

PRODUCT INFORMATION

PANDROL FASTCLIP



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The PANDROL FASTCLIP system is a resilient, threadless rail fastening system, suitable for application on concrete, steel or timber ties, or slab track. The unique switch on — switch off system enables fast, efficient track installation and reduced maintenance costs.

PANDROL FASTCLIP has been designed as a total system, in which all components are delivered to site pre-assembled on the sleeper or baseplate. Once the sleepers are laid, and the rail installed, the clip is simply pushed on to the rail by means of a simple drive action.

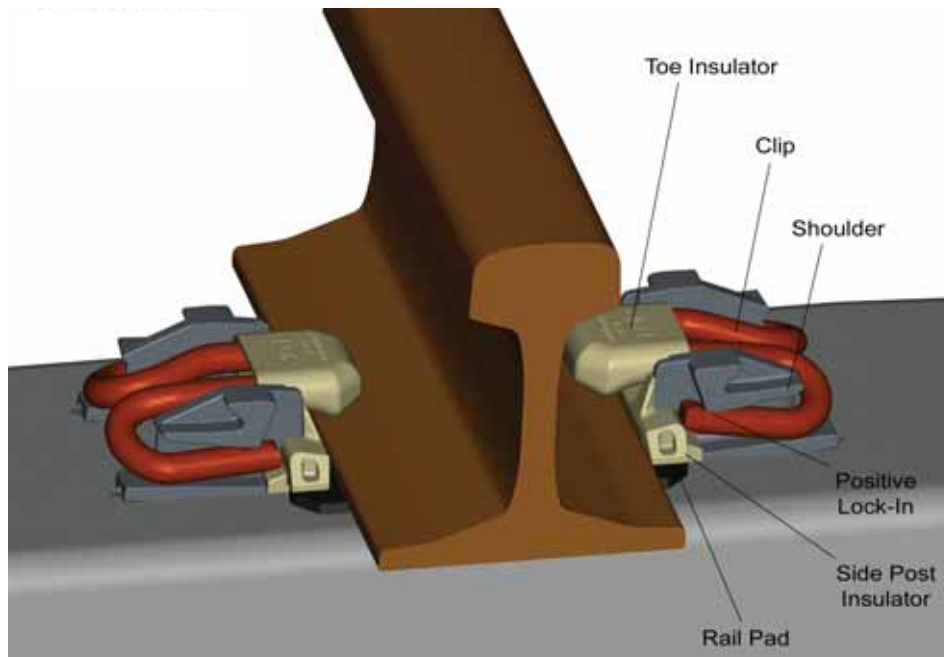


COMPONENTS

Clip and Toe Insulator

- 250 — 1250 nominal clamping force, high deflection
- Integral toe insulator to reduce rail contact stresses, improve electrical resistance and insulator life

CONSTRUCTION OF ASSEMBLY



Installed position

Cast Shoulder

- Made from spheroidal graphite cast iron
- Same modulus of elasticity as pre-stressed concrete
- Stresses can be transferred through the anchor
- Typical extraction resistance of 130kN
- Will not deform under loading, therefore excellent gauge retention

Side Post Insulator

- High lateral stiffness and durability gives excellent gauge retention
- Very durable — proven in track to at least 750MGT
- Excellent electrical insulation

Studded Rubber Rail Pad

- Specially designed resilient rail pads provide low stiffness and low damping at high frequencies. This prevents high dynamic forces being transmitted to the sleepers and ballast, protecting them from damage and prolonging their life cycle.

PANDROL FASTCLIP

FEATURES OF ASSEMBLY

Fully Pre-Assembled

All the components leave the sleeper factory pre-assembled on the sleeper, offering huge savings in manpower, reduced distribution and handling costs during tracklaying, destressing and rail changing. Loss of parts on site is also eliminated.

Threadless

The PANDROL FASTCLIP system has no threaded components, eliminating the need for lubrication and re-tightening. It excludes the possibility of water freezing in holes in the sleeper, and thus longitudinal cracking.



PANDROL FASTCLIP concrete sleeper installation

Dual Rail / Gauge Change

Assemblies can be designed to allow for a change of rail size, or track gauge, simply by the use of different thickness side post insulators. Note that the same clip remains captive on the sleeper for gauge or rail change operations.

INSTALLATION ON SITE

Sleepers arrive on site with all components held captive and the clips set in the parked position. Once the sleepers are placed and the rail has



Parked position

Exchangeability of Components

PANDROL FASTCLIP is virtually maintenance free. However, should you need to replace a component, it is not necessary to unscrew any bolts or screwspikes.

Rail Tensioning / Creep Resistance

By design, PANDROL FASTCLIP generates up to 1250kgf nominal toe load per clip. The correct tensioning is automatically achieved when the clip is driven into the working position, due to the shoulder geometry. It is not reliant on the correct torque being applied, as with threaded systems.

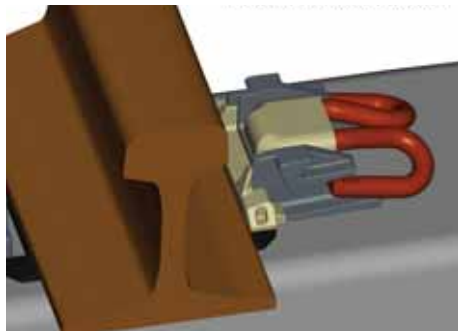


PANDROL FASTCLIP steel sleeper installation

Anchorage

Cast in shoulders hold the rail at correct gauge and correctly set the PANDROL FASTCLIP deflection. The shoulders are set into the sleeper during the manufacturing process.

been threaded, clips are mechanically driven from the 'parked' to the working position. Correct toe load is achieved automatically.



Insulator change position

Electrical Insulation

The cast shoulders are electrically isolated from the rail by the side post insulators. The spring clips are electrically isolated from the rail by the toe insulator.



Harsco Track Laying Machine with integral clip application module

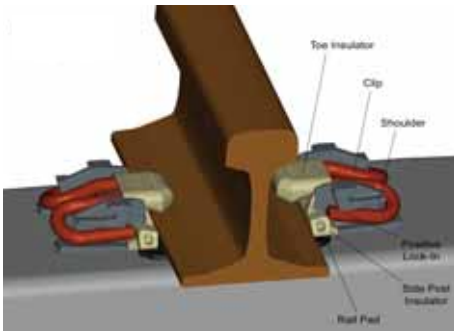
MECHANISED INSTALLATION

The PANDROL FASTCLIP system has proved ideal for mechanised installation. Railways and Contractors have adapted, without difficulty, existing track laying machines to install the system. Clip application units can either be incorporated directly into the frame of a track laying train (no manpower required), or run as free standing units (1 man required).

For further information, please see our separate leaflet on FASTCLIP installation machines.

DESTRESSING / NEUTRALISATION

All components remain captive during the destressing procedure. The clip is simply withdrawn back to the parked position to release the rail. Destressing rollers are available for use, if required.



Installed position

TECHNICAL SPECIFICATION

PANDROL FASTCLIP for concrete sleepers

Application data (standard products — special variants may be supplied for other applications)	
Rail inclination	As provided in the sleeper
Clip type	Pandrol FASTCLIP FC1500 or FC1600
Typical applications	Ballasted track
Typical rail sections	Max axle load: 40 tonnes; Min. curve radius: 80m 60E1 (UIC60); 56E1 (BS.113A); 54E1 (UIC54); AREMA 115RE or 136RE, JIS 50N and 60K, AS60, etc "Dual rail" variants are available

Suitable for use on: Light Rail, metro, general main line, high speed and heavy haul freight tracks.

Suitable for use on monobloc sleepers (pre- or post-tensioned) or reinforced bi-block sleepers.

Typical performance data				
	Value	Test method	Remarks	
Static stiffness (Rubber pad)	40 -100 MN/m	EN13146-4: 2002	Assembly secant stiffness between 5kN and 80kN	
Static stiffness (Plastic pad)	> 150 MN/m	EN13146-4: 2002	Assembly secant stiffness between 5kN and 80kN	
Clamping force	(FC1501)	> 16 kN	EN13146-7: 2002	Nominal toe load = 10 kN per clip
	(FC1601)	> 22.5 kN	AREMA Chapter 30	Nominal toe load = 12.5 kN per clip
Creep resistance	(FC1501)	> 9 kN	EN13146-1: 2002	Onset of slip
	(FC1601)	> 10.7 kN	AREMA Chapter 30	Proof load test
Electrical insulation	> 10 kΩ	EN13146-7: 2002	Rail-to-rail, wet, on a concrete sleeper	

Compliance with standards

Pandrol FASTCLIP FC1501/FC1504 series fastenings are fully compliant with the requirements of EN13481-2:2002 and the EC High Speed Interoperability Directive (TSI). A Declaration of Conformity has been issued.

Pandrol FASTCLIP FC1507/FC1601 fastenings are fully compliant with the requirements of AREMA Chapter 30.

PANDROL FASTCLIP for steel sleepers

Application data (standard products – special variants may be supplied for other applications)	
Rail inclination	As provided in the sleeper
Clip type	Pandrol FASTCLIP FC1500
Typical applications	Ballasted track
Typical rail sections	Max axle load: 26 tonnes; Min. curve radius: 80 metres 60E1 (UIC60); 56E1 (BS.113A); 54E1 (UIC54); AREMA 115RE or 136RE, etc "Dual rail" variants are available

Suitable for use on: General main line and freight tracks.

Suitable for use on conventional trough section steel sleepers, or Y-sleepers.

Typical performance data			
	Value	Test method	Remarks
Static stiffness	> 150 MN/m	EN13146-4: 2002	Assembly secant stiffness between 5kN and 80kN
Clamping force	> 16 kN	EN13146-7: 2002	Nominal toe load = 10 kN per clip
Creep resistance	> 9 kN	EN13146-1: 2002	
Electrical insulation	> 10 kΩ	EN13146-7: 2002	Rail-to-rail, wet, on a concrete sleeper

Compliance with standards

Pandrol FASTCLIP FC1501/FC1504 series fastenings are fully compliant with the requirements of EN13481-4:2002.