



Vibration Protection for Crossrail

London (UK)

Crossrail is one of the largest metro construction projects in Europe. Once complete, the line will carry over 200 million passengers per year. Sound and vibration protection is extremely important for this project.

Special measures were required in some sections of the tunnels to protect neighbouring residents from vibrations and noise. For this reason, a mass-spring system consisting of a slab track and a total of 3,000 Syldyn® discrete bearings was installed between the Bond Street and Tottenham Court Road stations.

The installation of the Syldyn® bearings was undertaken by the joint venture ATCjv. Due to the small diameter of the tunnel, the elastic elements had to be fitted retrospectively using openings in the middle of the trackway. Two different types of bearings with differing degrees of stiffness were installed.

In addition, bi-block sleeper-base systems have been deployed in other tunnel sections. To ensure the required elasticity in the slab track superstructure, 130,000 Syldyn® insertion pads for sleeper boots have been installed. This solution has been adopted for numerous turnouts as well.

Advantages

- Maintenance-free Syldyn® bearings
- Effective protection against vibrations and structure-borne noise
- Better living and working conditions for residents
- A defined elasticity in the slab track superstructure
- Simple installation
- Less maintenance work required

An unprecedented project

Crossrail is the name of a new east-west rail link being constructed across London. The megaproject requires 118 km of new railway line, 42 km of which will be laid through new tunnels. With an estimated cost of around 18 billion euros, the new route will go into service in 2018 as the Elizabeth Line.



Slab track system in the tunnels



Mass-spring system with Syldyn® discrete bearings



Bi-block sleepers with Syldyn® insertion pads for sleeper boots

Fact box:

Scope of the order:	130,000 Syldyn® insertion pads for sleeper boots 3000 Syldyn® discrete bearings for a mass-spring system
Client:	Crossrail Limited
Operator:	Transport for London (TfL)
Getzner Project Manager:	Lukas Mayer
Completion:	2018
Construction company:	Alstom, TSO, Costain joint venture (ATCjv)