



RAILWAY
SYSTEMS
by voestalpine

FREIGHT TRAFFIC

Hard Labor for the Track
We Deliver Quality to Cope with the Greatest Forces



ROBUST AND ECONOMICAL SYSTEM SOLUTIONS

FOR HEAVY HAUL AND INDUSTRY APPLICATIONS

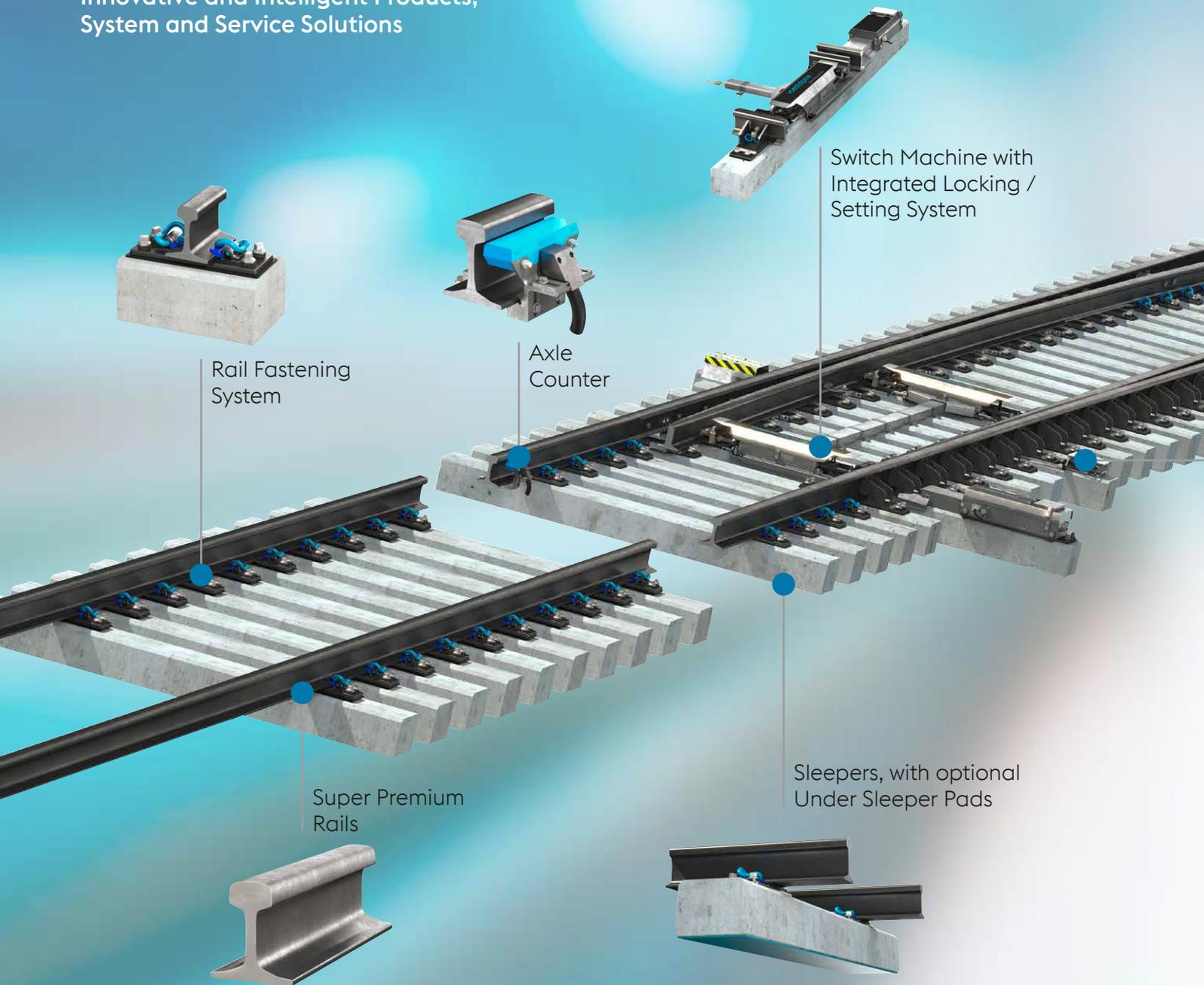
Given the growing demand for energy and raw materials and the increasing awareness of safety and environmental protection throughout the world, freight and heavy-haul transport remains a focus in the rail sector – including for customers whose core business often lies outside railway infrastructure. This also boosts the requirement for higher capacities, loads per axle and increased resistance levels under challenging environmental influences such as snow, ice, desert sand or extreme temperatures and long distances. This sector is highly competitive. To satisfy the above requirements and to guarantee safety, economic efficiency and availability for customers, innovative and customized system solutions are needed here.

voestalpine Railway Systems therefore develops individual concepts which cater for the relevant needs and circumstances to optimum effect. Our systems, which are optimized in terms of life cycle costs (LCC), guarantee maximum service life and efficiency with long maintenance intervals and ease of maintenance for rails, turnouts, signal technology and monitoring/diagnostic processes in the heavy-haul transport sector. A pioneer in economical (LCC) and technical (RAMS) product optimization, we combine cutting-edge technology with systems expertise right down the line.

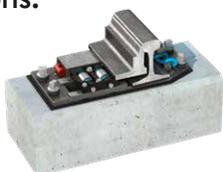


RETHINKING FREIGHT TRAFFIC SYSTEMS

Innovative and Intelligent Products,
System and Service Solutions



Options:



Alternative
Plate Integrated
Roller System



Point Machine
with External Lock



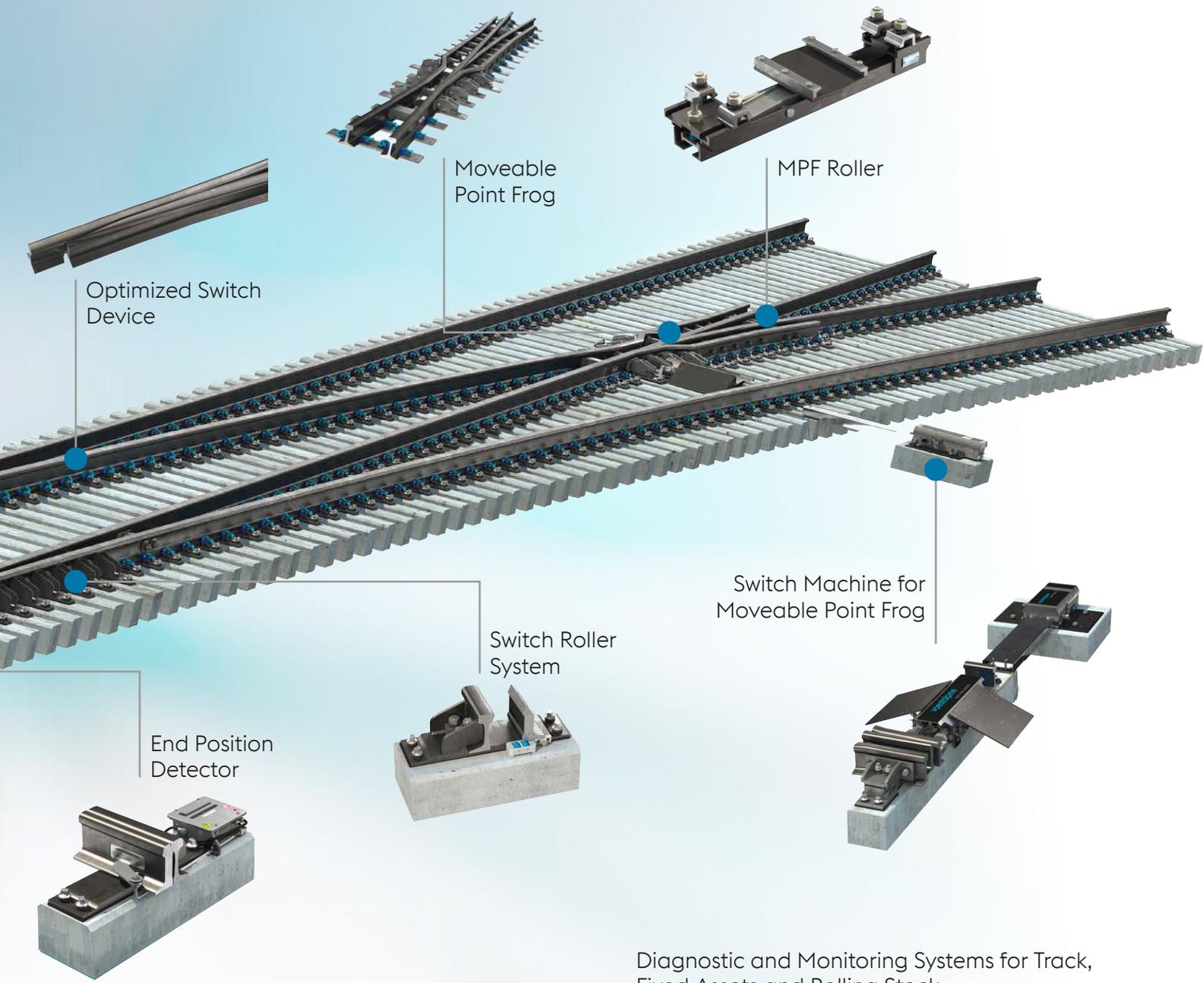
External Lock



Back Drive System



Point Position
Indicator



Diagnostic and Monitoring Systems for Track, Fixed Assets and Rolling Stock



Alternative Rail Fastening System



Pre-hardened Manganese Frog



Rail Expansion Joint



Turnout Control System



HEAT-TREATED SUPER PREMIUM RAIL QUALITY 400 UHC[®] HSH[®]



Added Value for You:

- » **Maximum resistance to rolling contact fatigue**
- » **Maximum resistance to wear and rail corrugation**
- » **First-rate weldability thanks to non-alloy steel design**
- » **Clear reduction in rail maintenance effort due to outstanding track performance**
- » **Significant increase in service life in the track compared with common high-strength steel grades**
- » **Maximum availability with minimum life cycle costs**

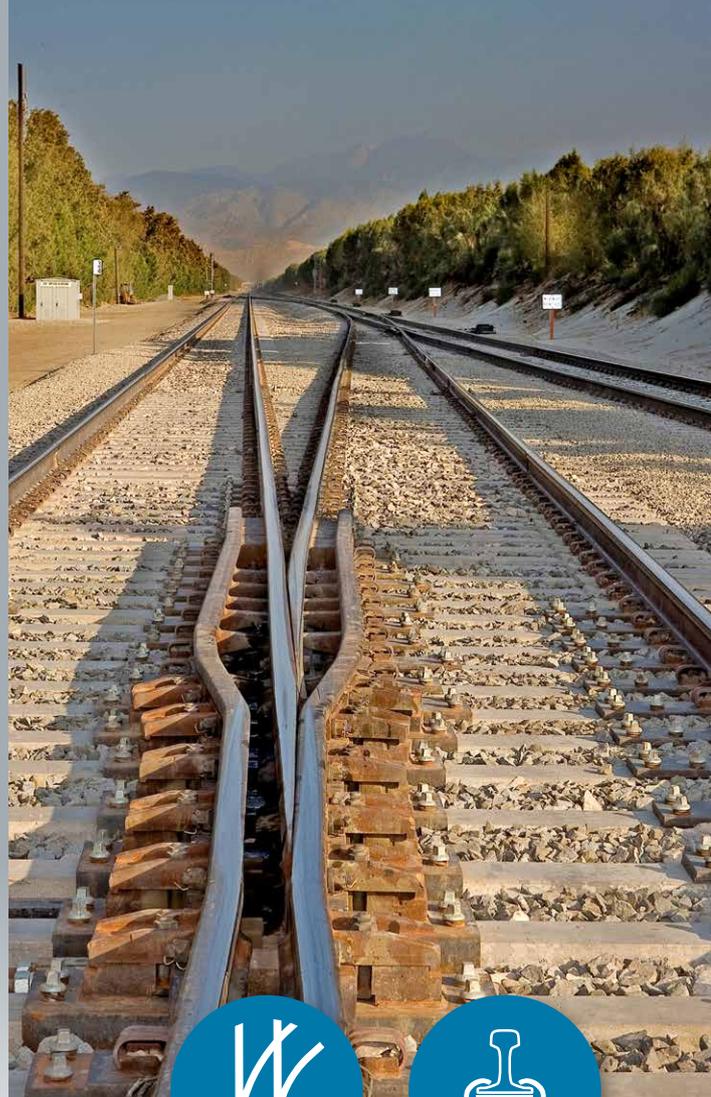
Premium quality, from the desert to the polar tundra. Top performance not only under extreme environmental conditions, but also in regions with aggressive wear – e.g. sand in wheel-track contact: 400 UHC[®] HSH[®]. This fine pearlitic rail quality is manufactured according to a special metallurgical principle (Super Premium concept) and is also standardized as R400HT in the EN13674 norm. Use of the globally patented HSH[®] heat treatment technology not only provides maximum resistance in wheel-track contact, but at the same time extreme endurance in web and foot. Manufactured in lengths of up to 120 m, these rails are available in all sections satisfying a huge range of standards and specifications.

Exclusive Super Premium Product Line for every Application:

- » **400 UHC[®] HSH[®]: the classical solution for rail freight requirements**
- » **400 UHC[®] P HSH[®]: upgraded performance with increased resistance for heavy-haul applications**
- » **400 UHC[®] CS HSH[®]: the CS series encompasses individual solutions, adapted to specific customer needs**
- » **400 UHC[®] XR HSH[®]: the robust, high-end rail for outstanding performance and efficiency in the track**

STRONG TURNOUT SYSTEM SOLUTIONS

Freight and heavy-haul rail transport involves extreme technical requirements in relation to load and resistance levels. Our turnout systems guarantee maximum safety, economic efficiency and availability –including with very high load values. We therefore support our customers in a fiercely competitive sector, offering them our expertise and services to give them a decisive advantage in terms of their infrastructure – and so allowing them to remain fully focused on their core business.



Innovative Products and System Solutions for Maximum Requirements:

- » System turnouts
- » Switch devices with optimized geometries and rail materials
- » Movable point frogs
- » Manganese frogs, weldable (explosion-strengthened)
- » Diamond crossings
- » Spring frogs
- » Base-plate systems
- » Sleepers (concrete, wood, composite, steel)
- » Fastening solutions
- » Extensive service package

Added Value for You:

- » Robust and economical customer system solutions – LCC-optimized
- » Lower maintenance costs/longer service life
- » Maximized track availability
- » Materials and geometries optimized to requirements
- » Extensive global applications experience with virtually all conditions of use
- » Automatic tamping due to use of hollow steel bearers or drives on sleepers

INNOVATIVE SETTING, SIGNALING & MONITORING TECHNOLOGIES



Innovative Switching, Locking and Monitoring Devices

Years of experience and extensive knowledge about turnout systems allow us to offer innovative solutions for all operating conditions, however demanding.

- » Complete setting systems, point machines (with/without integrated locking), locking systems, back drive systems, end position detectors and
- » Turnout control and point heating, axle counters and wheel sensors

Intelligent Monitoring and Diagnostic Systems

Cutting-edge technologies allow voestalpine to offer fully digitized smart monitoring in the following areas:

- » Monitoring of track systems and fixed infrastructure assets (incl. turnout diagnosis, monitoring of track movement or track circuit)
- » Monitoring of rolling stock (incl. monitoring of box and brake disk temperature, wheel defects, train profiles or environmental conditions)

The direct recording of the asset condition and assessment of targeted information through our Central Management Software, allows optimized asset management, efficient maintenance planning and to avoid unnecessary preventive maintenance.

Added Value for You:

- » Compatible with a wide range of interlocking technologies
- » Encapsulated components
- » Minimized space requirement
- » Can be retrofitted
- » Extended inspection intervals and optimized asset management
- » Modular diagnostic platform and planning instrument
- » Integration in higher-level systems possible

TRACK SOLUTIONS – OUR EFFICIENT TRACK MANAGEMENT LEADS TO OPTIMIZED PERFORMANCE AND COSTS

From the idea to implementation, from training to consulting, from products via logistics to maintenance – with our Track Management for FREIGHT we offer an extensive portfolio of services specially geared to availability of freight networks. We concentrate on two key areas here: optimization of track service life and consideration of the system at a macroeconomic level.

We stand for customized product and service solutions with minimized life cycle costs. We analyze the needs of our customers and recommend the best technical and most cost-effective solution for rails, turnouts and systems based on precise calculations.



PREPARE

CONSULTING, ENGINEERING & TRAINING

150 engineers are hard at work all over the world, developing specific solutions for our customers – from the planning, development and engineering phase through assisting with installation to optimizing maintenance strategies. At our academies we share our knowledge with customers in the framework of seminars and in-house training programs.



START

SUPPLY, LOGISTICS & INITIAL SERVICE

With our customized availability concepts and just-in-time logistics chains we supply our customers with the railway construction materials they need. Our initial services not only guarantee maximum installation quality – they also pave the way for reduced follow-up costs and an increased service life.



RUN

SMART MAINTENANCE SOLUTIONS

Maximizing availability, minimizing operating costs – those are the strategic objectives of our customers. Thanks to our combined product and service expertise we carry out preventive and corrective maintenance independently: Our service even includes processing scrap materials at the end of the life cycle.



PERFORM

TRACK MANAGEMENT

You want to concentrate on your business and ask capable partners to look after your railway infrastructure? We're the people for the job! Our Track Management with electronic diagnostic systems allows you to plan maintenance. So cutting costs – and guaranteeing high levels of availability.



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