PANDROL

FASTCLIP FE

PRODUCT INFORMATION
The PANDROL FASTCLIP FE system is a resilient, threadless rail fastening system with the unique PANDROL switch on – switch off function that enables fast, efficient track installation and reduced maintenance costs.

Components:

1. Clip and toe insulator
   • Nominal toe load of 1,000 - 1,250 kg per clip based on customer requirements

2. Cast shoulder
   • Made from spheroidal graphite cast iron
   • Excellent gauge retention
   • Low profile providing high lateral impact resistance

3. Collar
   • High lateral stiffness and durability give excellent gauge retention
   • Excellent electrical insulation
   • Different widths available for dual-rail/ gauge-widening where required

4. Studded EVA rail pad
   • Rail pad provides high impact attenuation, preventing high dynamic forces being transmitted to the sleepers and ballast
   • Other pad types such as studded or grooved rubber, PU and HDPE are optional

Sleepers arrive on site with all components held captive and the clips set at the parked position. Once the sleepers are placed and the rail has been threaded, clips are simply pushed from the parked to the installed position. Correct toe load is achieved automatically.
INSTALLATIONS

FASTCLIP FE has been installed in Albania, Australia, Brazil, Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Malaysia, Mongolia, Norway, Romania, Serbia, Turkey, UK and USA.

FEATURES OF ASSEMBLY

FULLY PRE-ASSEMBLED
All the components leave the sleeper factory fully pre-assembled on the sleeper, offering huge savings in manpower, and reduced distribution and handling costs during track laying, stressing and rail changing.

THREADLESS
The PANDROL FASTCLIP system has no threaded components, eliminating costly maintenance.

REPLACEABILITY OF COMPONENTS
PANDROL FASTCLIP is virtually maintenance free. However, should you need to replace a component, it is a simple procedure to withdraw the clip, without the need to unscrew bolts.

RAIL TENSIONING / CREEP RESISTANCE
The correct tensioning is automatically achieved when the clip is driven into the working position.

ANCHORAGE
Cast-in shoulders hold the rail at correct gauge and set the Fastclip deflection. The shoulders are cast into the sleeper during the manufacturing process.

ELECTRICAL INSULATION
The FASTCLIP assembly provides excellent electrical insulation properties. The cast shoulders are electrically isolated from the rail by the collars. The spring clips are electrically isolated from the rail by the toe insulators.

STRESSING / NEUTRALISATION
All components remain captive during the stressing procedure. The clip is simply withdrawn back to the parked position to release the rail. Stressing rollers are available for use if required.

HEAVY HAUL
The FE1500 series system is suitable for heavy haul application.
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FASTCLIP FE SYSTEM

- For use on concrete sleepers
- Suitable for use on light rail, metro, general main line, high speed and heavy axle loads
- Suitable for use on monobloc sleepers (pre or post-tensioned) or reinforced bi-block sleepers

TECHNICAL SPECIFICATION

Application data (Standard products – special variants may differ)

<table>
<thead>
<tr>
<th>Rail Inclination</th>
<th>As provided in the sleeper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad Type</td>
<td>Please consult PANDROL for appropriate pad types against operating requirements</td>
</tr>
<tr>
<td>Typical Applications</td>
<td>Light rail, Metro, general main line, mixed traffic, heavy haul and high speed</td>
</tr>
<tr>
<td>Clip Type</td>
<td>PANDROL FASTCLIP FE1400</td>
</tr>
<tr>
<td>EN13481-2 Fastening Category</td>
<td>Cat A</td>
</tr>
<tr>
<td>Maximum Axle Load*</td>
<td>130 kN</td>
</tr>
<tr>
<td>Minimum Curve Radius*</td>
<td>40 m</td>
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</tbody>
</table>

Typical performance data*

<table>
<thead>
<tr>
<th>EN13481-1 Fastening Category</th>
<th>Cat A</th>
<th>Cat B</th>
<th>Cat C/D</th>
<th>Test Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly static stiffness</td>
<td>70-210 kN/mm</td>
<td>80-220 kN/mm</td>
<td>95-250 kN/mm</td>
<td>EN13146-9:2011</td>
<td>Dependent upon pad selection</td>
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<tr>
<td>Assembly dynamic stiffness</td>
<td>80-280 kN/mm</td>
<td>90-310 kN/mm</td>
<td>110-400 kN/mm</td>
<td>EN13146-9:2011</td>
<td></td>
</tr>
<tr>
<td>Impact load attenuation</td>
<td>30-50%</td>
<td></td>
<td></td>
<td>EN13146-3:2012</td>
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<tr>
<td>Electrical Insulation</td>
<td>&gt;10 kΩ</td>
<td></td>
<td></td>
<td>EN13146-5:2012</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FE1400</th>
<th>FE1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal toe load</td>
<td>1000 kgf</td>
</tr>
<tr>
<td>Clamping force</td>
<td>&gt;16 kN</td>
</tr>
<tr>
<td>Creep resistance</td>
<td>&gt;9 kN</td>
</tr>
</tbody>
</table>

COMPLIANCE WITH STANDARDS:
PANDROL FASTCLIP FE1400 series fastenings are compliant with the requirements of EN13481-2:2012 and the High Speed Interoperability Directive (TSI). PANDROL FASTCLIP FE1500 series fastenings are compliant with the requirements of EN13481-8:2012 – Fastening systems for track with heavy axle loads. Some configurations of Pandrol Fastclip FE1400 and FE1500 series fastenings are compliant with the requirements of AREMA manual Chapter 30 Part 4.

NOTE:
PANDROL is an innovator and designer of bespoke rail fastenings. The data shown above is indicative of typical performance, but is naturally dependant on external factors. Should you have different requirements, please contact us to discuss tailoring products to suit local operating conditions. The technical information given in this brochure was correct at the time of printing, however the company undertakes a continuing programme of research and development and improvements may since have been introduced.

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