

PRODUCT INFORMATION

PANDROL VANGUARD





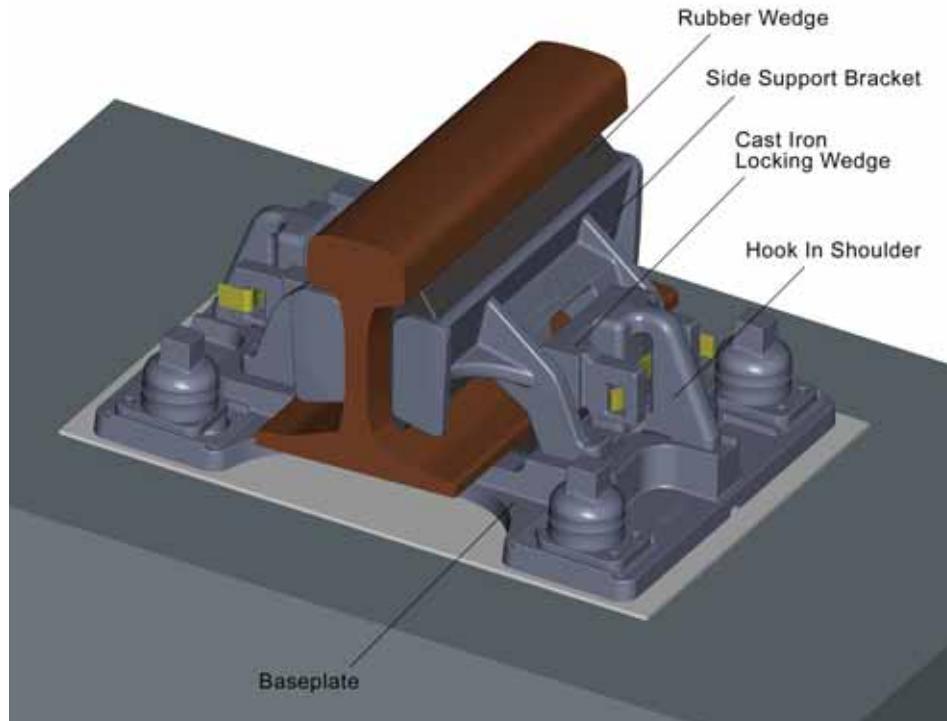
PRODUCT INFORMATION

PANDROL VANGUARD provides a rail fastening system with very low vertical dynamic stiffness that leads to high levels of vibration isolation, without significant dynamic gauge widening under traffic. It delivers exceptional vibration attenuation at a much lower installed cost than floating slab.

The significant reduction of vibration and secondary noise makes it ideal for applications in the most sensitive areas to these environmental concerns. PANDROL VANGUARD assemblies are suitable for application on concrete sleepers, timber sleepers, slab track, bridges, tunnels and viaducts.



CONSTRUCTION OF THE BASEPLATE VERSION



COMPONENTS

There are two basic versions of the PANDROL VANGUARD system:

- (i) a cast-in or glued-in version, which can be set into a concrete block or sleeper and
- (ii) a baseplate version, which can be fixed down with screws/studs or bolts.

Most of the key components of the fastening are the same in both systems. These are:

- rubber wedges which support the rail at the web
- side support brackets which hold these in place and transfer load to the support structure
- locking wedges, which fix the side brackets
- shoulders which provide location and the reaction point against which the fastening is braced

Two additional features ensure long-term security and safe operation:

- locking clips
- bump stop pads

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FEATURES OF ASSEMBLY

Low Profile

The very low profile of PANDROL VANGUARD means it can be installed within existing restricted rail heights. It can provide a retrofit solution in areas where space or cost prohibit the use of floating slab track. It can reduce tunnel diameters, and therefore costs for new track construction.

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

Adjustability

PANDROL VANGUARD baseplates provide an exceptionally wide range of adjustment — up to 55mm of lateral adjustment and 36mm of vertical adjustment with the standard system. Vertical adjustment is achieved by either shimming beneath the side brackets or by shims placed beneath the baseplate. Lateral adjustment is achieved either by allowing the locking wedges on the field and gauge side of the assembly to take up different heights, thereby locking the side brackets into different lateral positions across the width of the rail seat, or by means of slots and serrated locking washers on the baseplate fixing.

Maintenance

In contrast to floating slab track, where elastic elements are inaccessible, all PANDROL VANGUARD elastic components are easily accessible, and can be easily inspected and maintained using simple hand tools.

Configuration

The vertical stiffness of PANDROL VANGUARD can be adjusted in-situ by changing the rubber wedges, by the addition or subtraction of rail seat pads, to satisfy local requirements, such as transitions. The longitudinal creep resistance characteristics can easily be modified without addition or subtraction of components by varying the clamping load.

INSTALLATION ON SITE

Two different methodologies exist for track construction: 'top down' and 'bottom up'. Both the cast-in or baseplate versions of PANDROL VANGUARD can be installed using either method. Only the detail of how the fastener is attached to the rail differs with PANDROL VANGUARD as compared to conventional fastenings; all other aspects of track construction are unaffected.

SAMPLE INSTALLATIONS



Cast-In PANDROL VANGUARD assembly installed on concrete slab track



Baseplate VANGUARD assembly installed on concrete slab

TECHNICAL SPECIFICATION

PANDROL VANGUARD

Suitable for use on: Light Rail, metro and general main line tracks.

Normally for use on concrete, non-ballasted tracks. May also be used on concrete or wooden sleepers or bearers.

Intended for applications where exceptional vibration attenuation is required.

Suitable for 'top down' or 'bottom up' concrete track construction, and as a 'retro-fit' to improve the vibration attenuation in existing tracks.

Application data (standard products – special variants may be supplied for other applications)	
Rail inclination	Vertical / 1:40 / 1:20
Clip type	Elastomer wedges
Typical applications	Non-ballasted metro tracks; Main line bridges and tunnels. Max axle load: 26 tonnes; Min. curve radius: no limit.
Typical rail sections	60E1 (UIC60); 56E1 (BS.113A); 54E1 (UIC54); BS.80A; AREMA 115RE.
Vertical adjustment	Total range typically 36mm
Lateral adjustment	Typically ± 20mm
No. of anchors	2 or 4. If required, VANGUARD may be configured to match anchor positions of standard U.S. Direct Fixation baseplates.
Type of anchors	Cast-in inserts and bolts / Anchor bolts / Screwspikes & dowels / etc.

Typical performance data			
	Value	Test method	Remarks
Static stiffness	5MN/m		Assembly secant stiffness between 5kN and 30kN
Dynamic stiffness	8MN/m	EN13481-5: 2002	Assembly secant stiffness between 5kN and 30kN at 4 Hz
Creep resistance	>15 kN	EN13146-1: 2002	
Electrical insulation	>50 kΩ	EN13146-7: 2002	Rail-to-rail, wet, on a concrete sleeper.

Compliance with standards:

PANDROL VANGUARD is compliant with the requirements of the EC High Speed Interoperability Directive (TSI), and a Declaration of Conformity has been issued for use on "connecting lines" at speeds less than 100 km/hr.