vossloh

System SB4 VK

Elastic rail fastening for conventional rail –
screwless solution for ballasted track with concrete sleepers

Vossloh fastening systems

Based on our experience we are setting standards of the future.

Conventional Rail – Safety on standard routes

Safety and comfort are important for rail traffic. Our tension clamps provide a stable fastening solution for types of track with a permissible axle load of up to 26 t. The highly elastic components additionally ensure a comfortable journey.

SB4 VK – screwless solution for concrete sleepers on ballasted tracks

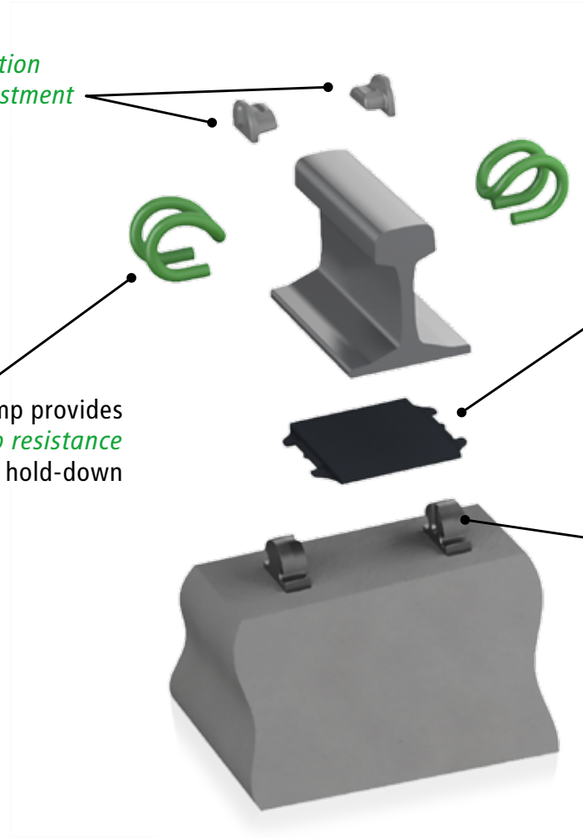
The combination of concrete sleepers on ballast is the most frequently used railway track structure all over the world. The ballast bed is flexible and transfers the forces generated by traffic homogeneously into the substructure. Furthermore, it absorbs noise and vibration caused by rolling trains. The SB4 VK system perfectly completes this to form a screwless railway track: The elastic rail pad PKV insulates the system and reduces the load on the ballast and sleeper. The insulators WKW insulate the system electrically and ensure a constant gauge.

More than 60 million tension clamps SB made by Vossloh have been installed on Polish railway tracks – including almost all lines that have been reconstructed since the 80´s. This equates to track length of approx. 9,000 km.

System SB4 VK

Elastic. Safe. Resilient. Flexible.

Electrical insulation and gauge adjustment by insulators.



Elastic rail pad for *electrical insulation* and *care* of sleeper and ballast.

The tension clamp provides safety. Its *creep resistance* is provided by a hold-down force of 12 kN.

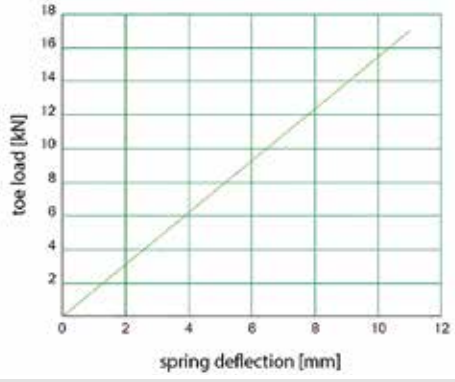
Safely anchored in the sleeper with cast iron shoulders. *It can be pre-assembled in the sleeper factory*.

Safety. Comfort. Track protection.

Creep resistance and rail tilting protection

To allow optimum deflection for the rail, its fastening must respond in an elastic way. Therefore, the tension clamp SB4 has a long spring deflection: When force is applied by a train, in each situation it remains in contact with the insulator lying on the rail foot, even when the rail deflects. For this purpose, the rail is continuously clamped in a force-fitted way with a spring deflection of approx. 8 mm and a toe load of approx. 12 kN which also ensures a high creep resistance. When the trains accelerate / decelerate, the rails remain in position, dangerous open fracture gaps due to broken rails are avoided.

Load-deflection-curve of tension clamp SB4



Rail fastening system SB4 VK with tension clamp SB4	
Typical field of application	Conventional rail; Ballasted track with concrete sleepers
Axle load	≤ 26 t
Speed	≤ 250 km/h
Toe load	19.5 kN ÷ 20.4 kN
Min. Rail creep resistance of system SB4 VK	12.5 kN F ≥ 7 kN – Conventional rail; F ≥ 9 kN – High speed
Electrical resistance	≥ 5 Ω
Damping of impact loads	47.8 %
System approval / homologation	EN 13481-2
	Meets the Technical Specifications of Interoperability (TSI).

Remark

Contents, figures and technical data in this brochure display the performance of the fastening system, however, they always depend on external conditions. Please contact us to enable us to develop a solution for you that will be customized to your requirements. The information presented corresponds to the technical state at the time of printing; in the meantime, continuous research and development programmes at Vossloh could have caused adaptations of the product.

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