

# TracFeed® OSS

English



Overhead Conductor Rail

## OVERHEAD CONDUCTOR RAILS BY RAIL POWER SYSTEMS – THE SOLUTION FOR TIGHT SPOTS

Offering significantly lower installation heights, overhead conductor rail systems are used when the installation of a conventional catenary is not feasible due to the limited space available. Examples of such application alternatives are the conversion and retrofitting of older tunnel structures. With speeds of up to 200 km/h, overhead conductor rails present today's most efficient space-saving alternative to existing tunnel overhead contact lines. The system also offers an exceptional degree of reliability. Better still, our retractable and liftable overhead conductor rail model is ideal for vehicle maintenance halls as they make it possible to keep the area around the vehicles clear.

### Certified, safe and TSI-compliant

The TracFeed® OSS conductor rail from Rail Power Systems has been certified for all railways within the interoperable, cross-border network of the European Union by Eisenbahn-CERT (EBC), a notified certification body under EU law. The TracFeed® OSS is certified in Interoperability (TSI) relating to Energy and has already been in use by several operators to cover a wide range of applications from main line and mass transit to service installations. The following institutions, among other, have certified / approved the use of the TracFeed® OSS overhead conductor rail:



Eisenbahn-Cert



Deutsche Bahn AG



German Federal Railway Authority



Swiss Federal Office of Transport



Network Rail



### Everything from a single source – Service and products

As a system provider for overhead conductor rails, Rail Power Systems is a major supplier in the railway equipment industry and renders the following services with the high quality standards that customers have come to expect:

- System design for overhead conductor rails and catenaries
- Development, design and planning
- Material delivery
- Supervision
- Installation
- Acceptance
- Commissioning

A large proportion of the products supplied by Rail Power Systems for the overhead conductor rail (e.g. supports, dilatation devices, clamps) come from our in-house production.

### Mounted without tensioning

Composed of extruding aluminium profiles, TracFeed® OSS overhead conductor rail is a suitably rigid overhead-contact line that offers, apart from a large electrical cross-section, a superior degree of breaking resistance and reliability, keeping the cost of maintenance and repairs at a minimum. The individual profile sections are mounted by means of internally located connecting panels.

Once installation of the overhead conductor rail is complete, the contact wire is clamped into the profile, making the use of additional tensioning devices unnecessary. This technique eliminates the need for mechanical tensioning during the installation of the system. As a general rule, any grooved contact wire based on EN 50149 is suitable for use as a contact wire.

### Technical data

|  |   |
|--|---|
| Cross-sectional area                   | 2220 mm <sup>2</sup>                        |
| Equivalent copper cross-sectional area | 1400 mm <sup>2</sup>                        |
| Profile height                         | 80 mm, 110 mm, 130 mm                       |
| Supplied lengths***                    | 10 m, 12 m                                  |
| Profile dimensions                     | 6.1 kg/m                                    |
| Maximum designated speed               | up to 200 km/h*                             |
| Support intervals                      | up to 14 m                                  |
| Max. length of one continuous section  | 2 x 300 m                                   |
| Rated voltages                         | 750 V DC – 3000 V DC<br>15 kV AC – 25 kV AC |
| Constant current capacity              | 2.9 kA**                                    |

\*\*\* Standard lengths, others available upon request.

\* Depending on the height of the selected profile

\*\* Depending on temperature range



### Simple, robust and powerful

The maximum standard span between the supports of the TracFeed® OSS overhead conductor rail from Rail Power Systems spans up to 14 m, depending on the maximum permissible speed and selected profile. In addition, the following principle applies: the higher the speed, the shorter the longitudinal span.

Rail Power Systems offers a range of different profiles capable of accommodating the requirements placed on the overhead conductor rail by the specific project.

- The **80 mm**-high profile is used in situations where extremely limited spatial conditions require a very low installation height.
- The **110 mm**-high profile has the classic and by far the most widely used design, and is suitable for speeds of up to 200 km/h.
- This profile is suitable for speeds of up to 200 km/h.
- The **130 mm**-high profile allows a greater standard distance between supports and, thus, higher speeds. Designed with a groove-shaped head, the profile requires only one bolt to establish the connection between conductor rail and support. This type of profile helps cut costs as well as resources used for installation and maintenance.

### OSS profiles



130

110

80

The high equivalent copper cross-sectional area makes the use of parallel feed lines obsolete. This characteristic makes it possible to realise great continuous current capacities of up to 2.9 kA.

Trials have shown that the system can handle a rated short-circuit current of 47.5 kA/114ms and a rated peak current of 120 kA.



## FLEXIBLE ALL ALONG THE LINE – CONDUCTOR RAIL WITH EXTENSION COMPENSATION

Simple, reliable and robust: these are qualities of overhead conductor rails from Rail Power Systems that are most apparent in the mechanical design. This is because Rail Power Systems divides the conductor rail system into segments of a maximum of 600 m in length. About halfway down the system, Rail Power Systems applies a fixed point. The ends of these sections overlap with the next section by several metres. Since these are also bent slightly upward, and thanks to the parallel field arrangement, the ends of the sections help guide the current collector along its path and compensate for any extension brought about by temperature variations.

An alternative option to the parallel field arrangement is the use of dilatation devices. This option involves the joining of two adjacent rail segments using slide bearings and allowing these segments to move against each other.

This lets the pantograph pass over the dilatation along one line without interruption and with hardly any displacement, even at high speeds.

### Assembly

The dilatation is integrated into the system by way of a standard splice.

### Inspection, service

- Maintenance-free
- Simple visual inspection

### Technical data

|                                  |                      |
|----------------------------------|----------------------|
| Compensation distance            | 1 000 mm             |
| Mechanical dimension (L x W x H) | 4 000 x 171 x 158 mm |
| Weight                           | approx. 57 kg        |



## WHEN SPACE IS OF THE ESSENCE – RETRACTABLE MODELS

Rail Power Systems has supplied and installed retractable models of their overhead conductor rail into a number of maintenance facilities (among others, in Germany, Norway and Switzerland). Every system needs to be tailor-made for each individual project. This is because no spatial conditions or specific operator requirements are ever the same. The implementation of these requirements poses a tremendous challenge in terms of design and planning as well as the conceptual design of the corresponding controllers.

### Application area

- Maintenance halls and depots for trams, commuter trains, mainline trains or high-speed trains.
- TracFeed® OSS overhead conductor rail system enables trains to be moved into and out of the hall or depot using the usual pantographs and without additional traction engines and, when in a retracted position, permits safe access to the train roof for maintenance work.
- When in an extended position, work with cranes above the train is possible. When retracted, the overhead conductor rail system facilitates the processes of vehicle testing and maintenance.

### The characteristics

- Thanks to the synchronization of all swivel arms in an efficient way, it takes approximately one minute to swivel the system out and in again.
- All of the arms are driven by motors with torque limiters (friction clutch) and come to a stop in the event of unexpected resistance. Arms up to 6 m in length are available.
- High level of safety thanks to the rigid profile of the overhead conductor rail, the automatic earthing and the key locking system for all cranes, conductors, platforms and lifting platforms.
- In the event of a power cut, it is possible to move the retractable overhead conductor rail into the required position manually.

### Overview of the facts

|  |  |
|--|--|
| Motor speed                                  | 1 000 rpm                                    |
| Speed regulation                             | Frequency controller                         |
| Nominal power per motor                      | 0.37 kW                                      |
| Max. length of cantilever                    | 1 to 6 m                                     |
| Overhead contact line voltage                | 750 V DC – 3 000 V DC<br>15 kV AC – 25 kV AC |
| Max. separation distance between cantilevers | 12 m   |



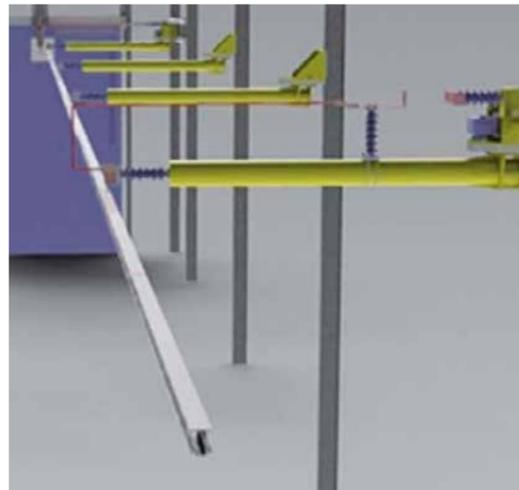
## TRIED AND TESTED IN PROJECT APPLICATIONS

For many years, Rail Power Systems' overhead conductor rail TracFeed® OSS has proven itself in various tunnel structures such as the Gemmenich Tunnel, the City Tunnel Leipzig (Germany), the cross-city link in Zurich (Switzerland) or London Thameslink (Great Britain), as well as in numerous maintenance halls in Germany, Norway, Switzerland, Turkey and the United States.

### Plochingen

In the workshop at DB Regio AG's Plochingen locomotive depot, track 604 is equipped with an overhead contact line system in the form of an overhead conductor rail. The track is divided into two work areas. Both overhead contact line sections are fed via hall track switches. Each section of overhead contact line must be switched separately and secured against unintentional reenergizing. The overhead contact line sections are separated by a section insulator. In both sections, the overhead conductor rail can be swivelled electrically across a length of 31.5 m, meaning that the pantographs of the electrical trainsets can be raised for inspection.

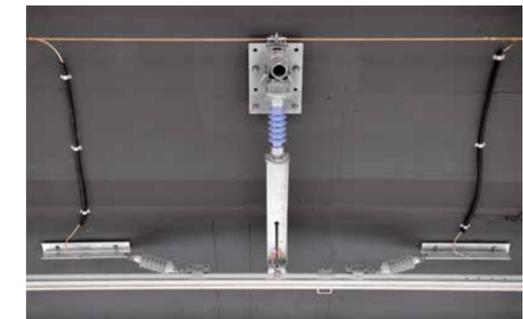
The electrically operated trains can be driven into the workshop under their own power. During this process, the overhead conductor rail is live. Work on the trainsets may only take place when the overhead conductor rail has been disconnected and a check has been carried out to ensure it is free of voltage. To this end, an automatic shut-off and earthing system was constructed for track 604. The control centre monitors the access doors to the roof working platform, the lifting device and the retractable section of the overhead conductor rail. The crane, the fall protection on the end face and the earth connection on the roof working platform retain their function. They are unlocked by key at the operating panel.

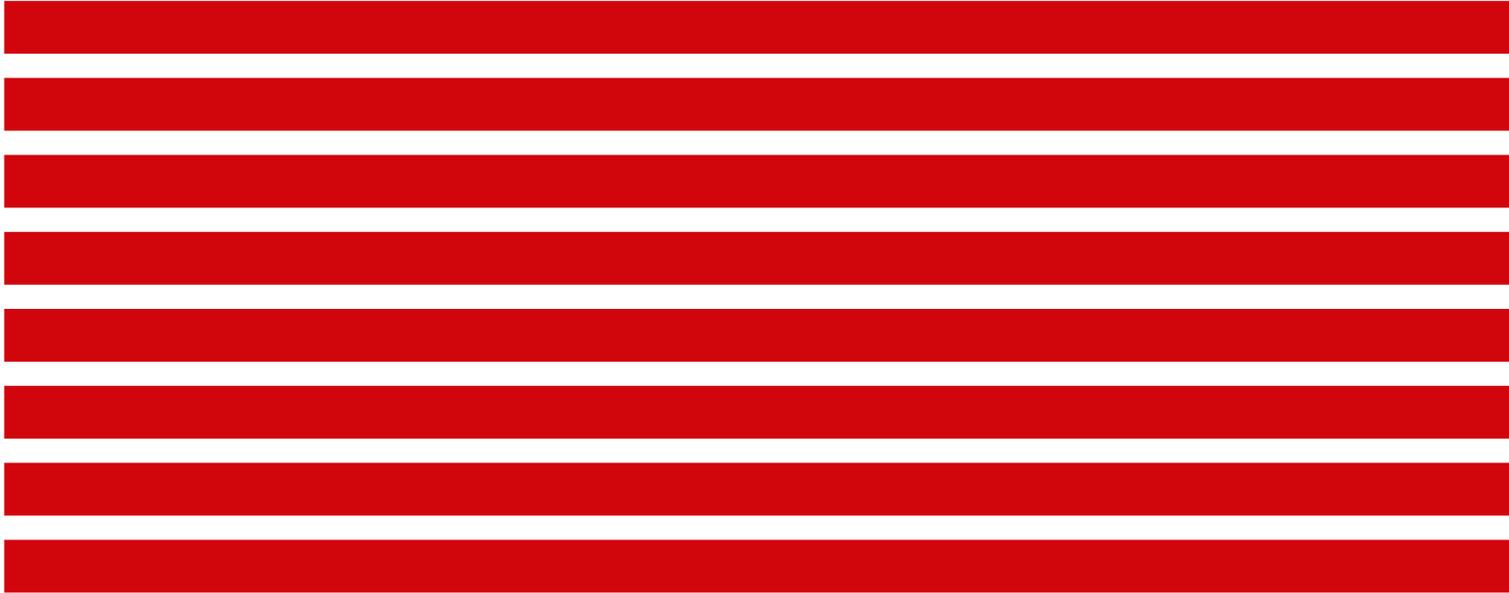


City Tunnel Leipzig, Germany



### Cross-City Link Zurich, Switzerland





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