RAILWAY SYSTEMS
by voestalpine

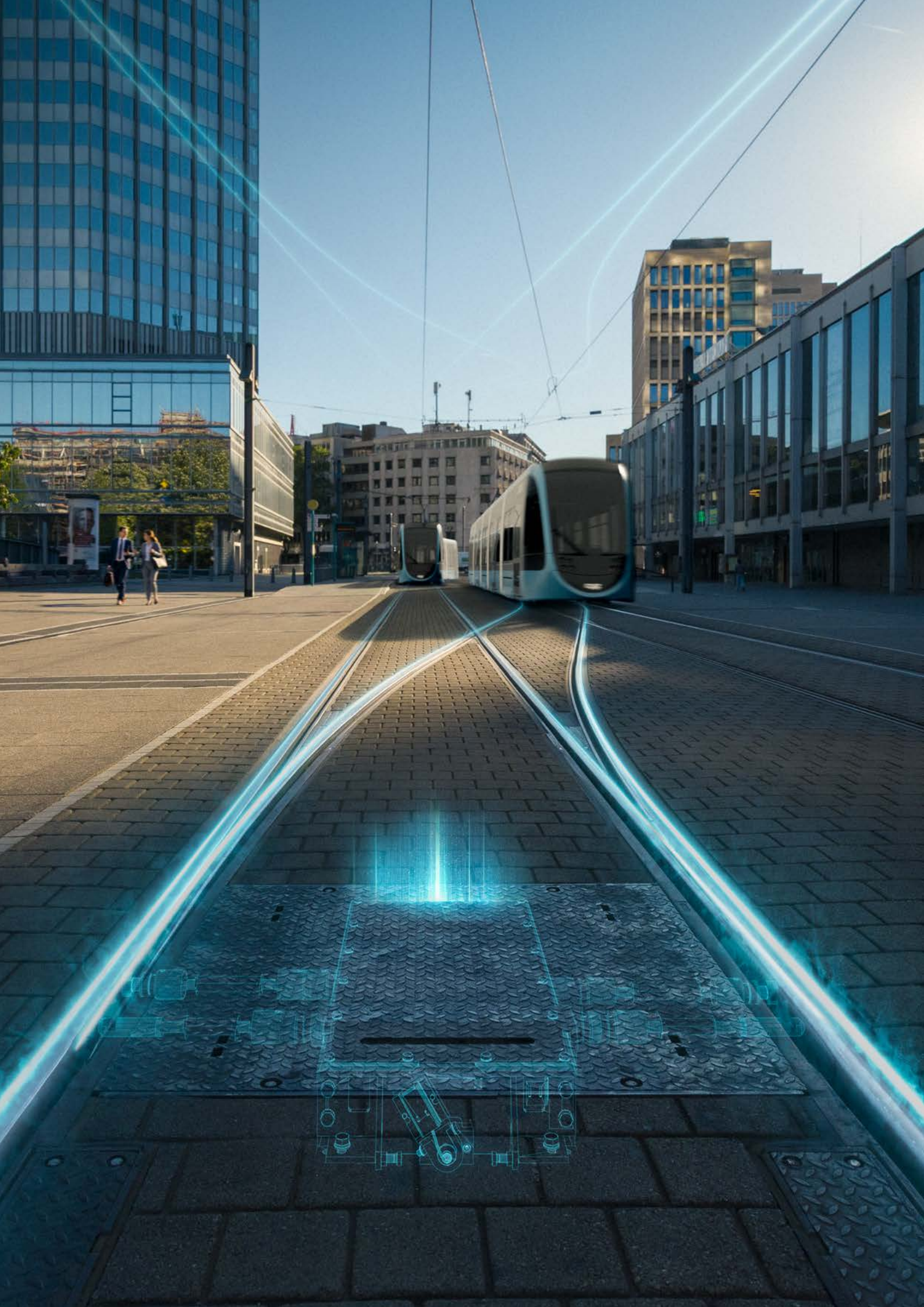


NEW URBAN TRACK

Next-Generation Embedded Rail System – Engineered for Modern Tram Systems.

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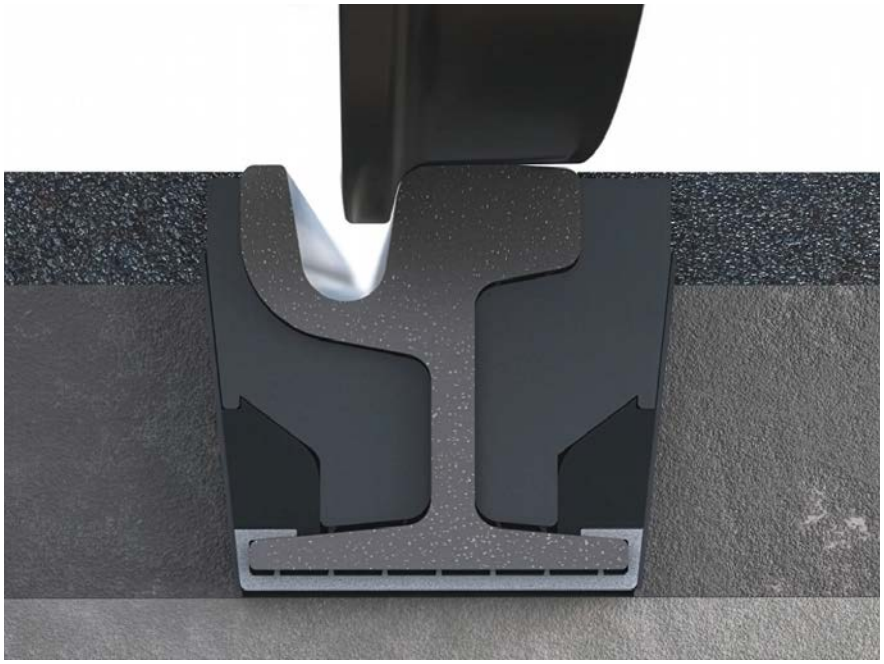
Next-Generation Embedded Rail System – Engineered for Modern Tram Systems.

New Urban Track is a newly developed track superstructure system for tram and light rail applications with embedded tracks.

It addresses the key challenges of urban track systems: rail wear, maintenance demands, noise and stray current requirements, and the difficult replacement of rails in installed tracks.

The system combines the newly developed 65G1 grooved rail profile with an innovative support point solution that enables access to the rail fastening system.

The objective is to provide a robust, maintenance-friendly, and future-proof solution for modern tram infrastructure.



SYSTEM CONCEPT

The system combines two key innovations:

- Innovative 65G1 grooved rail profile
- Support point solution with accessible rail fastening

The focus is on the safety and durability. The key advantage: the rail can be replaced directly within the system without extensive dismantling.

ADVANTAGES



Safety and durability

- Robust rail profile with a focus on increased wear reserves
- Ultrasonic testing (UT) of the profile down to the rail foot
- Wider rail head, optimized for modern wheel profiles
- G9 Clip fastening system as part of the system solution

Maintenance and operation



- Easier rail replacement thanks to the accessible manhole solution and the conical shape of the chamber filling elements
- Modular support point solution with multiple sleeper types and support structures
- Flexible adjustment of the installation height for new construction and maintenance
- System designed for easy maintenance access while installed



Performance and installation

- Excellent stray current insulation
- Adjustable elasticity for noise and vibration damping
- High degree of pre-assembly for short construction times
- Immediate trafficability during the construction phase

TECHNOLOGY

65G1 Rail Profile

The newly developed 65G1 grooved rail profile specifically addresses weaknesses of conventional profiles:

- Wider running head for better compatibility with modern wheels
- Narrower foot to reduce installation space
- Reinforced web for increased stability and testability
- Deeper groove for extended service life

The design of the rail allows for ultrasonic testing down to the foot of the rail, significantly improving condition monitoring.

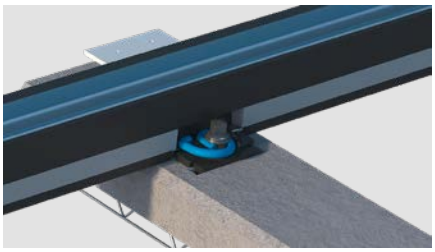


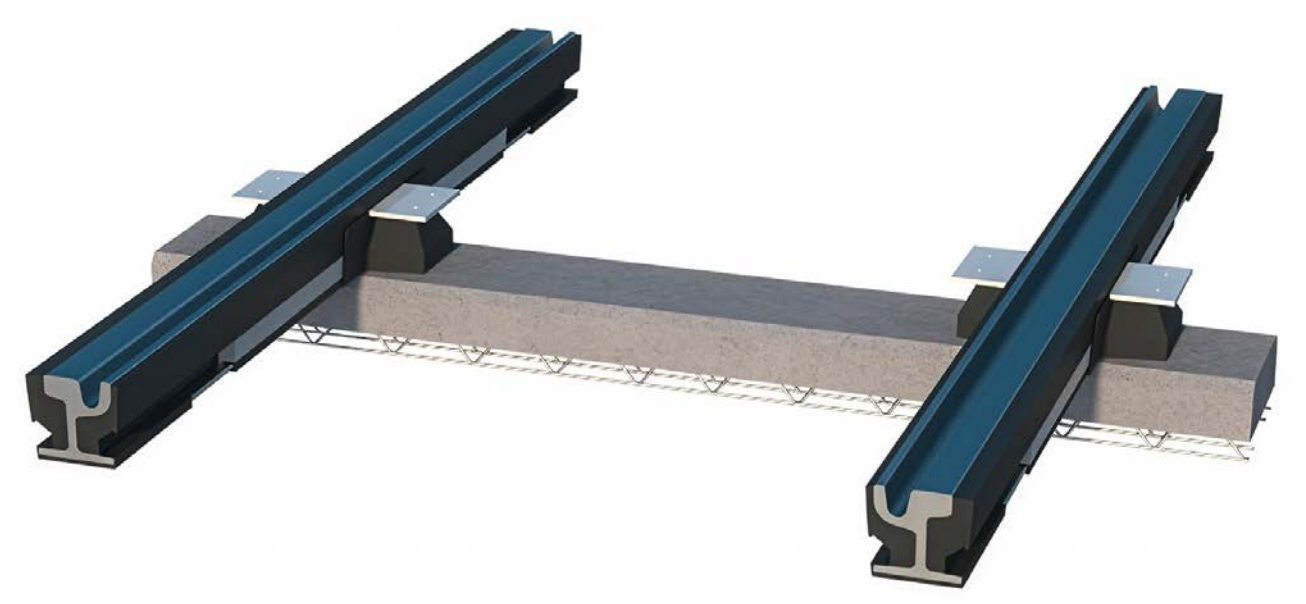
System Solution

The New Urban Track system is based on an integrated overall system in which all components are optimally coordinated:

- Individual track grid (e.g., I-beams or concrete sleepers)
- Elastic mounting through rubber foot sleeves
- Internal and external chamber filling elements
- Fastening via tension clamps (G9 clip)
- Integration of access shafts for fastening

The shaft solution allows targeted access to the rail fastenings in the installed state and significantly reduces the effort required for replacement.





CONSTRUCTION PROCESS

The New Urban Track system is implemented simply and quickly in clearly defined construction phases:

Step 1



The prefabricated track grid is lifted into the excavation and precisely aligned. The track alignment is achieved via the integrated sleeper system.

The rails are secured using tension clamps, resulting in a height-adjustable or elevating track grid. The chamber infill elements are also integrated before installation.

Step 2



After precise positioning, the track grid is encased in concrete up to the top of the sleepers and fixed in place during the first concreting phase.*

References:

- Wiener Linien – Prototype installation
- Holding Graz – Pilot installation in a turning loop

Detailed information such as rail steel data sheets, rail profile drawings and technical descriptions are available upon request. The experts of Product Management and Technical Customer Service will be happy to assist.

Contact Productmanagement: product_management@voestalpine.com

Step 3



Subsequently, the access shafts are constructed using formwork (permanent formwork) before the track grid is completely encased in concrete up to the top of the formwork covers.*

* Depending on the system configuration, the concreting process can also be completed in a single step, further simplifying and accelerating the construction process.

The result is a robust, embedded track system with permanently accessible fixings.

Step 4



In the final phase, an asphalt surface course is applied as a durable wearing course for mixed traffic.

For future rail replacement, it is sufficient to remove this top layer – all underlying components of the track superstructure remain intact and can be reused.

ADVANTAGES OF THE METHOD

- Fast and efficient construction process
- High precision in track alignment
- Reduced construction time through prefabrication
- Easy maintenance and future rail replacement
- Sustainable reuse of track superstructure components

The New Urban Track is not just a system – it is the first true combination of a wear-optimized rail profile and a maintenance-optimized infrastructure.

It solves two major challenges of covered tracks at the same time: high rail wear and replacement.

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