

# PRODUCT INFORMATION

## PANDROL VIPA



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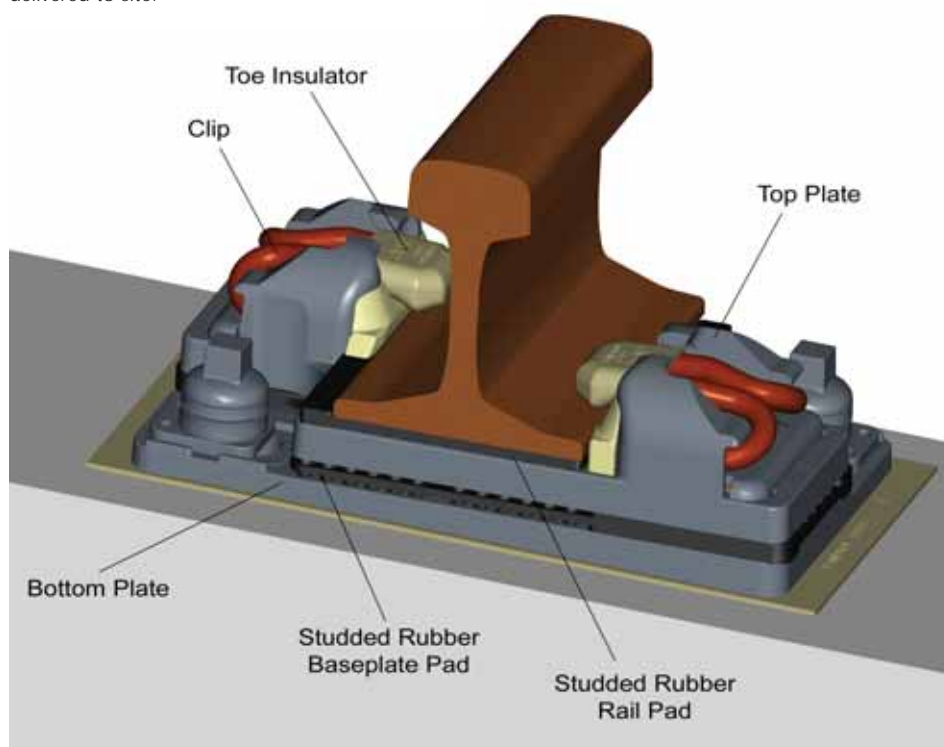
**PANDROL VIPA** is a resilient track support system that has been developed to attenuate wheel/rail induced vibrations which otherwise are transferred from the rail to the supporting structure. The concept is based on providing resilient support through a two part resilient pad system.

**PANDROL VIPA** assemblies are available for fixation to timber, steel or concrete supporting structures.



## CONSTRUCTION OF ASSEMBLY

PANDROL VIPA assemblies are supplied to the tracksite as assembled units. For PANDROL VIPA assemblies incorporating PANDROL FASTCLIP clips, they are also captive on the assembly when delivered to site.



## COMPONENTS

The main system components are:

- Cast Iron Lower Baseplate
- Studded Rubber Baseplate Pad
- Cast Iron Upper Baseplate
- Studded rubber rail pad
- Resilient bush providing lateral and longitudinal insulation between iron baseplates
- Cast iron cover plate
- Rail Clip
- Nylon insulators

## FEATURES OF ASSEMBLY

### Adjustability

Typical lateral adjustment of 40mm ( $\pm 20$ mm) is achieved by the use of slots in the baseplate with serrated clamp plates.

Typical vertical adjustment of up to 36mm can be achieved through the use of shims placed between the baseplate and the underlying supporting structure.

### Maintenance

PANDROL VIPA is a non-bonded baseplate assembly designed for long life. All parts are fully accessible and replaceable, thus offering reduced maintenance costs as the entire unit does not need to be replaced.

### Electrical Insulation

Double electrical insulation is provided by insulating the rail from the top plate, and the top plate from the baseplate by the rubber pads, bushes and nylon insulators.

### Rail Free

Low toe load and zero longitudinal restraint (ZLR) options are available for use on structures.

### Configuration

Standard PANDROL VIPA assemblies are designed to provide a vertical secant modulus of between 17kN/mm (0 – 50kN) and 20kN/mm (5 – 80kN) with rail head lateral movement limited to less than 4mm. Changes in stiffness can be provided in-situ, to accommodate adjustment for local requirements.

### Anchorage

Pandrol considers the hold-down method an integral part of the rail fastening design, and is happy to advise accordingly for specific applications. The degree of vertical adjustment provided is determined by the anchor arrangement selected. Various options are available.

## INSTALLATION ON SITE

Two different methodologies exist for track construction: 'top down' and 'bottom up'. PANDROL VIPA can be installed using either method.

## SAMPLE INSTALLATIONS



PANDROL VIPA-SP baseplates installed on a steel deck bridge



Mechanised installation of pre-assembled PANDROL VIPA-SP baseplates

## TECHNICAL SPECIFICATION

# PANDROL VIPA-SP

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

Intended for applications where very good vibration attenuation is required.

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

Suitable for 'top down' or 'bottom up' concrete track construction.

Application data (standard products – special variants may be supplied for other applications)	
Rail inclination	Vertical / 1:40 / 1:20
Clip type	Pandrol FASTCLIP FC1501 / FC1504
Typical applications	Non-ballasted metro tracks; Main line bridges and tunnels; Steel bridges (for mitigation of re-radiated noise). Max axle load: 26 tonnes; Min. curve radius: no limit.
Typical rail sections	60E1 (UIC60); 56E1 (BS.113A); 54E1 (UIC54); BS.80A; AREMA 115RE. "Dual rail" variants are available.
Vertical adjustment	Total range typically 36mm
Lateral adjustment	Typically $\pm$ 20mm
No. of anchors	2 or 4
Type of anchors	Cast-in inserts and bolts / Anchor bolts / Screwspikes & dowels / etc.

Typical performance data			
	Value	Test method	Remarks
Static stiffness	20 MN/m	EN13146-4: 2002	Assembly secant stiffness between 5kN and 80kN
Dynamic stiffness	20 MN/m	EN13481-5: 2002	Assembly secant stiffness between 5kN and 55kN at 4 Hz
Clamping force	>16 kN	EN13146-7: 2002	Nominal toe load = 10 kN per clip
Creep resistance	> 9 kN	EN13146-1: 2002	
Electrical insulation	>20 k $\Omega$	EN13146-7: 2002	Rail-to-rail, wet, on a concrete sleeper.

### Compliance with standards:

PANDROL VIPA-SP is fully compliant with the requirements of EN13481-5:2002.