

# Vanguard

Rail fastenings

A unique rail fastening with very low vertical dynamic stiffness that provides exceptional vibration attenuation without compromise on rail roll.

## Key classifications

Non-Ballasted / Non-threaded / High level of vibration isolation

### Typical interface type

Pre-cast concrete slab panels	✓
Pre-cast concrete sleepers	✓
Direct pour concrete	✓
Steel structures	✓

### Specific requirements?

Pandrol can provide products with performance characteristics to suit customer specifications. Please contact us to discuss your requirements.

### Typical application parameters

Typical track type	Light rail / Tram	Urban / Metro	Conventional main line	Main line / High speed
EN 13481 fastening category	A	B	C	D
Maximum axle load (kN)	130	180	260	260
Minimum curve radius (m)	40	80	150	400

### Typical assembly performance data

Static stiffness (kN/mm)*	>2.5	>3	>4	>4
Dynamic stiffness (kN/mm)*	>3	>3.5	>4.5	>4.5
Clamping force (kN)*	**			
Longitudinal restraint (kN)*	>9	>9	>9	>9
Electrical resistance (kΩ)*	>5	>5	>5	>5
Lateral adjustment per rail (mm)	+/-20	+/-20	+/-20	+/-20
Vertical adjustment range (mm)	30	30	30	30

## → NOTES

This product will meet the requirements of the European High Speed TSI (Technical Standards for Interoperability).

Note included on all: The data given in this document indicates typical performance of the product at the time of publication, but exact performance depends on specific configuration and may change over time as a result of continuous product development.

\* Based on EN 13146 test methods. For specific test or standards requirements please consult Pandrol.

\*\* Clamping force measurements does not apply to rail web support fastenings.

### Learn more



### Contact

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