PRODUCT CATALOGUE

Systems & Vehicles
Service & Support

www.robel.com

ROBEL

SYSTEMS & VEHICLES
FAST.
EFFICIENT.
PROTECTED.

Since 1901 ROBEL has developed, manufactured and supplied track construction machines with a claim for safety and economic efficiency. This is the incentive for around 570 employees at the ROBEL premises in Freilassing, Germany, to create powerful machines and systems and deliver good service. For the construction and maintenance of railway infrastructure systems all over the world.

Strong client cooperation.
Only those who listen will find out about the requirements of worksite operations. With an international network of representations and service partners ROBEL is at the heart of local markets. As a result, we develop safe, high-quality and user-friendly products.

Powerful machines.
Knowledge paves the way to innovation. ROBEL utilises its experience and ingenuity to convert new technologies - also from other areas - into needs-oriented solutions for track construction. Tested on the in-house track, certified in the area of use.

Good service.
Professional customer service keeps machines operational where results are key. The client decides how close the cooperation with ROBEL is. ROBEL delivers reliably and on time. From the spare part supply through to all-round service.

ROBEL. GREAT ON TRACK.

Systems & Vehicles at a Glance
Whatever the challenge in track construction, ROBEL has the solution. The ROBEL catalogue for Systems & Vehicles and Service & Support informs about

- Standard products
- Customer projects
- Tailor-made solutions
- The whole product portfolio for Service & Support

ROBEL Machines & Equipment you can find in a separate product catalogue and as an online version on www.robel.com

Certified performance
- Certified acc. To ISO 9001:2015 quality management system
- Certified acc. To DIN EN ISO 14001 environment management system
- Silver Level EcoVadis CSR-Rating
- Welding of Railway Vehicles and Components acc. To EN 15085-2
- Adhesive bonding on rail vehicles and parts acc. To DIN 6701
- Q1 Supplier of Deutsche Bahn AG
- Trans Q Qualification (Scandinavia)
- RISQS Qualification (UK)

Great on Track. Great in Web.
The ROBEL website keep you constantly informed about new developments in our product range and provides a digital version for downloading. Our sales team in Freilassing as well as our field stuff and representatives worldwide are at your full disposal for any questions that might arise.

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PRODUCTS

WORKSHOP ON WHEELS

ROMIS System Mobile Maintenance System

THE SAFE WORKSHOP ON WHEELS.

ROMIS System is a three unit engineering train consisting of ROMIS Supply, ROMIS Work und ROMIS Store.

ITS BENEFITS. YOUR BENEFITS.

ROMIS Work. The workhouse of the system.

- Optimized processes due to control desk to coordinate work functions
- Increased efficiency due to driving the system in creep mode by platform
- Extendable side walls to increase the work space
- Reduced noise and light emissions for line side neighbours
- CCTV monitors and laser protection systems to permit sidewall opening with adjacent line open
- Protection on adjacent track and weather

ROMIS Store. The storehouse of the system.

- High load capacity and payload
- Double-sided mounted hydraulic tail lift for loading and unloading to ROMIS Store
- Material and machine transport from ROMIS Store to ROMIS Work by two overhead cranes, each with 2.5 t lifting power
- Ergonomic holding and securing devices

ROMIS Supply. The powerhouse of the system.

- Energy supply for the entire system
- Travel drive for the transfer drive and work drive
- Crew room including sanitary facilities
- Powerful underfloor drive allows the space above the frame floor level to be fully utilized

EDV-Nr.: 7679900006, 7689900005, 7609900008

TECHNICAL SPECIFICATIONS

Overall length	74,2 m
Max. axle load	18 - 22,5 to
Max. speed	100 km/h
Weight	209 to
Lifting power	
Overhead crane	each 2,5 to (check load-concept for details regarding switch / rail transport)
Tail lift	1,5 to
Max. payload ROMIS Store	20 to
Max. working space with	
closed side walls	46 m² (18 m x 2.6 m)
expanded side walls	82 m² (18 m x [2.6m + (2x1m)])
Track gauge	1435 mm
Kinamatic gauge	UIC 505-1_Number 6.1_6.2_6.3
Noise protection	TSI Noise
Approvals	TSI, EN

Dimensions and weights approximated. We reserve the right to modify in the course of technical development. Prices excluding VAT. Copyright secured.

THE PERFECT WORK ENVIRONMENT FOR DELIVERING QUALITY MAINTENANCE.

ITS BENEFITS. YOUR BENEFITS.

Protected working space becomes a mobile work house.

- Extensive protected working area due to extendable side walls by up to 1 m each
- Protection against the weather due to closing the blinds of the windows
- Reduced noise and light emissions
- CCTV monitors and laser protection systems to permit sidewall opening with adjacent line open
- Option: Advanced protection against uncontrolled flying ballast from trains on the adjacent

Great facilites. High quality of work.

- Use of two chain hoists thanks to a massive longitudinal beam
- Energy supply for hand-held machines in the work space due to two electrical safety sockets and one power supply connection at the front and rear of both side walls
- Option: Hydraulic or pneumatic energy supply

Precision in every work process.

- Re-railing including work preparation and postprocessing
- Repadding
- Repadding and spot alignment
- Maintaining and renewal of insulated rail joints
- Maintenance work on Switches&Crossings (S&C)*
- Grinding of S&C*
- Neutralising rails
- Renewal of small track components
- Correction of individual errors in the track
- Ultrasonic tests (rail)
- Cladding
- Inspection and maintenance of rail joints, insulated block joints and grounding equipment on the track

Related work area depending on the turnout radius and turnout type

EDV-Nr.: 760000022

TECHNICAL SPECIFICATIONS

Total length over buffers	28 m
Max. axle load	20 to
Max. speed	100 km/h
Total weight	72 to
Lifting power	
Over head crane version light	600 kg (rail handling up to max. 2.0 m)
Tail lift	1,5 to
Over head crane	2,5 to
Max. workspace with	
closed side walls	46 m² (18m x 2,6m)
extended side walls	82 m² (18m x [2,6m + (2x1m)])
Track gauge	1435 mm
Kinamatic gauge	UIC 505-1_Number 6.1_6.2_6.3
Noise protection	TSI Noise
Approvals	TSI, EN
Marketable	Europe

Dimensions and weights approximated. We reserve the right to modify in the course of technical development. Prices excluding VAT. Copyright secured.

OPTIONS

Operating cab
With space for train driver and assistant
- Remote desk
- Driver and assistant seats
- Windows with windscreen wiper device
- Side windows with slide opening
- Roller blind

CO2- air conditioning system
- Integrated heating
- CO2 as a refrigerant

High-End crane version
- Lift capacity 2.5 T per crane
- Incl. radio remote control
- Synchronous operation with two cranes is possible
- Designed to access the full working even with the side walls fully deployed

Radio remote control
- All functions of the crane modules can be remotely controlled
- Two crane modules can move & lift with synchronous operation from one remote control
- Possibly display of lifting capacity

Train Control System
National or European Train Control System

Communication device
Communication within the train is via fixed intercom

Door in the side wall
- For better access to the track lineside
- Dimensions: 2 m x 2 m (above rail level)

Light barriers
- Protecting staff in the working area when in creep mode, when the light barrier is triggered the machine is automatically braked
- Light beam safety trigger can also be installed at the top of the steps to prevent entering the working area during creep mode

Additional electrical supply
Maximal extension of two Schuko sockets and one power connection can be integrated

Pneumatical supply
Two pneumatic connections can be integrated on each side of the vehicle (10 bar, Euro compressed air connection).

Additional hydraulic connections
One hydraulic connection (P, T, L) can be integrated in the side walls at the front and at the back (four connections in total)

Flange lubrication
A REPS version or graphite pin version is available

Video system
Display
- the track directly in front and behind the vehicle
- the side walls in the direction of travel
The view will change automatically depending on the driving direction

Extended Side protection
Electrically deployed:
- Integrated into the sidewall panel
- Deploying until level with the ballast, section by section
- Associated hydraulic are located in the side wall.

Manually deployed:
Plastic side protection plates can be manually hung on the lower part of the side wall

Control panel Supervisor
Desk equipped with seats, additional dead mans switch and controlling of all functions that are relevant for the work operation at the desk
- Creep control (with engine start and stop)
- Brake
- Extend and retract sidewall
- Blinds control & lighting
- Laser system for monitoring Sidewall spacing to the adjacent line
- Display device of the video system

Window with slats
• Pneumatically openable, electrically operated
• Low noise emissions to the outside with closed louvers
• Daylight and air exchange with open slats

Integrated rail stressor
To tension the rail following re-railing work

Mobile suction device - for fume extraction
• Short exhaust tube
• Simple and quick setup with quick-release fasteners
• Flexible and adjustable in the working area
• Detachable cover (Ø600mm) -> Ideal for collecting all fumes when welding
• The suction device with the Ø200mm diameter hose can be brought very close to the weld position without affecting the welder

Rail storage on the side wall
• For direct rail transport on the side wall, including transport protection
• Carries 2 rails of 15 m length per side

Low temperature version
Machine can be upgraded to work down to -40 °C

ROHALL Maintain Mobile Maintenance Hall

TRACK AND RAIL MAINTENANCE IN PROTECTED AREA.

ITS BENEFITS. YOUR BENEFITS.

Safe and functional operation at construction site
- Remote controlled placement from a safe distance by telescopic support feet of the hall
- Asymmetrical working on switches due to telescopic Horizontal extension of the frame
- Installation and transport on standard trailer with Quick Lock

Comfortable and protected working place
- Protection from weather and noises through roof and side walls
- Protection against passing trains (up to 200 km/h) due to closed side walls
- Continuous operation from siding remains unaffected
- Enlargement oft he working space by using multiple connected maintenance halls

User-friendly equipment
- Emission-free and quiet operation due to fully electrical energy supply
- Ergonomic work due to integratet lifting aids and complete illumination of the Maintenance hall
- Easy manipulation of material and machines due to overhead crane Option: Rail tong on the crane

TECHNICAL SPECIFICATIONS

Dimensions	
Closed side walls	51,8 m2 (18,5 x 2,80 m)
Opened side walls	98 m2 (18,5 x 5,30 m)
Height crane hook	2,43 m
Payload crane	max. 7 to
Power supply	electrical by battery
	alternativ: emergency generator
Approvals	according to machinery directive 2006/42/EG

ROMIS Work Compact — Mobile Maintenance Unit

Mobile Maintenance Unit ROMIS Work Compact combines the advantages of the bigger sister version and is ideal in more confined space.

ITS BENEFITS. YOUR BENEFITS.

Track maintenance. Ergonomic, safe, functional.

- Extensive, fully illuminated protected workspace with extendable sidewalls
- Reduced noise and light emissions due to closed sidewalls
- Protection against weather elements and rail traffic on the adjacent track
- Further protection from flying ballast and other objects with side skirts which can be added to extend the side wall to the ground.

Tailor made for using in urban tunnel.

- Open access to the lineside, due to sliding door in sidewall
- Option for Hose- und intake manifold for jetting & drainage works
- Perfect work environment for rail replacement and welding

Maximal work capability in a confined space.

- Hydrostatic drive allows self traction on the worksite
- Drivers cab for Bi-directional operation
- Crew compartment with heating and temperature control system, toilet and storage for small parts and hand tools
- Three crane runways for operations with lifting capacity each 250 kg
- Widely lifting area due to three movable lifting devices lengthwise inside the working zone
- Air extraction system to maintain a health environment during rail cutting, grinding and welding work

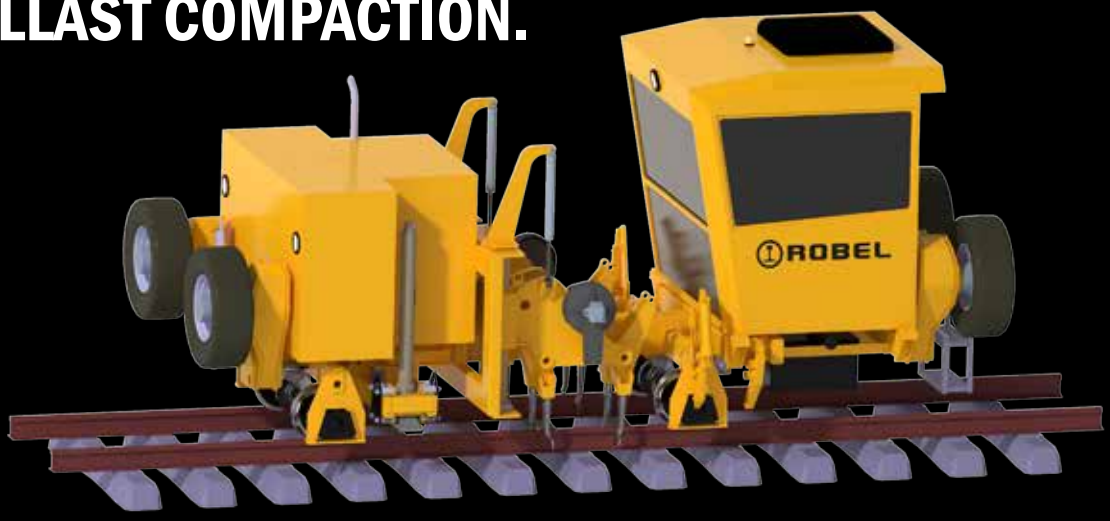
TECHNICAL SPECIFICATIONS

Total length	15,4 m
Max. Axle load	20,5 t
Max. Speed	10 km/h
Transfer drive	via towing vehicle, 100 km/h
Weight	40,5 t
Max. lifting capacity crane	up to 250 kg
Max. available working area	
closed sidewalls	19 m² (6,3 m x 3 m)
extented sidewalls	31 m² (6,3 m x 5 m)
Track gauge	1435 mm
Structure gauge	UIC

TRACK BED MAINTENANCE AND CLEANING

ROMITAMP 2.0 Tamping Machine

FLEXIBLE TAMPING UNIT FOR HIGH QUALITY BALLAST COMPACTION.



Compact and small tamping machine for precise tamping of track sections, which are to big for manual corrections and to small for economic commitment of large machinery. Application also in terrain, which is difficult to access.

ITS BENEFITS. YOUR BENEFITS.

High tamping power. Maximal quality.

- Homogenous ballast compaction with the proven asynchronous pressure vibration tamping system, ideal for poor ballast conditions.
- Correct track geometry in a short time
- Linear control allows a precise motion sequences of the tamping units.
- Operator‘s seat with all of the controls located immediately behind the tamping unit
- Tamps on both directions, both sides or in switches

Robust and compact construction

- Compact design which is easy to transport by road and rail, ideal for loading on trucks or ROTRAILER
- High wear resistant armour material with pressure plates maximizes tamping tine life

Reliable function. Best equipment.

- Rapid deployment with an integrated on/off tracking device
- Bio-degradable hydraulic oil tank with line filters on both intake
- and return line
- Additional LED work lights on all sides
- Fully automated tamping process reduces manual follow up work Low maintenance costs due to economical, readily available

Optional modularity. Individual operation. Greatest possible flexibility.

- Conversion to different track gauges
- Switch tamping unit for treatment of switch and crossings
- Air-conditioned cab for full operator comfort
- Combined lift and lining function in one tamping pass
- Function upgrades are possible with “bolt-on” optional modules

TECHNICAL SPECIFICATIONS

Speed	25 km/h
Brake	hydraulic spring loaded brake
Drive	hydrostatic
Wheelbase	2900 mm
Engine power	~ 100 kW, depending on number of tamping heads (Basic 55 kW)
Emission stage	Emissions classification EU Stage V
Dimensions	from 5680 x 2250 x 2896 mm, depending on configuration
Weight	from 5,6 t
Track gauge	900 – 1676 mm
Approval	Machinery directive CE marking, EN 15955 in combination with national approvals

Basic version with roofed cabin and one side mounted tamping unit with four tamping tines.

TAMPING UNITS

Option SINGLE
1 Basic tamping unit fix, not adjustable
Output: 40 - 50 m/h or ~ 100 sleepers /h, depending on track characteristics, without lift & line

Option DUAL
2 Basic tamping units fix, not adjustable
Output: 150 m/h or ~ 300 sleepers /h at 500 mm sleeper spacing, depending on track characteristics, without lift & line

Benefit:
- No second machine necessary, due to parallel tamping of both rails
- No rotating of the vehicel required

Option SWITCH
1 Switch tamping unit with tines that rotate to horizon
Output: 80 - 100m/h or ~ 200 sleepers /h at 500 mm sleeper spacing, depending on track characteristics, without lift & line
Benefit:
- Unlimited tamping of switch and crossing unit possible

Additional modular configurations

Cabin
Option 1 (Basic version)
Open, roofed drivers cabin designed according to ergonomic aspects

Option 2
Closed drivers cabin with air-condition and heating
Benefit:
- Protected operators workstation enables working in all weathers

Lift and Lining unit
Hydraulic lifting cylinders with max. lifting 900 mm, lateral displacement +/- 100mm, depending on structure gauge
Benefit:
- staff savings about 3-4 compared to manual methods pf lift and lining of track
- Further tools and equipment are not required
- Long lasting repair with no manual follow up work required
- Including a measuring unit to measure superelevations
- Automatic data collection of measured values with visual display of real time track parameters

On and off tracking unit
Integrated on and off tracking unit - parallel to direction of operation and on all different track surfaces
Benefit:
- Fast on/off tracking allowing increased track availability
- On/off tracking under overhead line possible

Rubber coated wheels
Easy unloading, without risk of damage, due to rubber coating of the wheels
Benefit:
- Short transit on asphalt is possible
- No damage to the wheels

Rotating unit
Simple unloading on construction site
Benefit:
- Manual turning of the machine is possible
- Simple on tracking is possible at level crossing

OPTIONS	ROMITAMP 2.0 Single	ROMITAMP 2.0 Dual	ROMITAMP 2.0 Switch
TAMPING UNIT			
1 Fixed basic tamping unit	■	-	-
2 Fixed basic tamping units	-	■	-
1 Moveable switch & crossing tamping unit	-	-	■
MOTOR			
Motor power 55 kW	■	-	-
Motor power 100 kW	-	■	■
CABIN			
Covered open work cab	■	■	■
Enclosed work cab	□	□	□
Lifting and Lining* device (incl track measurement)	□	□	□
On/off tracking device	□	□	□
Turn table	□	□	-
Rubber tyres	□	□	□

***Depending on the loading gauge some restrictions on lining may apply**

■ Standard

□ Option

Sleeper Laying Unit (Gantry Unit)

ITS BENEFITS. YOUR BENEFITS.

Powerful machine. Accurate working results.

- Single sleeper laying to millimetre accurary
- Sleeper spacing can be continuously adjusted
- Automatic single sleeper laying action allows radial laying in tight curves
- Offloading, transporting and laying up to 20 concrete sleepers or 24 wooden sleepers in one cycle

Field of application

- Relaying on single line is possible
- Relaying with adjacent line open for all tracks gauges is possible
- Optional: Beams for handling track panels

Easy handling

- One person operated
- Machine and sleeper transported to the worksite by standard wagon or low loader
- Mounting and demounting is done with an integrated lifting mechanism – no additional equipment required.
- Auxillary rails allows the safe and fast machine movement on the worksite

EDV-Nr.: 2639900008

TECHNINCAL SPECIFICATIONS

Drive	hydrostatic drive, 4-cylinder diesel engine 116 kW
Lifting power	13 to
Lifting speed	12 m/min
Performance	approx. 5 s per sleeper
Auxiliary rails track center for gauge 1435 mm	3450 mm (track center refers only to wagon total width)
Laying accurary	max. +/- 9 mm
Max. speed	22 km/h
Max. grade	40 ‰
Weight	18 to
Max. sleeper capacity	20 concrete sleeper / 24 Wood sleeper
Max. track panel length	13 m
Marketable	Worldwide, without approval

Dimensions and weights approximated. We reserve the right to modify in the course of technical development. Prices excluding VAT. Copyright secured.

WORK PROCESS

Lift up to 20 concrete sleepers from the trolley

Transport sleepers with gantry

Temporary storage of the sleepers on track then transport and lay Sleeper in track with second unit

Sleeper placement tolerance to the nearest millimeter – aprrox. 5 sec. / sleeper

Lay sleepers accurately and evenly, ready for rail installation

Continuous, steady placement of rails on the sleepers at the requirement gauge with ROTHREAD

ROCLEAN System Level 2 Cleaning System

Highly effective Track Cleaning System mounted on a standard flat wagon.

ITS BENEFITS. YOUR BENEFITS.

High productivity due to automatic cleaning.
- Permanently clean track, with preventive track bed cleaning and removing of foreign material
- Improved train availability due to reduced track failures
- Significantly less cleaning personnelwith automatic cleaning
- Increased ballast life due to reduced sand and dust pollution

Safe maintenance. Safe railway.
- Significant reduced accidents and fire risk in the tunnel, due to clearing of combustible material
- Quiet working, inside and outside of the cabin
- Reduced fine dust pollution improving the work conditions for track worker

Optionally additional functions (can not be combined)
- Deep vacuum track cleaning
- Dry ice cleaning
- Suction of metallic objects
- Vegetation control

TECHNICAL SPECIFICATIONS

Max. speed	
Working speed	2 – 15 km/h
Driving speed	~ 100 km/h
Weight	~ 72 t
Energy supply	external power source or combustion engine
Cleaning width	
Constant	2,60 m
Variable	to 0,40 m per side
Vacuum Hose reach	to 6 m
Soil tank capacity	10 m^3

DRY ICE CLEANING. HIGHLY EFFECTIVE AND ENVIRONMENTALLY FRIENDLY.

ITS BENEFITS. YOUR BENEFITS.

Easy handling. Powerful result.

- Fast and easy removal of persistent contamination on walls, tracks or infrastructure with dry ice
- Easy, intuitive operation with 3 preset cleaning modes
- Self-sufficient supply provides energy and dry ice as blasting medium

Maximum ergonomic and environmental awareness.

- Works without chemical detergents
- Dry ice evaporates and is residue-free
- Proper disposal of the dirt particles with an extraction system and collecting tank
- Ergonomic operation of the cleaning unit, with different grip positions and adjustable height

TECHNICAL SPECIFI-

Weight	~ 3300 kg
Dimensions	2500 x 2800 x 1500 mm
Dry Ice consumption per hour	~ 80 kg / h
Particle filtering	according to $PM_{2,5}$
Output compressor	up to 6 m^3 at 8 bar compressed air
Output suction unit	up to 15 m^3 per minute
Output cleaning unit	~ 7,5 m^2 per hour

HIGH SUCTION POWER. HIGH-PERFORMANCE AND SELF-SUFFICENT TRACK CLEANING.

Container based track cleaning system for build on flat wagon with self-sufficient energy supply.

IT´S BENEFITS. YOUR BENEFITS.

Preventive cleaning. Automatic and simple.

- Maintain clean track, by removing general debris , vegetation, dust, track dirt and waste
- Significantly reduces the fire risk (especially in tunnel), due to continuous cleaning flammable materials
- Increased ballast life by removal of ballast fines and dust pollution
- Automated guidance function of the vacuum head to work around track obstacles
- Optional device with hand guided ROCLEAN Ice (dry ice solution) for removal of oil or grease waste

High productivity. Best working conditions.

- Pro-active track cleaning improves overall asset performance
- Reduced fine dust pollution by track cleaning improves working conditions for track worker

Option: Manual entry level variant.

- Manual cleaning with vacuum hose
- System transported by locomotive or track vehicle
- Working speed of max. 2 km/h

TECHNICAL SPECIFICATIONS

Max. Speed	
Working speed	2 – 15 km/h
Driving speed	~ 100 km/h
Energy supply	self sufficient
Cleaning unit head width	1300 mm
Suction area reach	5m standard, optional extension up to 20m
Capacity of spoil tank	up to 5m3
Noise emissions	80 dB(A) in accordance DGUV
Dust Filter	In accordance with EN 60335-2-69, Dust class M
	Particular matter filtering, transmittance of fine dust <0,1 %
Approval	reduced approval effort with container based solution

RAIL MANAGEMENT

ROREXS System **Rail Manipulator and Chute Wagon Unit**

BRINGS RAILS TO THE TRACK QUICKLY, SAFELY AND IN ROLLING MILL QUALITY.

ITS BENEFITS. YOUR BENEFITS.

Latest loading technology results in high-quality work product

- Loading and unloading of long welded rails up to 500 m in perfect condition
- The Rail Manipulator and Chute Wagon can be configuration to allow flexible integration with all different rail transport units
- Precise rail guiding for loading and unloading
- No infringement of the open adjacent line while unloading
- Short loading times with minimum staff levels manpower (only 3 staff for uploading and 4 for unloading)

ROMAN. Powerful Manipulator with ergonomic workplace.

- Loads and unloads rails onto/from the transport unit
- Compatible on different transport units with wheelset adjustment
- Changeable rail clamps allow handling of different rail sections
- Provides a protected and ergonomic workplace for two operators

ROCHUTE. Two-sided Chute Wagon Unit.

- Safely and carefully guides rails to/from the transport unit during loading and unloading
- Bi-directional unloading and loading is possible, due to a turning device on the Chute Wagon Unit for the rail manipulator
- Rails secured against tilting during loading and unloading due to universal roller heads

EDV-Nr.: ROCHUTE 4809900001 ROMAN 4759900001

THE ROBEL AUTOMATIC SYSTEM.

The option to edge.

ROREXS Rail Exchange-system.

Rail exchanging in one operation.

- Simultaneously, new rail is threaded in and old rail is moved aside
- For rapid rail exchange with a speed of 3 km/h

Transport unit.

More technique, more safety.

- Protection of each particular rail by clamping racks with automatic rail clamping
- No manual activities on the transport unit, due to automatic swiveling- and locking processes by roller banks
- Remote control of the chute wagon functions from a safe positon

TECHNICAL SPECIFICATIONS

ROMAN	
Drive	6-cylinder diesel engine hydrostatic
Max. tractive effort speed	at 10 km/h: 17 kN, at 0-4 km/h: 44 kN
Weight	~ 15 to
Lifting power at 3.7 m outreach	15 kN
Crane gauge	2700 mm / 2880 mm
ROCHUTE	
Max. driving speed	100 km/h
Track gauge	1435 mm
Approvals	DE/AT/CH (DB, BMVIT; Norm: 14033, BAV)
Kinamatic gauge	EBO G1

ROXCHANGE Trolley Rail Exchange System

ITS BENEFITS. YOUR BENEFITS.

ROXCHANGE Set.

- T-REX F (Front) self propelled by combustion engine
- T-REX R (Rear) towed by T-REX F with steel cable
- Ideal to use on single lines, in restricted areas or with adjacent line open to traffic

Fast and safe rail exchange

- T-REX F threads the new rails in from the sleeper ends
- T-REX R threads the worn rails out to the sleeper ends
- T-REX F drives forward pulling T-REX R exchanging the worn rails with the new rails
- Continuous high speed working process and short set up times

EDV-Nr.: 4654550002 T-REX F; 4654551002 T-REX R

TECHNICAL SPECIFICATIONS

Min. Track radius	500 m
Max. Gradient	35 %
Max. Superelevation	200 mm
Rail type	JIS 60 (similar to UIC 60)
Track gauge	1435 mm
Offload time	approx. 10 min
Set up time	approx. 30 min
On track transit speed	11 km/h
Rail exchange working speed	3 km/h
Weight TREX-R	545 kg
Weight TREX-F	1200 kg

ROLOAD Rail Loader

ITS BENEFITS. YOUR BENEFITS.

High security. Maximum automation.

- Synchronised crane operation prevents damage to the rail and precise control prohibits rail tilting when unloading for professional and save loading and unloading
- Precise and synchronised positioning of the electrical winch for exact rail positioning even in adverse weather conditions and on maximum cant
- Safe operation with slew limiters to allow adjacent line open
- Safe rail transport to the worksite
- Option: Maximum operator safety with automatic rail tongs, no working at height to manually attach the rail

Flexible use. Reliable Performance.

- Option to work on either side with automatic 135 degree rotation of the crane on both sides
- Different methods are available to fix the equipment to the wagons (without affecting approvals)
- Management of longer rail can be accommodated by increasing the number of the wagons – up to 120m.
- Clear view during darkness, due to complete illumination of the worksite

Added value due to option hybrid power-pack

- High performance and low fuel consumption with a hybrid supercap system delivering at peak demand.
- Environment friendly due to less emissions
- Compact machine construction

EDV-Nr.: 8459900011

TECHNICAL SPECIFICATIONS

Max. Rail length	40 m
Max. Superelevation	180 mm
Number of cranes	1 crane per 10 m rail
Crane	
Max. Lifting power	900 - 1500 kg
Reach	~ 2,6 m (depending on model)

TRACK VEHICLE

RORUNNER Level 1 **Track Vehicle**

ITS BENEFITS. YOUR BENEFITS.

Small. Lightweight. High performance.
- Compact design suitable for underground and tunnel working
- Safe transport of staff and material to the worksite
- High tractive power allows emergency recovering of vehicles

Optimised vehicle concept
- Easy loading and unloading due to lowered loading area (855mm above rail height)
- Multi-traction mode for increased towing capacity

Extended application range
- Operation on sidings due to integrated standard towing equipment and automatic centre buffer couple

EDV-Nr.: 6119900001

TECHNICAL SPECIFICATIONS

Drive	2-Axle-hydrostatic drive, 6-cylinder diesel engine 240kW
Max. Traction	90 to on level track at 40km/h
Max. Speed	40 km/h towed and self propelled
Weight	22 to
Loading capacity	max. 4.5 to at max. axle load 13.25 to
Dimensions	Length over buffer 11700 mm, width 2785 mm
Brake	pneumatic directly/indirectly, spring mechanism
Track gauge	1435 mm
Kinamatic gauge	GI/U-R007 (DE)
Approvals	BOStrab, EBO-A
Crane	PK 10501 A
Crane moment	10.1 mt
Max. Reach	7,6 m (1240 kg)
Max. Lifting capacity	5700 kg (1.8 m) depending on superelevation and crane position
Approved in	Route VAG

RORUNNER Level 2 **Track Vehicle**

GREAT POWER ON TWO AXLES.

ITS BENEFITS. YOUR BENEFITS.

Powerful and precise control with hydrostatic drive
- Precise control for smooth starting
- High brake power, mechanical brake protected by an additional retarder
- Continuous operation in creep speed is possible

2-axis vehicle
- Agile due to compact machine construction
- Low maintenance

Option
- Power supply for other equipment due to integrated generator 17kVA
- Additional compressor 1m³/min at 10bar for air supply of connected wagons
- Overhead line measuring device
- Optional attachments for vegetation management and snow clearance

EDV-Nr.: 7409900004 (with crane PR 220)

TECHNICAL SPECIFICATIONS

Drive	2-Axle hydrostatic drive, 12-Cylinder diesel engine 750 kW	
Max. Traction	124 to in 50 ‰ at 10km/h in working speed	
	340 ton on level track at 100km/h at transfer	
Max. Speed	100 km/h towed and self propelled	
Weight	45 to	
Loading capacity	~ 5 to	
Dimensions	Length over buffer 15100 mm, width 3140 mm	
Brake	pneumatic directly/indirectly, spring mechanism, optionally friction free brake	
Track gauge	1435 mm	
Structure gauge	EBV01, EBVU2, G1	
Approvals	CH (D and A in preparation)	
Crane	PR 220 C	PKR 200 D
Lifting capacity	22.5 mt	16.2 mt
Max. Reach	11.3 m (12.6 m)	14.7 m
Max. Lifting capacity at max. reach	1690 kg (1010 kg)	910 kg
	depending on superelevation and crane postion	
Lifting power	4500 kg	3950 kg

Dimensions and weights approximated. We reserve the right to modify in the course of technical development. Prices excluding VAT.

MODERN MAINTENANCE IN URBAN AREAS.

ITS BENEFITS. YOUR BENEFITS.

Powerful. Fast. Economical.

- High acceleration for fast operation
- No impact of passenger traffic, no line blockage necessary
- High braking performance due to integrated brake concept on every unit
- Efficient transport of staff and material to worksite
- Suitable for shunting duties and vehicle recovery due to high traction power

Varied use. Great vehicle concept.

- Working use on every railway systems with mixed operation on BoStrab and EBO
- Short bogie centre distance enables working on tight radii curves
- Low axle load enables use in the whole rail network
- Multi-traction mode for increased towing capacity
- Efficient transport of staff and material to worksite

EDV-Nr.: 6119900001

TECHNICAL SPECIFICATIONS

Drive	3-Axle-hydrostatic drive, 6-Cylinder diesel engine 390 kW,
	(Deutz Exhaust emission accordance with RL97/68/EG)
Max. Traction	Single vehicle 0-40 km/h, 100 kN; 0-60 km/h, 50 kN, Work mode 60 km/h self driven and towered
Max. Speed	60 km/h towed and self propelled
Weight	37 to
Loading capacity	max. 2 to
Dimensions	14.5 m total length over drawbar
Brake	pneumatic directly/indirectly, spring mechanism, electromagnetic rail brake, slide protection and skid
	control (slide protection active even when towing)
Track gauge	1435 mm
Kinamatic gauge	KVB, SWVB, HGK
Approvals	BOStrab, EBO-A (on selected routes)
Crane	PK 11502 B with hight & slew limiters
Crane moment	11.5 mt
Max. Lifting capacity	10.2 mt
Max. Reach	10.2 m (870 kg)
Max. Lifting power	2380 kg (4,3 m) depending on superelevation and crane position

TRAILER

ROTRAILER Level 1 Trailer

TRANSPORT UNIT WITH OPTIONAL RAIL GRINDING UNIT.

ITS BENEFITS. YOUR BENEFITS.

One carriage. Versatile material transportation.

- High loading capacity with large loading platform
- Installation of other modules with integrated twist lock connection
- Access ramp for loading and unloading of plant and equipment
- Ideal for maintenance in the underground

Optional: Grinding device under the frame with remote control.

- Increased rail life with the optional rail head grinding unit
- Elimination of railhead rust, leaf mulch and lubricator contamination
- Monitoring of the railhead condition with optional camera
- Wet and dry grinding is possible

EDV-Nr.: 6919900002 oder 6919900003

TECHNICAL SPECIFICATIONS

Weight	
Loaded	~ 26,5 to
Unloaded	~ 8,5 to
Max. Loading capacity	18 to
Max. Axle load	13,25 to
Track gauge	1435 mm
Dimensions loading platform	7410 x 2785 mm
Total length	8394 mm
Superelevation	max. 165 mm
Max. Speed	40 km/h
Grinding speed	10 - 15 km/h
Approval	BOStrab
Relevant set of standards	EN, UIC, EBO as far as usable

Dimensions and weights approximated. We reserve the right to modify in the course of technical development.

Link to the Video: https://www.youtube.com/watch?v=hcBIG9rTvk4

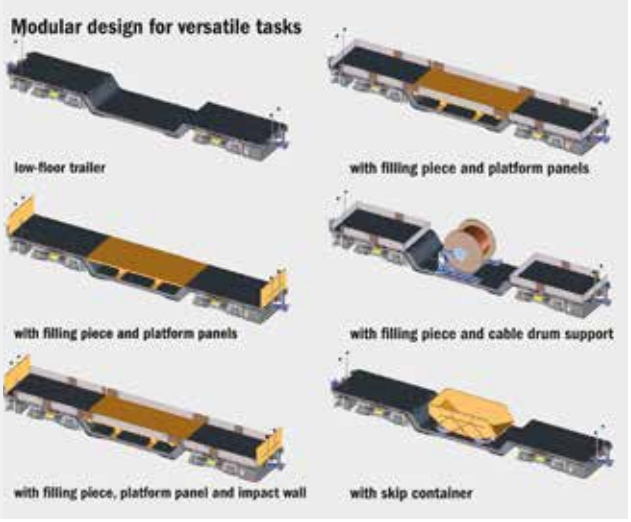
ROTRAILER Level 3 **Low Floor Wagon**

ITS BENEFITS. YOUR BENEFITS.

Modular build. Versatile use.
- Different configurations possible, according to working demands
- Fast fixing of different modules within 5 – 10 min by twist Lock

Urban transport of machines and material
- Can negotiate tight radius curves down to 25m
- Mixed operation BOStrab and EBO

Safety for staff and material
- Fast and automatic coupling process without staff staying in the danger zone due to Scharfenberg auto-coupling system
- Increased wheel life with integrated slide protection
- Short braking distances with electromagnetic rail brake, disc brakes and sander equipment



EDV-Nr.: 7579900002

TECHNICAL SPECIFICATIONS

Weight	
Loaded	39,9 to
Unloaded	20,5 to
Max. Loading capacity	16,8 to
Max. Axle load	10 to
Track gauge	1435 mm
Frame top edge low floor area	460 mm
Dimensions (L x B)	15500 mm x 2632 mm
Frame width	2400 mm
Superelevation	max. 180 mm
Max. Speed	60 km/h (towed in block train)
Kingpin distance	9000 mm
Approvals	BOStrab, EBOA
Relevant set of standards	DIN EN ISO 12100, EN 14033, BOSTrab, EBOA

ROTRAILER Level 3 **Ballast Wagon**

HIGH LOADING CAPACITY. ACCURATE RE- BALLASTING.

ITS BENEFITS. YOUR BENEFITS.

Accurate and easy re-ballasting

- Targeted re-ballasting with 4 chutes per silo, delivering ballast as required
- Continuous and regulated of ballast delivery with remote controlled ballast chutes
- Easy viewing of the operation from the control station
- Double sided control station for bi - direction working
- Good illumination of the work area and track side for night working

Urban material transport

- Can negotiate tight radius curves down to 25m
- Mixed operation BOStrab and EBO

Safety for human and material

- Fast and automatic coupling process without operators in danger zone with Scharfenberg auto-coupling system
- Increased wheel life with integrated slide protection
- Short braking distances with electromagnetic rail brake, disc brakes and sander equipment

EDV-Nr.: 7579900004

TECHNICAL SPECIFICATIONS

Weight	
Loaded	38,7 to
Unloaded	21,7 to
Max. Loading capacity	17 to
Max. Axle load	10 to
Track gauge	1435 mm
Frame top edge platform area	1120 mm
Dimensions (L x B)	15000 x 2632 mm
Frame width	2400 mm
Superelevation	max. 180 mm
Max. Speed	60 km/h (towed in block train)
Kingpin distance	8500 mm
Approvals	BOStrab, EBOA
Relevant set of standards	EN 14033, BOStrab, EBOA

ROTRAILER Level 3 **Transport Wagon**

POWERFUL TRANSPORT WAGON WITH TWIST LOCK CONNECTORS.

ITS BENEFITS. YOUR BENEFITS.

Flexibility with modular work units

- Equipped with twist lock connectors for attachment of modular work units
- Option: Extension for cleaning work with RODRAIN, self-sufficient driven jetting and vacuum unit (10000 l) for different cleaning activities on track

Urban machine and material transport

- Can negotiate tight radius curve down to 25m
- Mixed operation BOStrab and EBO

Safety for staff and material

- Fast and automatic coupling process without staff staying in the danger zone with Scharfenberg auto-coupling system
- Increasing the wheel life with integrated slide protection
- Short braking distances with electromagnetic rail brake, disc brakes and sander equipment

EDV-Nr.: 7579900005

TECHNICAL SPECIFICATIONS

Weight	
Loaded	37,7 to
Unloaded	19,9 to
Max. Loading capacity	18,2 to
Max. Axle load	10 to
Track gauge	1435 mm
Frame top edge platform area	1120 mm
Dimensions (L x B)	15000 x 2632 mm
Frame width	2400 mm
Superelevation	180 mm
Max. Speed	60 km/h (towed in block train)
Kingpin distance	8500 mm
Approvals	BOStrab, EBOA
Relevant set of standards	EN 14033, BOStrab, EBOA

ROTRAILER Level 4 **Rail carrying wagon**

ITS BENEFITS. YOUR BENEFITS.

Versatile working processes

- Freely available loading and unloading due to removable rebound walls and hinged, removable side stanchions.
- Well illuminated workspace for night work thanks to fully integrated side and end mounted lighting

Urban transport of machines and material

- Can negociate tight radius curves down to 25m
- Mixed operation BOStrab and EBO
- Rail length up to 18 m

Safety for staff and material

- Wooden loading area to protect rails while transport
- Fast and automatic coupling process without staff staying in the danger zone due to Scharfenberg auto - coupling system.
- Increased wheel life with integrated slide protection
- Short braking distances with electromagnetic rail brake, disc brakes and sander equipment

EDV-Nr.: 7579900003

TECHNICAL SPECIFICATIONS

Weight	
Loaded	39,0 to
Unloaded	20,5 to
Max. Loading capacity	18,2 to
Max. Axle load	10 to
Track gauge	1435 mm
Frame top edge platform area	1120 mm
Dimensions (L x B)	19900 x 2632 mm
Frame width	2400 mm
Superelevation	180 mm
Max. speed	60 km/h (towed in block train)
Kingpin distance	13400 mm
Approval	BOStrab, EBOA
Relevant set of standards	EN 14033, BOStrab, EBOA

MATERIAL TRANSPORT FOR EVERY REQUIREMENT. MODULAR, SAFE, FLEXIBLE.

ITS BENEFITS. YOUR BENEFITS.

Modular construction. More flexibility.

- Safe transporting of bulky goods via Stanchion system and twist lock
- Easy to carry heavy loads thanks to a stable construction and bulk cargo container with high walls
- Easy loading and unloading of all materials with platform gates which fold down
- Use of roll-off containers DIN307/2 due to appropriate adapter system

Easy Trailer transport to construction site

- Space-saving due to piling up in hollows or on top of each other
- Coupling rod connection to operating vehicle for 2 way operation

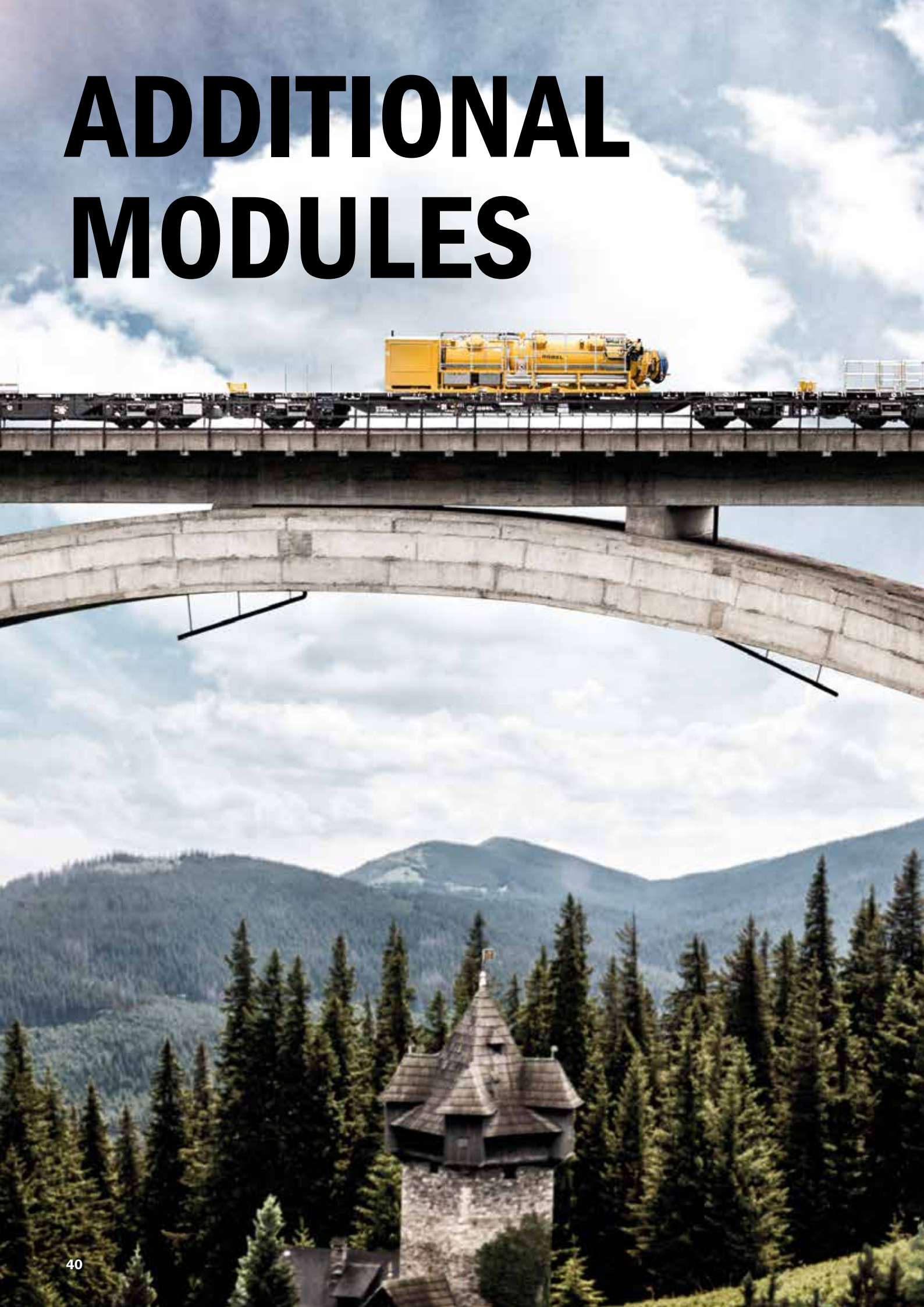
TECHNICAL SPECIFICATIONS

Dimensions (L x B x H)	
Wagon	4660 x 2335 x 593 mm
Loading area	4135 x 2300 mm
Frame top edge	500 / 480 mm
Wheel diameter	500 mm
Track gauge	1435 mm
Axle distance	3000 mm
Weight	
Net weight	3200 kg
Permitted load	15000 kg
Permitted weight	18200 kg
Suspension gear	Megi-Suspension
Coupling	Rockinger VKU 140
Twist Lock	15‘ Container width 2200 mm
Coupling rod mounting	sidewise
Lashing rings on loading area	6 Pieces retractable
Lashing possibilites	2 Pieces sidewise
	2 Pieces front
Stacking	with hollow
Max. Speed	20 km/h
Brake	
Function	Breakaway brake (not adjustable)
Type	Shoe brake 4 x
Parking brake	manual with handwheel
Approval	EBA und DB permission for infrastructure of DB Netz AG
	RIL931 in possession and also in operation railway

ACCESSORIES

7588980002 Steel reinforced trough with flap on one side
7588981002 Drop sides
7588350001 Toolbox
7588986002 Coupling rod straight
7588982002 Plug-in system
8005803001 Coupling rod rock-rock
7588900002 Stop chock

ADDITIONAL MODULES



RODRAIN Drainage Cleaning System

SELF-SUFFICIENT VACUUM AND JETTING SYSTEM FOR ALL DRAINAGE AND CLEANING REQUIREMENTS.

ITS BENEFITS. YOUR BENEFITS.

Powerful cleaning.

- High pressure cleaning of the drainage systems with two high performance pumps
- Cleaning of glass walls and station areas with high pressure lance
- Clears surface water and service drains
- Cleaning and maintenance operations on cleaning platform by rinsing unit

High capacity self powered cleaning module

- Self-sufficient energy supply for independent operation
- Flexible mounting on ROTRAILER or standard container wagon by twist lock mounts
- Capacity of 10.000 litres enables both jetting and cleaning operations

EDV-Nr.: 7571860006

TECHNICAL SPECIFICATIONS

Drive	self-sufficient 48 kW,
	water cooled diesel engine incl. particle filter system,
	EU Emissions standards 4 / Tier4 / Stage IIIB Common Rail
Filling quantity	3000 l fresh water, 7000 l service water
Pumps	High performance pump min. 60 l / at 170 bar
	Vacuum pump min. 9700 l
Weight	
Filled	8 to
Empty	18 to
Hose length	High pressure hose 50/80 m
	Suction hose 15 m
Noise	75 dB in a distance of 7,5 m
Relevant set of standards	GMRT 2400, EN 14033–1, EN 12663-1, EN 12663-2, DVS 1612,
	EN 15085, EN 15663, VDI 2230, RIS 1702, EN 45545, EN 50121-3

ROLIFT System **Mobile Positioning System**

SPACE SAVING AND EFFICIENT. EXCHANGING OF RAILS AND SWITCH AND CROSSING UNITS IN CONFINED SPACE.

ITS BENEFITS. YOUR BENEFITS.

Quick. Powerful. Easy.
- Rail and switch & crossing exchange system without cranes or large machines
- Careful handling with remote control lifting operation
- Fast working processes for short possessions

Safe operation of Switches
- Prevent overload due to slip clutch
- Load indicator on cranes allows synchronized lifts

Compact system. Emission-free Operation.
- Working on confined area without using cranes
- No emissions due to electrical motors
- Suitable for mounting on standard container wagons with twist lock

EDV-Nr.: 4469900005 + 4469900004

TECHNICAL SPECIFICATIONS

Lifting Capacity	1000 kg (per gantry)
Range	Lift range 2300 mm
	Lateral range 4850 mm
Weight per gantry	approx. 550 kg
Marketable	overall, unloading device with container twist locks
Possible with switch radius	any, as long lifting load is observed
Work processes	Set up of gantries: 1 driver and 3 worker - 6 min
	Operation of gantries: depending on amount of gantries and weight of the switch/crossing

Work process

1. Easy gantry positioning from transport frame on site.

2. Transport vehicle delivers rails or switches to worksite.

3. Remote controlled chain hoists lift new rail or switches into the worksite. The hoist is then used to exchange the Rail or switch

4. Hoists then lifting old rails or switches and load on to ROTRAILER. Return to depot.

Link to the Video: https://www.youtube.com/watch?v=cGh857A0-aI&feature=emb_logo

ROTONG Rail Tong

SAFE RAIL MANIPULATING.
ADVANCED CRANE FEATURES.

ITS BENEFITS. YOUR BENEFITS.

Precise Rail positioning
- Rail manipulation up to 18 m
- Rail tong is mounted to the crane with a rotary connection for precise positioning

Space-saving and Modular
- Ideal operation in confined spaces due to low profile for working under the overhead line and in the tunnels
- Fast and easy attachment and release of the rail clamp to the crane
- Can be used on all cranes and excavators with a standard hydraulic interface

EDV-Nr.: 7468110110

TECHNICAL SPECIFICATIONS

Lifting capacity	1250 kg
Weight with rotator	350 kg
Weight without rotator	250 kg
Max. length of lifted rails	18 m
Marketable	overall, operators regulations must be observed
Clamping jaws	UIC-60-rail, S54-rail, R65-rail, S49-rail, VA71B-rail, SBB I, JIS60-rail, USA 136 RE-rail,
	UIC54-rail, 60kg, 53kg, 50 kg, 47 kg , 41 kg Australia rail, 60 kg, 50 kg China-rail, UIC
	50E2 rail, UIC 50E2T1 rail

FLEXIBLE TRANSPORT MODULE. MACHINES AND EQUIPMENT EASILY TRANSPORTED.

ITS BENEFITS. YOUR BENEFITS.

Smooth loading. Convenient transporting.

- Integrated electrically power crane with high lifting capability for loading and unloading all plant and equipment
- Extended reach with telescopic arm and rotation range of 165 ° to each side
- Removable railings for easy loading and unloading
- Height and slew limiters for safe track working

Easy mounting by Twist Lock

- Optimal installation on RORUNNER or ROTRAILER
- Easily mounting with lift truck or crane

EDV-Nr.: 7468101001

TECHNICAL SPECIFICATIONS

Fixing system	Twist Lock
Dimensions (L x B x H)	2690 x 2600 x 2300 mm
Hoist rotation range	165 ° each side
Max. operating distance hoist	approx. 2850 mm
Max. lifting capacity hoist	300 kg

SAFE TRANSPORT AND DELIVERY OF RAILS BY STANDARD TRANSPORT WAGON WITH TWIST LOCK.

ITS BENEFITS. YOUR BENEFITS.

Easy and safe transportation of rails

- Rail length depends on length of wagon and number of mounted clamping bars and crossbeams
- Clamping bar fixes the end of the rail
- Extra safety with lashing straps on the crossbeams securing rails
- Possible to transport switch and crossing units

EDV-Nr.:7571900006

TECHNICAL SPECIFICATIONS

Max. length of rail	Depends on length of transport wagon and amount of clamping bars and crossbeams
Max. number of rails	5
Possible rail types	Any, all five rails must be of the same type

ROPORT Switch **Switch Transport Device**

ITS BENEFITS. YOUR BENEFITS.

Easy and safe transportation of switches

- Special clamps with fixed and floating bearing allows longitudinal and vertical movement to protect the switch during transport
- Transporting half switch parts with length of max. 40 m by two standard wagons
- Ideal loading and unloading when integrated with the ROLIFT system

EDV-Nr.: 7571910006

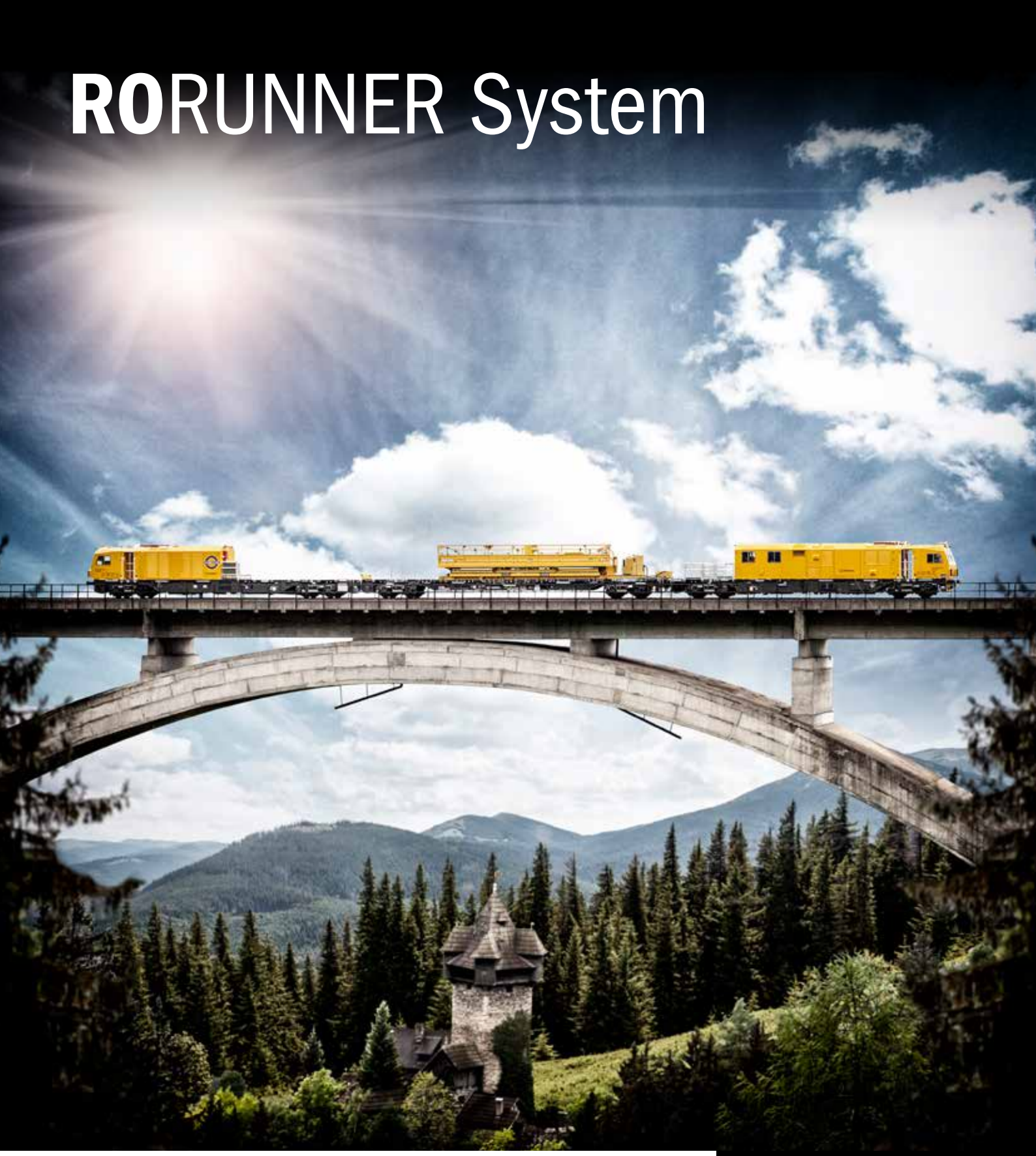
TECHNICAL SPECIFICATIONS

Max. switch length	approx. 40 m
Route network	Minimum vertical radius: R=1000m
	Minimum horizontal radius: R=194m

Dimensions and weights approximated. We reserve the right to modify in the course of technical development. Prices excluding VAT.

CUSTOMER PROJECTS

RORUNNER System



Modern Maintenance for London‘s Elizabeth line

www.robel.com

ROBEL

VERSATILE COMBINATION.

RORUNNER Level 3 Power Car

RORUNNER and its modular working units provide suitable combinations for every job in maintenance and construction of railway infrastructure

The Power cars and modular equipment for the Elizabeth line was tailored especially for maintenance tasks in the confined underground tunnels in London. Three RORUNNER variants will be in service; one with a flatbed loading area, a second with a crane with workman basket or hydraulic rail tongs attachment and a third with a messroom.

- Modular design allows for different work configurations
- Powerful to serve as a shunting locomotive and emergency recovery train
- Transports all personnel, material and tools to the work site

TECHNICAL SPECIFICATIONS

Drivetrain	4 axle drive, hydrostatic
	8 cylinder Diesel engine 520 kW
	6 cylinder Diesel engine 240 kW
	Multi-traction mode
Max. traction	0-30 km/h, 140 kN
	0-80 km/h, 70 kN
Max. speed	80 km/h towed and self-propelled
Weight	66 t (depending on equipment)
Payload	max. 7 t at max. axle load of 19 t
Track gauge	1435 mm
Equipment	crane module, 54 mt
	Messroom for 10 people
	Flatbed loading area
	Transport module and crane
In operation in	GB
Kinematic Envelope	W6A, G1, Crossrail Structural Gauge

ROTRAILER Level 4 Transport Wagon

ROTRAILER reliably carries heavy loads and is a versatile basis for additional components and measuring equipment

The ROTRAILERS for the Elizabeth line are designed with Twist Locks which enable the mounting of additional modules, such as a scissor lift, a drainage cleaning system or a wire drum carrier. The ROTRAILER also transports a range of materials including rails and switch and crossing units.

- Trailers can be used in combination to accommodate longer loads such as switches up to 36 meters in length
- Each trailer is strong enough to carry a maximum payload of 25 tonnes
- Equipped with Twist Locks for quick mounting of components
- Adapted for installation of measurement equipment for rail condition testing

TECHNICAL SPECIFICATIONS

Max. speed	80 km/h
Weight	31 t
Payload	25 t
Loading length	21.4 m

ROLIFT System Mobile Exchange System

For quick exchange of rails and switch and crossing units in confined locations

The ROLIFT system offers an alternative to cranes and heavy machinery when exchanging rails and switch and crossing units, particularly in areas of restricted access such as stations platforms, viaducts and tunnels. The system consists of 6 preassembled electrical gantries housed on a twist lock frame mounted on a ROTRAILER. A rotary actuator is used to quickly on and off load the gantries which are used of the exchange of rail and switch and crossing units.

- Automated deployment and pre-assembled gantries allow for a significantly quicker workflow and thus shorter maintenance periods
- Units are delivered, exchanged and recovered in the same shift
- Electrical remote operation of gantries allows for careful handling of rails and switch and crossing units

TECHNICAL SPECIFICATIONS

Mount	Twist Lock
Lifting capacity	1000 kg
Range	Lift range 2300 mm,
	lateral range 4850 mm

RODRAIN Drainage Cleaning Unit

Independent cleaning module for drainage clearance and cleaning tasks

RODRAIN is mounted to ROTRAILER by using Twist Lock mounts, clears drainage with vacuum suction and jetting and also undertakes cleaning services in stations.

- Two high performance pumps serve for drainage vacuum cleaning and jetting track surroundings
- Independent operation from power car by using its own power supply

TECHNICAL SPECIFICATIONS

Mount	Twist Lock
Power supply	Independent power supply, 48 kW
Tank volume	3000 l fresh water, 7000 l service water
Flow	High pressure pump 60 l/min at 170 bar, vacuum pump 9700 l/min
Weight	8 t empty, 18 t filled
Hose length	High pressure hose 50/80 m, suction hose 15 m

ROHOIST Scissor Lift

Comfortable, spacious working area for high level maintenance

ROHOIST offers versatile platform when working with overhead catenary systems or other high level assets such as platform screen doors. The spacious working area slews sideways for better access and is equipped with power supplies and lighting for ergonomic working.

- Ability to lift vertically and slew horizontally
- Equipped with platform lighting and power supplies for handtools
- Serves for inspection, maintenance, exchange and cleaning of high level assets

TECHNICAL SPECIFICATIONS

Mount	Twist Lock
Working area	10 m x 2,5 m
Lift range/Payload	1730 mm/1000 kg
Slew range	± 1000 mm
Weight	11 t

ROPORT Wire Drum Carrier

Reliable transport and supply of lineside cables

ROPORT is used as an accessory to ROHOIST for the exchanging of overhead conductor wire ensuring a safe and controlled delivery of the cable. ROPORT can also be used to deliver lineside cables safely and efficiently.

- Eases exchange of wire and cables both for the overhead and lineside
- Controls unrolling speed with adjustable hydraulical brake

TECHNICAL SPECIFICATIONS

Mount	Twist Lock
Max. wire drum specs	Outer diameter 2100 mm, width 1130 mm, inner diameter 85-125 mm

The Task: Ambitious

The new Elizabeth line is going to transport up to 200 million passengers per year over a distance of more than 100 kilometers, passing through central London. Narrow tunnel systems and short time slots demand a new approach for the maintenance of urban track infrastructure.

Critical to the assignment was the completion of three specific case studies within given timescales:

- **Replacement of a half set of switch in less than 5 h 30 min**
- **Replacement of 18 meter rail in less than 4h**
- **Replacement of minimum 50 meters contact wire in rigid overhead conductor**

With the RORUNNER System, ROBEL has developed a solution which exceeds all targets set.

The Solution: Custom-made

The modular construction of the RORUNNER System allows the realization of a variety of work processes by only one train set:

- Replacement of rails, switches and crossings
- Maintenance of overhead catenary systems
- Transport of material, plant and workforce
- Drainage jetting and vacuum clearance
- Emergency recovery of other vehicles

According to the planned work tasks, the basic combination, consisting of two track vehicles and one transport wagon, is then additionally equipped with a drainage cleaning system, a wire drum or a scissor lift module as required. This reduces the fleet, saves time and cuts cost.

The Challenge: Switch Replacement in the Tunnel

One of the main challenges in maintaining track within tunnels is the lack of space, particularly when exchanging heavy switches, crossings and rails.

With a mobile gantry system ROBEL provides the solution: The ROLIFT System is twistlock mounted to the platform of the track vehicle. The system transports the pre-assembled electric gantries to site and a specially designed on/off loading device then places them on the track. Simple, safe and efficient.

The delivery: On schedule and as contracted

At the factory acceptance test, the RORUNNER System demonstrated its capability.

- All work tasks delivered as specified
- Targeted times for the processes achieved with a considerable margin
- Test run under extreme conditions passed

Precisely as scheduled and exactly two years after the contract award, two RORUNNER Systems have been handed over ready to go into service for the Elizabeth line.

10.2015	08.2016	09.2016	01.2017	02.2018	05.2018	08.2018
Invitation of tenders	Projekt start	Design phase	Assembly phase	Certification phase	Factory acceptance	Take over

"ROBEL and Plasser UK have demonstrated their ability to innovate new solutions throughout this project. Their concept for switch rail changes using a gantry system, deployed directly from the train, working around the wagons to deliver, install and remove the scrap was particularly impressive, addressing a key maintenance challenge. The system worked correctly first time at the recent successful Factory Acceptance Tests in Salzburg. It has been a great experience working with Plasser UK and ROBEL and I'm excited to see the trains start work on the Elizabeth line."

Stuart Hines-Randle, TfL Yellow Plant Project Manager

"TfL challenged us to develop a versatile maintenance concept. ROBEL, applying their special skill in delivering customized solutions, have designed and produced a modular vehicle system which exceeded the case study targets. Plasser UK, ROBEL and TfL worked in close collaboration, integrating user suggestions throughout the whole project. The result is a solution that delights the customer."

Mark Simmons, CEO Plasser UK

Tailor-made ROBEL Transport System

For Kölner Verkehrs-Betriebe AG (KVB), Cologne

ROBEL

The newly developed ROBEL Transport System consists of:

3 Track Vehicles 54.17
1 Ballast Lorry
2 Low-Floor Trailers with different attachment options
1 Long-Welded Rail Wagon for rails of up to 18 m
1 Transport Wagon for high-pressure water jetting and vacuum system

Operation in urban areas

- Mixed operations acc. to BOStrab (German Regulations on the Construction and Operation of Light Rail Systems) and EBO (German Railway Construction and Operating Regulations)
- Cologne-Bonn transport network for transport of material and maintenance of KVB urban railway routes, Bonn municipal network as well as port and freight transport
- 325 km network of tunnels, regular railway services and high-speed lines

Increased operational efficiency

- Transport of ballast, rails, sleepers, construction materials (such as rail fastenings, debris, pre-fabricated concrete sections, cable drums, escalators, switch cabinets, cleaning equipment)
- Rescue of city railway coaches

TECHNICAL SPECIFICATIONS

Gauge	1435 mm
Max. gradient	60 ‰
Draw gear and buffer gear Rockinger and Scharfenberg couplings	

RORUNNER Track Vehicle with Loading Crane 54.17

In use on all railway systems with mixed operations acc. to BoStrab and EBO, in particular in urban and suburban environments for new construction and maintenance.

TECHNICAL SPECIFICATIONS

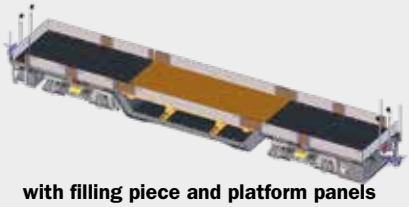
Drive	6-cylinder diesel engine with double SCR system
Type	Deutz
Output	390 kW; Hydrostatic transmission of power onto 3 axles
Weight	~37 t total weight incl. 2 t payload
Working mode	60 km/h under own power, 60 km/h hauled
Dimensions	14.5 m total length over draw gear
Braking	Pneumatic direct/indirect, spring actuated, magnetic rail brake, wheel slide protection
	(WSP also active during hauled drive)
Loading crane	PK 11502 B with height limiter and adjacent track locking
Max. outreach	10.4 m

ROTRAILER LEVEL 3 Low-Floor Trailer 55.70/2

For the transport of sleepers, construction materials of all types (e.g. rail fastenings, debris, prefabricated concrete sections), cable drums, escalators, switch cabinets, cleaning equipment and construction machines for low-floor areas.

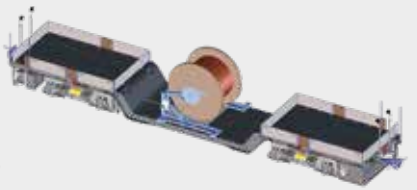
Modular design for versatile tasks

low-floor trailer

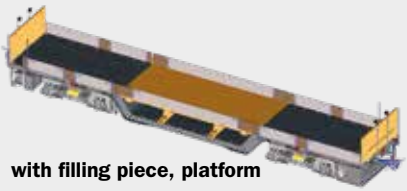


with filling piece and platform panels

with filling piece and platform panels



with filling piece and cable drum support



with filling piece, platform panel and impact wall

with skip container

TECHNICAL SPECIFICATIONS

Total length over buffers (LOB)	15500 mm
Total width	2632 mm
Frame top edge FTE	459 mm
low-floor level	
King pin distance	9,000 mm
Gauge	1435 mm
Wheel diameter	730 mm
Max. overall weight	39.8 t
Tare weight (operational)	20.3 t
Net payload	16.8 t

ROTRAILER LEVEL 4 Long-welded Rail Wagon 55.70/3

For transporting rails of up to 18 metres in length.

TECHNICAL SPECIFICATIONS

Total length over buffers (LOB)	19900 mm
Total width	2632 mm
Frame top edge platform area	1120 mm
King pin distance	13400 mm
Gauge	1435 mm
Wheel diameter	730 mm
Max. overall weight	~39.6 t
Tare weight (operational)	~20.4 t
Payload	18.2 t
Max. axle load	10 t

CONTRACT WORK

ROBEL RANGE OF SERVICES. WITH THE EXPERTISE TO HIGH QUALITY TO DELIVER THE RIGHT RESULT.

Machining, Joining, Surface treatment and Assembly.
All from one provider.

ITS BENEFITS. YOUR BENEFITS.

Certified welding process
- In accordance to DIN NEN ISO 4063
- 30 certified welders in accordance with DIN EN ISO 9606-1
- Use of a welding manipulator and a welding robot

Powerful Milling technology
- Highest precision possible with modern CNC machines
- From large orders and batch production to one off complex component production

Extensive painting hall
- Paint hall equipped with track line for large system treatment
- Paint systems meet fire protection in accordance to EN 45545-2
- Paint process in accordance with the highest quality standards,
- 2 or 3 layer construction with optional anti-graffiti paint

TECHNICAL SPECIFICATIONS

Welding		Material group 1.2: up to 60 mm; Material group 3.1: up to 10 mm; Material group 22: up to 10 mm
	Components	up to 30 m / 30 to
	Welding manipulator	up to 2000 kg
	Welding robot	for components up to 4000 mm in length and 2000 kg in weight
	Metal press	Press brake 320 to to 4000 mm
Sandblasting		Passage 1000 x 1500 mm
	Annealing furnance	1000°; 1200 x 700 x 400 mm
	Sawing	Profile up to 380 x 600 mm
	Milling	Milling jobs of 10 x 10 x 2 mm - 1200 x 1200 x 1500 mm; accuracy of +/-0.01
	Drilling Work	without re-clamping / 2500 x 1890 x 2000 mm; accuracy of + / -0.05
		without re-clamping / 2000 x 1350 x 1000 mm; accuracy of + / - 0,01
Rotation works		10 to Ø 730 mm to length 3000 mm; for wheels to Ø 930 mm; accuracy of + / - 0,01
	Metal drawing	10 - Ø 750mm / groove width 3-125 mm /H = 70 to 1000 mm (depending on dimension)
	Broaching	Broaching (serration / grooves/ square and hexagon)
	Painting	Wet painting with solvent paints in Airmix process and gravity feed, 2-layer construction with -2K UHK
		primer, 2K topcoat, opt. 2K PU filler, opt. 2K anti-graffiti clear lacquer; 3-layer construction with 2K EP
		primer, 2KPU filler, 2K topcoat; optional 2K anti-graffiti clear laquer

SERVICE & SUPPORT

SERVICE & SUPPORT.
ACCESSIBLE.
COMPETENT.
CERTIFIED.

ROBEL is manufacturer and service partner at the same time. We make sure that the machine works reliably and is available when needed. Because downtime costs money. Only regular service and maintenance extends the product life and preserves the value. This is the prerequisite for effective and economical track construction. ROBEL delivers as agreed and is worth the price. Therefor you not only receive quality, but support. Reliable and non bureaucratic. Take advantage of the services ROBEL offers and thus the full potential of your machine.

ROBEL. A COMPANY APPROVED FOR OVERHAULS AND REPAIRS.

Large-scale use for large machinery

- Revision of complete machines, wheelsets and bogies
- Retrofit and modification of machines
- Centre of competence for wheelset and bogie reconditioning
- Modification of on-track machines
- Post-accident repair and overhaul of machines, using quality-tested original parts

Exact verification, proper service performance

- Checking and overhaul as per manufacturer guidelines of safety-relevant equipment
  – vehicle brakes
  – travelling gear
- Checking systems that require monitoring in accordance with Art. 33 EBO
- Identification and correction of causes resulting in damage or accidents
- Re-certification work according to R 931.0001
- Adjustment work and machine testing on in-company test track (R6)
  – wheelset weighing
  – gauge restriction tests (Track 3)

Reliable partnership, reliable full service

- Use of original spare parts
- Training for operators and workshop staff
- Adhesive bonding as per DIN 6701-2 (Class A1)

SHORT RESPONSE TIMES. LONG-RUNNING BENEFIT.

Approvals

- Certified to Quality Management System DIN EN ISO 9001:2008
- ECM Approval
- Welding of rail vehicles and vehicle parts in accordance with DIN 15085-2
- Revisions of brakes in line with applicable standards (UIC / DB)
- Adhesive bonding as per DIN 6701-2 (Class A1)
- Certified repair centre No. 512 (DB)
- Authorised repair centre for wheelsets and machine components for DB Netz AG
- Manufacturer-related product qualification for the assembly of power and idler wheelsets with cylindrical seats (DB)
- Qualification (Scandinava)
- RISAS Seal of Approval for overhaul and new production of wheelsets (UK)
- SNCF approval for reconditioning & production of wheelsets (France)

ROBEL.
MORE THAN JUST A MANUFACTURER.
YOUR 360° SERVICE PARTNER.

Maintenance/full service/service agreements

Servicing plan for every product. In-plant periodical inspections.

- Long-term reliability and machines functionality assured from the delivery of a vehicle specific service plan
- High parts availability and exact scheduling allows for prompt maintenance and service delivery
- Reliable results guaranteed from our well trained ROBEL

Easy and safe implementation.

- Safe lifting of heavy machinery due to powerful cranes and lifting equipment
- Exact setting up and testing on overhauled machines on our own tracks and links to the public railway network

Option: ROBEL Full service. Tailor made service contracts.

- Faultless operation for the entire service life of the product
- Maximum readiness for operation
- Longer service life of the machine
- Tailor made service agreements including engine service, wheelsets overhaul and work unit refurbishment.

Repairs/fault mending

Immediately and reliable respond.

- Cost saving due to minimal machine downtimes
- Immediately fault diagnostics with alarm notices on the control panel
- Trained ROBEL engineers can fault find the root cause while still on the phone
- Equipping of the vehicle with appropriate parts, depending on electric/pneumatic/hydraulic/mechanical nature of the fault
- Our service engineers can fix the fault fast and efficiency to return your unit back into operation as quickly as possible

Training

Hands-on and intelligent. ROBEL Training for efficient operation.

- Machine training from experienced staff
- Training as part of commissioning pack
- Product and service training

Best Employee training. Reduced risk of accidents and operator

- Training in electric, pneumatic, hydraulic and mechanical disciplines
- Theoretical and practical on-board training as preparation for external exams
- Knowledge of how to use spare parts catalogues
- Operator and service technician training on-site with the customer or in ROBEL's own factory and track facility (e.g. testing of brakes and work assemblies)
- Reduced repairs due to periodic additional training

HIGH LEVEL OF SERVICE QUALITY. CERTIFIED BY EUROPEAN STANDARDS.

Revision / Retrofit

Preventive Inspection and Maintenance. Revision and

- Revisions on wheelsets, bogies and complete machines
- Optimal ready-to-use machine through regular maintenance (legally required after 8 or 6 years)
- Early detection and correction of defects and signs of wear
- Use of calibrated measuring tool and original manufacturer documents

ROBEL Retrofitting as an alternative to new investment.

- Tailor made renewing concept for significantly reduced costs of maintenance
- Selective modifications, installing extra functions and replacement of older components for the latest technology
- Complete renewed of hydraulics, electrics system and/or engine replacement
- Continuous operation of a refurblished machine for the next 15 to 20 years, without re-admission and time-consuming trainings

Accident repairs

Reliable and in a timely manner. Accident repairs on-site.

- End-to-end repair quotation, very fast overhaul and timely maintenance
- Rapid damage assessment for the insurer
- Restoring to the original state in accordance to accident repair regulations
- Usage of OEM parts
- On-site testing and inspection

ROPART **Spare Part Service**

ROBEL SPARE PARTS SUPPLY. ORGANISED AND ON SCHEDULE.

Spare parts supply for Systems & Vehicles.

Tailor made spare parts

- Lower machine costs and less downtime due to tailor made spare parts packages
- A qualified service team can give technical advise and support with spare parts identification
- Delivering worldwide customers and workshops
- Parts can be installed at the customers facility or at our factory in Freilassing by a team of well trained fitters

High availability for timeliness

- Short lead times due to high flexibility and parts availability
- Short response time

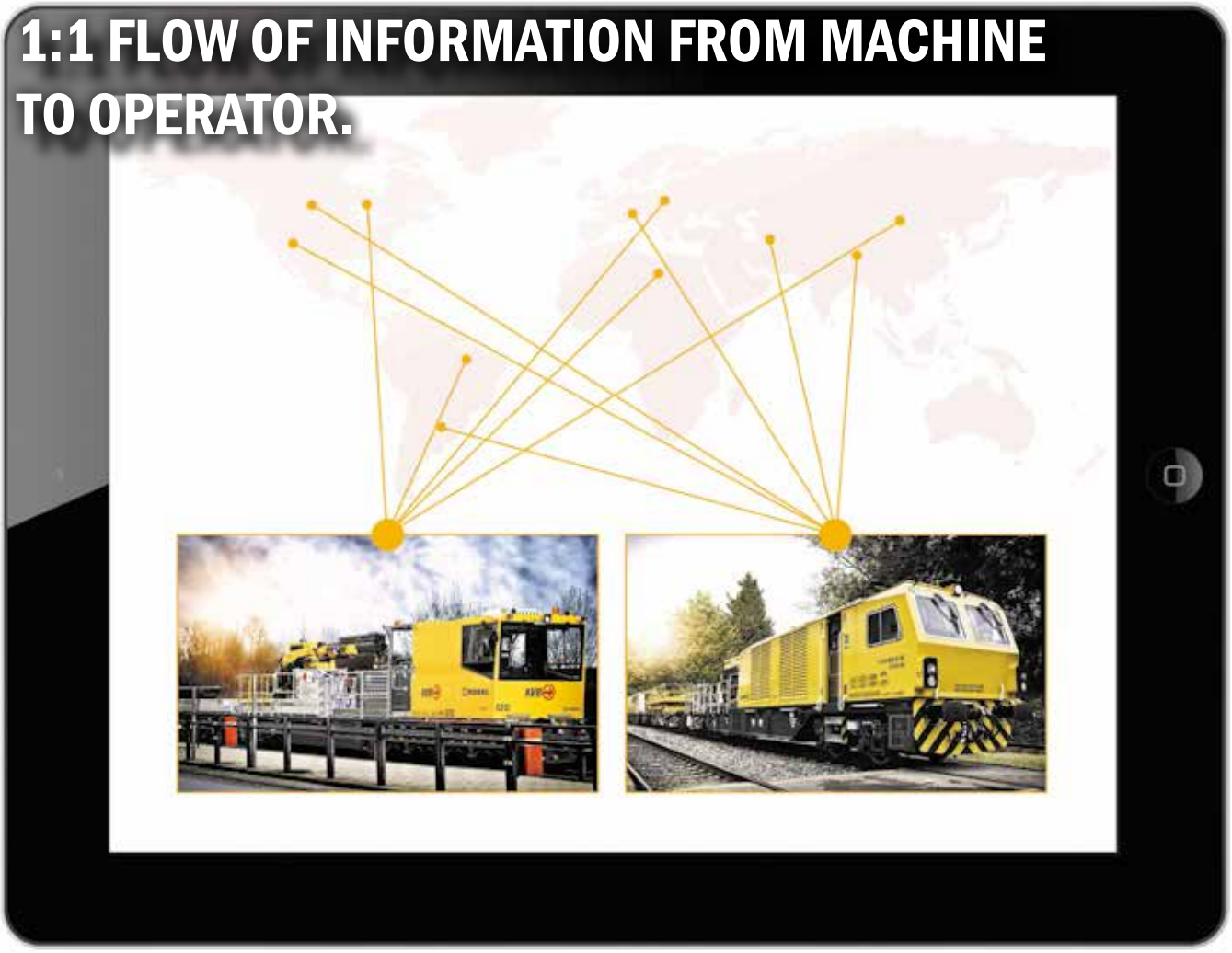
ROBEL. MORE THAN JUST A MANUFACTURER. YOUR 360° SERVICE PARTNER.

ROBEL centre of competence

- Complete reconditioning process for idler and power wheelsets and bogies
- Documented work processes and certifiable test protocols
- Certified to highest European standards (see Approvals)
- Tailor-made measuring and testing rigs
- Calibrated measuring and testing instruments
- High availability of original spare parts
- Short lead times and strict adherence to deadlines due to flexibility and availability of parts
- Service competence throughout Europe
- ROPROFILE Axle: New wheelset press with laser measuring system for wheelset geometries

APPROVALS ROPROFILE Axle	APPROVALS ROPROFILE Bogie
Certified to Quality Management System DIN EN ISO 9001:2008	Certified to Quality Management System DIN EN ISO 9001:2008
ECM Approval	ECM Approval
	Welding of rail vehicles and vehicle parts in accordance
	with DIN 15085-2
	Revisions of brakes in line with applicable standards (UIC/DB)
Certified repair centre No. 512 (DB)	Certified repair centre No. 512 (DB)
Authorised repair centre for wheelsets and machine	Authorised repair centre for wheelsets and machine
components for DB Netz AG	components for DB Netz AG
Manufacturer-related product qualification for the assembly	
of power and idler wheelsets with cylindrical seats (DB)	
TransQ Qualification (Scandinavia)	TransQ Qualification (Scandinavia)
RISAS Seal of Approval for overhaul and new production of wheelsets (UK)	
SNCF approval for reconditioning & production of wheelsets (France)	

1:1 FLOW OF INFORMATION FROM MACHINE TO OPERATOR.



Digital capture and analysis of the real time state of a machine for pinpoint operational planning.

ITS BENEFITS. YOUR BENEFITS.

Accurate realtime machine information for the whole fleet. Global coverage in real time.

- Linkage of the whole machine fleet via GPS
- Monitoring the machine conditions by detailed long-term-observation
- Efficiency enhancement due to pinpoint operational planning
- 1:1 flow of information between machine and operator
- Performance key factors measured over long periods

Expanded memory. Complete machine data.

- Machine Data Connector (MDC) for collecting and sending of data on a central location by mobile data link
- Integrated browser based machine information system Machine Condition Observer (MCO) stores data on a central platform
- Convenient access for operator as well as management level
- Clarity about current machine operation, resourcing levels, machine productivity, machine parameters and status messages

Intuitive IoT-Application. RONNECTED on every construction site.

- Ideal integration of software and hardware from one provider
- User-friendly and intuitive operation of the system
- Direct acquisition of key data with internet connection and terminal on-site

Optimum machine service due to timely response.

- Detailed analysis of the machine condition and incidents while operational
- Early detection of wear and tear and prediction of preventative maintenance from continuous condition monitoring

ROGLASS Remote **Remote Support with Data Glasses**

Live Video Streaming to support in repairs, maintenance and service work.

Maximum service. Minimum downtime.

- Direct remote support with instant Livestream between customer and ROBEL service engineer
- Global coverage allowing expert knowledge and support to solve all you problems
- Video recording of all work processes for training purpose
- User friendly headset-system allowing simultaneous operation

Digital. Flexible. Standardised.

- Intuitive voice control for easy system navigation (possible without live connection).
- Fault finding using standardised work instructions in the form of PDF, Video or Mobile Apps.
- Access to an integrated Document Navigator System with stored files and video recordings minimizes the need media resources.
- Increased productivity with automatic documentation of completed maintenance and repairs.

MASCHINEN & WERKZEUGE.

ROBEL Maschinen & Werkzeuge finden Sie in einem eigenen Produktkatalog sowie als Online-Version auf www.robel.com.

Übersetzung

Maschinen & Werkzeuge im Überblick

Was auch immer die Herausforderung im Bahnbau ist: ROBEL hat die passende Lösung.

Das ROBEL Lieferprogramm Maschinen & Werkzeuge verschafft Ihnen einen Überblick über das gesamte Leistungsportfolio im Bereich der handgeführten Maschinen und Geräte sowie den Serviceleistungen:

- **BOHREN**
- **TRENNEN**
- **SCHLEIFEN**
- **SPANNEN/ZIEHEN/BIEGEN**
- **SCHRAUBEN/CLIPPEN**
- **HEBEN/LADEN/BEFÖRDERN**
- **STOPFEN**
- **SICHERN/MESSEN**
- **GERÄTE/WERKZEUGE**

ROBEL verfügt über ein weltweites Netzwerk an Service-partnern und Vertretern und ist somit immer nah am Kunden.

GREAT ON TRACK.

09/2020

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