

RELIABILITY AT EVERY STOP.

Urban Traffic: Metro Solutions

voestalpine

ONE STEP AHEAD.

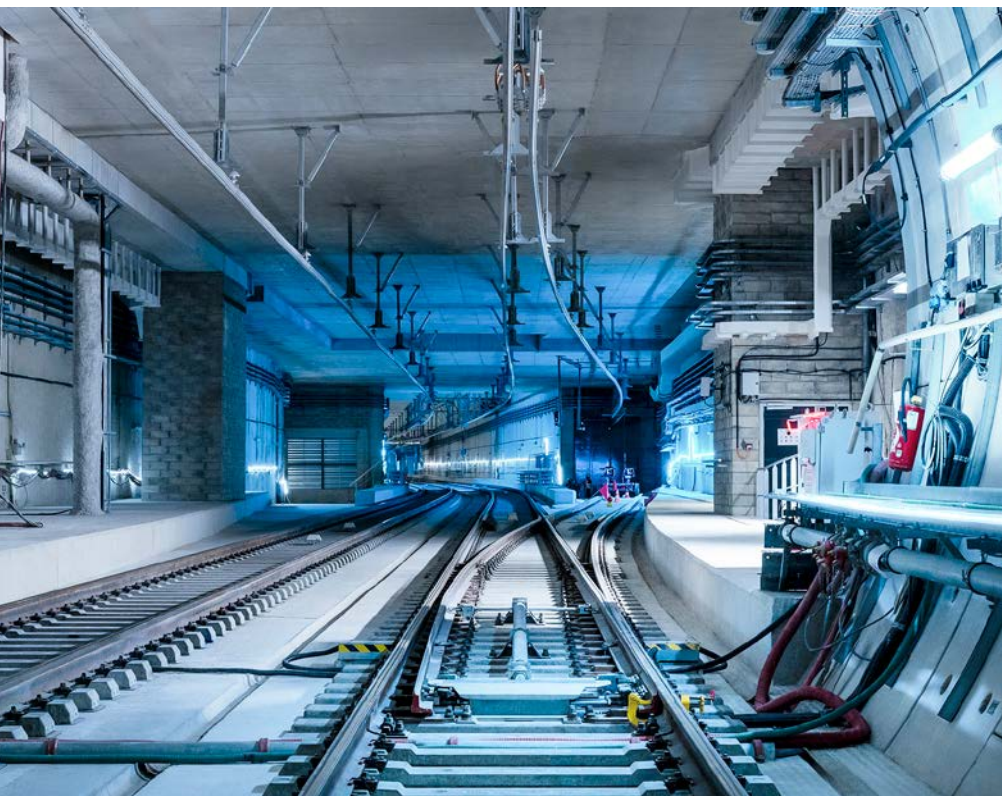


LOW-NOISE & VIBRATION AND MAINTENANCE-FRIENDLY SYSTEM SOLUTIONS

All over the world the trend towards urbanization draws increasing numbers of people to the conurbations while more and more work is found in the cities. Mobility around town, but also from the suburbs into the city center, is growing in importance. The constant rise in levels of private transport with all its effects and the increasing desire for sustainable solutions encourages demand for local public transport systems such as the subway or commuter railways. Reliability and safety are the top priority. Interaction between vehicle and route is complex, with compact product design proving vital here. As the global market leader voestalpine Railway Systems offers innovative and intelligent products combined with trendsetting concepts.

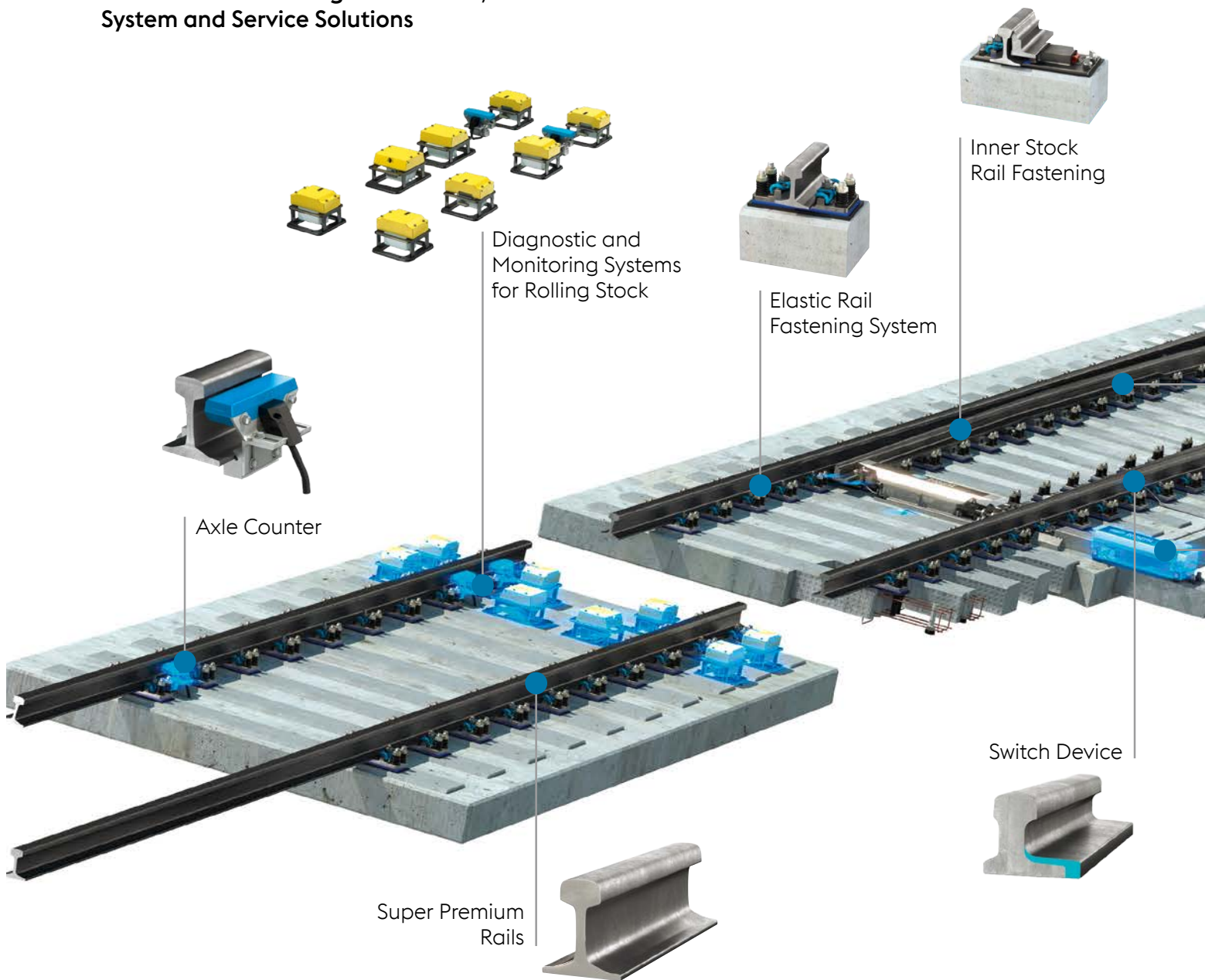
We thus improve service life, availability, reliability and ease of maintenance for rails, turnouts and signaling technology in the urban rail transport sector.

As a pioneer in economical (LCC) and technical (RAMS) product optimization, we combine cutting-edge technology with systems expertise right down the line. Our some 60 sites all over the world let us bundle our knowledge and supply our local customers with products and services tailored to their needs and offering added value. voestalpine Railway Systems stands for overall solutions with maximum efficiency – so helping customers get ahead in terms of technology and competition.



RETHINKING URBAN TRAFFIC SYSTEMS

Innovative and Intelligent Products,
System and Service Solutions



Options:



Alternative
Plate Integrated
Roller System



Point Machine with
External Lock



External Lock



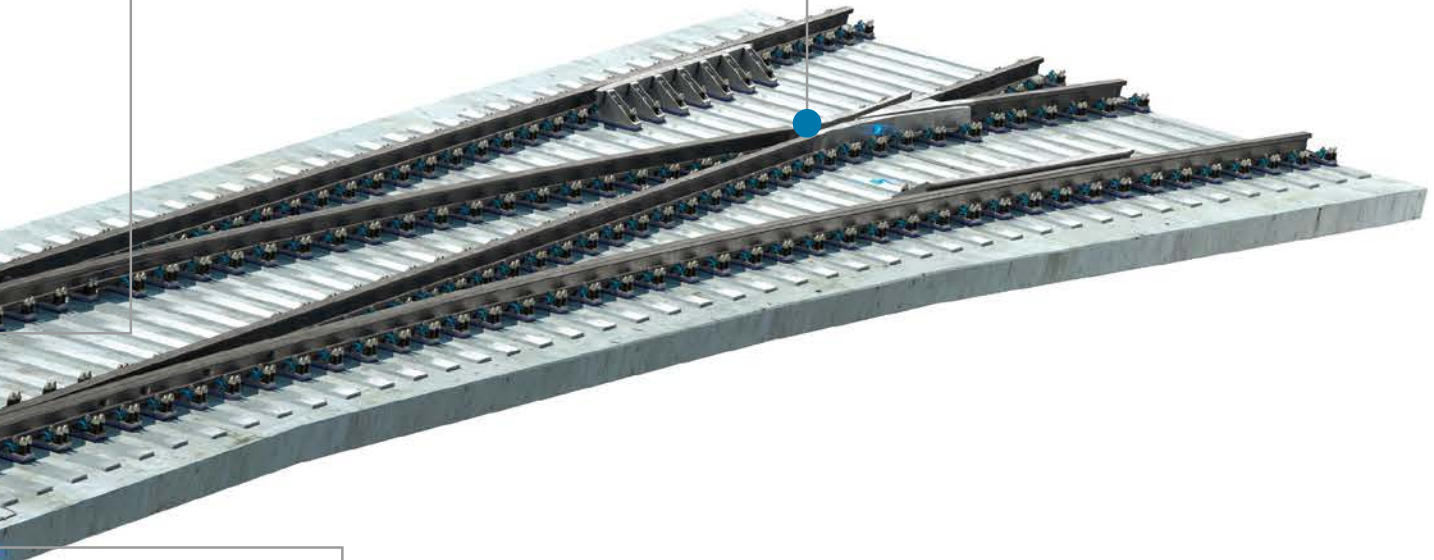
End Position
Detector



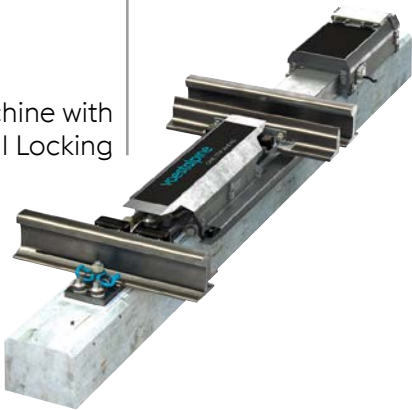
Plate Integrated Roller System



Manganese Crossing



Point Machine with Internal Locking



zentrak ecosystem

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



Back Drive System



Alternative Rail Fastening System



Built up Crossing



Insulated Rail Joint



HEAT-TREATED RAILS FOR METROS AND COMMUTER RAILWAYS: 400 UHC® HSH®

It is the combination of HSH® heat treatment technology with an innovative materials concept (UHC® concept) that gives this rail steel grade its high resistance. Based on years of experience, the low alloy concept (non-alloy rail steel) also ensures first-rate weldability of this 100 % pearlitic rail steel, standardized as R400HT. Used in underground railways all over the world as the brand 400 UHC® HSH®, the benefits of this rail steel grade particularly come into play under the challenging conditions found in metro systems. In particular, the short time slots available for maintenance and renewal work make use with curves on underground lines or commuter railways especially recommended due to the resistance to wear and to rail damage during operation provided by this grade of steel. Such high wear resistance proves effective against noise and vibrations, with the excellent section stability reducing levels of force in curves and protecting track and vehicles. RCF resistance additionally lengthens maintenance intervals in the rail network to good effect.

ADDED VALUE FOR YOU:

- » Reduction in noise and vibrations due to deferred rail corrugation
- » Maximum service life in the track and minimal maintenance costs
- » Lowest possible life cycle costs (LCC)
- » Available in all sections to EN, AREMA, other standards and customer specifications
- » Use in the turnout for continuous optimization of track
- » First-rate weldability
- » Tightest tolerances and top surface quality

SUSTAINABLE TURNOUT SYSTEMS FOR URBAN TRAFFIC

The constant further development of turnout technology means we are not only able to offer customers innovative and efficient solutions, but also to optimize them in line with the ever-increasing demands on public infrastructure. If we are to meet the growing need for mobility, first and foremost in conurbations, to optimum effect, special high-performance, economical, environmentally compatible and convenient system solutions are required. We work hand in hand with customers to develop concepts which fulfill individual needs and circumstances to optimum effect. Our products, which are optimized in terms of life cycle costs, promise maximum availability, reliability, ease of maintenance (robust design), as well as short installation, replacement and track possession times due to the use of pre-assembled parts, in addition to efficiency and durability.

INNOVATIVE PRODUCTS AND SYSTEM SOLUTIONS FOR MAXI- MUM REQUIREMENTS:

- » Intelligent System turnouts and diamond crossings
- » Optimized switch blades
- » Crossings (manganese and built-up)
- » Base-plate / fastening systems
- » Sleepers (concrete, composite, wood)
- » Slab track and special solutions
- » Expansion joints
- » Comprehensive service package



ADDED VALUE FOR YOU:

- » System responsibility / everything from a single source
- » Customized solutions for individual problems
- » Innovative solutions with high-resistance materials
- » Expertise in all track/fastening systems
- » Focus on solutions based on years of experience
- » Comprehensive references on all continents
- » Integrated range of services

INNOVATIVE SETTING, SIGNALING & MONITORING TECHNOLOGIES

Innovative Switching Systems, Locking & Monitoring Devices

Years of experience and extensive knowledge about turnout systems allow us to offer innovative solutions which are compatible with a wide range of interlocking technologies.

- » Complete setting systems, point machines (with/without integrated locking), locking systems, back drive systems, end position detectors, turnout control systems, 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.

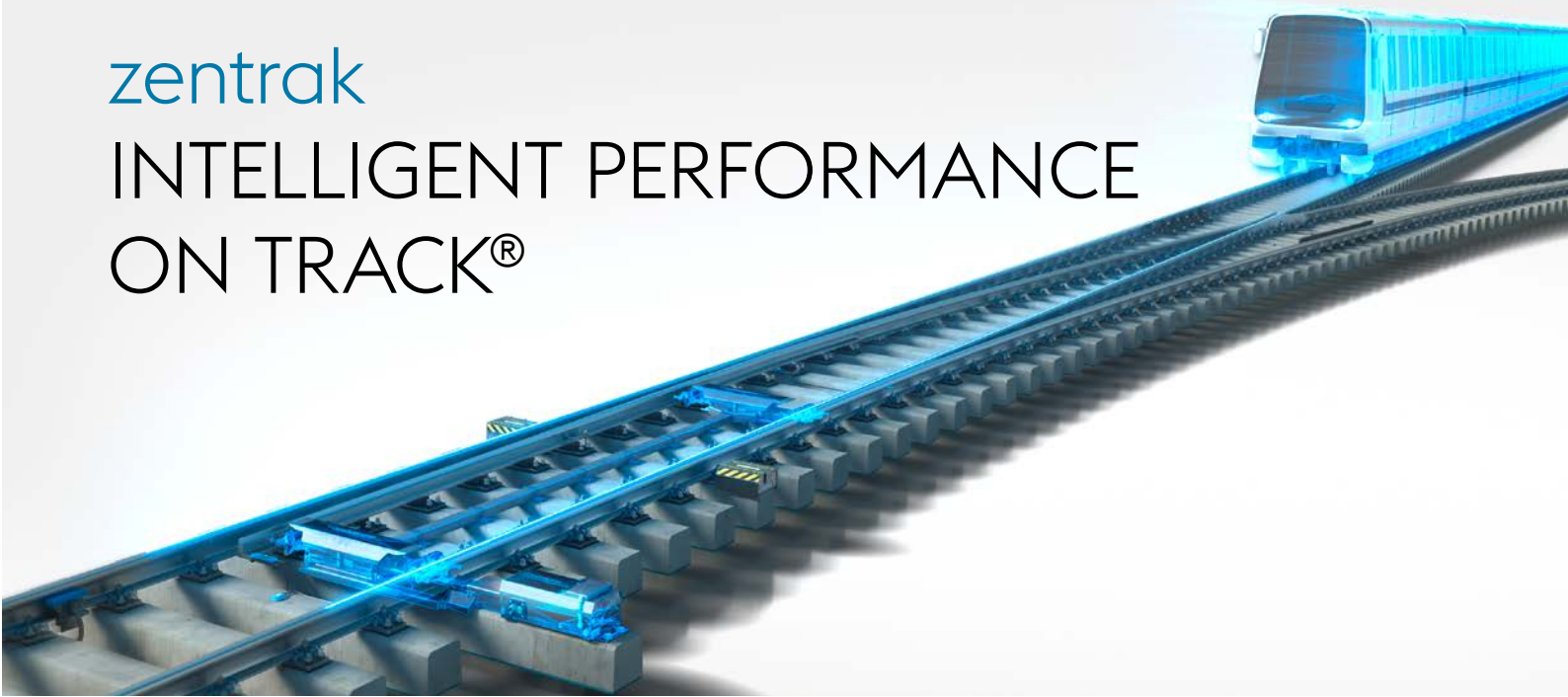


ADDED VALUE FOR YOU:

- » 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

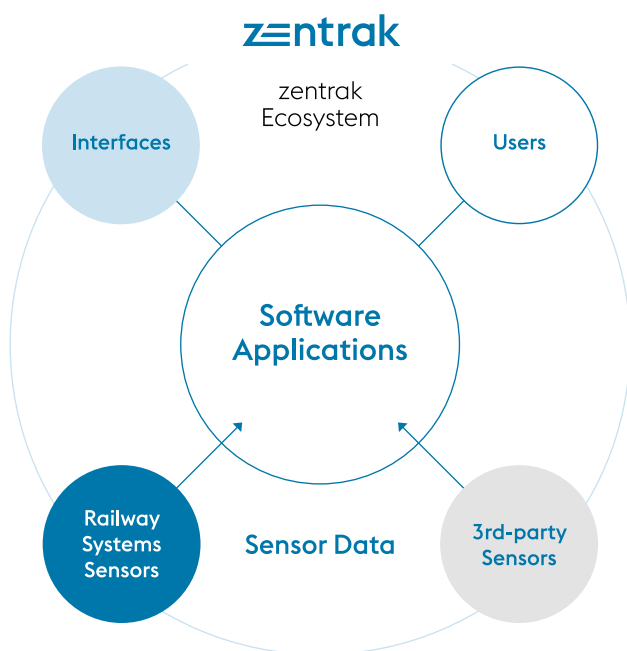
INTELLIGENT PERFORMANCE ON TRACK®



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

EFFICIENT TRACK MANAGEMENT FOR OPTIMIZED PERFORMANCE

From the idea to implementation, from training to consulting, from products via logistics to maintenance – with our Life Cycle Management for URBAN TRAFFIC METRO we offer an extensive portfolio of services. They not only ensure reliable and comfortable operation in dense, high-frequency urban traffic, 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.

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.

SUPPLY, LOGISTICS & INITIAL SERVICE

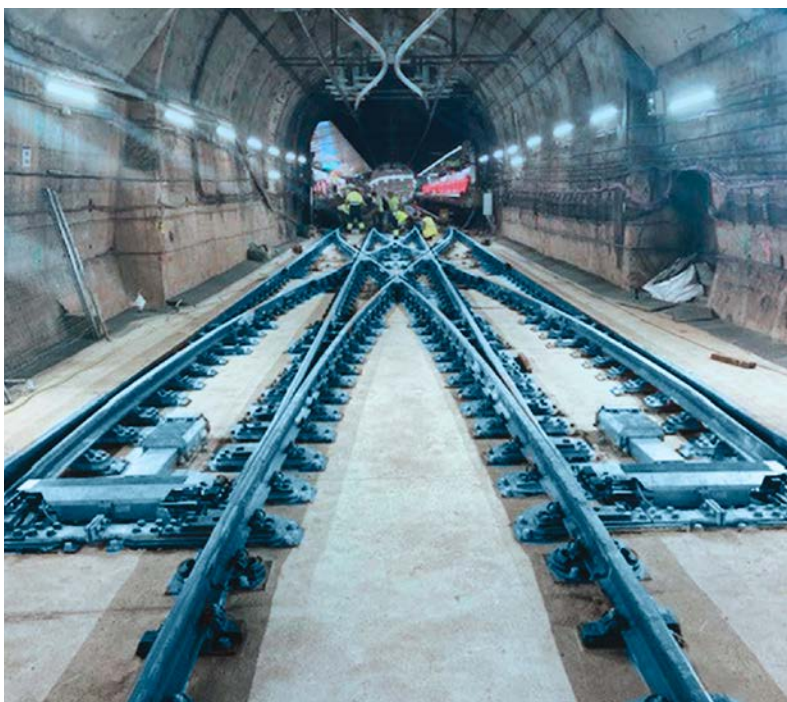
With our customized availability concepts and just-in-time logistics chains we supply our customers with the railway construction materials they need. Our initial services not only guarantee maximum installation quality – they also pave the way for reduced follow-up costs and an increased service life.

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.

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.





SUSTAINABLE PERFORMANCE ON TRACK®

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.

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