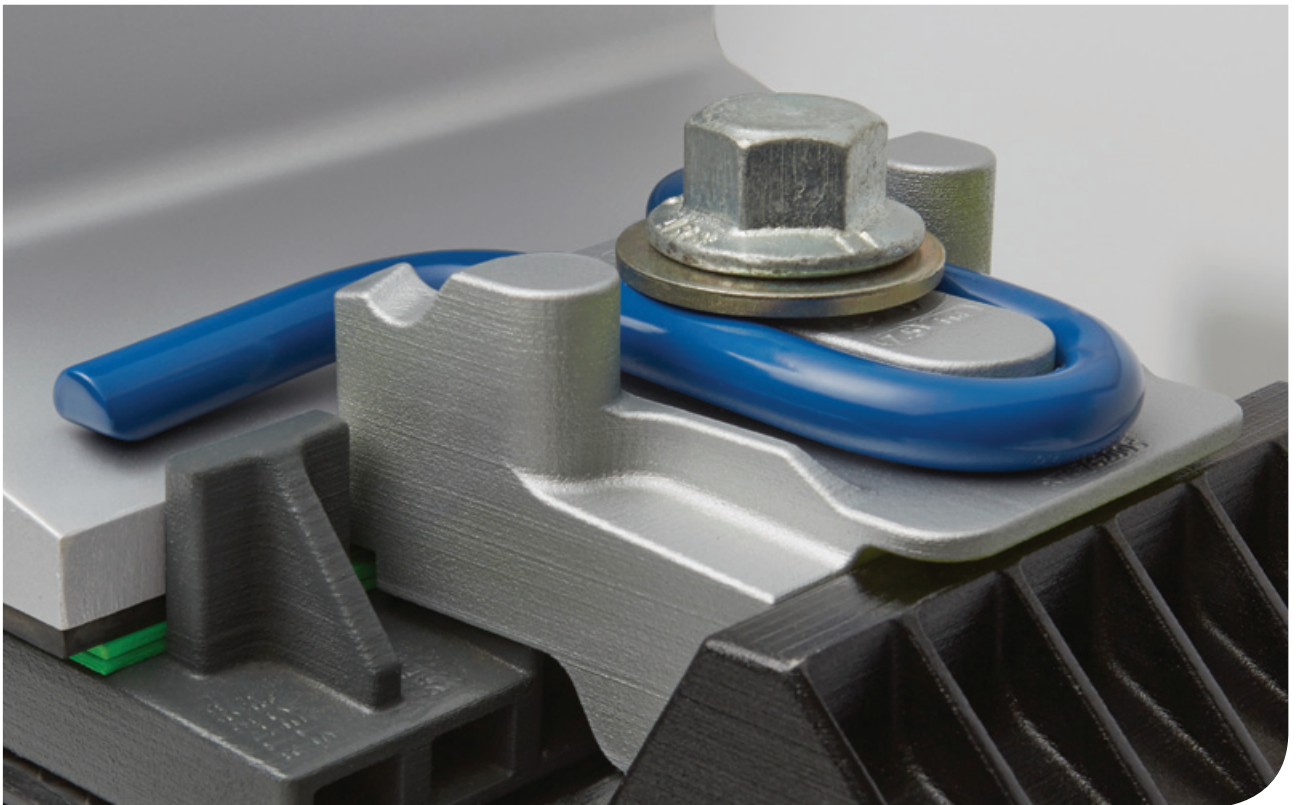


PANDROL

DEE SD DOUBLE STAGE ELASTIC FASTENING SYSTEM



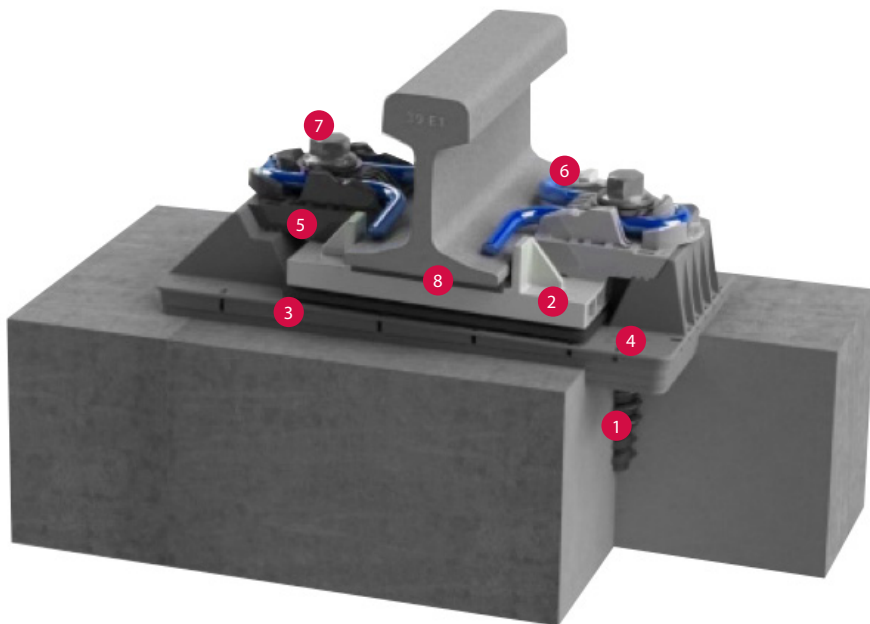
PRODUCT INFORMATION



TRAM AND METRO FASTENING SYSTEM:

DEE SD

The PANDROL DEE SD double-stage elastic fastening system is designed to reduce structure-borne noise produced by rail and wheel contact and to reduce vibrations. The system is compliant with EN Standard 13481-5 categories A and B, for tramway and metro applications.



The DEE SD system is built upon many decades of worldwide rail fastening experience and the unmatched knowledge of PANDROL technical engineers.

Find more information about PANDROL fastening systems at Pandrol.com

[LEARN MORE >](#)



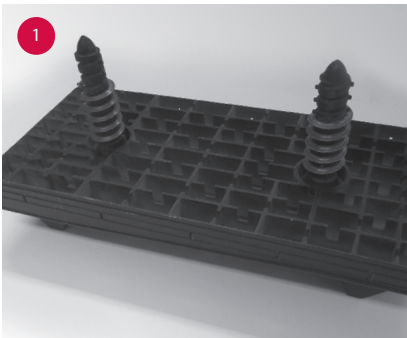
DEE SD is suitable for all track construction types. The system is delivered completely pre-assembled, from anchoring dowels to fastenings. It can be dismantled for inspection and maintenance purposes, and can also be modified in-situ for stiffness adjustment where required.

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

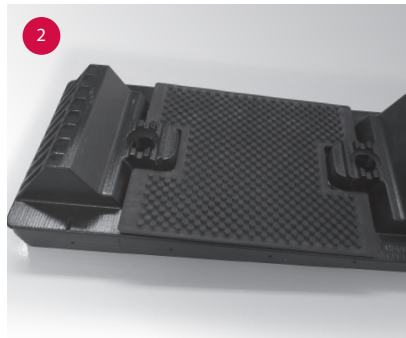


INSTALLATIONS

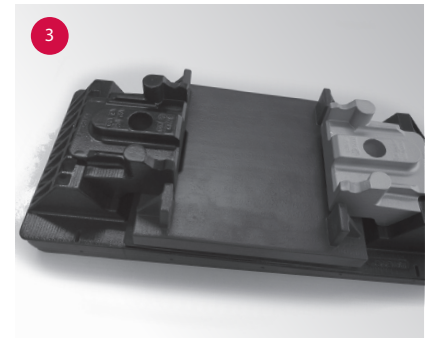
Installation and assembly process:



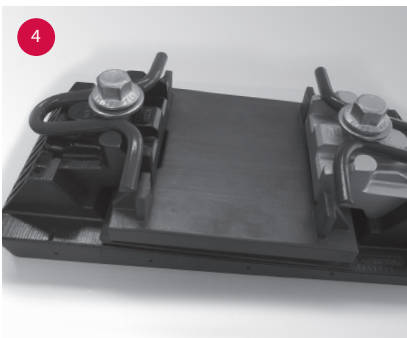
Plastic anchor inserts are added to the bottom baseplate.



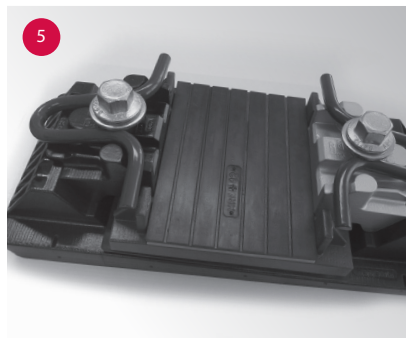
A studded rubber pad is placed on the bottom baseplate, before the upper baseplate is added.



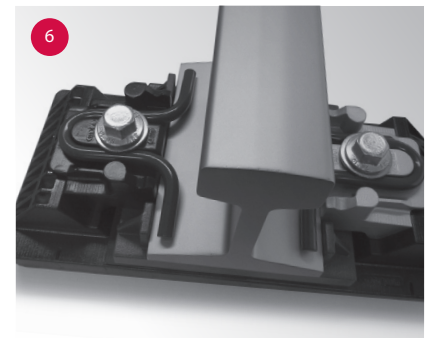
The side insulators are positioned.



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



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



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

FEATURES OF ASSEMBLY

HIGHLY ADJUSTABLE

DEE SD provides vertical height adjustment of +20 mm, and lateral adjustment of +/- 5 mm. For special adjustment requirements, please consult PANDROL.

LOW VERTICAL STIFFNESS

Vertical stiffness is typically 25 kN/mm, providing reduced noise and vibration transmission.

STIFFNESS OPTIONS

DEE SD provides a choice of rail pads that deliver static stiffness of between 35 kN/mm to 150 kN/mm.

LIGHTWEIGHT

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

CONSTRUCTION OPTIONS

DEE SD baseplates can be installed in 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 DEE SD GS dowel is suitable for insertion into fresh concrete. The GS dowel provides more efficient load transfer to the concrete.

TIGHTENING TO REFUSAL

The DEE 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 refusal.

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DEE SD FASTENING SYSTEM

- For use on non-ballasted tracks (slab tracks)
- Suitable for top-down construction and bottom-up automatic construction
- Designed for applications 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	25 kN/mm		
Vertical adjustment	+20mm		
Lateral adjustment	+/-5mm per rail with an increment of 1.25 mm		

* For special applications consult PANDROL.

COMPLIANCE WITH STANDARDS:

The 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 a provider of innovative custom rail fastenings. Data in this document indicates typical performance. Actual performance is dependent on a range of external factors. Please contact us to discuss how PANDROL can tailor products to suit local operating conditions and specific requirements. Technical information in this document was correct at time of printing. Improvements may since have been introduced as a result of our continuous research and development programmes.

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