PANDROL

Metro line 18 of the Grand Paris Express, France

Alstom
SD & SD-SEE Fastenings systems
Line 18 Grand Paris Express

Case Study
2025

Partners in excellence

Metro line 18 of the Grand Paris Express, France

Contractor
Alstom

Project Manager
Société des grands projets

Date
2023

Products
SD
SD-SEE

Sector
Metro

Track length
6,7 km of viaduct section with SD-SEE
14 km of tunnel section with SD

Project Overview

The Grand Paris Express is the new metro system that will connect the main living and working areas in the suburbs without passing through Paris. This project, which is designed to improve connectivity in the Paris region and shorten journey times, is being managed by the Société des grands projets.

A part of this project includes the building of line 18, which will consist of 35 km of track and 10 new stations at the completion stage, connecting Versailles – Chantiers to Orly Airport via Massy–Palaiseau. Line 18 is expected to be faster than the current metro lines of the historical Paris metro network, with average speeds of 55 to 65 km/h, providing a swift mode of modern transport and 110,000 daily trips.

This major infrastructure project aims to improve mobility in the region, to enhance connectivity between major transit and academic centres and to support economic development.

Customer Challenge

Pandrol's engineering team worked closely with Alstom, on behalf of the Société des grands projets, to ensure all the proposed solutions met the project's rigorous testing standards and criteria. We also ensured alignment with strict deadlines to avoid any delays in the overall project timeline.

One of the main challenges on this project was minimising load and ensuring stability on the 6.7 km elevated viaduct section. This required careful consideration of long-term durability as well as demanding solutions that are lightweight on the track yet able to withstand the loads of the metro.

Pandrol Solution

Excessive loads can increase stress on the supporting foundations, resulting in regular maintenance and wear of the viaduct and track. Therefore, Pandrol proposed a lightweight fastening solutions to reduce load on the structure and minimise environmental impact.

Consequently, Pandrol designed and supplied a composite baseplate version of the SD rail fastening system for the viaduct section: the SD-SEE (“Simple Etage Elastique” – single resilient system) rail fastening system.
Pandrol delivered 37,700 SD-SEE rail fastening systems for the 6.7 km viaduct section, using composite baseplates, which streamlined the installation process.

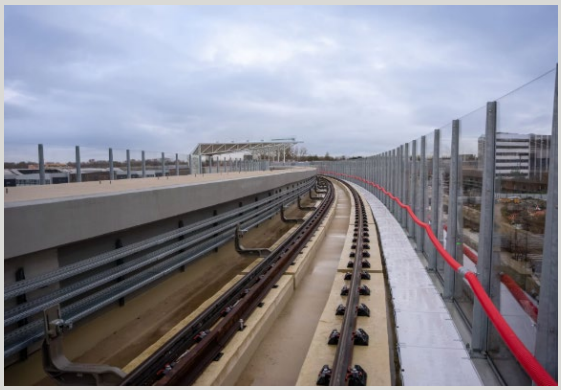
While composite baseplates are commonly used for tramway applications, this project marks the first time they have been used on a metro application in France.

The honeycomb-shaped specific design of the SD-SEE baseplates enhances grip and integration into the concrete plinths, offering more efficient installation while optimising the installation times on the viaduct.

SD-SEE Fastening Systems

- Low corrosion risk,
- High electrical insulation,
- Enables vertical adjustments,
- Extremely lightweight and easy to install,
- Can be configured to suit a wide range of customer requirements.

More information



Pandrol also supplied, for the 14 km of the tunnel section, a total of 192,800 Safe Driven (SD) units, our pre-assembled high performance screwed fastening solution designed for concrete sleepers. This system was selected for its ease of installation and low maintenance requirements, while also helping to reduce distribution and handling costs during track laying.

The SD rail fastening system is perfect for Metro Line 18 as it offers controlled clip guidance and high elasticity.

SD Fastening Systems

- Extremely versatile
- Lightweight and easy to install
- Low maintenance requirements
- Delivers high levels of insulation
- Enhanced technical performance
- Highly adjustable and suitable for retrofitting
- Can be configured to suit a wide range of customer requirements.

More information

Results

Line 18 required a range of product solutions and Pandrol was selected due to its ability to deliver a comprehensive, end-to-end offering that met all technical and operational requirements for this demanding project.

The combination of the Safe Driven (SD) rail fastening systems and the SD-SEE rail fastening systems provides a highly effective and efficient solution that meets the strict performance requirements of the Paris Metro. Additional solutions, such as safety rail systems, LLR fasteners, and depot track systems on pillars, have been also developed and delivered at the customer's request.

Line 18 will offer both an environmental and practical alternative to using cars and is set to be a popular and effective addition to the Paris Metro network and Île-de-France public transport system.

The line will be brought into service in three successive stages and will be completed by 2030.

Philippe Matuch, Sales Director France at Pandrol, said: “We’re proud to have supplied innovative fastening solutions for the Grand Paris Express project, ensuring a reliable and durable track infrastructure for metro line 18. Our fastening systems are designed to reduce maintenance and streamline installation, supporting the efficient construction and ongoing operation of this transformative line.”

Watch the video

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