receipt of material to dispatch of goods, guarantee the high quality of the products and compliance with the required material and component properties. Where required, 3D designs and FEM analyses are provided as can the implementation of project specific additions.

The development expertise, system diversity and good market position in Europe is gaining REHAU more and more access to international projects.
REHAU LIVE-RAIL SUPPORTS
LOAD-BEARING ELEMENTS FOR THE SUPPLY OF OPERATIONAL CURRENT

REHAU live-rail supports, made from glass fibre reinforced thermoset, have been used successfully and reliably for more than 35 years in the underground rail system in Munich, and since then in other cities. They have a range of advantages not only in terms of handling and safety:

**Mechanical stability**
- High static and dynamic stability
- Less susceptible to cracking than ceramic or resin insulators
- Impact resistant material

**Electrical properties**
- Long air and creepage distance, as support and insulator are combined in one component
- Far better electrical properties than steel support

**Combustion properties**
- Self-extinguishing
- Halogen-free to DIN EN 50267-2-2 / VDE 0482 Part 267-2-2
- Smokeless formulation possible, e.g. for London Underground

**Climate / chemical resistance**
- UV stable and therefore suitable for outside application without any additional finishing
- Resistant to all chemicals used in the operation of underground/suburban rail systems
- Positive installation experiences across extremes of climate (e.g. Helsinki, Cairo, ...)
- No corrosion, even near the sea and at high air humidity

**Assembly / Application**
- Balancing of sleeper tolerances or different installation conditions through vertical and horizontal adjustment
- Easy to install and low-maintenance
- Customer-specific fastening/hole design possible
- Optimum sliding of the live rail through the support because of integrated sliding elements
- Various heights and base lengths are possible
- Tested under realistic application conditions with REHAU in-house testing equipment
REHAU has been supplying live-rail covers for more than 40 years in various materials, production processes, designs and colours. Together with the customer we develop the best solution for the specific application. Our wealth of know-how is available to you for new developments.

REHAU live-rail cover systems for top, bottom and side contact live rails.
The REHAU product range includes various cover systems. Here, we concentrate on making assembly and handling as easy as possible.

Mechanical stability
- High mechanical loading up to accessibility
- High breaking resistance
- Impact resistant appointed materials

Electrical properties
- Reliable and insulating
- High creepage resistance

Combustion properties
- Self-extinguishing and flame resistant
- Halogen-free materials to DIN EN 50267-2-2 / VDE 0482 Part 267-2-2 for tunnel applications (thermoset) or DIN VDE 0472 Part 815 (thermoplast)

Climate / chemical resistance
- UV stable for outside application
- Resistant to many chemicals

Assembly / Application
- Modular construction system available, suitable for many installation situations
- Easy to assemble
- Maintenance-free system components
- Supply of all the required system articles possible
Aluminium-steel live rails have been in operation for 40 years. In the meantime, many changes have been made on the design and most of the mechanical problems with respect to mechanical joining of aluminium body and stainless steel have been remedied.
Below a summary of the benefits of live rail type ASS 5100:

**Single extrusion profile**
- Less tolerances
- No rubbing, higher lifetime
- Easy installation

**Quenching in vertical position**
- Less twisting
- No grinding, higher lifetime
- Easy installation

**No welding zones / no stop marks**
- Constant mechanical properties
- Higher short circuit load
- Higher mechanical stress

**Pre-manufactured straight steel inserts**
- No bending of steel insert during extrusion
- No wavy steel surface
- Less wear, higher lifetime
- Less noisy operation
- Less strain of collector shoe
- Less EMI

**Firm steel-aluminium interlocking, no clamps**
- Steel connection does not depend on clamping force
- Interlocking not affected by wear
- No sliding of aluminium and steel possible
- No minimum steel thickness, no need for supervision
PRODUCT RANGE

Systems developer and supplier of 3rd rail systems:
Bottom / top / side contact systems

Production process
Extrusion, injection moulding, blow moulding, compression moulding, pultrusion, vacuum forming, thermo-forming, lamination by hand, fabrication, etc.

Materials
PVC, PC, PC/ABS, PPOS, ABS, PE, POM, PA, GFK (polyester resin, acrylic resin, vinylester resin, etc.), some with glass or mineral fillers, etc.

Simulation and prototypes
FEM analysis, various CAD systems, laser sintering parts, REHAU test equipment

Test laboratory
Accredited laboratory to DIN EN ISO/IEC 17025:2005, and also test methods specifically for underground train systems

Certification
ISO 9001, Environment ISO 14001, TS 16949
Suburban railway Berlin, assembly work