

# URBAN TRAFFIC: METRO

High-Tech Solutions for Public Rail Transport  
We Deliver Efficient Mobility



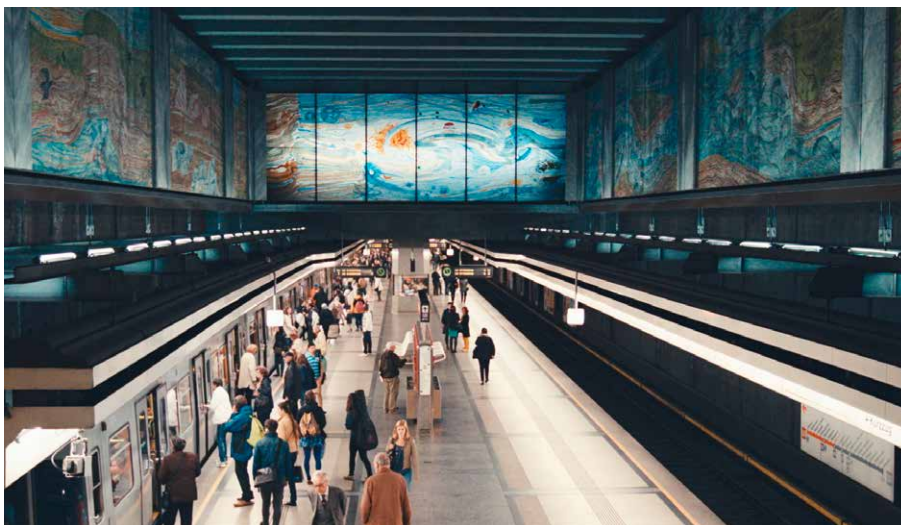


# LOW-NOISE & VIBRATION AND MAINTENANCE-FRIENDLY SYSTEM SOLUTIONS FOR METRO SYSTEMS AND COMMUTER RAILWAYS

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.

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.

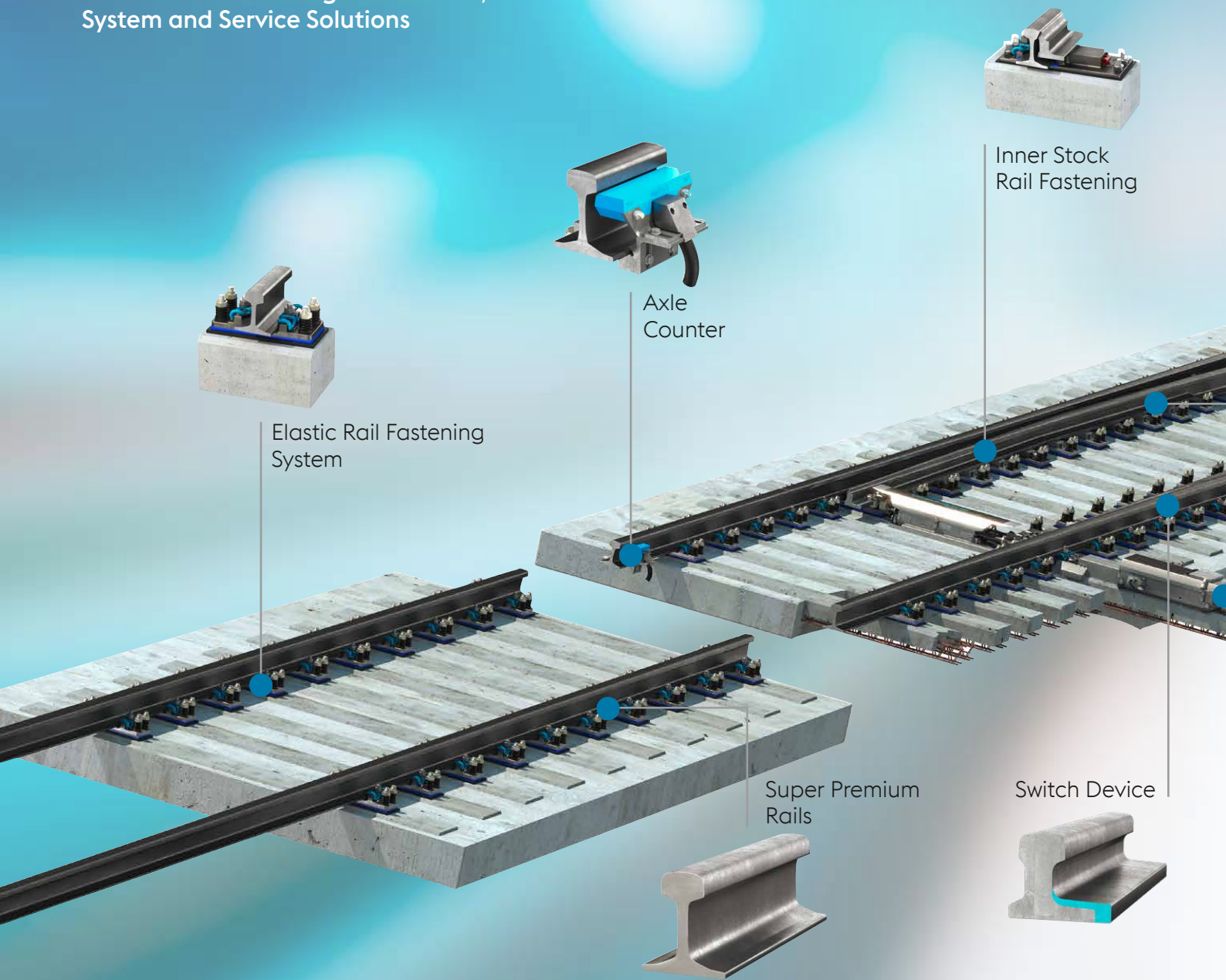






# RETHINKING URBAN TRAFFIC SYSTEMS

Innovative and Intelligent Products,  
System and Service Solutions



## Options:



Alternative  
Plate Integrated  
Roller System



Point Machine with  
External Lock



External Lock



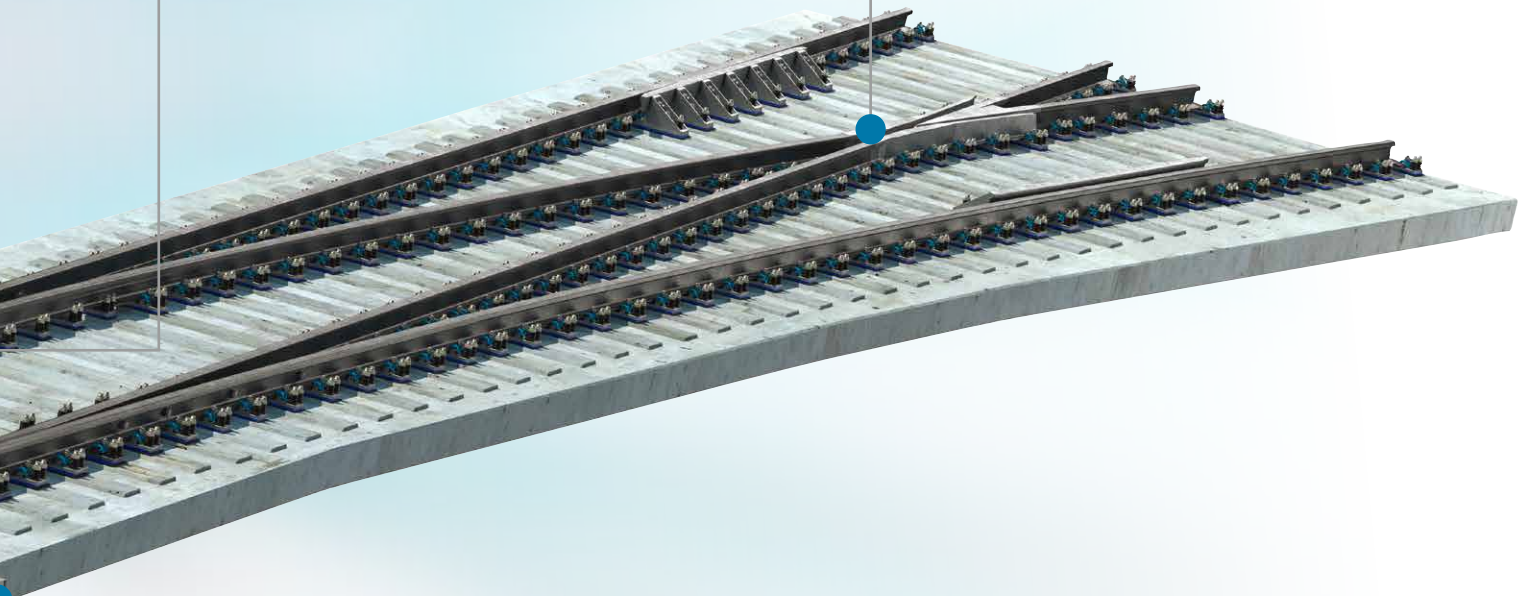
End Position  
Detector



Plate Integrated Roller System



Manganese Crossing



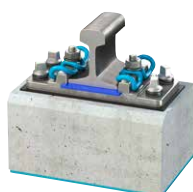
Point Machine with Internal Locking



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®



## Added Value for You:

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.

- » 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 Maximum Requirements:

- » 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 and 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 and
- » Turnout control systems, 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 wheel defects and environmental conditions, weighing in motion or acoustic bearing detection)

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 URBAN TRAFFIC we offer an extensive portfolio of services. They can be realized in the shortest possible track possession times and so ensure maximum system availability.

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.

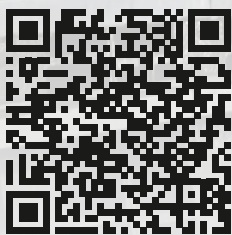


## PERFORM

### 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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