MENNEKES
MY POWER CONNECTION

Power your Railway

SOLUTIONS FOR RAILWAY AND TRANSPORT COMPANIES

Getting your connection on time.

An announcement that gives rail travelers a good feeling. This is exactly what our solutions for plugs and sockets provide, reliabilty in every application area. Our core competence has one thing in common with railway transportation – we provide a safe connection. On railway platforms and in tunnels, MENNEKES receptacle combinations form the central interfaces to reliably supply electrical rescue equipment, cleaning equipment or lighting with power. Here our solutions are optimally designed for specific requirements such as high pressure and suction forces, weather protection or other external influences.

Track combinations

AMAXX® tunnel combinations

High-current connectors

Power posts

AMAXX® tunnel power distributor

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AMAXX® tunnel receptacle combination

- Modular structure
- Can be fitted with individual options

2

AMAXX® tunnel receptacle combination made of AMELAN®

- High resistance against chemicals

3

EverGUM® tunnel receptacle combination

- High dimensional stability
- High dieletric strength and creep resistance

4

AMAXX® tunnel power distributor

- Robust enclosure
- Modular structure

Applications for tunnels
Safe crossing at full speed.

In many ways tunnel systems are a particular technical challenge. For example, high demands are placed on receptacle combinations in railway tunnels. For train travel with a speed of up to 300 km/h, they are subject to extreme stress due to several changes of pressure. Verification of sufficient strength with regard to aerodynamic effects is required for all components that are directly installed in the tunnel.

MENNEKES has developed its own range of receptacle combinations that can be reliably used for the operation of electrical rescue devices as well as for lighting scenes of an accident. Sub-distributors for the tunnel safety lighting are also included in the solution portfolio for the rail infrastructure in railway tunnels.

The necessary approvals and authorizations for DB Netz AG Germany, ÖBB Austria and SBB Switzerland are available for AMAXX® receptacle combinations. MENNEKES receptacle combinations are also reliably in service in the Gotthard tunnel.

Safety is always the highest priority in railway tunnels. In an emergency, rescue teams also depend on finding a reliable electrical supply for heavy equipment. Here MENNEKES offers the optimum soultion with AMAXX® receptacle combinations.

As a customized solution, AMAXX® receptacle combinations from MENNEKES can be fitted with different receptacles as required. CEE and SCHUKO® receptacles as well as fault current switches and circuit breakers can be combined on site in a very flexible manner to meet the relevant requirements. Together with optimum protection, the transparent window ensures a quick overview and access.

MENNEKES offers suitable solutions for the design of tunnel safety lighting. The fuse boxes for tunnel special lighting as well as MENNEKES receptacle combinations have been generally approved by Deutsche Bahn (in accordance with Directive 954.9107).

Applications for tunnels

1 **AMAXX® tunnel receptacle combination**

2 **AMAXX® tunnel receptacle combination made of AMELAN®**

3 **EverGUM® tunnel receptacle combination**

4 **AMAXX® tunnel power distributor**

Applications for tunnels

A green light for all your maintenance requirements.

There are special demands for receptacle combinations in the track area of DC railways. They are included in the scope of service of MENNEKES. In many cities and towns of the world, customer solutions have often been in use for decades, primarily for maintenance tasks.

The high level of flexibility of the fitting of AMAXX® receptacle combinations with receptacles, switches, relays, alarms and other functions pays off in order to individually adapt to the relevant requirements. Thanks to the modular design of our AMAXX® enclosure, a comfortable connection space can be provided even for large cable cross-sections.

Our receptacle combinations can be easily assembled using the sliding mounting rails and hinged enclosure cover.
To guarantee a high level of safety for the user, MENNEKES uses special ground fault circuit protection in its products.

For the enclosure materials of receptacle combinations, MENNEKES offers a variety of different solutions that are completely geared towards specific project requirements. Products made of AMELAN® combine high mechanical, thermal and electrical properties with excellent resistance to chemicals and dimensional stability. For use in areas where aggressive substances place special demands on the material, AMELAN® offers resistantance to fuels, oils and greases, diluted acids and bases, cleaners and most aqueous salt solutions.

In contrast, the enclosure of EverGUM® tunnel receptacle combinations consists of a solid rubber mixture. The material also has a high creep resistance and dialectric strength. EverGUM® receptacle combinations are available in two different enclosure sizes in signal yellow or black.

> In many of the worlds towns and cities, customer solutions from MENNEKES have often been in use for decades

1

Combinations for the track area

- Different enclosure materials possible
- Can be fitted with individual options

2

Products made of AMELAN®

- high mechanical, thermal and electrical properties
- excellent chemical resistance

3

EverGUM® tunnel receptacle combinations

- High dieletric strength and creep resistance
- Signal yellow or black enclosure

Applications for tunnels

1 **Combinations for the track area**

2 **Products made of AMELAN®**

3 **EverGUM® tunnel receptacle combinations**

Applications for railway stations
1st class power distribution.

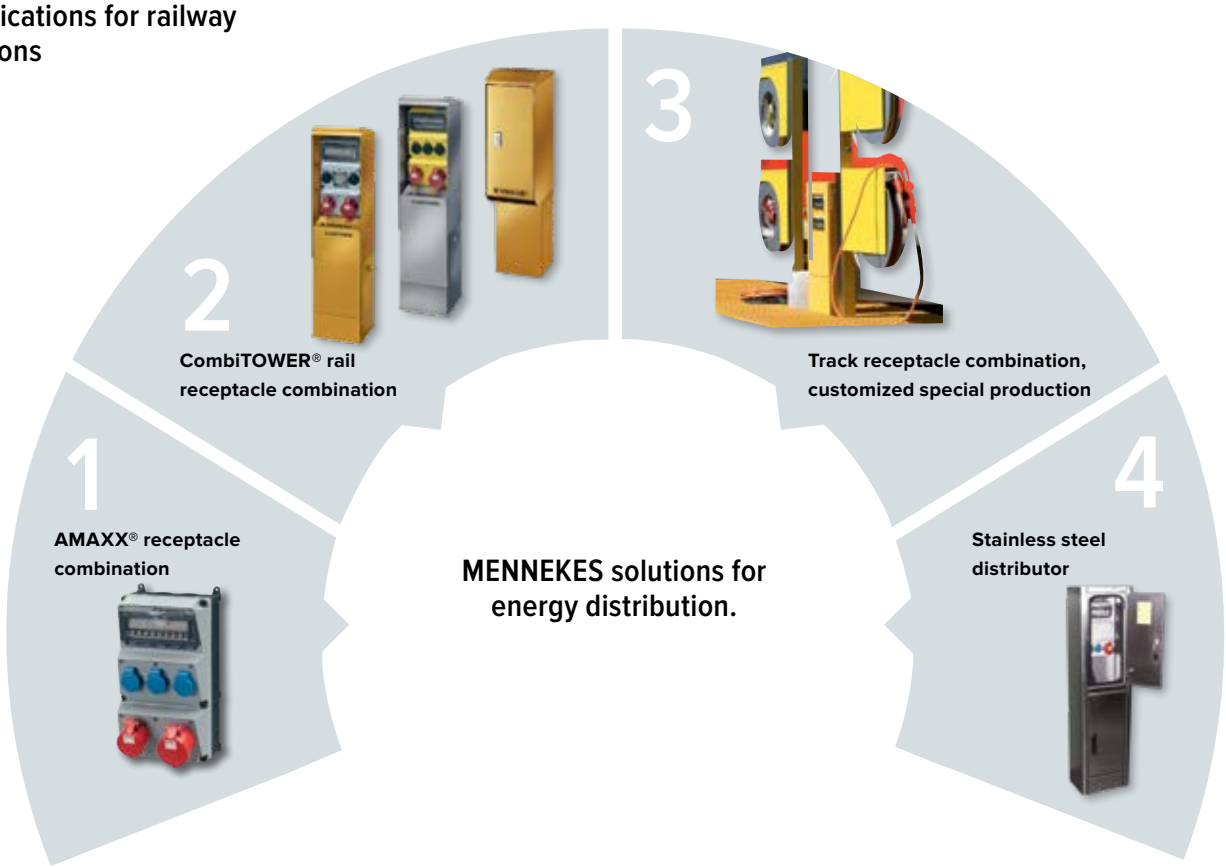
MENNEKES is your partner for railway stations where energy distribution plays an important role. The installations meet high requirements and withstand deliberate manipulation attempts and vandalism. Reliable function in windy weather is a matter of course for us.

Whether in the track area or platform, maintenance works or cleaning systems and regardless of the specific requirements, we develop the optimum solution together with you.

Depending on the individual requirement and intended purpose, we offer customized rail receptacle combinations, individual connectors or distributors.
MENNEKES has special track receptacle combinations in its range of products for use in the track area. The individual requirements for dimensions and fittings are professionally and purposefully planned with the decision-makers. As an example, track receptacle combinations have already been manufactured as special customized solutions for Deutsche Bahn.

CombiTOWER® is particularly suited for electrical installations in the open according to the specifications of railway operators with protection class IP 44 to IP 67. All the required energy connections for electricity, compressed air and water can be made available directly at the workplace in shunting yards or service tracks and sidings. CombiTOWER® is also available with a lockable door. By using a standard locking cylinder, CombiTOWER® can be optimally integrated in existing lock systems.

Applications for railway stations



1

AMAXX® receptacle combinations

- IP 44 or IP 67
- Pre-wired for installation

2

CombiTOWER® rail receptacle combinations

- For indoors and outdoors
- Robust enclosure

3

Track receptacle combinations, customized special production

- Individual project planning

4

Stainless steel distributors

- Aesthetic design
- Cable entry with the door closed
- Protection against unauthorized access

> MENNEKES offers everything that is needed for energy supply around maintenance areas!

Applications for railway stations
We lead the way with innovation and functionality.

There is a tight schedule for service, maintenance and cleaning work. It is therefore all the more important that all plugs and sockets function flawlessly. MENNEKES offers a comprehensive range of energy distributors, plugs and sockets as well as receptacles for different application fields.

Receptacle combinations made of different plastics or stainless steel with individual fittings, plugs and sockets with X-CONTACT for the harshest conditions and high-current connector systems for 400 A or mobile receptacle combinations – MENNEKES offers everything that is required for the energy supply in maintenance areas.

We use halogen-free technical plastics with and without flame protection depending on the application. Halogen-free internal wiring on request.

High demands are placed on the installation in and in front of railway stations. They must be particularly robust and resilient to withstand deliberate manipulation attempts and vandalism. For this MENNEKES has robust stainless steel distributors in the form of vertical columns for which the entire installation is protected against access by third parties.

Suburban railways in Munich are fitted with stainless steel distributors. A special feature: an enclosure with two energy distributors and protection class IP 55. Access to two energy distributors has been restricted with different closures to allow differential access to service personnel and rescue teams. The flexible implementation is also geared towards practical requirements here.

Wherever robust and safe energy distribution is important, MENNEKES offers power posts in its range of programs. These lockable, vandal-proof power posts guarantee energy supply in the transport sector and outdoor area and are safe for transportation. They are available in different sizes and colors.

1

Different combinations

- Different plastics or stainless steel
- Can be fitted with individual options

2

Plugs and sockets with X-CONTACT

- Secure contact and simple handling
- As much as 50% less expenditure of force

3

High-current connectors

- 200 A - 400 A
- Surface protection for contacts

4

Stainless steel distributors as column

- Installation is protected against access by third parties
- One enclosure with two energy distributors

5

Lockable power posts

- Lockable even when plugs are connected
- Protection against weather influences
- Protection against unauthorized access
- Available in different RAL colors

Applications for railway stations

1 **EverGUM® combinations**

2 **Plugs and sockets with X-CONTACT**

3 **High-current connectors**

4 **Stainless steel distributors as column**

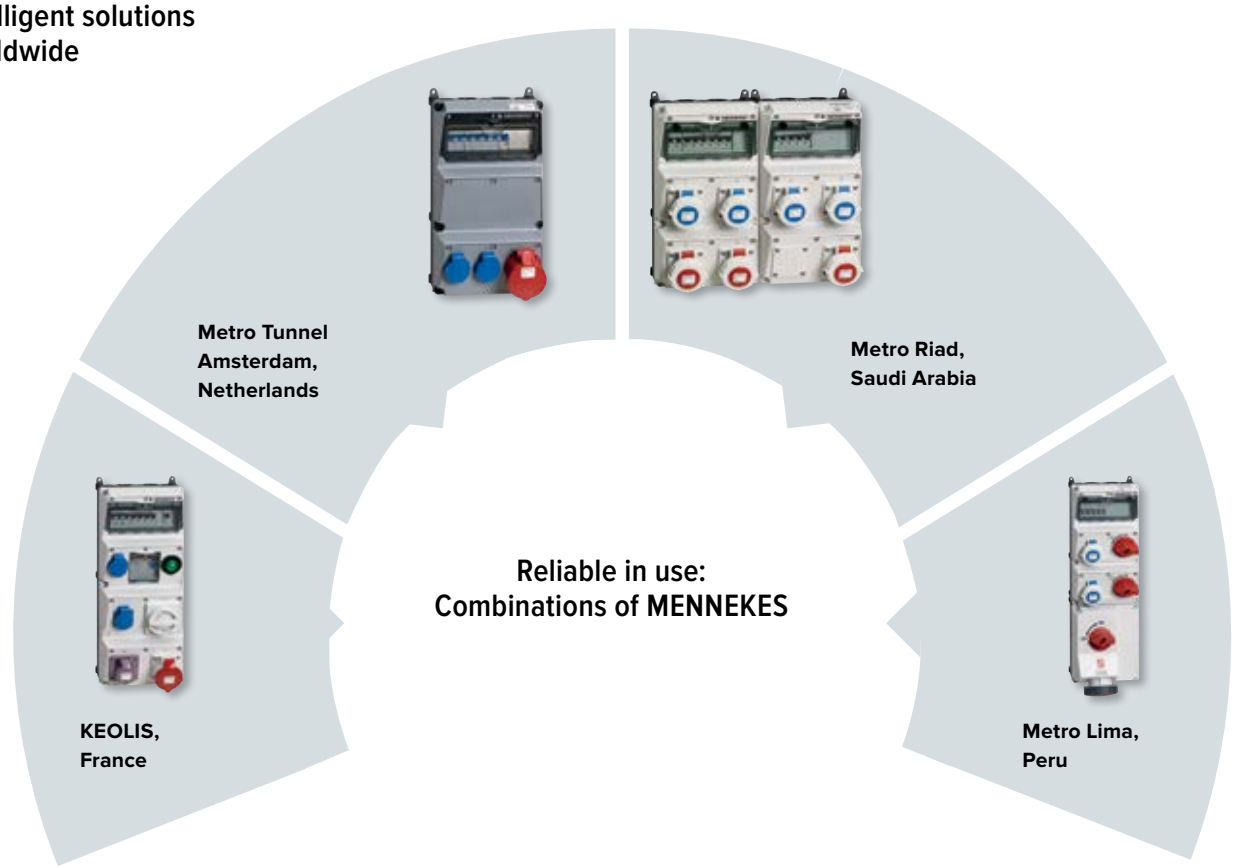
5 **Lockable power posts**

Intelligent solutions worldwide
Individual solutions for all applications.

In practice individual solutions are always required for railway and transport companies. At MENNEKES, we are perfectly suited for this. We are the ideal partner as we advise you on site and recommend the most suitable plugs and sockets for you.

We have already developed numerous individual solutions in the past in order to optimally meet different requirements. The very close cooperation and coordination with our customers is always the central aspect of each technological development here. According to the principle "get ahead together", challenging projects in Germany, France, Peru and Saudi Arabia have been successfully completed. The highest level of satisfaction of our customers is the best possible evidence of our expertise to do with plugs and sockets for the railway sector.

Intelligent solutions worldwide



MENNEKES within the Gotthard Base Tunnel:
With 57 kilometers the longest railway tunnel in the world represents Swiss values like innovation, precision and reliability. To this project MENNEKES supplies a customized design based on our AMAXX® range of combinations.

Further References:

- De Ljin (transport company), Belgium
- STIB (transport company), Belgium
- BVG (Berlin transport company), Germany
- Hamburger Hochbahn (Hamburg elevated railway), Germany
- VGF (transport company Frankfurt), Germany
- KTS Kazakh Railway, Kazakhstan
- Doha Metro, Qatar
- NedTrain, Netherlands
- Tram Verlengde Callandlijn RET Rotterdam, Netherlands
- Metro Lima, Peru
- LineVanpee (Metro), Sweden

Gotthard Base Tunnel

Cologne public transport

DB Netz

My Power Connection
Made in Germany.

Founded in 1935 in Kirchhundem (Sauerland), MENNEKES has actively accompanied the fast-paced entry of electricity into all industry sectors right up until the present day, and has influenced the industry with products and solutions for industrial plugs and sockets. And not only in Germany. With a workforce of 1,000, today the family-owned company has an international presence and is one of the leading providers in the electrical industry. MENNEKES products for industrial plugs and sockets, and electric mobility, are used in over 90 countries. Where high currents have to be transferred safely and economically, our customers and partners can always rely on MENNEKES.

And the EU too has gone for the highest quality: in 2014, type 2 charging couplers by MENNEKES were declared the standard by the European Parliament in the EU. A pioneering milestone. But we have been making more than plugs for the world for a very long time. We think holistically and create powerful connections that enable people to handle energy more innovatively and to distribute and manage it more intelligently. And because we like to think about things from the user's point of view when we are developing our products and solutions, we also communicate our performance promise from the customer's perspective:

MENNEKES – MY POWER CONNECTION.

Innovative power combined.

At MENNEKES we set ourselves the goal a long time ago of creating innovative connections between industry and infrastructure, between energy and electric mobility. Our range comprises more than 15,000 different industrial plugs and sockets, and electric mobility solutions in a variety of versions and designs. It doesn't matter whether it's a series or an individual special development, the MENNEKES brand stands for something extra right from the start – for an intelligent, sustainable solution combined with the highest quality, reliability and safety.

Management System
ISO 9001:2015
ISO 14001:2015
ISO 50001:2011
www.tuv.com
ID 9105064067

Intelligent e-mobility charging solutions for:

- companies
- private households
- fleet operators
- cities
- hotels
- shops and restaurants
- multi-story car parks
- landlords

Reliable plugs and sockets for:

- industrial plants
- mining
- chemical and petrochemical industries
- railway and transport companies
- shipyards
- food industry
- trade fairs and exhibitions
- data centres
- trade
- production industry

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