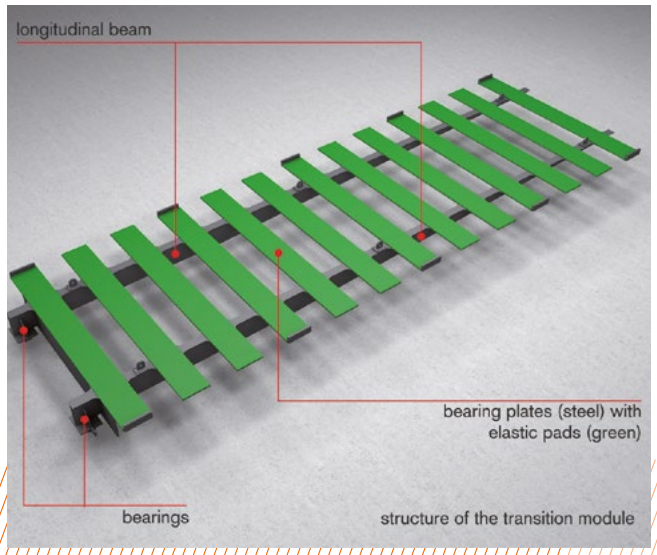
Universal transition module V-TRAS

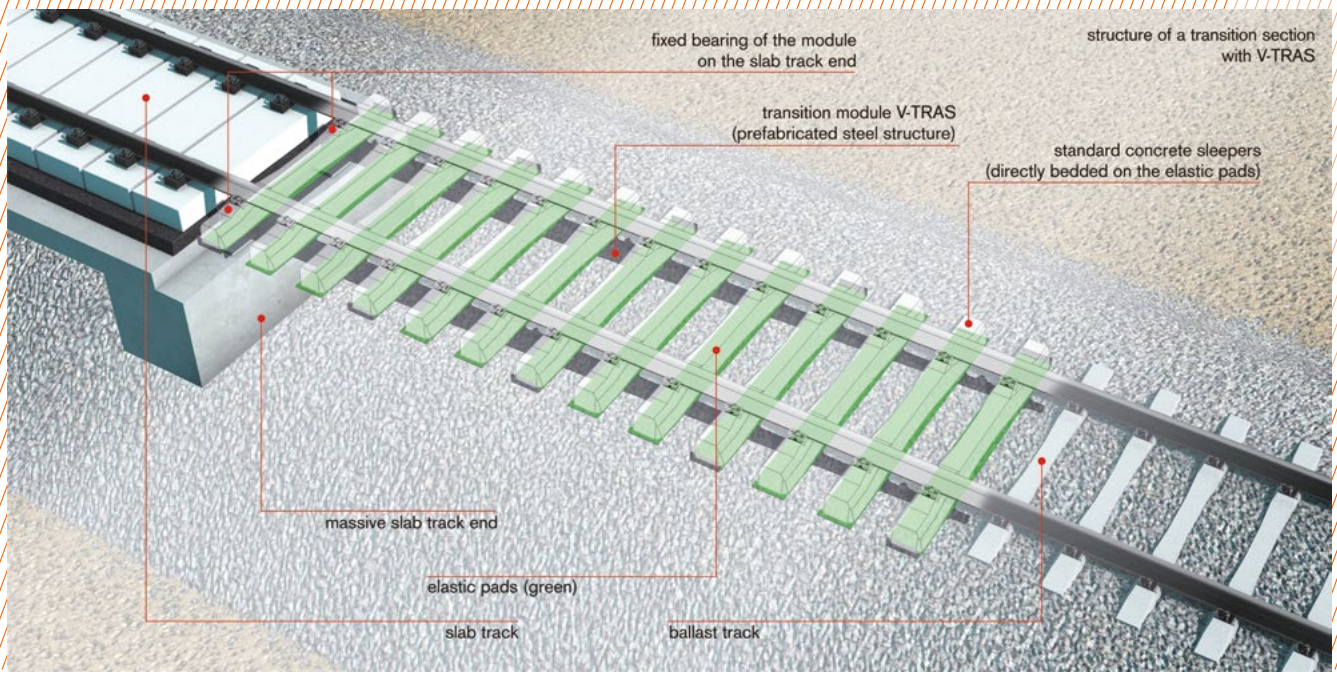
// Simple - Reliable - Sustainable

RHOMBERG SERSA RAIL GROUP

V-TRAS
The perfect connection between different track construction types

// Some types of track construction, for example slab track and traditional ballast roadbed, differ greatly in their behaviour over time. The transition between sections of different track construction like these frequently develop defects during operation. The V-TRAS (versatile transition system) universal transition module is a simple, integrated and sustainable solution to this problem that can be used largely irrespective of whatever types of track construction are involved.





Construction

The V-TRAS universal transition module is a prefabricated,robust, ladder-form steel structure. One side sits on the ending of the slab track, while the rest of the module of a length chosen to suit the specific project is placed in the ballast roadbed, which provides it with a floating support. A conventional track grid consisting of traditional concrete sleepers and rails sits on this structure.

The top surface of module has elastic bearings at the points in contact with the track grid to ensure optimum and durable support to the concrete sleepers. Once installed, the module is completely embedded in the ballast below the track grid and therefore ideally integrated into the track superstructure. No further measures are required.

One-shot sustainable solution to track super and substructure problems.

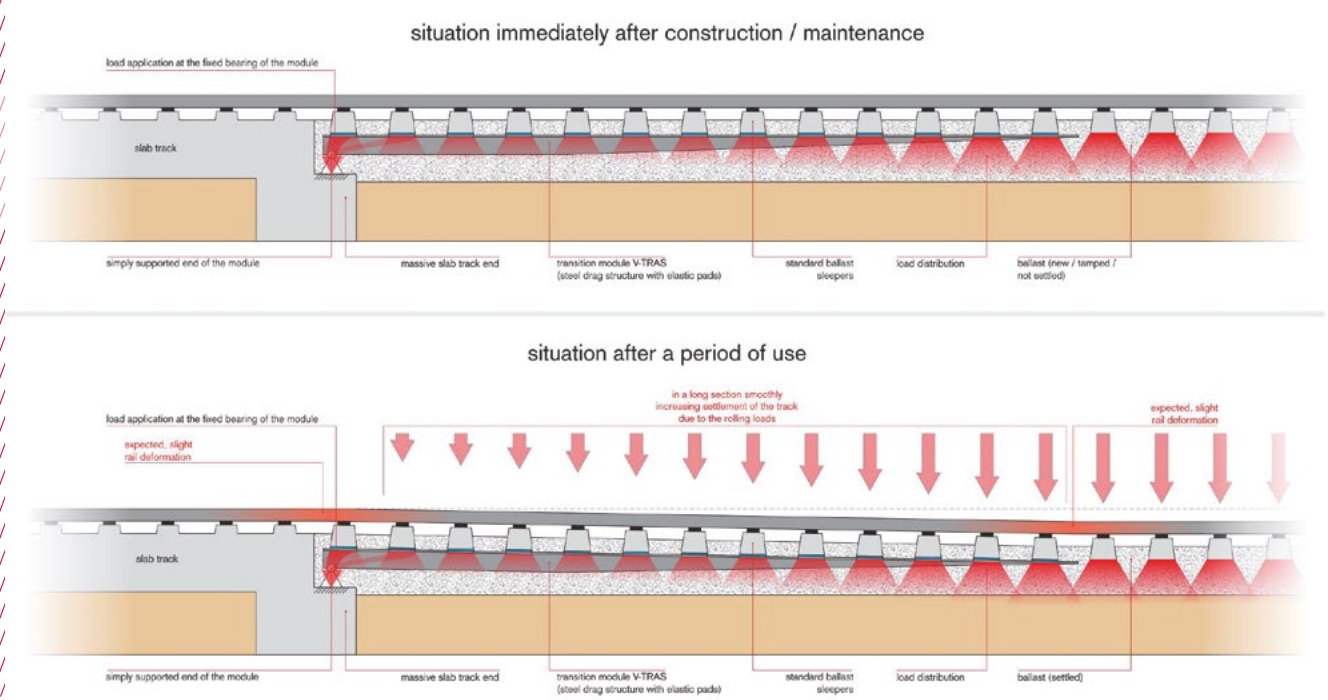
Operating principle

The V-TRAS transition module works like a ramp. The bearing of the module sitting on the ending of the slab track cannot settle relative to the slab track because they are jointly supported at that point. However, the rest of the steel structure follows the settlement behaviour of the ballast roadbed. The two substantial longitudinal beams ensure that the differential settlement between the slab track and the ballast roadbed does not result in an abrupt change in level but takes the shape of a gradual ramp. The longitudinal beams contribute their stiffness rather than their strength, as the load is mainly transmitted through the sleepers and bearing surfaces directly into the ballast roadbed - very like what happens in conventional ballast track.

Through the use of appropriately designed elastic bearings, the stiffness of the support to the track can be tapered between the slab track and the conventional ballast track.

Advantages

- Even distribution of differential settlement of sub- and superstructures (e.g. transitions between engineering structures and earthworks)
- Can be used irrespective of slab track construction type
- No special sleepers or other additional measures required
- Precise and sustained determination of the settlement and stiffness characteristics through the use of durable elements (steel and elastomers)
- Low number of different elements and therefore potential sources of defects
- All the advantages of factory prefabrication
- Use of conventional track construction methods
- Simple rectification of installation errors and operational damage
- No restrictions on incorporating additional track infrastructure
- Large supported area results in low stresses in the elastic elements



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