RPS
Rail Power Systems

Made in Germany

TracFeed® OSS

Overhead Conductor Rail

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Overhead conductor rails from Rail Power Systems - The tight-space solutions

Due to their significantly lower system construction heights, overhead conductor rails are used in confined spaces if there is not enough installation space for a traditional catenary. This can be the case with the conversion and retrofitting of older tunnel structures, for example. For travel speeds of up to 250 km/h, overhead conductor rails are already a space-saving alternative to the existing overhead contact lines in tunnels. The system also offers a high level of safety. In maintenance halls, the overhead conductor rail can also be installed in a swivelling design in order to keep the work range in the vehicle roof area free. Swivelling designs can also be used for bascule and lift bridges as well as loading/ unloading systems.

Approved, safe, and TSI-compliant

The TracFeed® OSS overhead conductor rail from Rail Power Systems has been approved by Eisenbahn-Cert (EBC, notified body), which is responsible for certification under EU law, for all lines in the interoperable, cross-border network of the European Union as per TSI (Technical Specifications of Interoperability) Energy and is now being used by various operators, from long-distance and local transport to maintenance facilities. The TracFeed® OSS overhead conductor rail has been certified or approved by the following institutions and operators, among others:

Eisenbahn-Cert

Deutsche Bahn AG

Network Rail

Eisenbahn-Bundesamt

Bundesamt für Verkehr BAV

A one-stop shop – Services and products

Rail Power Systems operates in the railway equipment market as a system supplier for overhead conductor rails and provides the following services for its customers with the customary high quality standard:

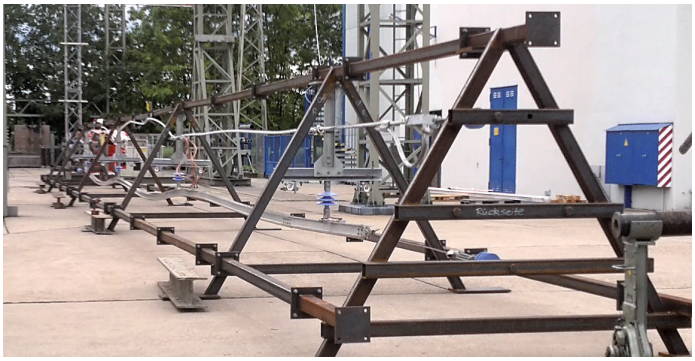
- System design for overhead conductor rail and catenary
- Development, construction, planning
- Material supply
- Supervision
- Installation
- Acceptance
- Commissioning

Rail Power Systems supplies a number of products for the overhead conductor rail (e.g. supports, expansion joint devices, clamps) from its own in-house production.

Screwed on and without tensile stress

The TracFeed® OSS overhead conductor rail is a relatively rigid contact line system made of extruded aluminium profiles which, in addition to its large electrical cross section, also offers considerable breaking strength and safety with low maintenance and servicing requirements. The profiles are connected to each other by means of internal positive-locking connecting plates.

The contact wire is clamped into the profile following assembly of the overhead conductor rail and does not require any additional termination. The system is therefore free of mechanical tensile stress. In principle, every grooved contact wire as per EN 50149 is suitable as a contact wire.



Technical data	
Cross-sectional area	2220 mm2
Equivalent copper cross section area	1400 mm2
Profile heights	80 mm, 110 mm, 116mm, 130 mm
Delivery lengths***	10 m, 12 m
Mass of the profile	6,1 kg/m
Maximum designated speed	up to 250 km/h*
Support intervals	up to 14 m
Max. length of a continuous section	2 x 450 m
Rated voltages	750 V DC–3 000 V DC 15 kV AC–25 kV AC
Constant current load capacity	4,0 kA**

*** Standard lengths, others available on request.
* Dependent on the chosen profile height.
** Dependent on the temperature range.

Simple, robust, and high-current

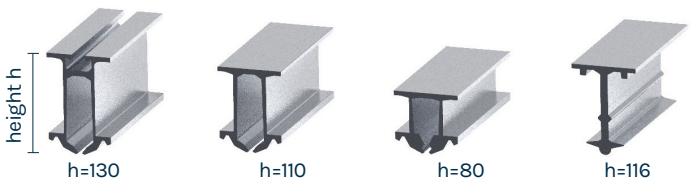
The maximum standard longitudinal support widths of the TracFeed® OSS overhead conductor rail from Rail Power Systems are up to 14 m, depending on the intended operating speed and the chosen profile. Where the following applies: The higher the speed, the shorter the longitudinal span length.

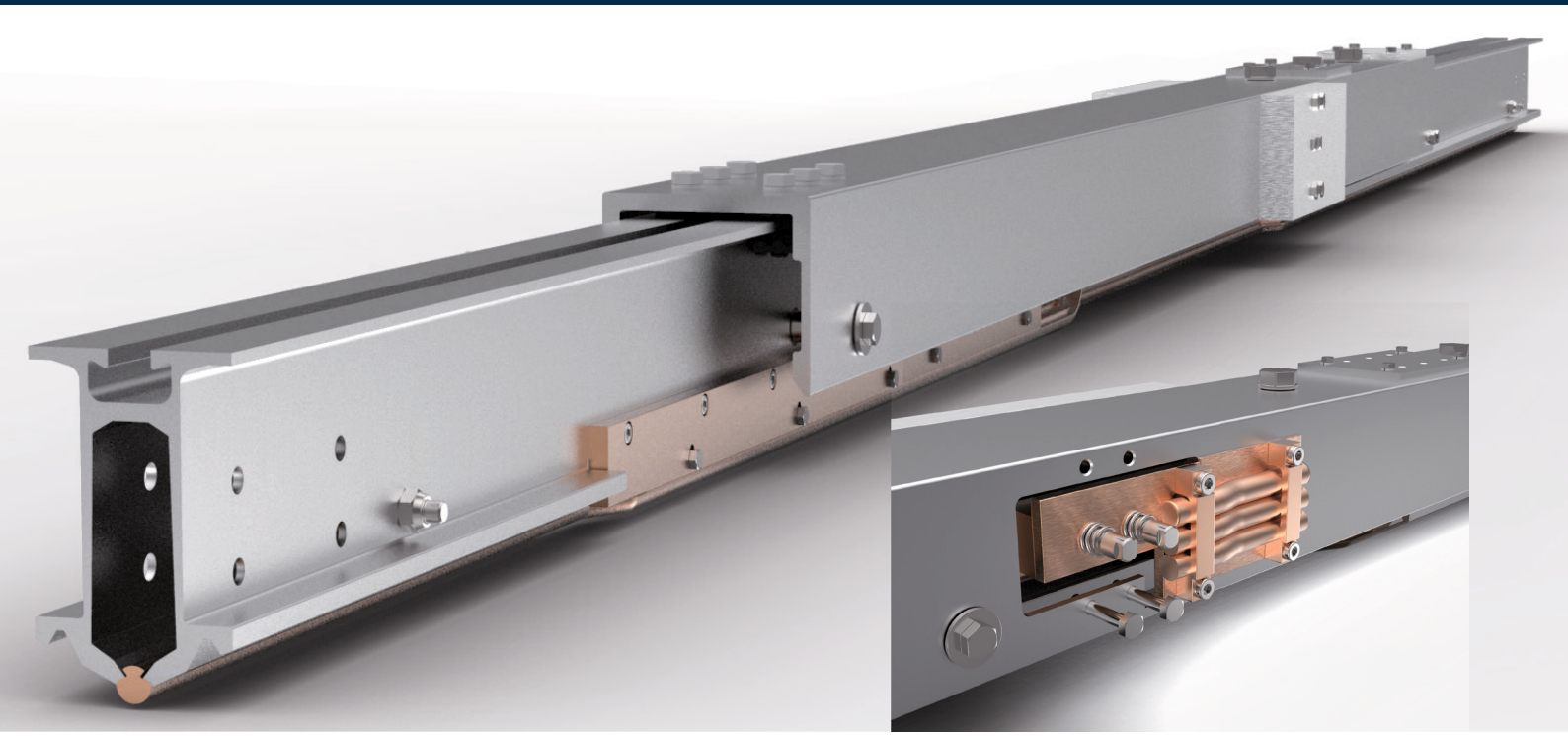
Rail Power Systems offers different profiles:

- The profile OSS116GF has been especially designed for application within washing facilities, as the corrosion accelerating effect caused by two different galvanic elements does not occur since this profile is not requiring a copperbased contact wire.
- The profile with a height of 80 mm is used in very confined spaces that require a very low construction height.
- The profile with a height of 110 mm is the traditional and most common form. The profile is suitable for speeds up to 200 km/h.
- The profile with a height of 130 mm allows larger standard longitudinal support widths and, consequently, higher speeds due.

Parallel line feeders are not required due to the high copper equivalent cross section area. High continuous currents up to 4.0 kA can also be implemented with this system.

Tests have confirmed that a rated short-circuit current of 47.5 kA/114 ms and a rated surge current of 120 kA can be carried by the system (see Fig.).





Flexible all along the line- Conductor rail with expansion compensation

Simple, reliable, and robust: These construction characteristics of the TracFeed® OSS overhead conductor rail from Rail Power Systems can be most clearly seen in its mechanical design. Rail Power Systems divides the conductor rail system into sections of maximum 900 m. These are fixed at half length by a midpoint. The individual sections overlap by a few metres in the transition areas. Here, the bent-up end pieces of the sections make it easier to travel over them with the current collector and, due to the parallel arrangement, enable length compensation in the event of a temperature change.

Expansion joint devices can be used as an alternative to arrangement of a parallel panel. Here, the relevant adjacent sections are directly connected to each other by means of plain bearings and the conductor rails can move against each other. This allows the current collector to pass through the expansion joint not only without interruption, but also without virtually any offset on one line, even at high speeds.

Assembly

The expansion joint device is integrated in the system via a standard splice connection.

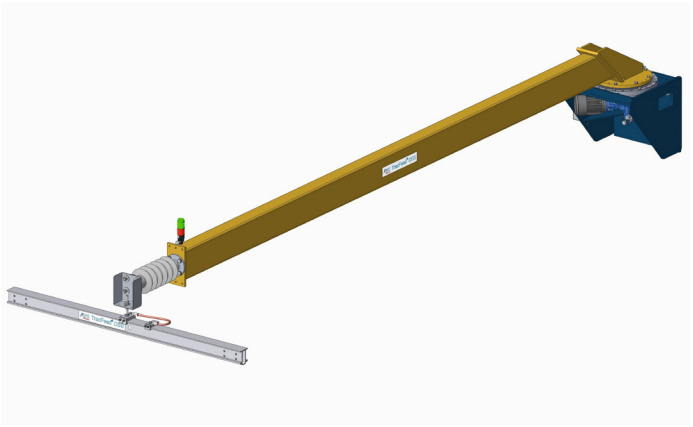
Inspection, service

- Maintenance-free
- Easy visual inspection

Technical data	
Compensation distance	1000 mm
Mechanical dimension (L x B x H)	4000 x 171 x 158 mm
Weight	ca. 57 Kg
Constant current load capacity	2,4 kA**

If you need some space- swivelling variants

Rail Power Systems has supplied and installed swivelling variants of the TracFeed® OSS overhead conductor rail in various maintenance facilities (including in Germany, Norway and Switzerland). Due to the very specific spatial requirements on the one hand and the requirements of the operator on the other, each system is a customised solution. Implementing these requirements places considerable demands on design and planning, and on coming up with suitable control systems.



Application area

- The TracFeed® SAM swivel arm is used as a key element together with the TracFeed® OSS in maintenance halls and depots for trams, urban railways, railways and high-speed trains.

- The swivelling TracFeed® OSS overhead conductor rail system enables trains to enter and exit with their own conventional pantographs without additional traction units.
- In the “away from the track” swivel position, the area above the vehicles is accessible for inspections or for replacement of assemblies, including with a crane. In the “over the track” swivel position, the vehicle can be tested and put into operation under operating voltage.

Characteristics

- Synchronising all swivel arms with an efficient drive and sensor system makes it possible to switch between end positions in about one minute.
- Driven arms are fitted with motors that feature torque limiters (sliding clutch) and they stop in the event of any unexpected resistance. Arm lengths up to 6 m can be implemented.
- 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, ladders, platforms, and lifting equipment.
- In the event of a power failure, there is the option of moving the swivelling overhead conductor rail to the required position manually.

Advantages

- Compact construction method
- Few components
- Easy assembly
- Low weight
- Subsequent motorisation of the units possible in assembled state
- High-quality cantilever arm bearing

Why choose an RPS swivel arm?

RPS is a full-service provider for hall projects with swivelling overhead conductor rails. In addition to required components

- Overhead conductor rail
- Swivel arm
- Control cabinet

which are all produced in-house, RPS can also offer extensive design services and support in connection with such projects.

An overview of the facts	
Motor speed	1000 rpm
Speed control	frequency converter
Rated output per motor	0,37 kW
Max. cantilever length	1 to 6 m
OCL voltage	750 V DC – 3 000 V DC 15 kV AC – 25 kV AC
Max. distance between cantilevers	12 m

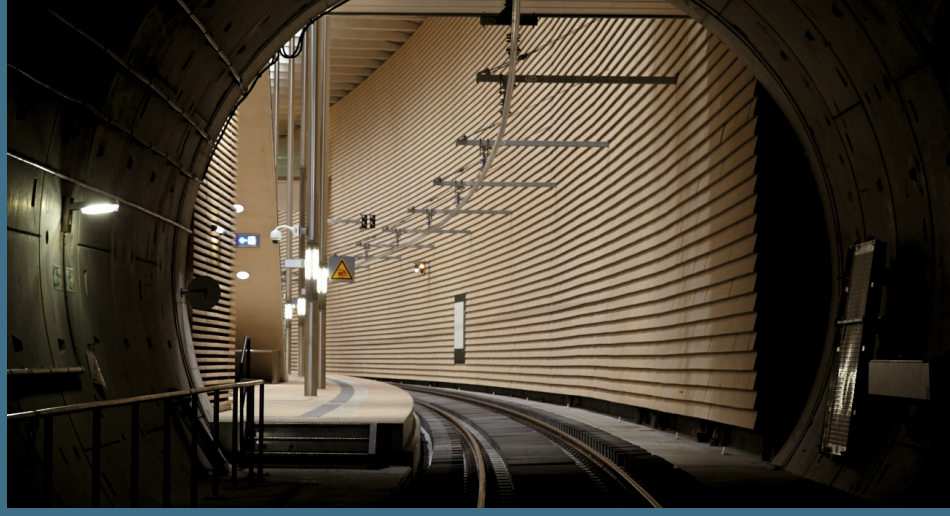
Tried and tested in projects

The TracFeed® OSS overhead conductor rail systems from Rail Power Systems have been proving their worth for many years in various tunnel constructions (e.g. the Gemmenich Tunnel, the Leipzig City Tunnel (Germany), the Zurich Cross-City Link (Switzerland) or the Thameslink London (UK)) and future constructions in Stuttgart as part of S21, as well as numerous maintenance halls in Germany, Norway, Switzerland, Turkey and the USA.

Plochingen, Germany

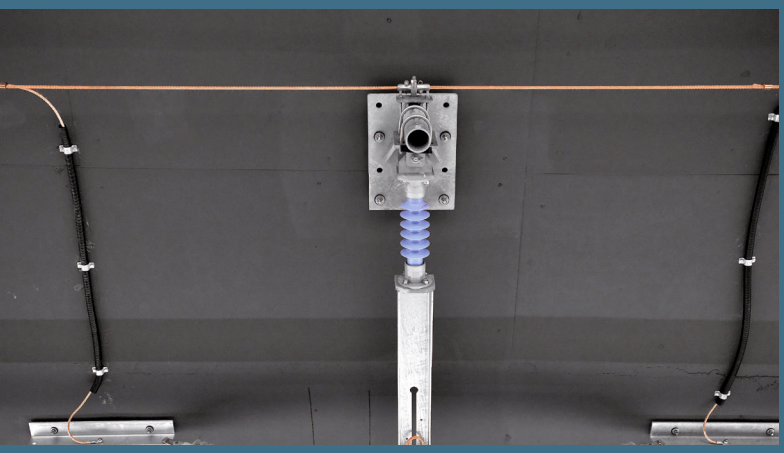
In the workshop at DB Regio AG's Plochingen railway depot, track 604 is equipped with an overhead contact line system in the form of a TracFeed® OSS overhead conductor rail. The track is split into two work ranges. The infeed for the two overhead contact line sections is via indoor track switches. Each overhead contact line section is to be switched separately and secured against unintentional reconnection. The overhead contact line sections are disconnected by a section insulator. In both sections, the overhead conductor rail can be electrically swivelled over a length of 31.5 m. This allows the current collector of the electric trainsets to be lifted for inspection.

The trains can be operated electrically and can enter the workshop under their own power. The overhead conductor rail is energised as a result. Work on the trainsets may only be performed when the overhead conductor rail is switched off and de-energised. An automatic disconnection and earthing system was built for track 604 for this purpose. The control system supervises the access doors to the roof maintenance platform, the lifting system, and the swivelling part of the overhead conductor rail. The crane, the fall-arresting equipment on the front, and the earthing on the roof maintenance platform retain their function. They are released from the control panel with a key.



City-Tunnel Leipzig

Cross-City Link Zurich, Switzerland



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The specifications set out in this document apply to conventional applications. They do not represent performance limits. This means that divergent specifications may be attained in specific applications. The contractually agreed specifications alone shall apply. We reserve the right to effect technical modifications.

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