



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

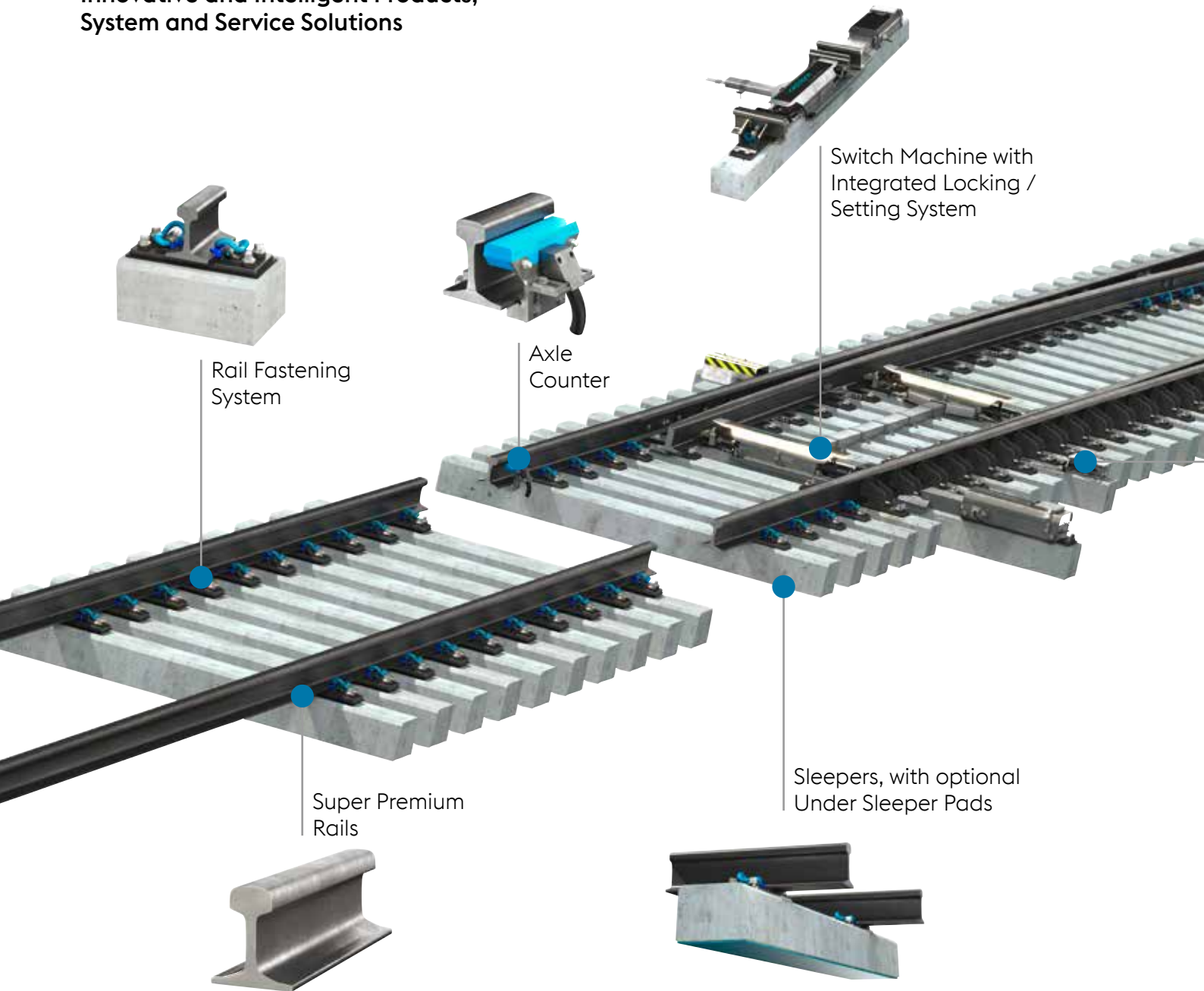
Given the growing demand for energy and raw materials and the increasing awareness of safety and environmental protection throughout the world, freight and heavy-haul transport remains a focus in the rail sector – including for customers whose core business often lies outside railway infrastructure. 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), enable 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 for External Lock



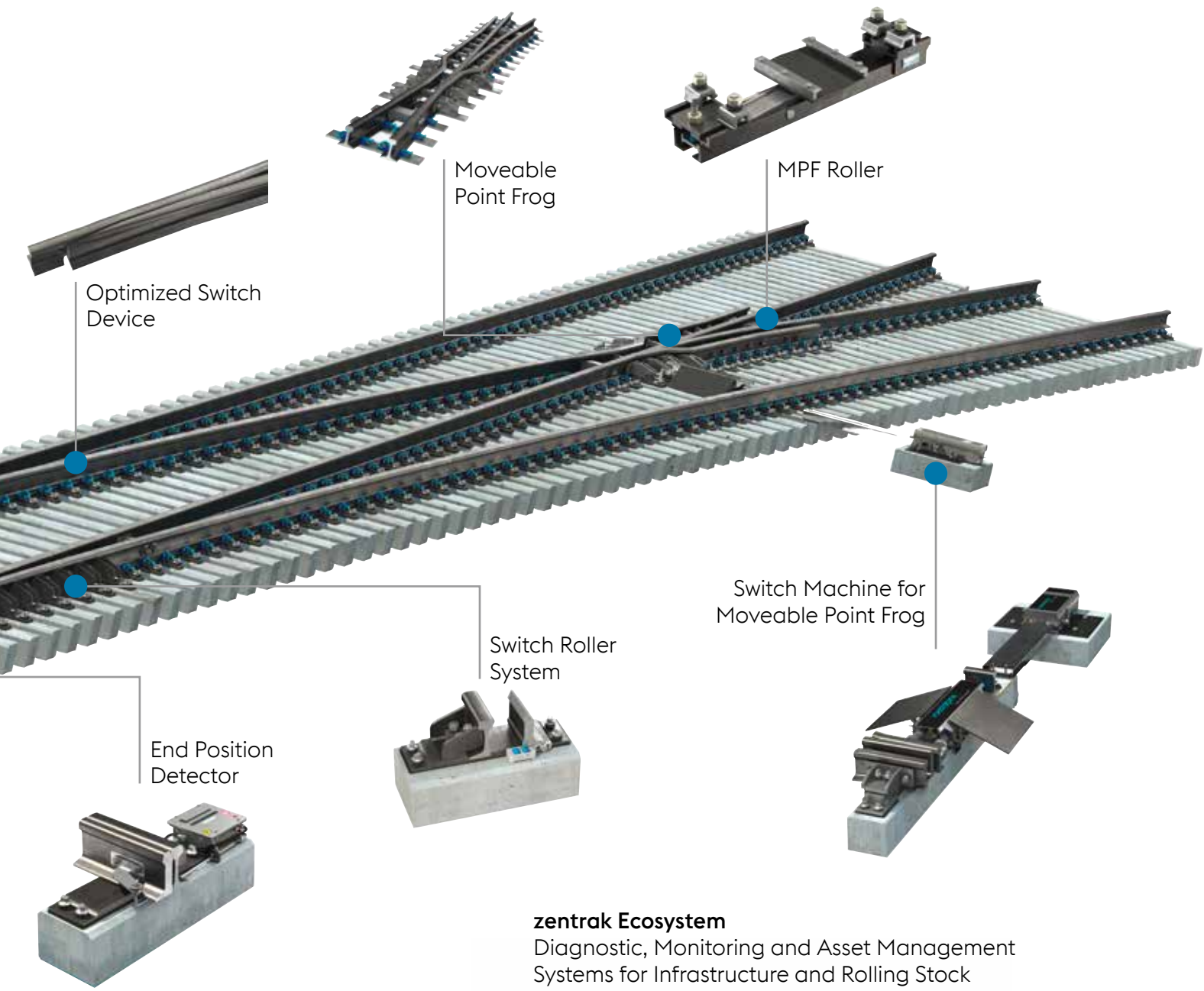
External Lock



Back Drive System



Point Position Indicator



zentrak Ecosystem

Diagnostic, Monitoring and Asset Management Systems for Infrastructure and Rolling Stock



Alternative Rail Fastening System



Pre-consolidated Manganese Frog



Rail Expansion Joint



Turnout Control System



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



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

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

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:

- » Intelligent 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 controls and point heatings, 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 zentrak, allows optimized asset management, efficient maintenance planning and to avoid unnecessary preventive maintenance.

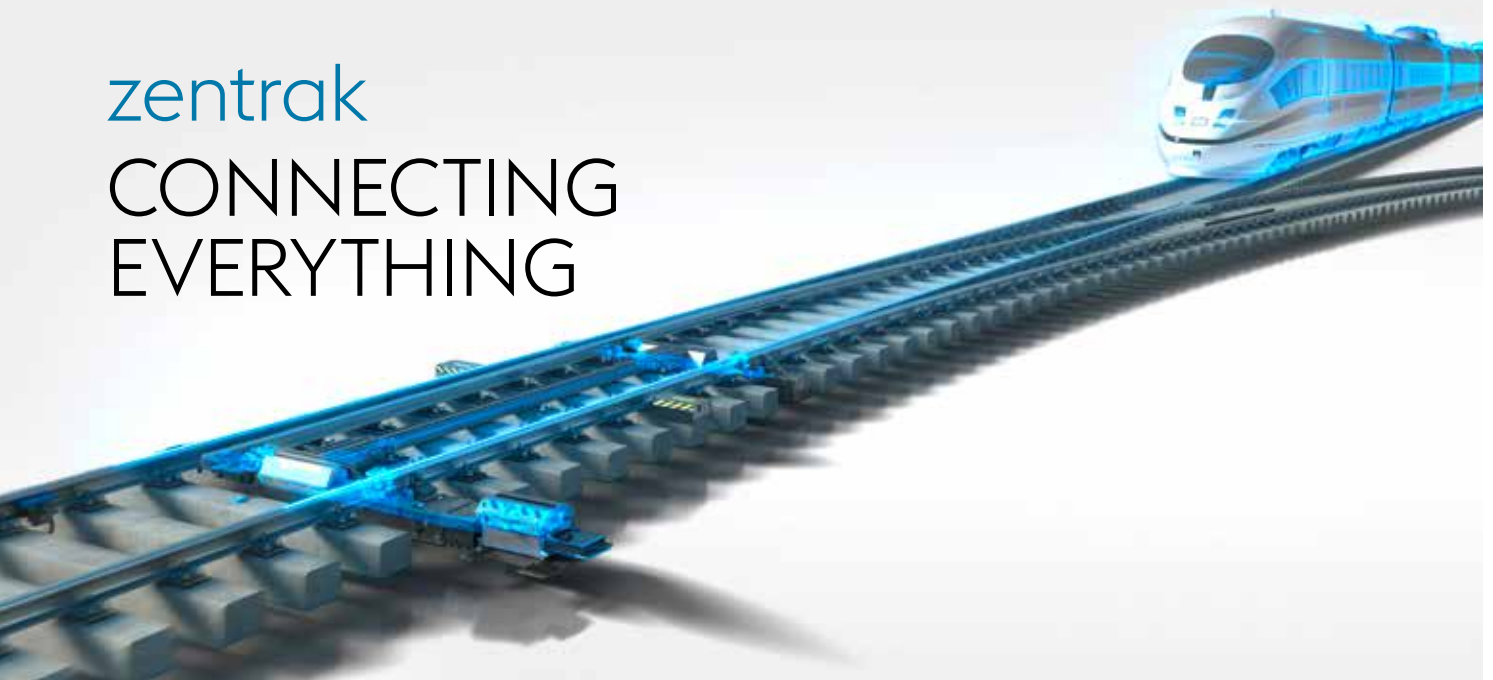
Added Value for You:

- » 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

zentrak

zentrak

CONNECTING EVERYTHING



THE INTELLIGENT, CONSCIOUS AND LIVING RAILWAY ECOSYSTEM

Your railway network keeps the world moving forward: but your infrastructure is only as strong as the technology that holds it together. That's where zentrak comes in: our intelligent, living railway ecosystem enables you to create and manage the most efficient, reliable, and high performing railway track assets in the world.

zentrak's three modules Rolling Stock Monitoring, Infrastructure Monitoring, and Asset & Maintenance Management combine as a catalyst for cost effective digitalization and sustainable, long term growth: building a future in which your railway network thrives intelligently.

Infrastructure Monitoring

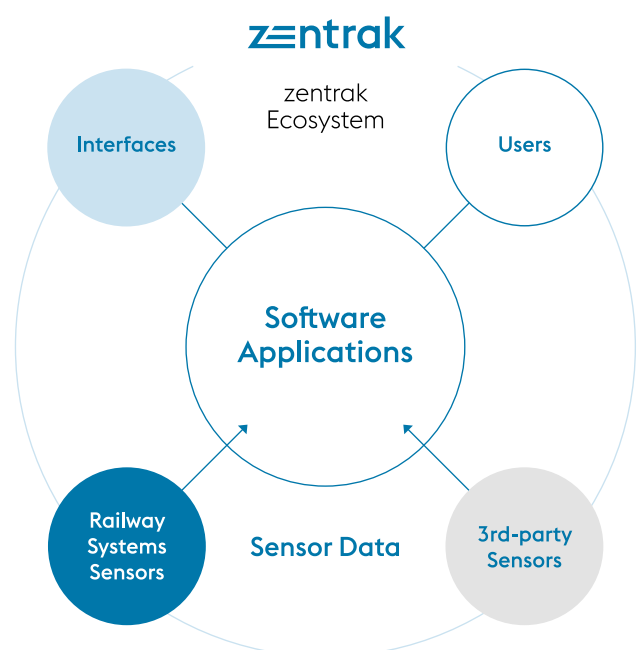
- » Continuously records the condition of your infrastructure
- » Enables proactive condition-based maintenance for maximum availability and the lowest lifecycle costs

Rolling Stock Monitoring

- » Provides a variety of measurement technologies
- » Enables the combination of individual site diagnostic and monitoring functions at a single location
- » Software applications for real-time analysis, interpretation, and presentation of diagnostic results

Asset and Maintenance Management

- » Allows you to manage your assets throughout their entire lifecycle
- » Supports data-driven decisions such as investments and improvements
- » Provides the foundation for a dynamic maintenance strategy



LIFE CYCLE 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 Life Cycle Management for HEAVY HAUL we offer an extensive portfolio of services. They not only ensure great ride comfort at high running speeds, but also satisfy the requirements in terms of safety and quality. 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.



LEADING THE WAY IN SUSTAINABLE RAILWAY INFRASTRUCTURE

At voestalpine Railway Systems we take our social and environmental responsibilities seriously. As the global leader for railway infrastructure system solutions, we understand the impact our products have on society and the environment.

We are dedicated to providing durable solutions that enable the operation of sustainable transport systems. Our commitment to ethical and legal conduct is governed by the voestalpine Code of Conduct, ensuring impeccable actions throughout our company and supply chains.

Why we need Sustainable Mobility Solutions

The need for sustainable mobility solutions has never been more pressing in a world shaped by urbanization, digitalization, globalization, and demographic shifts. As the demand for mobility driven by these megatrends continues to grow, it is imperative to address the challenges of climate change and resource depletion head-on.

Our Commitment to Eco-Friendly Railway Infrastructure Solutions

We are proud to be at the forefront of providing sustainable railway solutions that promote environmental stewardship, ensure longevity, and adhere to the highest industry standards.

Our focus on sustainability is built on three foundational pillars:

» greentec steel

Our revolutionary greentec steel initiative is at the heart of our environmental strategy. By pioneering new steel production methods, we significantly reduce CO₂ emissions, contributing to a greener planet.

» Longevity Solutions

Our products are designed for durability and resilience, ensuring they stand the test of time. By extending the lifespan of our railway infrastructure components, we reduce the need for frequent replacements, thus conserving resources and minimizing environmental impact.

» Certified Responsibility

We adhere to rigorous certification processes that validate our commitment to environmental and social responsibility. These certifications ensure that our practices not only meet but exceed industry standards, reflecting our unwavering dedication to sustainable development.



Visit us online

voestalpine Railway Systems
www.voestalpine.com/railway-systems

voestalpine
ONE STEP AHEAD.