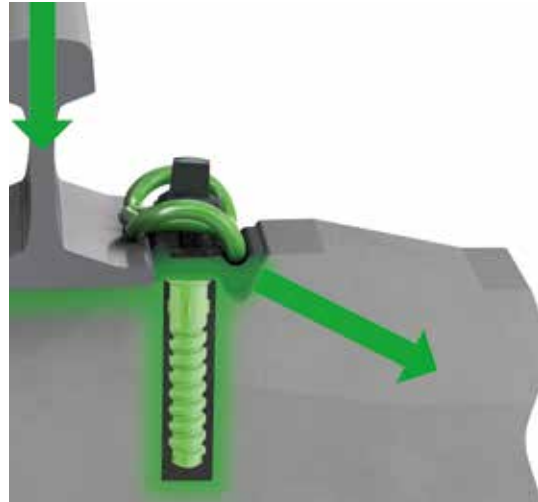




Screw-dowel combination Sdue/Ss *NG*

The ideal anchorage for rail fastening systems
by optimized thread geometries

Ideal Anchorage for Vossloh's fastening systems



Vossloh's fastening systems for an optimum distribution of lateral forces.

- The tension clamp Skl with its high fatigue strength is able to resist forces that arise by moving trains.
- The introduced lateral forces are transmitted into the concrete sleeper by the angled guide plates.
- The screw-dowel combination is not loaded by shearing and bending forces.
- That way, the screw cannot loosen and the rail and the tension clamp stay permanently tensed. By the use of angled guide plates, dowels and rail pads the system is also electrically insulated.

The system is maintenance-free and the rail stays safely in position.

Advantages of Vossloh rail fastening systems with screw-dowel combination in comparison to screwless fasteners



Feature	Advantage
Permanent tension: Skl & screw cannot loosen	No loss of force, no readjustment, for less maintenance
Fully insulated by dowel, pad, angled guide plates	No additional insulator necessary, that can break easily
For rail replacement, screws & Skl just need to be loosened	No complete dismantling (as with other systems), for less maintenance
All components, including dowels, are replaceable	e. g. cast-iron shoulders cannot be replaced just like that, new sleeper needed
Pre-assembly of all components	Less installation work at construction site
Easier & more precise positioning of dowels during sleeper production	Less rejects during production due to deficient gauge (as with e. g. cast-iron shoulders)

Small dowel, big impact

Vossloh's dowel Sdü NG reduces lateral forces in concrete sleepers. That's how sleeper and track can be preserved and lifecycle costs be reduced.

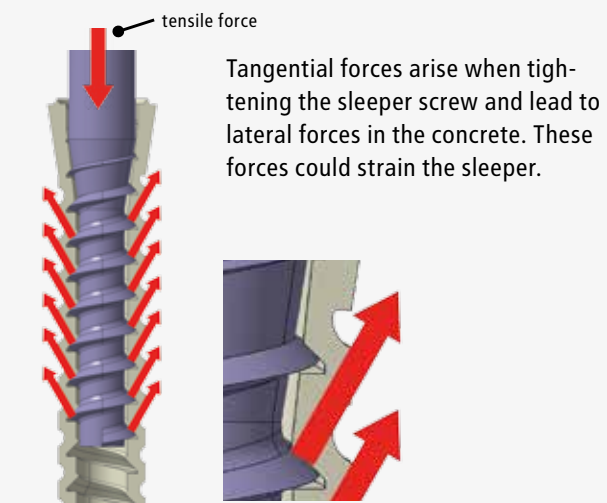


"Micro cracks"

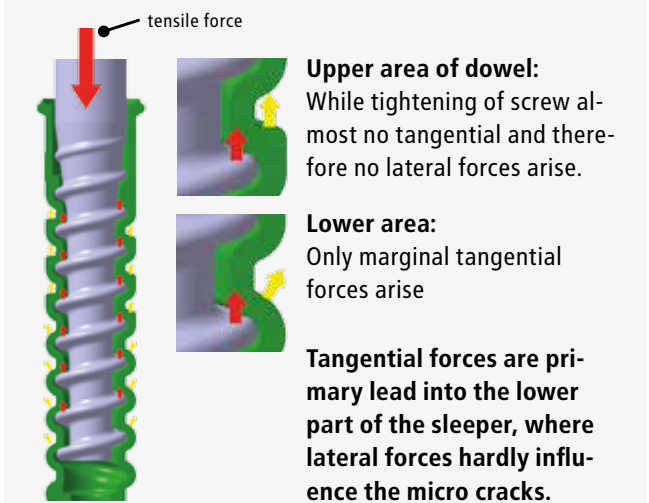
- can occur in every sleeper production.
- can occur in combination with every kind of anchorage, whether screw – dowel, anchor bolts or cast-iron shoulders.
- can hardly be prevented; it is a normal material property of concrete.
- are invisible to the naked eye and generally do not have any impact on the performance of sleepers and rail fastening.

The new Vossloh dowel NG prevents existing micro cracks from growing during installation and operation and therefore from harming the sleeper.

Standard sleeper dowel



Vossloh sleeper dowel Sdü NG with optimized thread geometry



Torque tests simulate the tightening of the screw in the track; first results show: the use of Vossloh dowels Sdü NG in sleepers without dowel reinforcement leads to a reduction of crack growth of more than 60 %.

Technical advantages of Vossloh dowel Sdue NG and screw Ss NG

Better Carbon footprint – the new dowel is green

The production of new Sdue NG made of POM consumes significantly less energy and carbon dioxide.

New material – improved features

Polyoxymethylene – or POM – is a solid plastic that has proved to be successful for example in industrial applications or medical products such as inhalation devices. The waterrepellent property of the material makes sure that the dowel does not absorb humidity – this is an advantage, especially for countries with high air humidity and for tunnel projects.

Further properties of Vossloh dowel Sdue NG and screw Ss NG

- Compatible with existing sleeper screws and dowels
- low-lying turning protection
- Greater wall thickness: better elimination of forces

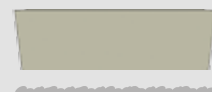
Versions of the dowel Sdue NG for all requirements

- ballasted track
- slab track
- repairing dowel



Vossloh dowel Sdue NG achieves high tightening forces of up to 150 kN. This prevents plastic deformation, loss of tension force and thereby the loosening of the tension clamp – to secure the rail and for being maintenance-free.

The core of the screw has a conical shape. This saves material and increases the free volume within the dowel – for more resistance to contamination and to sand.



Rests of concrete

Optimized dowel crown which resist to the rests of concrete in the sleeper (during the sleeper production).

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 cause adaptations of the product.



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