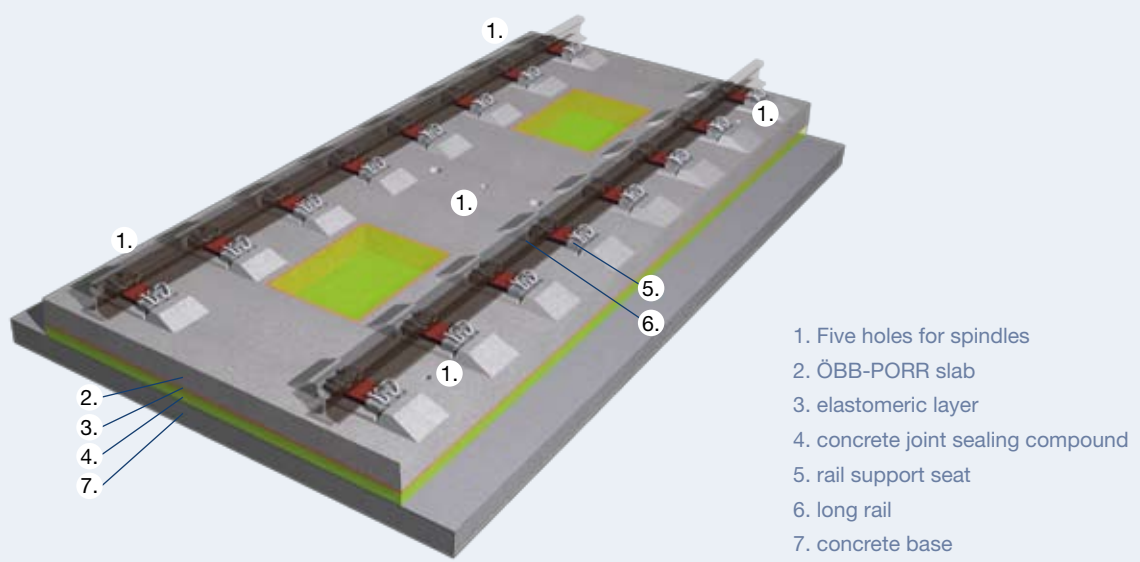


Slab Track Austria

System ÖBB-PORR
elastically supported slab

powered
by



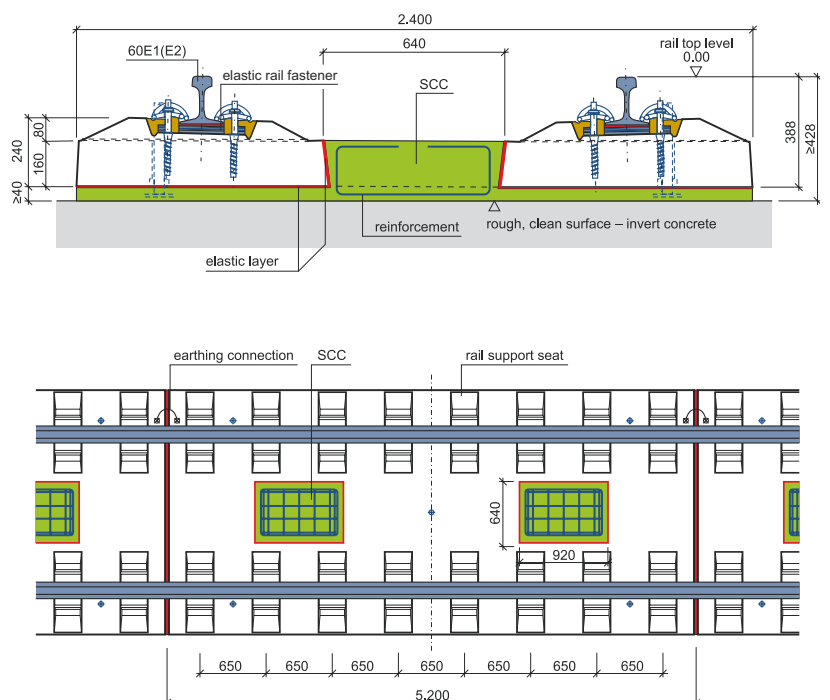


1 | System description.

Slab Track Austria (STA), also known as system ÖBB-PORR elastically supported slab, was jointly developed by the Austrian Railway Corporation (ÖBB) and Allgemeine Baugesellschaft – A. Porr AG. Since 1995 the system is the standard slab track system in Austria and increasingly has been built in Germany since 2001. The oldest section has been in operation since 1989 without maintenance and service costs. STA continues to be demanded and has served successfully on passenger and freight traffic lines and especially on high speed lines.

The principal element of this system is the elastically supported slab. The slab is an untensioned reinforced precast slab with integrated rail support seats. The bottom of the slab, as well as the tapered openings, are attached with an elastomeric layer. The result is double-layered elasticity, reduction in the vibrations or structural-borne noise, and decoupling from its structural supports. A joint width of 40 mm separates two slabs and compensate any deformations caused by creeping, shrinking or temperature changes. The joints serve also as surface water drainage or spaces for cable-crossing.

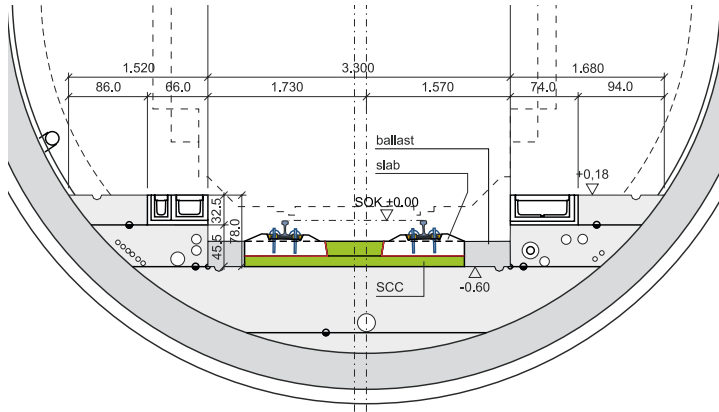
The slabs are supported and fixed on a thin base layer of self-compacting concrete (SCC). This allows homogeneous setting, and without the need to vibrate the concrete reduces disturbances of final track alignment to a minimum. Upon concrete hardening the tapered joints work as anchors to vertically and horizontally keep the slab in place.



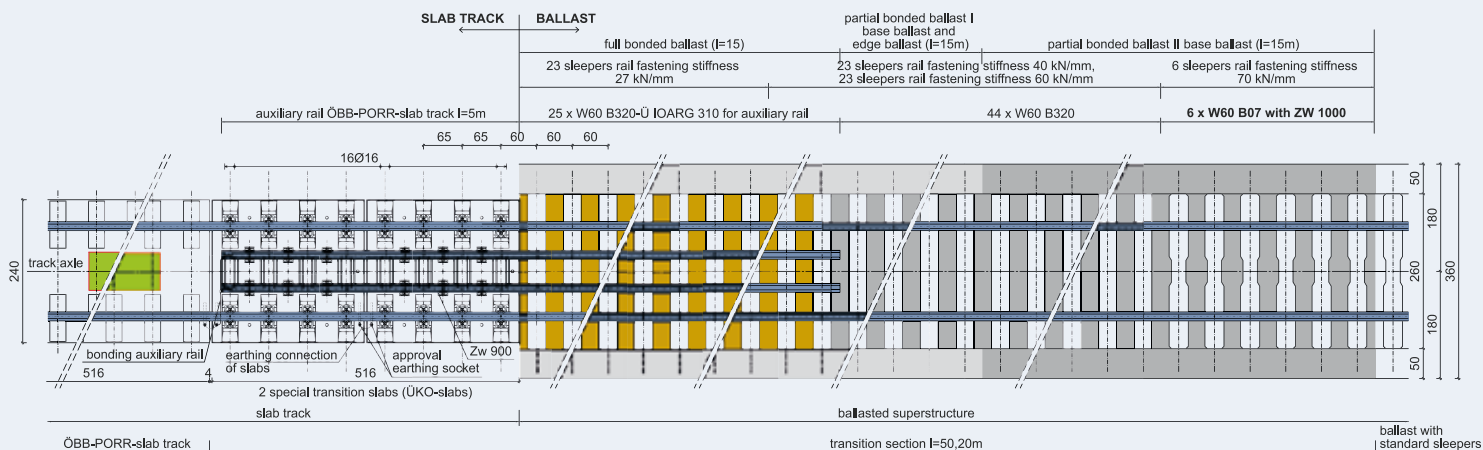
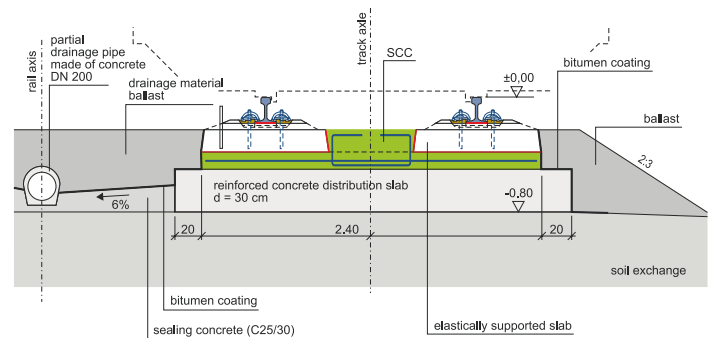
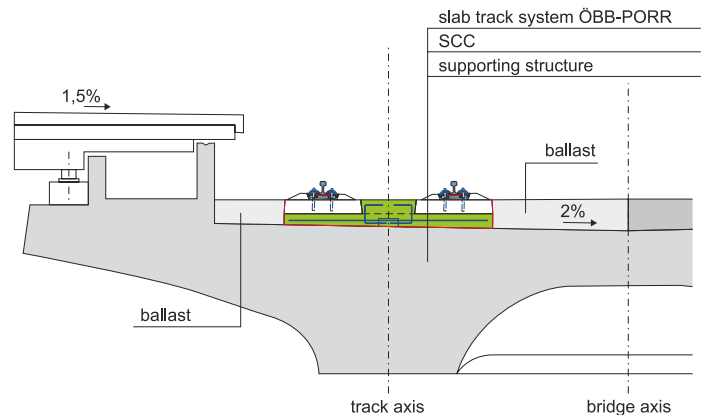
2 | System application cross sections.

STA can be built on various solid base structures such as:

- tunnel invert
- bridge construction
- hydraulically bonded layer or load distribution layer
- mass spring systems



Transition areas from ballast to slab track are carried out according to the Catalogue of Specifications for Slab Track or in accordance with the ÖBB regulation RZ no.17220. The ballast area is strengthened in sections by using synthetic resin.





3 | Slab production.

Independent of weather conditions the slabs are made in the country's precast plant or project's site plant. The fabrication is executed under complete quality assurance system and guarantees the delivery of continuous high quality products.

The highly-modular steel formworks are adjustable to cover all radius ranges with high precision. Variations such as length reductions, revisions or additional dowels for track equipment can be realised. Each slab type can be identified and is unmistakably marked with a corresponding bar code for logistics and track recording. Due to the "just-in-time" principle, storage place is provided in the plant to be transported to the construction site.

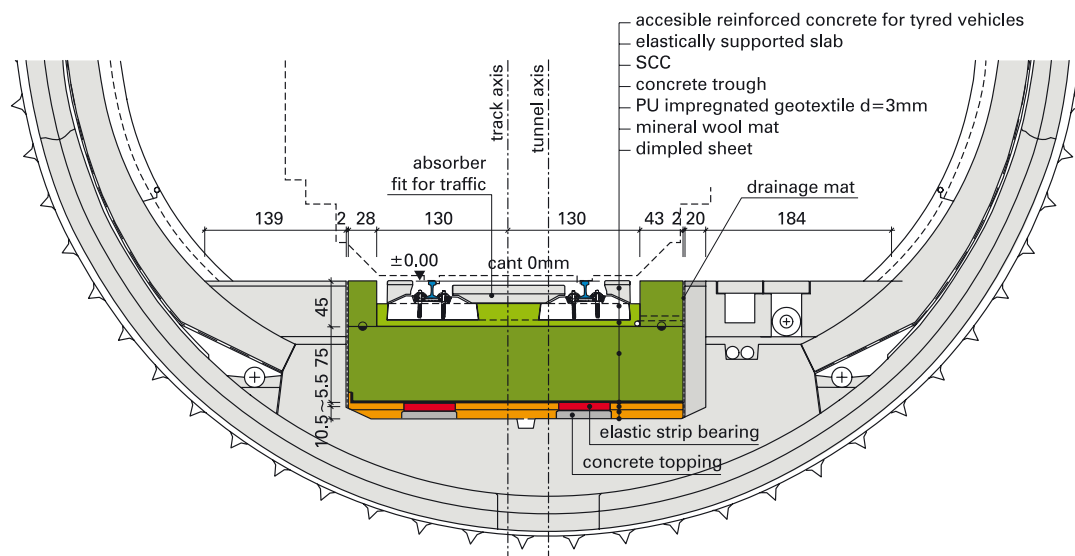
4 | Installation of slab track.

Fast installation of slab track is made possible with the following major steps:

- Surveying of setting out points
- Placement of reinforcement and cross drainage pipes on the track foundation
- Transportation of slabs to installation site to intermediate placement to accuracy of ± 1 cm
- Placement of long rails and track adjustment
- Installation of side formwork
- Concreting with SCC
- Final track adjustment

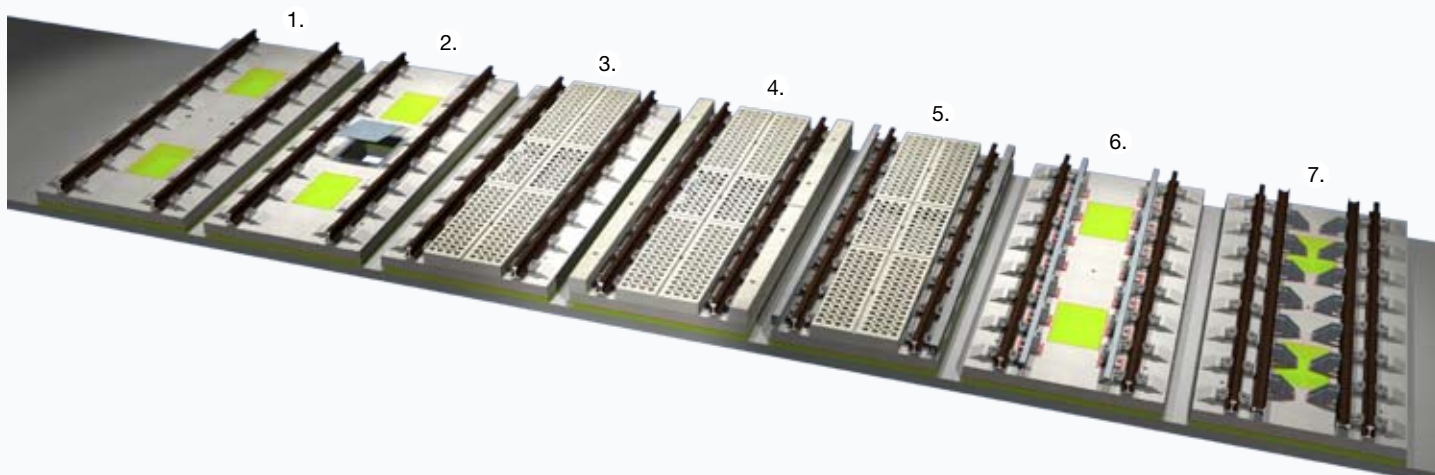
5 | System extensions and additional equipment.

System STA can be combined with mass spring systems (floating track slab), which further increases attenuation and vibration protection. The design can be varied from lightweight to heavyweight mass spring systems through installing elastomeric sheeting layer, elastomeric strips or point-loaded bearings.



The slab provides a finishing surface with millimetre accuracy. This allows easy and accurate installation without on-site drilling of additional equipment such as noise absorbing slabs, trafficability slabs, buffer stops, track magnets and guard rails.

- | | |
|------------------------------|----------------------------------|
| 1. standard construction | 5. small slab accesible |
| 2. revision in track axle | 6. slab with guard rails (46 E2) |
| 3. noise absorber | 7. slab with guard rails (60 E1) |
| 4. accessible noise absorber | |





6 | System advantages.

- **Low maintenance**

System STA is maintenance-free.

- **Vibration protection**

The 2-level-elasticity of the fastenings and elastomeric layer reduces structural-borne noise and works as a lightweight mass spring with one ton per running meter.

- **Low track width and height**

Slabs can be reduced to 2.1 m width and 428 mm track height from top of rail based on 60 E1, allowing installation in limited space conditions.

- **Fast, accurate installation and less labour**

Installation of slab track is fast. Due to the high degree of pre-fabrication the construction method requires less labour and reworking. Construction during track shutdowns is possible using early-strength SCC.

- **Repair and replacement**

Slab's design allows track level adjustment and total replacement in case of damage or emergency.

- **Revisions for access and storage shafts**

In comparison to normal sleeper systems, revisions or openings are possible in the track axle allowing access.

- **Independent of weather conditions**

The precast system of STA minimizes quality influences due to weather conditions compared to in-situ concrete systems.

- **System reliability**

Mistakes due to tight working schedule and other external influences on-site are kept to a minimum by using slabs precast under laboratory conditions.

- **High quality concrete finish**

The end product gives a high quality precast finish that will impress. The surface also allow precise installation of additional track equipment.

7 | Services we offer.

- **All in one solution**
Concept, design, construction and final works
- **Consulting**
Application of STA and economic decision-making
- **Design**
Concept, execution and as-built design
- **Production**
Delivery of slabs to customer's wishes
- **Construction**
Quality and quantity through our experienced teams
- **Supervision**
Quality control and documentation
- **Joint Venture**
Interest in national added values and joined ventures

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