PANDROL

SEE SD

PRODUCT INFORMATION
SEE SD fastening system is a plastic baseplate designed to be embedded into fresh concrete or by wet pour methods, providing adequate resilience (stiffness) to attenuate the concrete slab and provide large vertical adjustments to the rail position.

The SEE-SD plastic baseplate has a special system feature of vents and channels that optimise insertion into concrete and ensures excellent resistance to lateral forces.

Components:
1. Clip
2. Plastic baseplate
3. Insulated guide plate
4. Rail pad
5. Screw
6. Anchor insert (not shown)
7. Optional covers (not shown)

Provides a lightweight solution for handling/installation and can be pre-assembled for use with automatic baseplate laying equipment.
**Installation and Assembly Process**

**Vertical Adjustment**
SEE SD provides vertical height adjustment of +30 mm, and lateral adjustment of +/- 5 mm. For special adjustment requirements, please consult PANDROL.

**Features of Assembly**

**Vertical Adjustment**
SEE SD provides vertical height adjustment of +30 mm, and lateral adjustment of +/- 5 mm. For special adjustment requirements, please consult PANDROL.

**Lightweight**
The lightweight and compact nature of PANDROL SEE SD composite material baseplates support cost-effective construction for tram LRT and metro infrastructures.

**Low Vertical Stiffness**
Vertical stiffness is typically 35 kN/mm, providing adequate resilience for slab attenuation. SEE SD provides a choice of rail pads that deliver static stiffness of between 35 kN/mm to 150 kN/mm.

**Construction Options**
SEE SD baseplates can be installed into fresh dry concrete, using innovative slab track construction techniques. The top-down wet pour method is also supported. The PANDROL air evacuation system prevents trapped air under the baseplate.

**High Performance Dowel**
The SEE SD GS dowel is suitable for insertion into fresh concrete. The GS dowel provides more efficient load transfer to the concrete.

**Contact Tightening**
The SEE SD coach screw provides a large acceptable torque range of between 250 and 400 Nm. Toe load is achieved automatically once the screw is tightened to contact.

Plastic anchor inserts are added to the plastic baseplate.

Setting shims are added for future vertical adjustment.

Pad is added while all the other components are removed or in parked position.

The clips are driven from the parked to the working position.

The coach screws are tightened to refusal.

If required a cover is added for permanent or temporary protection of the assembly.
SEE SD

- Low vertical stiffness option: 35 kN/mm
- Pre-assembled system, to facilitate installation operations
- Light plastic baseplate suitable for mechanical installation
- Large vertical adjustment range: +30 mm

**Application data** (Standard products – special variants may differ)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail inclination</td>
<td>As provided in the baseplate</td>
</tr>
<tr>
<td>Pad type</td>
<td>Please consult PANDROL for appropriate pad types against operating requirements</td>
</tr>
<tr>
<td>Typical applications</td>
<td>Tram, LRT/Metro</td>
</tr>
<tr>
<td>Clip type</td>
<td>SD</td>
</tr>
<tr>
<td>EN13481-5 fastening category</td>
<td>Cat A     Cat B               For max axle load/radius please consult PANDROL</td>
</tr>
<tr>
<td>Maximum axle load*</td>
<td>130 kN 180 kN</td>
</tr>
<tr>
<td>Minimum curve radius*</td>
<td>40 m 80 m</td>
</tr>
</tbody>
</table>

* For special applications please consult PANDROL

**Typical performance data** As identified by Track Category in EN13481-1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Test method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly static stiffness</td>
<td>&gt;35 kN/mm</td>
<td>EN 13146-9:2011</td>
<td></td>
</tr>
<tr>
<td>Assembly dynamic stiffness</td>
<td>&gt;45 kN/mm</td>
<td>EN 13146-9:2011</td>
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<tr>
<td>Impact load attenuation</td>
<td>≤ 30-50%</td>
<td>EN 13146-3:2012</td>
<td></td>
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<tr>
<td>Electrical resistance</td>
<td>&gt;15 kΩ</td>
<td>EN 13146-5:2012</td>
<td></td>
</tr>
<tr>
<td>Nominal toe load</td>
<td>1000 kgf</td>
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<td></td>
</tr>
<tr>
<td>Lateral adjustment</td>
<td>+/- 5 mm</td>
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<tr>
<td>Vertical adjustment</td>
<td>0 / +30 mm</td>
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<td></td>
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<tr>
<td>Clamping force</td>
<td>16-20 kN</td>
<td>EN 13146-7:2012</td>
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<tr>
<td>Creep resistance</td>
<td>&gt;7 kN</td>
<td>EN 13146-1:2012</td>
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</tbody>
</table>

**COMPLIANCE WITH STANDARDS:**
SEE SD System complies with European CEN Standard 13481-5.

**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.