



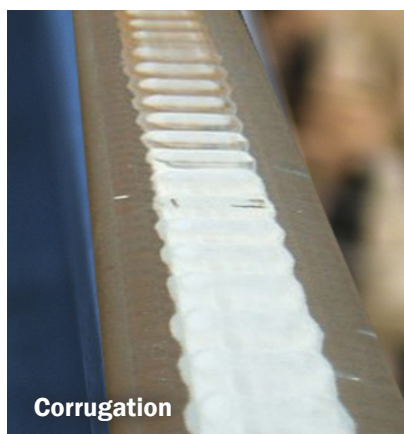
ROMILL SYSTEM

The complete solution for
modern rail maintenance

www.robels.com

YOUR TASK. OUR CHALLENGE.

Greater passenger volumes, faster speeds, increasing freight volumes and high line utilisation all place enormous stress on rails and switches, accelerating the wear process. Rail defects such as cracks and deformations form faster as a result. Aside from posing a considerable safety risk, this increased wear rate also reduces the service lives of the rails, as well as contributing to higher noise levels and reduced ride comfort.



MAXIMISING THE SERVICE LIFE OF THE RAIL

During corrective rail treatment, advanced defects are removed in one pass with a high material removal rate to restore the target profile of the rail.

ROMILL eliminates rail defects and reduces:

- ✓ Safety risks
- ✓ Delays and idle times
- ✓ Rail and wheel wear
- ✓ Life cycle costs
- ✓ Noise pollution
- ✓ Rolling friction





ROBEL RAIL TREATMENT

In order to meet the growing demands on rail systems and minimise the associated costs and risks, a sustainable and efficient solution for rail maintenance is required. ROBEL's rail treatment systems combine state-of-the-art milling, grinding and measurement technologies to restore the rail profile. In just one pass, rail defects are measured and removed, the rail profile is corrected and the results are documented. This treatment optimises wheel-rail contact and increases the service life of the rails. **Our comprehensive worldwide service** allows us to support customers on site during the entire maintenance process and beyond.



THE COMPLETE SOLUTION

- ✓ Milling technology for defect removal and reprofiling
- ✓ Grinding technologies for smooth surface finishing
- ✓ Measurement technologies for recording the rail condition and documenting treatment results

All relevant machine information at a glance

The ROBEL cloud application RONNECTED can be used to retrieve machine data and results at any place, at any time. For more information, please visit **robels.com**.



STRONG PARTNERS. STRONG RAILWAY.

THE ROBEL GROUP. LOCAL TO CUSTOMERS WORLDWIDE.

Rail treatment at ROBEL is based on the cooperation of specialists:

Milling technology from Schweerbau International (SBI), measurement technology from Vogel & Plötscher (V&P) and lifetime service from Plasser Robel Services (PRS) locally, and international ROBEL service partners globally. This combination of specialist know-how enables us to offer bespoke maintenance strategies for rail treatment, and deliver innovative, complete solutions for the implementation of these strategies.



Since 1901, ROBEL has been developing and producing machines and vehicle systems for the construction and maintenance of railway infrastructures worldwide. With a focus on ergonomics, efficiency, and sustainability, ROBEL is a certified partner for all areas of track construction and maintenance.



Vogel & Plötscher

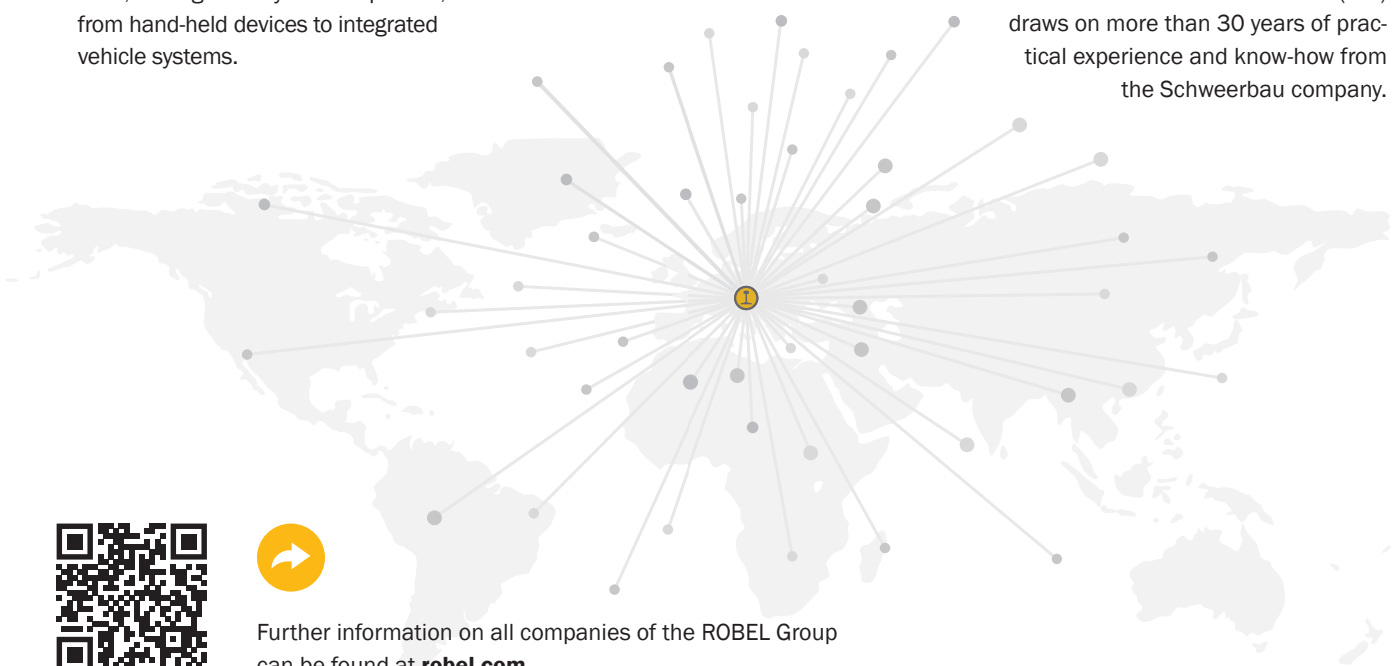
V&P is a leading manufacturer of measurement technology for rails and switches, track geometry and rail profiles, from hand-held devices to integrated vehicle systems.



PRS is responsible for the entire life cycle of rail-bound vehicles and machines from Plasser & Theurer and ROBEL in Germany, Austria and Switzerland. In addition, a network of international partners ensures on-site service for ROBEL machines globally.



As a competence centre for rail treatment technology, Schweerbau International (SBI) draws on more than 30 years of practical experience and know-how from the Schweerbau company.



Further information on all companies of the ROBEL Group can be found at **robel.com**



CERTIFIED QUALITY AND SUSTAINABILITY

ROBEL's quality standards encompass sustainable products, processes and relationships. Agreements are kept, a handshake counts. The companies of the ROBEL Group stand by their performance for the life-time of the product. Quality also means dealing fairly with people, proactively with environmental impacts and sparingly with raw materials and energy. At ROBEL, this extends from the production of machines to their safe, environmentally friendly and economical deployment on the track.





MILLING TECHNOLOGY



PRECISE. SUSTAINABLE. SAFE.

Milling technology is characterised by incredibly precise guidance on the track, which enables the highest precision even under difficult conditions and results in the efficient elimination of rail defects. The interaction of technological solutions, the smallest manufacturing tolerances and the selection of high-quality materials form the basis for the treatment results. For a defect-free rail with the lowest transverse and longitudinal profile tolerances.



WHY RAIL MILLING?

Complete elimination of rail defects and reprofiling in a single pass

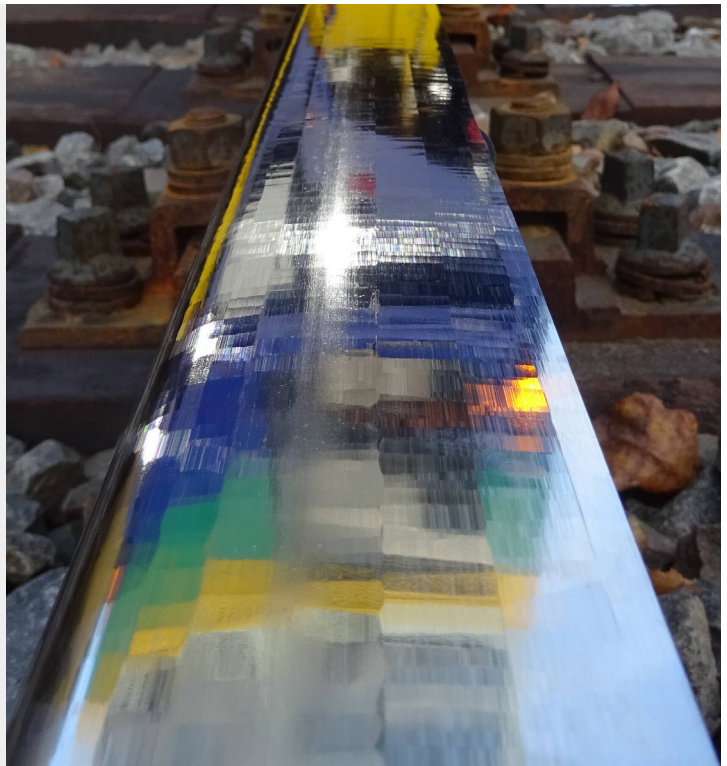
- ✓ Variable material removal of up to 2 mm per pass, per milling wheel from the top edge of the rail
- ✓ Repeatable, precise production of the defined target rail profile

No sparks, no dust and no heating of the rail during the milling process

- ✓ Increased safety
- ✓ No fire hazard
- ✓ No damage to infrastructure

Environmentally friendly and sustainable

- ✓ Removed material 100% recyclable



ADVANTAGES OF ROBEL MILLING TECHNOLOGY

PENDULUM TECHNOLOGY

- ✓ Vertically restricted guidance of the milling wheel for precise and safe working
- ✓ Optimum results even in difficult track positions

MILLING WHEEL SEGMENTATION

- ✓ Segment exchange replaces exchange of the entire milling wheel
- ✓ Increased safety and ergonomics due to reduced lifting loads
- ✓ High flexibility due to quick changeover of cutting tools and transition to new target profiles
- ✓ Damaged cutting tools can be replaced individually

TOOL POSITIONING

- ✓ High density of cutting tools due to upright positioning in the milling cassettes
- ✓ Continuous force application leads to increased lifetime of the cutting tools
- ✓ Optimum treatment results due to the high number of cutting edges

FINISHING TECHNOLOGY



PROVEN. CLEAN. POWERFUL.

Rail milling creates a characteristic rippled structure on the rail surface, which leads to temporary noise effects (high-pitched „singing“ sound) as a result of resonance, due to its periodicity. The ROBEL finishing technology smoothes this structure and ensures a standard-compliant, longitudinally oriented surface of the rail head with surface quality according to EN 13231-2:2020.



OSCILLATING GRINDING

Decades of proven rail grinding technology for tracks with particularly high requirements in the area of noise and vibration.

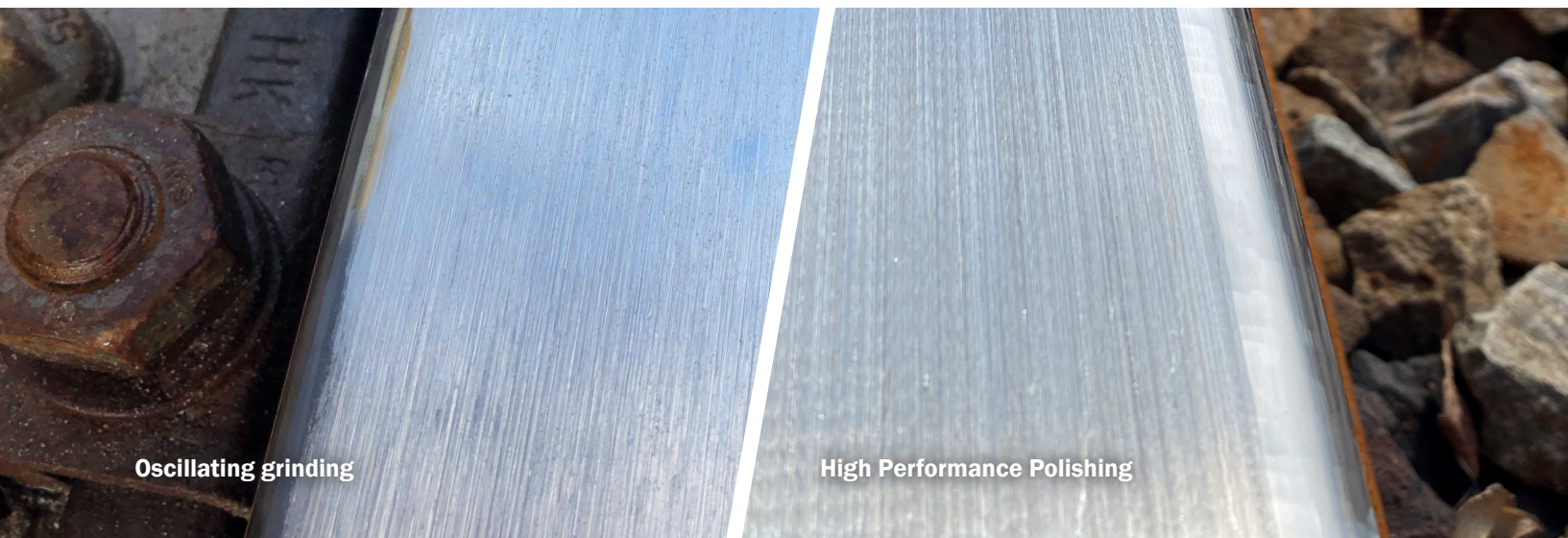
- ✓ Treatment of the entire rail head
- ✓ Minimal dust emissions
- ✓ 100% spark-free



HIGH PERFORMANCE POLISHING

A new and powerful process to produce ideal surface finishes.

- ✓ High machining speed
- ✓ Treatment of the contact band
- ✓ High-performance extraction for minimal flying sparks



Oscillating grinding

High Performance Polishing

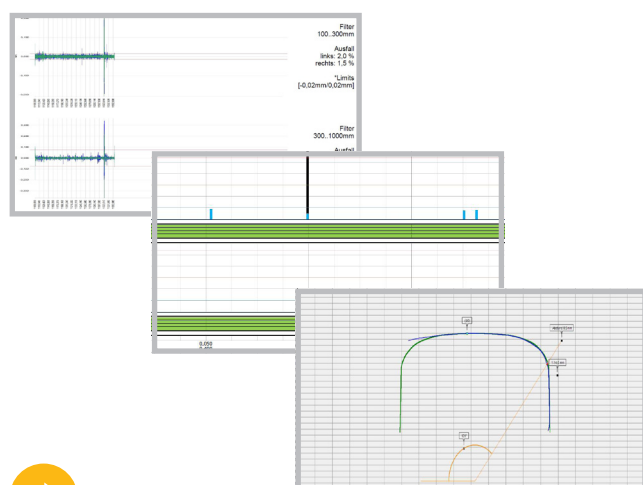


MEASURING TECHNOLOGIES



USER-FRIENDLY. ACCURATE. FLEXIBLE.

The ROBEL Group supplies the appropriate measuring equipment to determine the condition of the rail and document the processing results. In addition to measuring the transverse and longitudinal profile of the rail, cracks in the rail surface can also be detected using eddy currents. Specific software packages are available for each application, for the evaluation, documentation and subsequent archiving of the measurements.



Further information on the measurement technologies of Vogel & Plötscher can be found at vogelundploetscher.de

LONGITUDINAL PROFILE MEASUREMENT

Contact-based measuring system for measuring the rail surface in the wavelength range of 10-1000mm.

RAIL DEFECT MEASUREMENT

Variable, adjustable, sensor-based measuring system for the detection of rail defects in the rail surface by means of an eddy current.

CROSS-SECTION MEASUREMENT

Laser-based measuring system for measuring the rail head and the wear reserve both pre- and post-treatment.



ROMILL Mainline 2

THE COMPLETE SOLUTION FOR MAINLINE APPLICATIONS

- ✔ Vertically restricted guided milling wheel with a diameter of 1445 mm
 - High performance
 - Long tool life
- ✔ Oscillating grinding for finishing
- ✔ Swarf container with large capacity (6 m³)

TECHNICAL DATA	ROMILL Mainline 2
Material removal per pass	0,3 - 2 mm
Working speed	400 - 1.200 m/h
Traction drive	Diesel / hydraulic
Max. axle load	~ 15t
Max. speed (self-propelled)	60 km/h
Max. gradient	40 ‰
Vehicle length	~ 32.000 mm
Vehicle width	~ 3.000 mm
Vehicle height	~ 4.000 mm

HIGHLIGHT: ONBOARD TOOL MANAGEMENT

- ✔ Highest safety and ergonomics
- ✔ Robot-assisted milling wheel and tool exchange
- ✔ No manual lifting of the milling tools
- ✔ Reduced number of staff

» Four months after the launch, 10 km of working distance was covered on the JR Tohoku line between Shiroishi and Ogawara. We are satisfied with the results of the work and are grateful that ROBELL has made every effort to meet our expectations. «

Yuichi Kikuchi,
Deputy Head SENKEN KOGYO





ROMILL Urban 3 E³

UNIVERSAL SOLUTION FOR URBAN APPLICATIONS

- ✔ Fits in almost every clearance gauge worldwide
- ✔ Vertically restricted guided milling wheel with a diameter of 600 mm
- ✔ High Performance Polishing (HPP) as finishing
- ✔ Hybrid drive for emission-free applications
- ✔ Modularly expandable to increase flexibility and performance

TECHNICAL DATA	ROMILL Urban 3 E³
Material removal per pass	0,3 - 1,5 mm *
Working speed	300 - 1.200 m/h
Traction drive	Diesel / electric
Max. axle load	~ 13t
Max. speed (self-propelled)	60 km/h
Max. gradient	50 ‰
Vehicle length	~ 25.000 mm
Vehicle width	~ 2.350 mm
Vehicle height	~ 2.850 mm

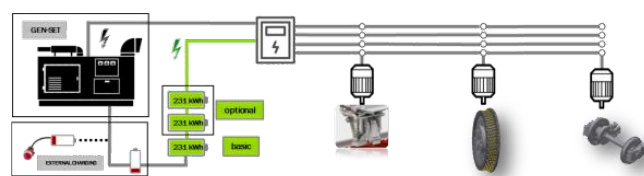
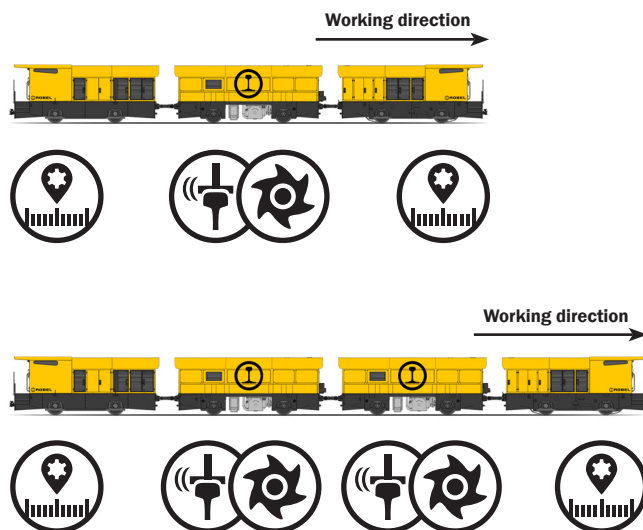
* expandable up to 3 mm

HIGHLIGHT: HYBRID DRIVE

- ✔ Flexible use of the two drive modes (diesel and electric)
- ✔ Emission-free driving and working up to 3h
 - Clean working environment in tunnels
 - Reduced noise emissions
- ✔ Regenerative charging when driving downhill and braking
- ✔ External charging possible

» With ROMILL, we are making our contribution to the sustainability of the rail system in North America. This battery hybrid technology, which is unique in the world, removes exhaust gases and dust from the construction site, for the benefit of employees working in tunnels and metro systems. «

Thomas Blechinger,
President & CEO Plasser American





FURTHER INFORMATION AT ROBEL.COM

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