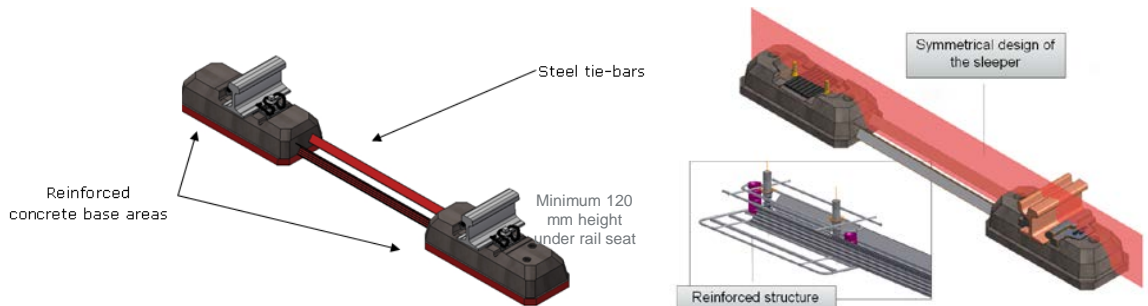


Shallow depth sleepers for urban track (tramways and metros)



SHALLOW DEPTH SLEEPERS FOR URBAN TRACK

**Consolis has provided twin block
embedded systems for LRT rail tracks for
more than 50 years.
In response to new market trends, a
shallow depth sleeper has been developed.**



Main characteristics of the TW System

PRODUCT APPLICATIONS



Grass track



City centre

Concrete slab track
Cars/pedestrians & trams
all on same level (asphalt,
pavement, concrete, etc.)



Suburbs

Ballasted track
Tram and cars on different tracks
Cheaper infrastructure



Tunnel track

BENEFITS

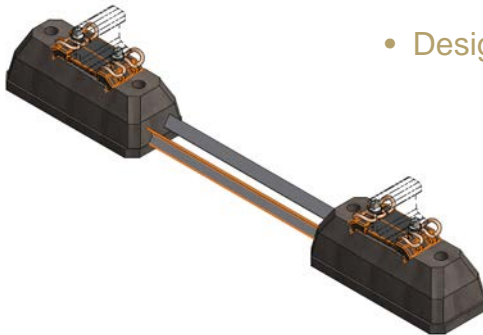
1 High level of geometrical performance is ensured:

- Precast molding process



- *Optimized monitoring of process and aggregates*
- *Sleeper statistical testing (geometrical & test bed)*

- Design with twin tie bars



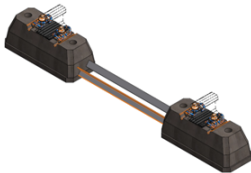
BENEFITS

2 Solution can accommodate all fastening systems

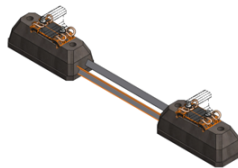
Tie bar ensures track gauge and sleeper design ensures rail inclination



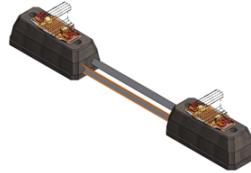
Direct fastening system can be used



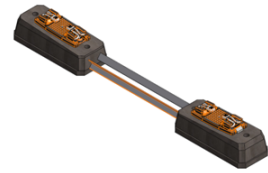
TW140 with Vossloh W21



TW140 with Vossloh W300



TW140 with Pandrol FCA

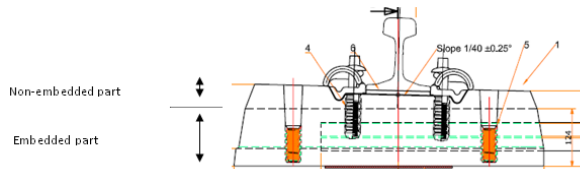


TW140 with Pandrol Vipa Valiant

BENEFITS

3 An adaptative solution

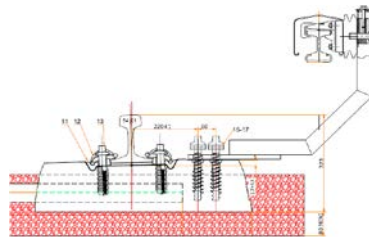
- System thickness



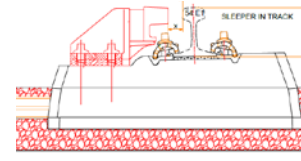
Design of the non-embedded part of the sleeper can be changed according to network's specific needs.

- Third rail systems or check rail

TW sleepers can be equipped with additional inserts to support the third rail or a check rail fixation system.



TW with 3rd Rail



TW with Check Rail

BENEFITS

4 A convenient solution for track laying

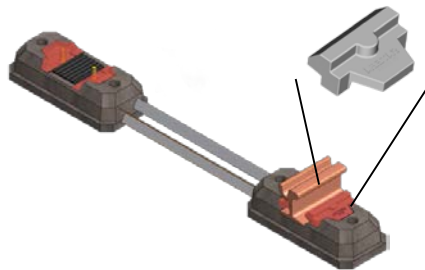
- Lifting screws



These inserts enable the height of the rail track to be adjusted precisely using lifting screws before concreting.

If required, fastening system can be covered with protection caps that resist temperatures of up to 200°C and vertical loads of 30kN.

- Protection cap for fastening systems



BENEFITS

5 A convenient solution for track laying

- Construction cost savings

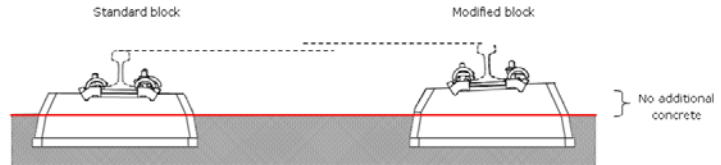


As minimal stress is passed on to the surrounding concrete slab track, no reinforcements are needed in the slab itself.

Lower sleeper thickness will reduce excavation works for construction of the platform.

The design of the non-embedded part of one of the blocks can be modified to create the cant. This leads to significant savings on the amount of concrete that needs to be poured on site.

- Integrated cant



BENEFITS

5 A convenient solution for track laying

- Track laying stages



Stage 1: Sleeper & rail laying



Stage 2: Track levelling



Stage 3: Concreting