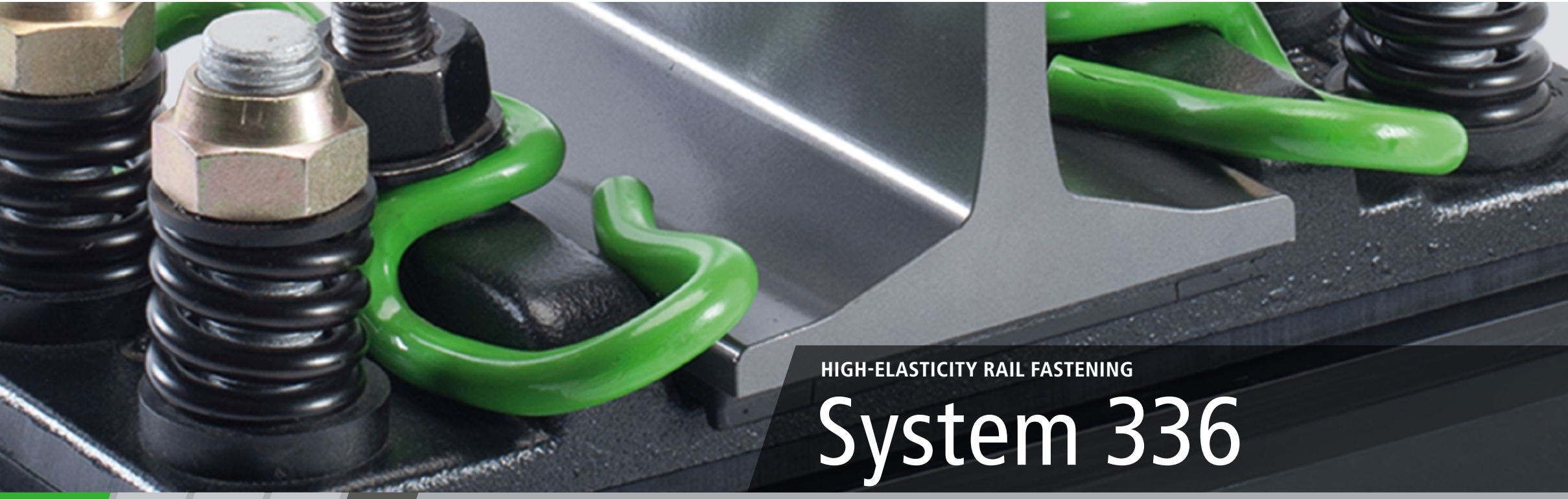
vossloh
enabling green mobility



HIGH-ELASTICITY RAIL FASTENING

System 336

The versatile solution for urban transportation

Here comes the 336!

For more than 40 years, the traditional versions of System 336 have been a proven fastening system for urban transportation, and they have been constantly refined during this time. Now, as a ribbed base plate solution, it is the ideal system version for all slab track requirements in urban transportation. This highly elastic rail fastening system is available as a solution with a plastic frame, which reduces the volume of material needed, and the newest addition to the range is available in symmetrical and asymmetrical versions. It can be flexibly adapted to the required construction accordingly. The system range is rounded out by a solution especially for turnouts.

Contents

See the following pages to discover the application and configuration options, as well as interesting details on construction and materials.

Urban transportation

Urban transportation, classic configuration

Urban transportation with an emphasis on turnouts

Rail fastening for ribbed base plate solutions	Old designation	New designation
	System 336 V	System 336 – Urban transport configuration
	System 336	System 336 – Urban transport configuration, "Standard"
	System 336 Duo	System 336 – Urban transport configuration, Emphasis: Turnouts

System 336 – A fixture for slab track

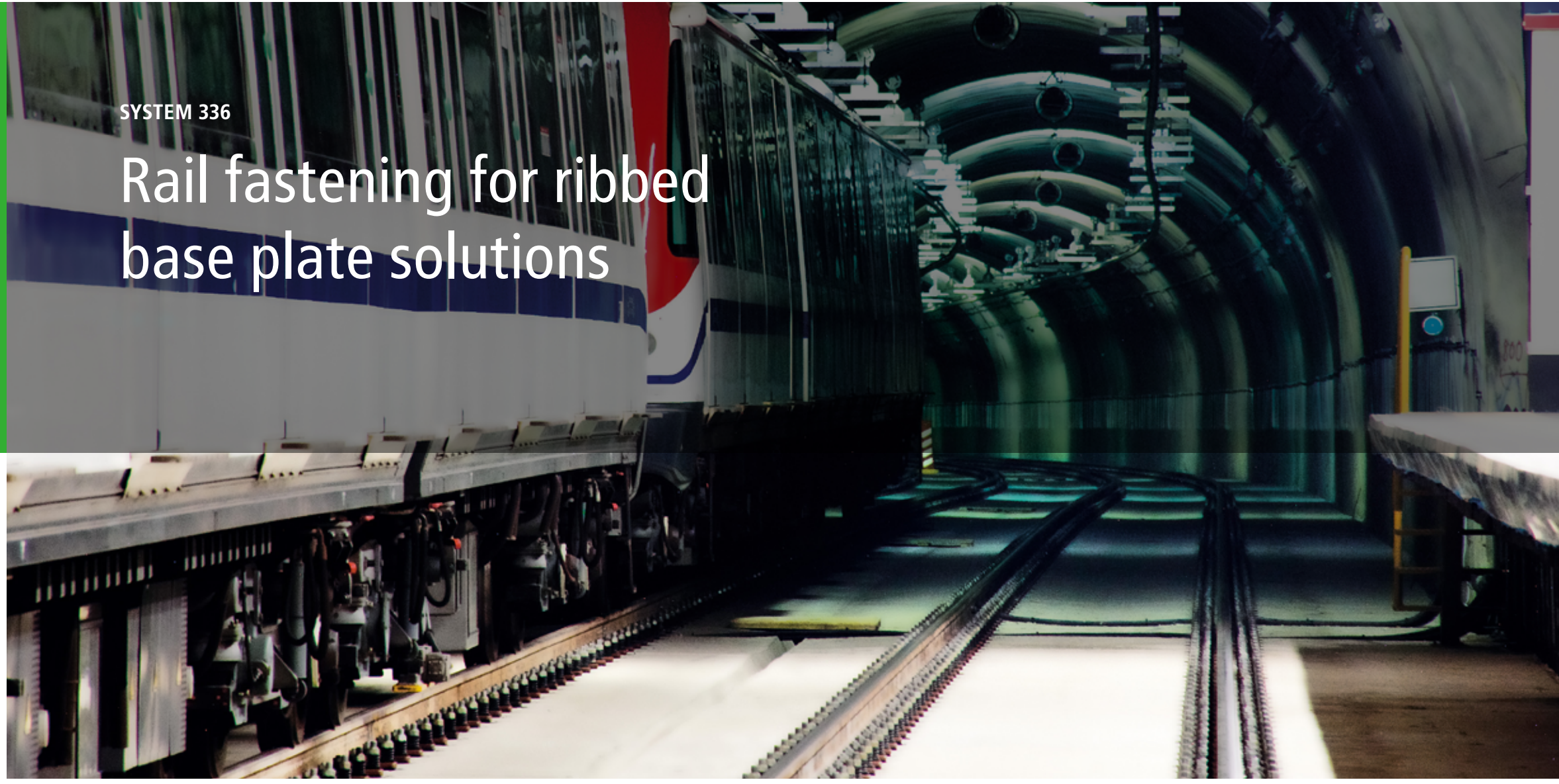
Slab track systems must replicate the original elasticity of the ballasted track. That places stringent demands on the rail fastening systems in urban transportation. They must be highly elastic, in order to deflect the forces generated by a metro or tram system into the ground as smoothly as possible, with minimum impact on materials. This is no easy task, if we consider how often trains in urban transport systems have to brake and start off again. The highly elastic components in System 336 assume this task and ensure comfortable travelling while maintaining a high level of operational safety and reduced noise levels.

All system versions can be flexibly used as single support points and can be supplied preassembled to order. Unlike concrete sleepers, no special shoulders are required, which makes for easy handling during installation and track maintenance. Installation can be either top-down or bottom-up. The ribbed base plates that are used maintain the gauge and hold the rail in position, and are also ideally suited for use in turnouts.

The highly elastic rail fastening is the ideal ribbed base plate solution for the demands of slab track systems.

SYSTEM 336

Rail fastening for ribbed base plate solutions



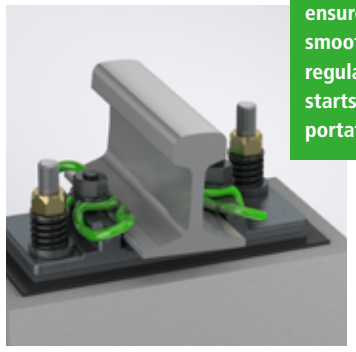
State-of-the-art and a **strong member of the team**

The newest member of the System 336 range is available in two versions, symmetrical and asymmetrical, in order to meet the requirements posed by slab track in urban transportation worldwide. It can be flexibly adapted to all kinds of construction accordingly. The symmetrical version is recommended for structures using pre-cast elements such as sleepers or slabs. The asymmetrical version was developed especially for India, enabling the concrete side members to be made narrower.

Both versions offer excellent properties in terms of rail deflection and vibration, and the screw/dowel combination used makes them compatible with concrete bearers, plain sleepers or traditional rail solutions. The Skl 21 tension clamp that is used has a long spring deflection: Even under the forces imparted by the train, its spring arms remain in contact with the rail base in all situations.

System 336, with its elastic plate and the rail pad, allows the rail to deflect to ideally distribute the vertical forces that are generated. This makes full use of the capacity of the highly elastic elastomer, ensuring very low dynamic stiffness and no loss of elasticity.

In the symmetrical or the asymmetrical version, the latest member of the team can be perfectly adapted to all constructions.



The highly elastic System 336 also ensures the necessary smoothness during regular stops and starts in urban transportation services.

The Skl 24 tension clamp scores thanks to its high rail creep resistance: Two highly elastic spring arms that work independently of each other keep the rail firmly in position. The middle bend provides additional tilt protection. The fact the system is maintenance-free is a further benefit: Permanent tension ensures the tension clamp and screw cannot come loose.

The tension clamp is securely screwed to the ribbed base plate using T-head bolts. In turn, the base plate is supported by a highly elastic *cellentic* elastomer, which has excellent properties in terms of rail deflection and noise and vibration damping. This keeps structure-borne noise to a minimum and maximises travelling comfort. As a result, System 336 is ideally suited to metro services in particular.

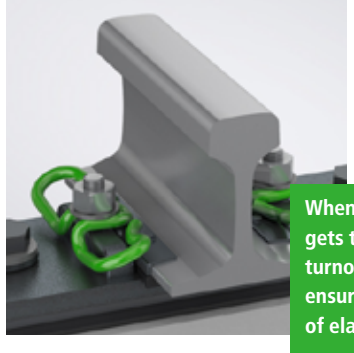
The classic for **metro systems**

System 336 has been used with success for more than 40 years. In its classic original form its various elements provide maximum safety.

Ideal solution for **turnouts**

This configuration of System 336 was refined to meet special customer requirements for urban transportation in China. It is compatible with local track solutions, and thanks to its excellent damping performance, it can absorb up to 8 decibels more than traditional local systems. As a ribbed base plate system, that makes it the ideal rail fastening solution for turnouts.

Here, too, the Skl 24 tension clamp that is used provides the necessary rail creep resistance, thus preventing the rail from slipping out of position. With its high fatigue strength, it resists dynamic vertical movements and enables the train to pass safely along the rail. The *cellentic* intermediate plate completes the package of benefits, with its excellent properties in terms of rail deflection and vibration damping.



When the going gets tough on the turnouts, the system ensures a high level of elasticity.

System components and specifications

Comprehensive protection with **Vossloh *protect***

High humidity levels and high salt content in the ambient air are just two examples of environmental impacts that will attack some components in rail fastening systems. That is why all tension clamps and sleeper screws and T-head bolts can be coated with Vossloh *protect* for optimal protection. This innovative coating provides traditional barrier and cathodic corrosion protection that prevents damage from loose ballast, among other things. This is an important factor when it comes to reducing lifecycle costs. The coated components are also protected from aggressive industrial climates like acid rain, major temperature fluctuations, and other extreme conditions.

More information is available on our Web site:

Extraordinary elasticity provided by *cellentic* intermediate plates

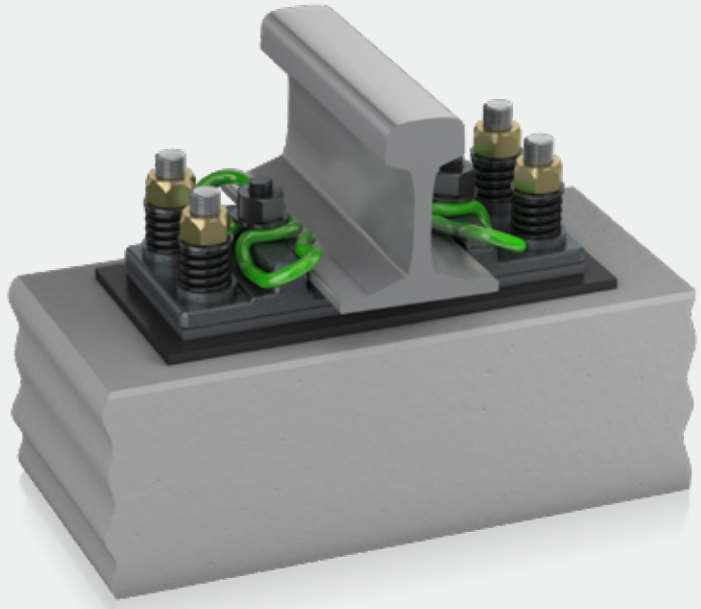
In these systems, *cellentic* intermediate plates help protect the tracks so they will require less frequent maintenance. The EPDM elastomer developed by Vossloh provides optimal elasticity and rigidity in every application to ensure that loads are ideally distributed and vibration cushioned. It remains resistant to chemical substances, temperature fluctuations, and weathering even under challenging environmental conditions.

Safety and track availability for all generations

The factor linking all tension clamps is their force-deflecting design: On all stretches of track, including on tight curves, the track remains in position while the trains accelerate and brake. The track bed does not move, while noise and vibration are contained. As a result, the tension clamps ensure maximum safety and track availability.

System 336

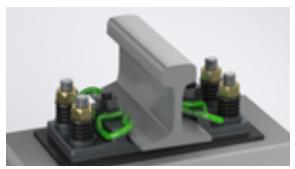
One system – flexible for every requirement



Urban transportation – symmetrical

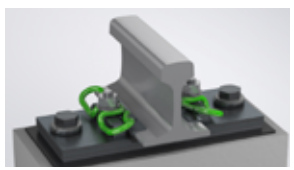
Urban transportation – asymmetrical

Urban transportation, "Standard" – 2-hole



Urban transportation, "Standard" – 4-hole

Urban transportation, "Standard" – Screw/dowel



Urban transportation – emphasis on turnouts

Click on the illustration to go directly to the system.

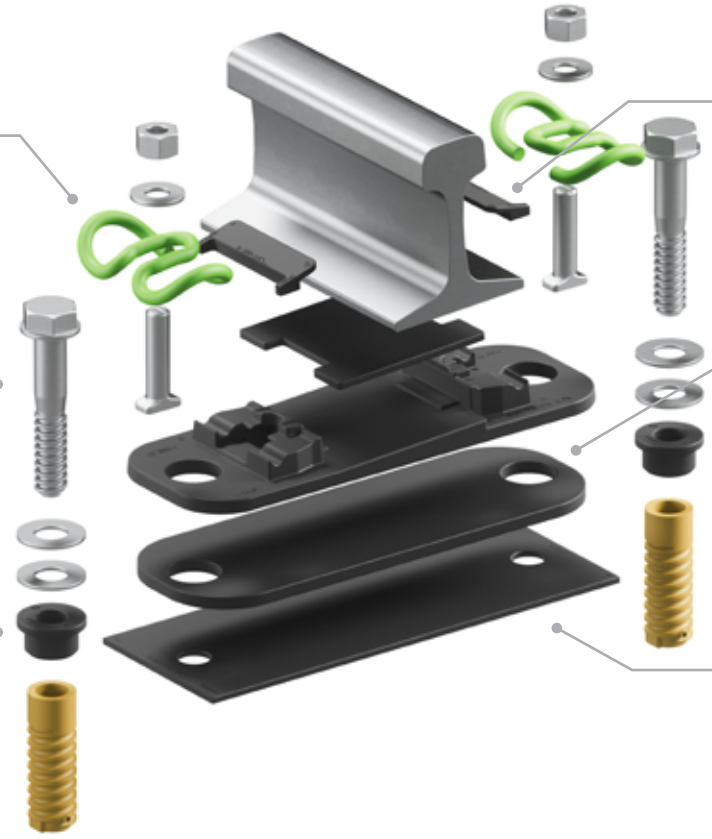
SYSTEM 336

Effective damping of vibration and noise

Skl 21
- Maximum safety
- Optimised rail creep resistance and tilt protection
- Resistant to dynamic vertical movements
- Maintenance-free system

Fastener
- Tension clamp securely screwed to ribbed base plate using T-head bolt
- Saves materials: Only two hex bolts and two plastic dowels required

Gauge adjustment
- Insulating brackets on the tension clamp
- Low pre-load of the elastic element
- Very low dynamic stiffness and no loss of elasticity



Electrical insulation
- Plastic components (dowels, washers, guide plates, insulators, bushes)

System bearings
- High elasticity
- Minimises vibration and structure-borne noise
- Stable rail deflection
- Tilt protection

Intermediate plate

Back to System 336 overview

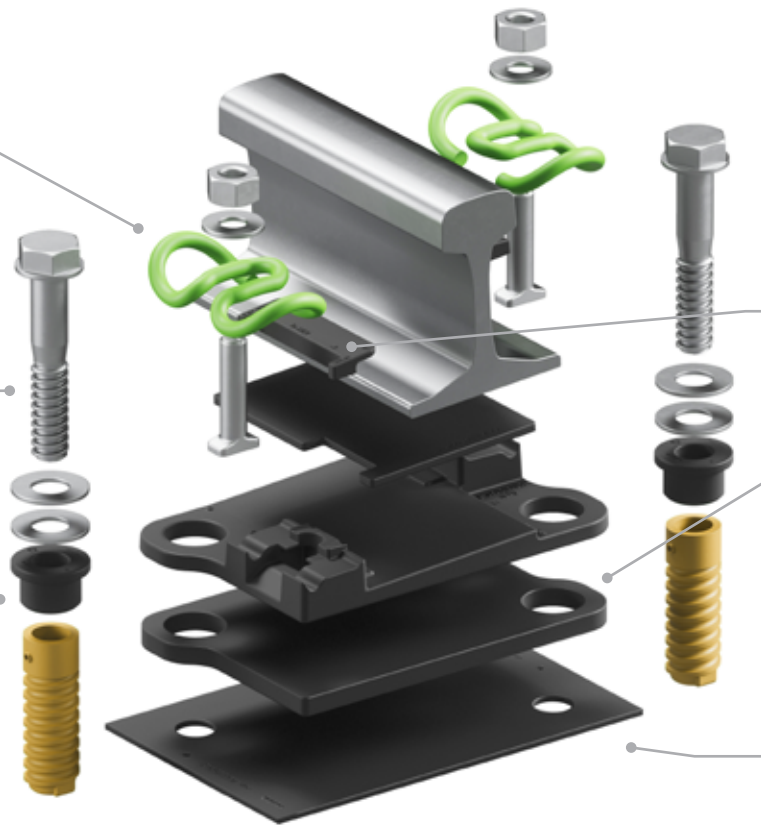
SYSTEM 336

Flexibility is part of the deal

Skl 21
- Maximum safety
- Optimised rail creep resistance and tilt protection
- Resistant to dynamic vertical movements
- Maintenance-free system

Fastener
- Tension clamp securely screwed to ribbed base plate using T-head bolt
- Saves materials: Only two hex bolts and two plastic dowels required

Gauge adjustment
- Insulating brackets on the tension clamp
- Low pre-load of the elastic element
- Very low dynamic stiffness and no loss of elasticity



Electrical insulation
- Plastic components (dowels, washers, guide plates, insulators, bushes)

System bearings
- High elasticity
- Minimises vibration and structure-borne noise
- Stable rail deflection
- Tilt protection

Intermediate plate

Back to System 336 overview

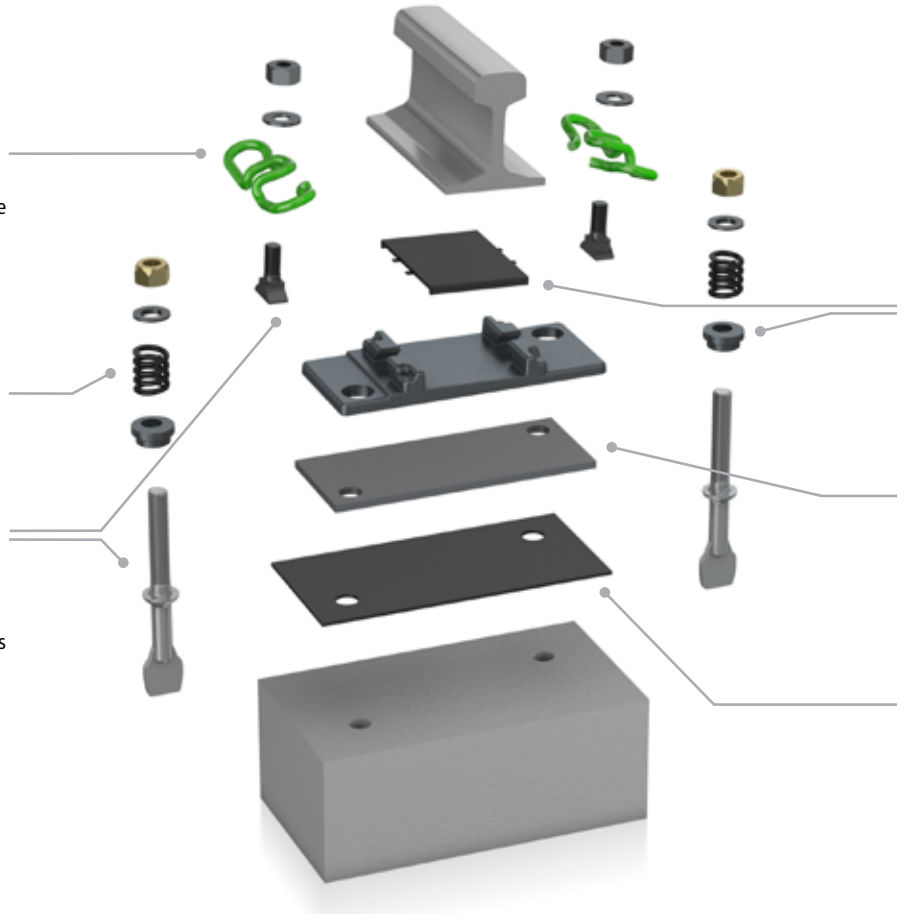
SYSTEM 336

Version with 2-hole fastener (Top Down)

Skl 24
- Maximum safety
- Optimised rail creep resistance and tilt protection
- Resistant to dynamic vertical movements
- Maintenance-free system

Helical springs
- Minimal pretensioning of the elastomer

Safely tied
- Secure tensioning of the Skl to the ribbed base plate by means of T-headed bolts
- 2-hole fastener: 2 anchor bolts for ribbed base plate and concrete track



Electrical insulation
- Plastic rail pad
- Plastic gauge adjustment bushes
- Elastomer

System bearings
- High elasticity
- Minimises vibration and structure-borne noise
- Stable rail deflection
- Tilt protection

Intermediate plate

Back to System 336 overview

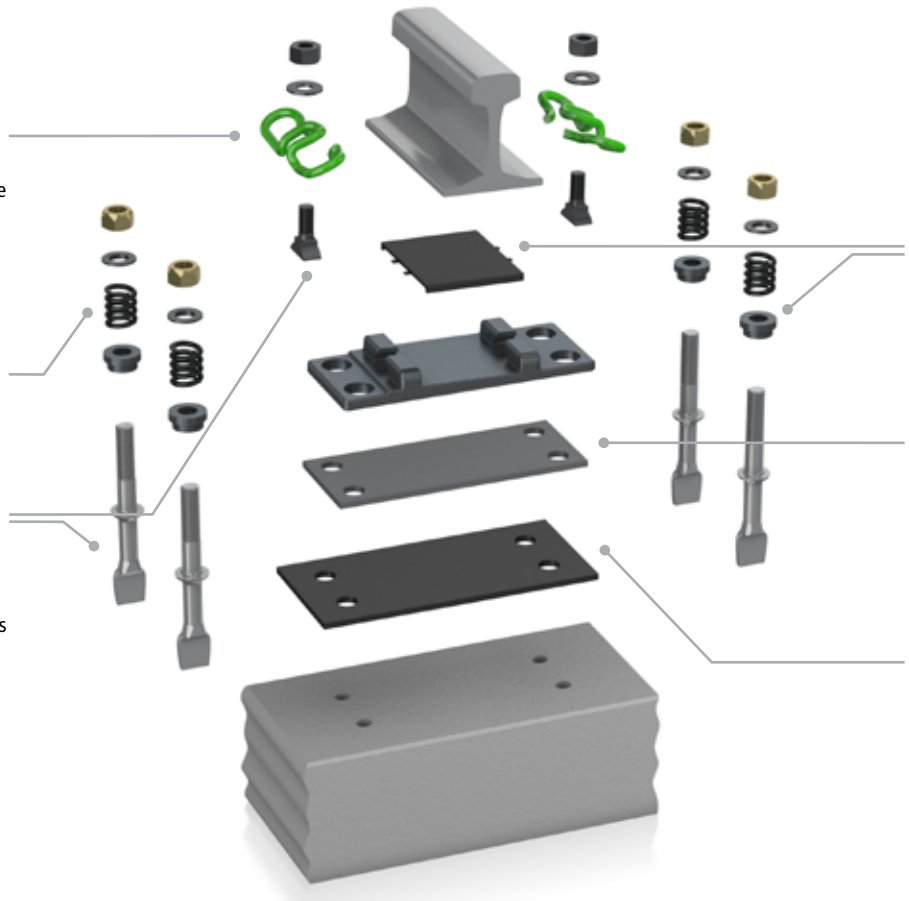
SYSTEM 336

Version with 4-hole fastener (Top Down)

Skl 24
- Maximum safety
- Optimised rail creep resistance and tilt protection
- Resistant to dynamic vertical movements
- Maintenance-free system

Helical springs
- Minimal pretensioning of the elastomer

Safely tied
- Secure tensioning of the Skl to the ribbed base plate by means of T-headed bolts
- 4-hole fastener: 4 anchor bolts for ribbed base plate and concrete track



Electrical insulation
- Plastic rail pad
- Plastic gauge adjustment bushes
- Elastomer

System bearings
- High elasticity
- Minimises vibration and structure-borne noise
- Stable rail deflection
- Tilt protection

Intermediate plate

Back to System 336 overview

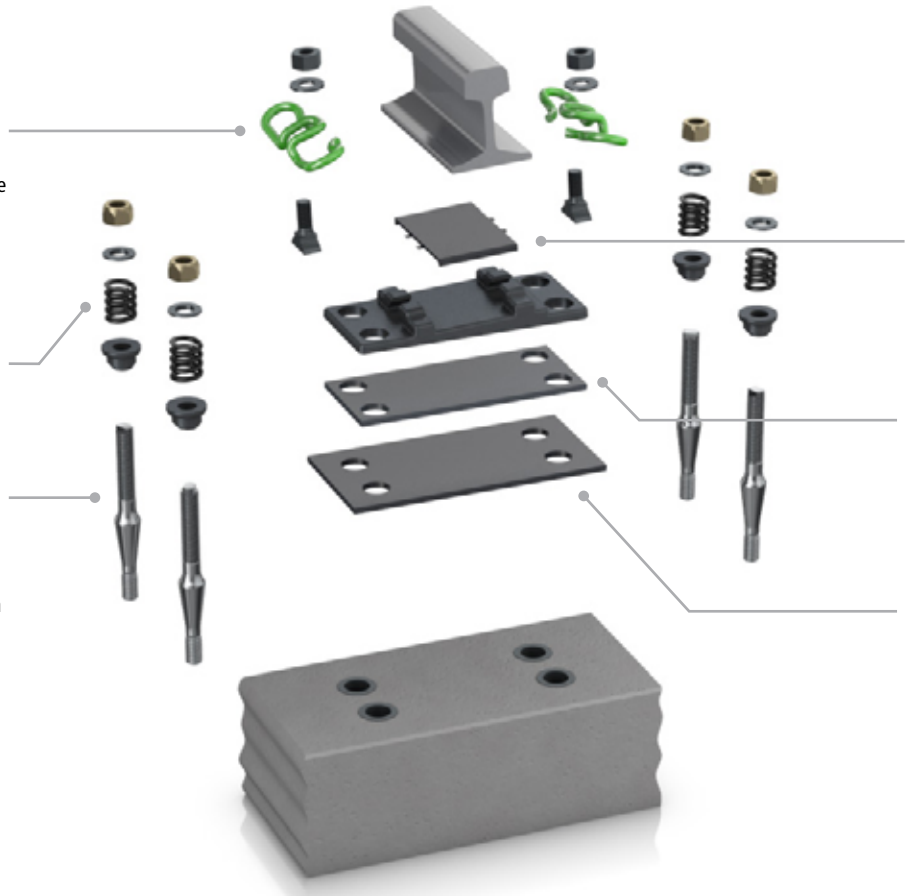
SYSTEM 336

Also proven with a screw/dowel combination

Skl 24
- Maximum safety
- Optimised rail creep resistance and tilt protection
- Resistant to dynamic vertical movements
- Maintenance-free system

Helical springs
- Minimal pretensioning of the elastomer

Screw-dowel combination
- Secure tensioning with a high load capacity
- Cost-effective and resilient thanks to the use of high-tech materials



Electrical insulation
- Plastic rail pad
- Plastic gauge adjustment bushes
- Elastomer

System bearings
- High elasticity
- Minimises vibration and structure-borne noise
- Stable rail deflection
- Tilt protection

Intermediate plate

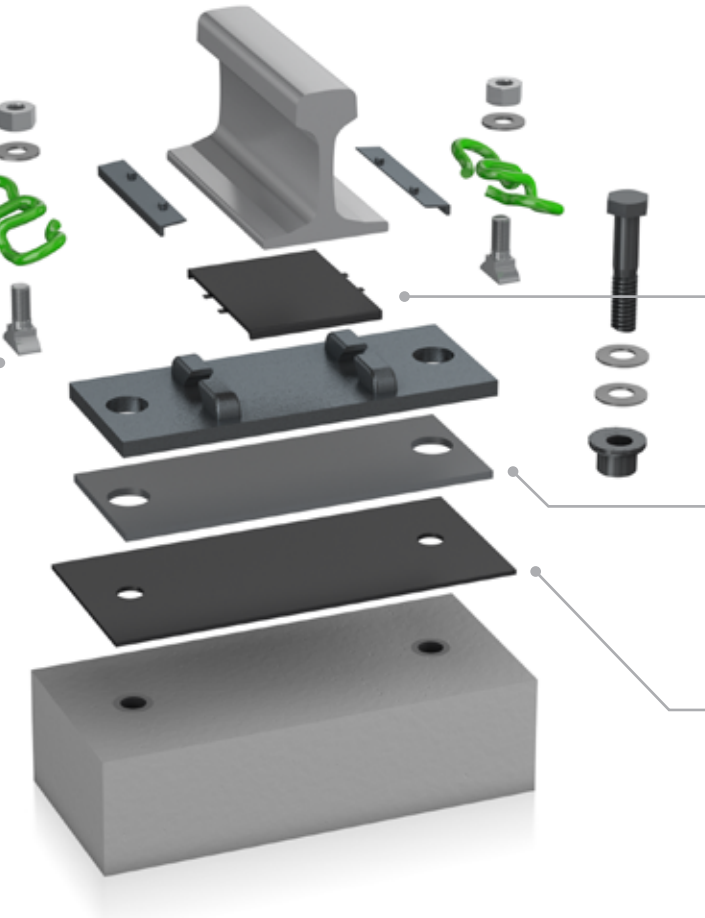
Back to System 336 overview

SYSTEM 336

Made for turnouts

Skl 24
- Maximum safety
- Optimised rail creep resistance and tilt protection
- Resistant to dynamic vertical movements
- Maintenance-free system

Fastener
- Tension clamp securely screwed to ribbed base plate using T-head bolts
- Hex bolts for ribbed plate and concrete superstructure



Electrical insulation
- Plastic rail pad
- Plastic gauge adjustment bushes
- Elastomer

System bearings
- High elasticity
- Minimises vibration and structure-borne noise
- Stable rail deflection
- Tilt protection

Intermediate plate

Back to System 336 overview

System 336: **Specifications** at a glance

You can also use our Product Finder on our Web site:

	System 336		
			
Field of application	**Urban transportation system**	**Urban transportation (classic configuration)**	**Urban transportation (emphasis on turnouts)**
Axle load	≤ 18 t	≤ 18 t	≤ 18 t
Speed	≤ 160 km/h	≤ 140 km/h	≤ 140 km/h
Curve radius	≥ 80 m	≥ 80 m	≥ 80 m
Height adjustment	+ 40 mm	+ 20 mm	+ 20 mm
Gauge adjustment	± 12 mm	± 10 mm	± 16 mm

Note: Content, figures and specifications in this brochure reflect the performance of the fastening system under ideal conditions, but this will always depend on external factors and influences. Contact us so we can work with you to develop a solution tailored to your project and your requirements. The information in this document represents the state of technical development at the time of publication; the product may have been updated since as a result of ongoing research and development work at Vossloh.

In a class of its own

A true classic: Rail fastening system 336 has been in use for 40 years and has been installed in more than 30 countries to date. Over the years, there have been customer-specific adaptations, such as the special installation on several metro lines in China, including the turnouts in Beijing's no. 7 metro line. A solution with a plastic frame to reduce material use has been installed on test tracks in Central America. And the youngest member of the system family is already in use on several metro lines such as China's Wenzhou S1 Line and is planned for use in the successor project, the Wenzhou S2 Line. Another prestige project is the metro tunnel project in Melbourne – the largest public transport project in the Australian state of Victoria.

Want to know more about our references? Drop us a line:

Melbourne

Metro tunnel between South Kensington and South Yarra
9.5 km-long twin tunnel
5 new underground stations
The largest transportation project in Victoria to date
Highly elastic rail fastening system to minimise vibration

vossloh
enabling green mobility

Interested in more products in the Vossloh portfolio for your rail infrastructure?

Take a look at our Product Finder, where you'll quickly find the solution that's right for you!

Click here to directly access the Product Finder

Published: 01.2024

Vossloh Fastening Systems GmbH

Vosslohstraße 4
D-58791 Werdohl

Phone +49 (0) 23 92 / 52-0
Fax +49 (0) 23 92 / 52-448

info.corecomponents@vossloh.com
vossloh.com