

# Vanguard

## Rail fastening system

- For use on concrete non-ballasted tracks (slab tracks)
- Also suitable for concrete and wooden sleepers and bearers, or direct application on bridge decks
- Provides exceptional vibration reduction
- Suitable for top-down or bottom-up concrete track construction
- Can be retrofitted to improve vibration attenuation in existing tracks

### Application data (Standard products – special variants may differ)

Rail inclination	Provided in concrete or baseplate as required			
Typical applications	Metro's and underground systems, bridges and tunnels			
EN 13481-5 track category	Cat A	Cat B	Cat C	Cat D
Maximum axle load*	130 kN	180 kN	260 kN	260 kN
Minimum curve radius*	40 m	80 m	150 m	400 m

\* For special applications consult Pandrol.

### Typical performance data\* As identified by Track Category EN 13481-1

	Value	Test Method
Assembly static stiffness	≈ 5 kN/mm minimum	EN 13146-9:2011 Cat A/B/C/D
Assembly dynamic stiffness	≈ 7 kN/mm minimum	EN 13146-9:2011 Cat A/B/C/D
Electrical insulation	>25 kΩ	EN 13146-5:2012
Clamping force	N/A	
Creep resistance	>9 kN	EN 13146-7:2012
Lateral adjustment	+/- 20 mm	
Vertical adjustment	+ 45 mm	

### → COMPLIANCE WITH STANDARDS

Pandrol Vanguard is compliant with the requirements of the European High Speed TSI (Technical Standards for Interoperability). A declaration of conformity has been issued for use on connecting lines at speeds less than 160 km/hr.km/hr.

### → NOTE

Pandrol is a provider of innovative custom rail fastenings. Data in this document indicates typical performance. Actual performance is dependent on a range of external factors. Please contact us to discuss how Pandrol can tailor products to suit local operating conditions and specific requirements. Technical information in this document was correct at time of printing. Improvements may since have been introduced as a result of our continuous research and development programmes.

#### Learn more



#### Contact

Pandrol Fastening Systems  
 63 Station Road  
 Addlestone, Surrey  
 KT15 2AR  
 England

t. +44 (0)1932 834500  
 e. info@pandrol.com  
 www.pandrol.com