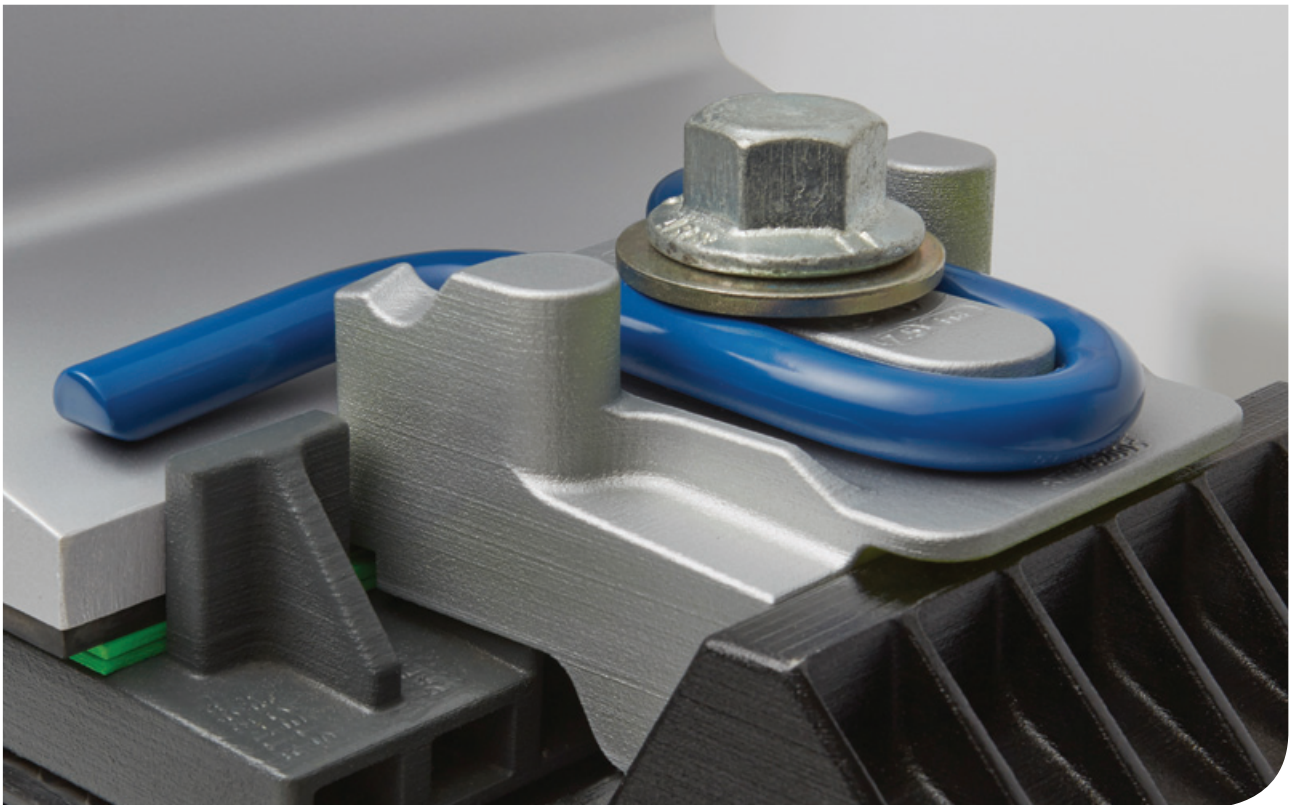


PANDROL

DOUBLE STAGE ELASTIC DEE SD FASTENING SYSTEM



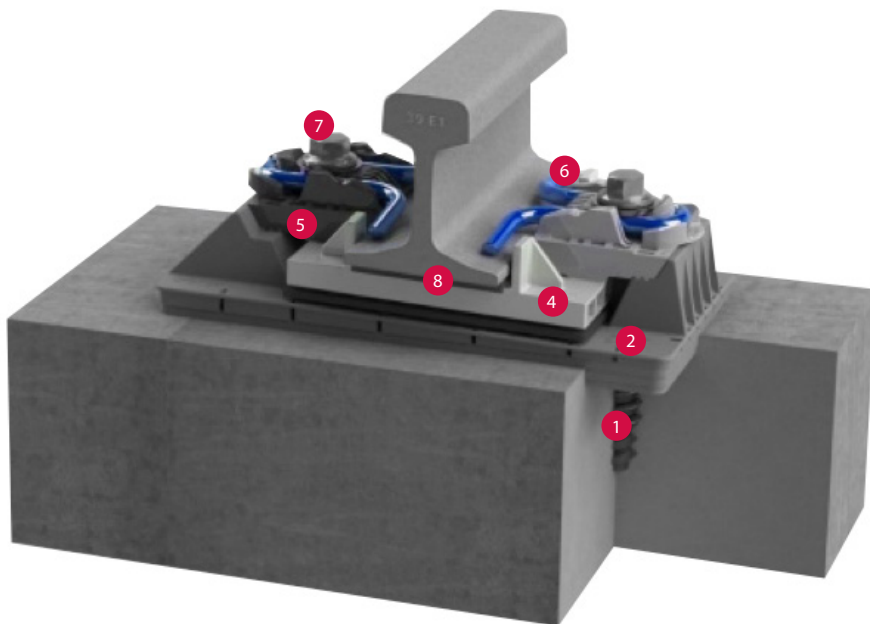
PRODUCT INFORMATION



PANDROL PRESENTS:

DEE SD

This elastic two-stage system, compliant with EN Standard 13481-5 categories A and B (tramway and metro applications) is designed to reduce structure-borne noise produced by rail/wheel contact and to attenuate vibrations.



As with all Pandrol fastenings, the DEE SD system is backed by many years of worldwide experience and unmatched depth of technical understanding from Pandrol's technical engineers.

Visit [Pandrol.com](https://www.pandrol.com) for more information about Pandrol fastening systems

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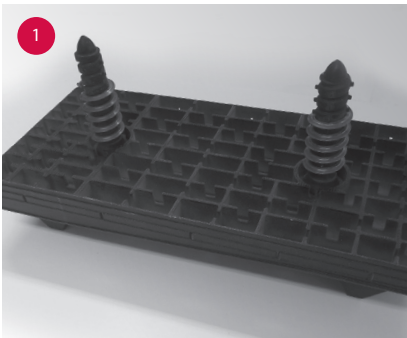
Completely pre-assembled from anchoring dowels to fastenings, the system is suited to all track-construction types. It can be dismantled for inspection and maintenance purposes, and can also be modified in-situ for stiffness adjustment if required.

1. GS dowels
2. Bottom baseplate
3. Studded rubber pad
4. Upper baseplate
5. Insulators
6. SD Clips
7. Coach screws with washers
8. Rail pad

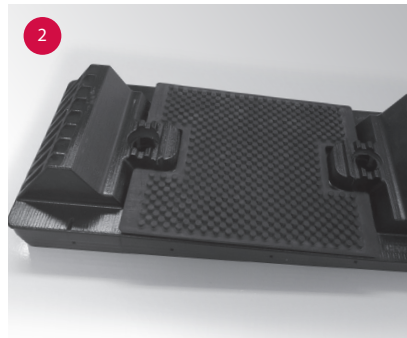


INSTALLATIONS

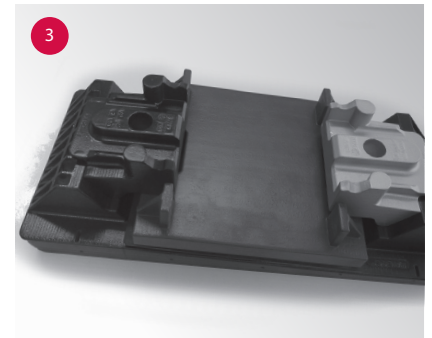
Installation and assembly process



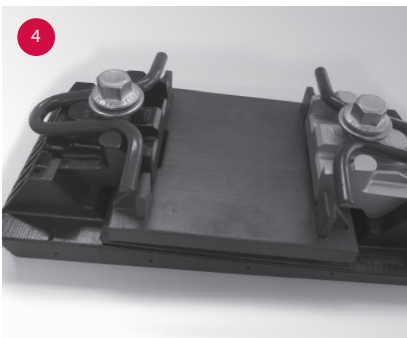
Plastic anchor inserts are added to the bottom baseplate.



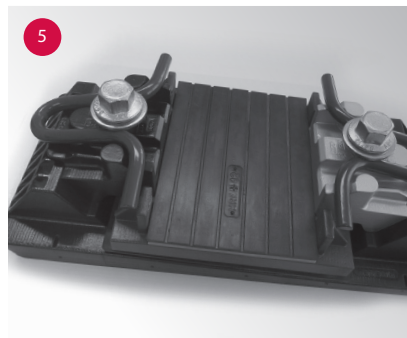
A studded rubber pad is placed on the bottom baseplate before the upper baseplate is added.



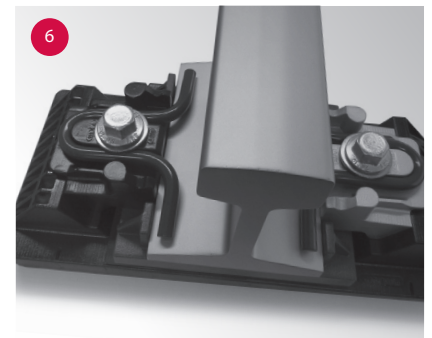
The side insulators are positioned.



The fastenings are installed into the parked position and the coach screws are tightened to secure the clips. The assembly would then be delivered to the construction site in this configuration.



Assembly shims and a rubber pad are added before the rail is threaded.



The clips are then driven from the parked to the working position and the coach screws are tightened to refusal.

FEATURES OF ASSEMBLY

LIGHTWEIGHT

The lightweight and compact nature of composite material baseplates supports a cost effective construction for Tram LRT and Metro Infrastructure.

LOW VERTICAL STIFFNESS

Vertical Stiffness typically 25 kN/mm reduces noise and vibration transmission.

ADJUSTMENT

Vertical height adjustment of +16 mm, lateral adjustment +/- 5 mm. Higher values may be proposed depending on project specification.

CONSTRUCTION

Baseplates can be installed by innovative slab track construction techniques into fresh dry concrete. DEE SD is also suitable for Top Down wet pour method. Special air evacuation system avoids air getting trapped under the baseplate.

HIGH PERFORMANCE DOWEL

The special GS dowel is suitable for insertion into fresh concrete and transfers loads to the concrete more efficiently.

TIGHTENING TO REFUSAL

Large range of acceptable torque between 250 and 400 Nm allows coachscrew to be tightened to refusal. Toe load is achieved automatically once screw is tightened to refusal.

OPTIONAL STIFFNESS

Optional static stiffness between 35 kN/mm to 150 kN/mm, based on choice of rail pad.

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DEE SD FASTENING SYSTEM

- Suitable for use on non-ballasted tracks (slab tracks)
- Suitable for top-down construction and bottom-up automatic construction
- Intended for application where a degree of vibration mitigation is required
- Suitable for all rail inclinations and rail types

Application data (Standard products – special variants may differ)

| | | |
|--------------------------|--------------------------------------|--------|
| Rail inclination | Provided in the concrete as required | |
| Typical applications | Tram/LRT, Metro, for plain lines | |
| Clip type | Pandrol brand SD clip | |
| EN13481-5 Track category | Cat A | Cat B |
| Maximum axle load* | 130 kN | 180 kN |
| Minimum curve radius* | 40 m | 80 m |

Typical performance data*

| | | |
|---------------------------|--|--|
| Electrical insulation | >22 KΩ | |
| Vertical static stiffness | 35 kN/ mm – 150 kN/mm (dependent on choice of pad) | |
| Vertical adjustment | +/- 2 mm (optional +/- 4 mm) | |
| Lateral adjustment | +/- 7.5 mm per rail with an increment of 1.25 mm | |

* For special applications consult PANDROL.

COMPLIANCE WITH STANDARDS:

PANDROL DOUBLE STAGE ELASTIC DEE SD fastening system is compliant with EN Standard 13481-5 categories A and B (tramway and metro applications).

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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