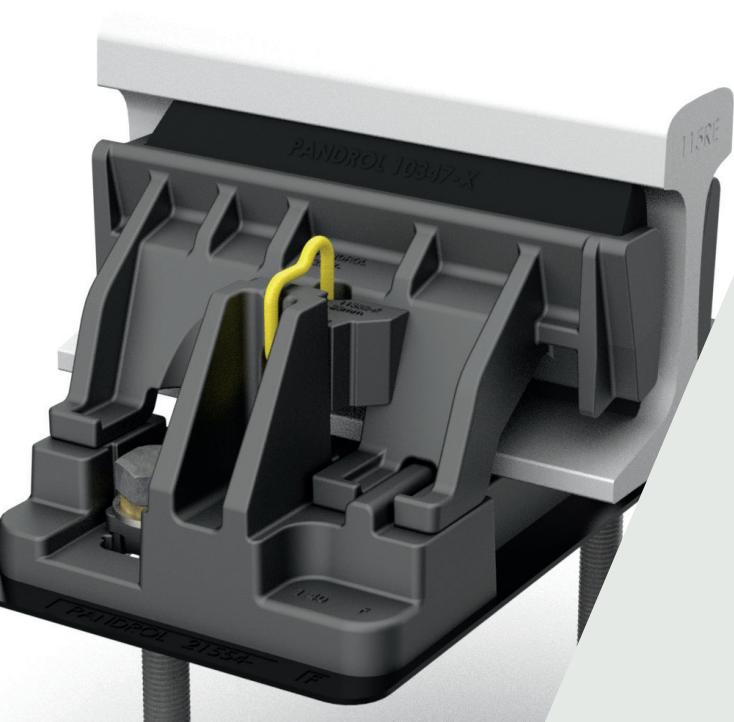


Panguard

Fastening Systems



Adding Value

Ogilvie Transportation Center
Customer: Union Pacific/Metra
Chicago, 2019

“The Pandrol Panguard fastening system was specified for sensitive areas due to its vibration attenuation and easy retrofit characteristics.”

Panguard is a unique rail fastening system with very low vertical dynamic stiffness that leads to high levels of vibration isolation at a lower cost. It is available in a variety of configurations, including anchor patterns and top of rail height matching other popular fasteners, making it an attractive retrofit option.

Pandrol Panguard assemblies are suitable for application on slab track, concrete and timber ties, and can be used on bridges, viaducts and in tunnels. It delivers exceptional vibration attenuation at a much lower cost than floating slab track and does not compromise on rail roll.

→ TECHNICAL FEATURES

Highly adjustable

Panguard baseplates provide exceptionally wide adjustment possibilities. The range is typically ± 20 mm lateral per baseplate, and +20 mm vertical. Further adjustment of the rail within the baseplate is also possible.

Track structure interface

Accommodates large differential movement between track and structure.

Extremely low maintenance

Panguard components are easily accessible to maintenance teams. Components can be easily inspected and maintained with standard track tools.

Installation on site

Panguard can be installed on retrofit concrete ties, timber ties and slab track on bridges, tunnels, and viaducts by various construction methods.

Low static stiffness

Panguard provides very low static stiffness (nominal 5 kN/mm). Stiffness can be increased where required, by simple modification to the assembly.

Low profile

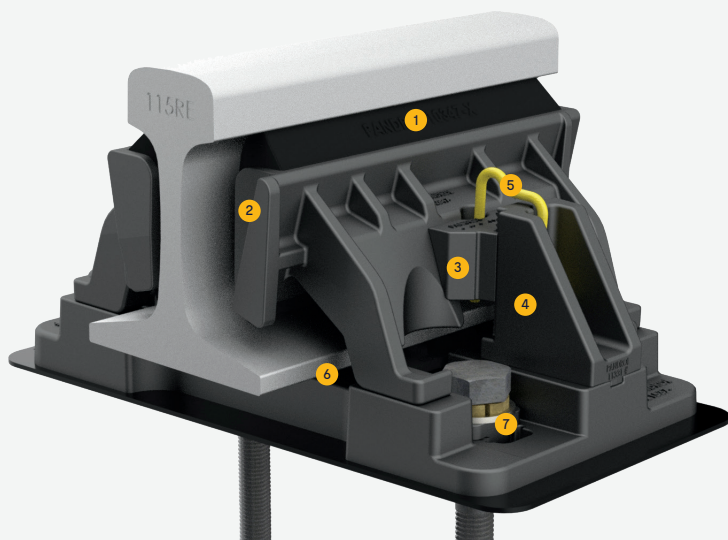
Thanks to the very low profile of Panguard, compared to other low stiffness track forms, it can be installed within restrictive rail heights. Panguard can reduce tunnel diameters, leading to reduced costs for new track construction.

The low weight of Panguard can also lead to considerable cost savings in structures such as viaducts, which would otherwise have to accommodate the greater weight of floating slab-track.

Panguard can be installed on new track constructions. The system can also be retrofitted to existing rail fastening systems that require reduction in ground-borne noise and vibration.

→ ADVANTAGES

- The nature of the rubber wedge support and the robust design of the assembly provides an ultra-low maintenance system with a very long life expectancy in track
- The very low profile of the Panguard fastening system means it can be installed within existing restricted rail heights and can therefore be used to increase the vibration isolation properties of an existing track form

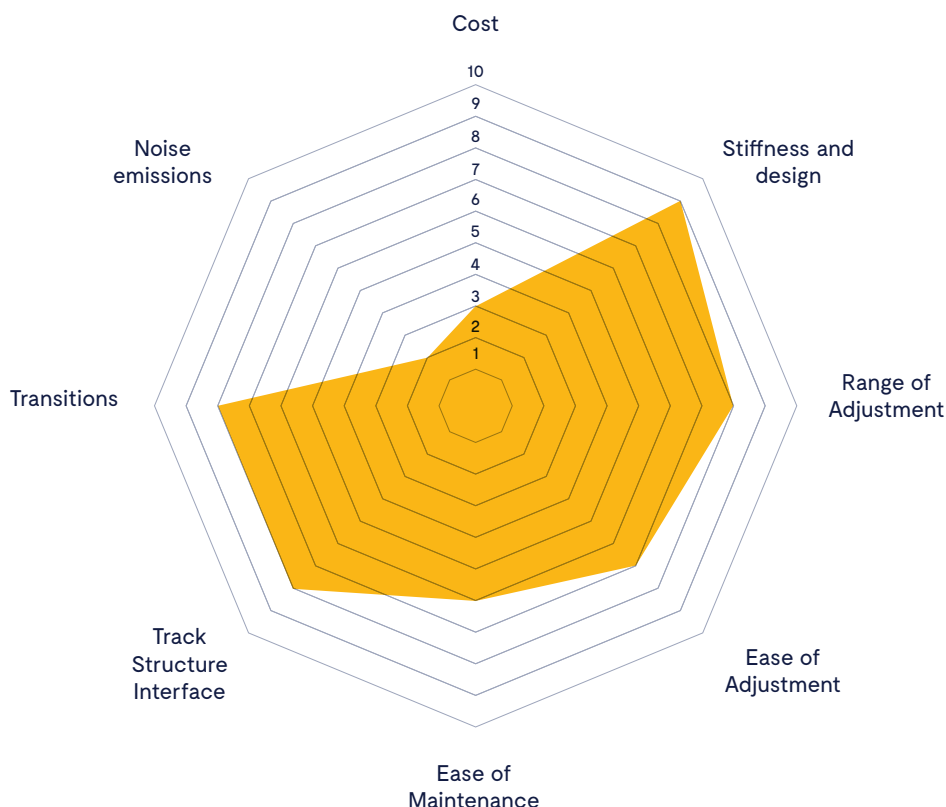


→ COMPONENTS

1. Rubber wedges that support the rail at the web
2. Side support brackets that hold the wedges in place and transfer load to the support structure
3. Locking wedges that fix the side brackets
4. Shoulders that provide location and the reaction point against which the fastening is braced
5. Locking clips ensure long-term security and safe operation
6. Bump stop pads enhance safety and long-term security
7. Serrated washer for lateral adjustment

→ PANGUARD RADAR GRAPH RESULTS

Fastening Selection Criteria



→ SPECIFICATIONS

Type of system

☒ Indirect ☐ Direct

Suitable for application

☐ Tram ☒ LRT ☒ Metro
☒ ML ☒ HS ☐ HH

Applicable CEN track categories*

	Min Rad	Max Axle	
Cat A	40 m	130 kN	✓
Cat B	80 m	180 kN	✓
Cat C	150 m	260 kN	✓
Cat D	400 m	260 kN	✓

* Based on EN 13481-5:2012

LEARN MORE

