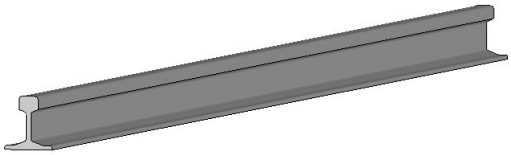
1. This guideline applies to:
- Flat bottomed rail sections.
- Standard, asymmetrical or grooved rails.
- Non-coated or coated.

This guideline applies to rails from 9.144 m (30') up to 18.288 m (60') long.



The friction factor for this product on timber dunnage, determined as per EN 12195-1:2010 Annex B.1.2, is μ=0.56.

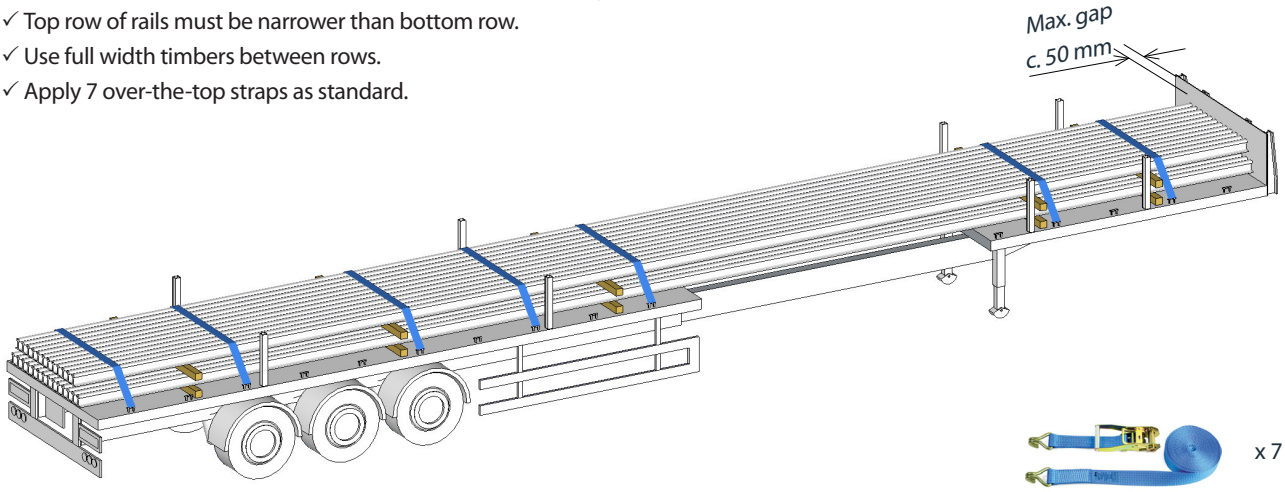
2. Equipment requirements

- Trailer headboards must cover the height of the load, and be capable of withstanding a force of 100 kN i.e. approximately 10 tonnes (see Section 7.1).
- Side pins must be fitted to the trailers for loading and unloading safety (see Section 7.2).
- Base dunnage to be a single layer of square section timber at least 75 x 75 mm. A minimum of 4 base bearers are required on standard trailers, and a minimum of 5 are required on extended trailers.
- All timbers shall span the full width of the load.
- All restraints must be webbing straps compliant with EN 12195-2, with a minimum lashing capacity of 2000 daN.

3. Overview of restraint system

3.1 Road transport only - typical load

✓ Load to the trailer headboard - maximum gap approximately 50 mm.
✓ Top row of rails must be narrower than bottom row.
✓ Use full width timbers between rows.
✓ Apply 7 over-the-top straps as standard.

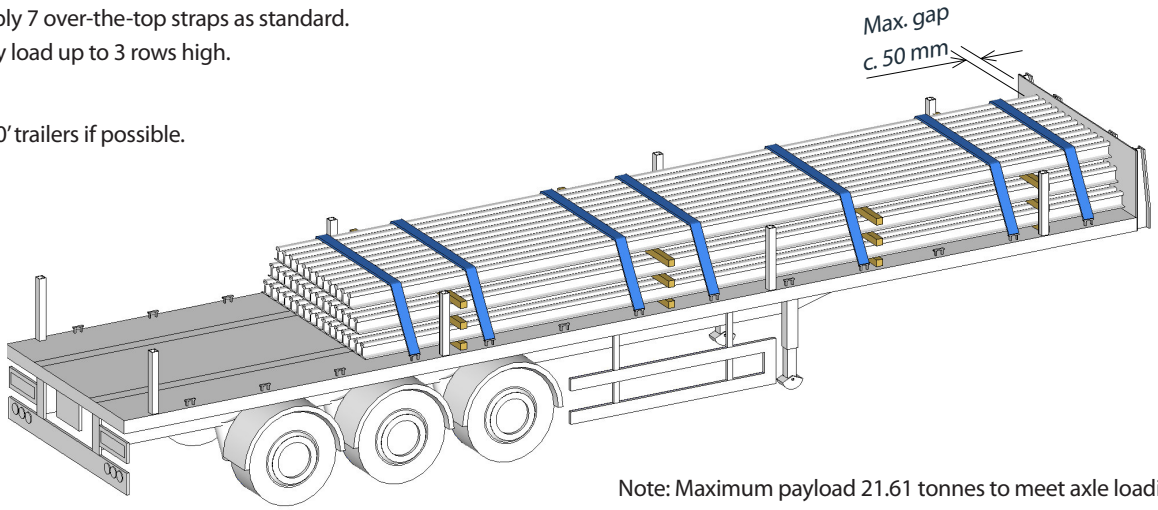


This Load Restraint Guideline has been designed to meet the forces for road and sea transport as stated in EN 12195-1:2010 and VDI 2700.

3.2 Short rails - 9.144 m

✓ Load to the trailer headboard - maximum gap approximately 50 mm.
✓ Apply 7 over-the-top straps as standard.
✓ May load up to 3 rows high.

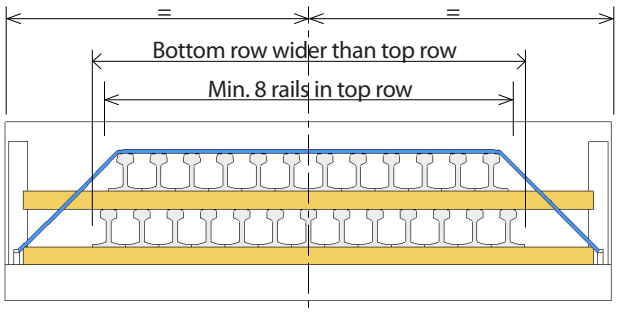
Use 40' trailers if possible.



Note: Maximum payload 21.61 tonnes to meet axle loading limits on standard 45' trailers with 3 axle tractor units.

4. Load build

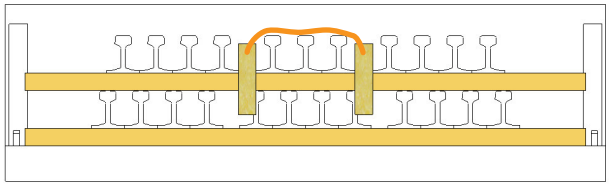
4.1 Correct, normal load build



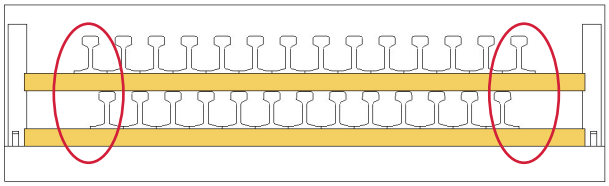
✓ Same rail section size in each row.
✓ Load centrally on the trailer bed.
✓ Bottom row must be wider than the top row, but split the load as evenly as possible.
✓ Minimum of 8 rails in the top row.
✓ Rail toes should be touching and not overlapping.
✓ Use full width timbers.

Note: All flat bottomed rails may be loaded up to 3 rows high.

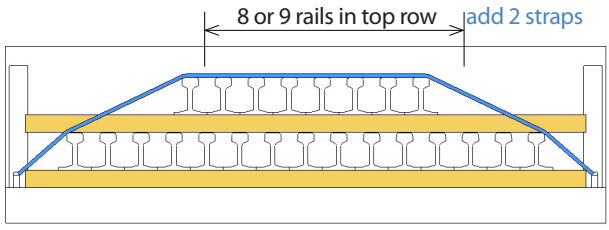
4.2 Load build do's and don'ts



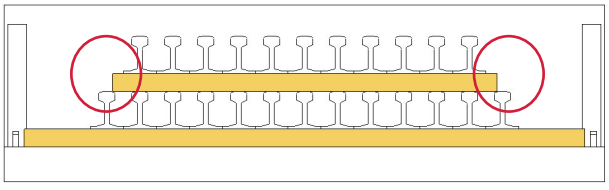
✓ If gaps are required in the top row, they must be blocked with secure timbers.



X Do NOT load wider row on the top.



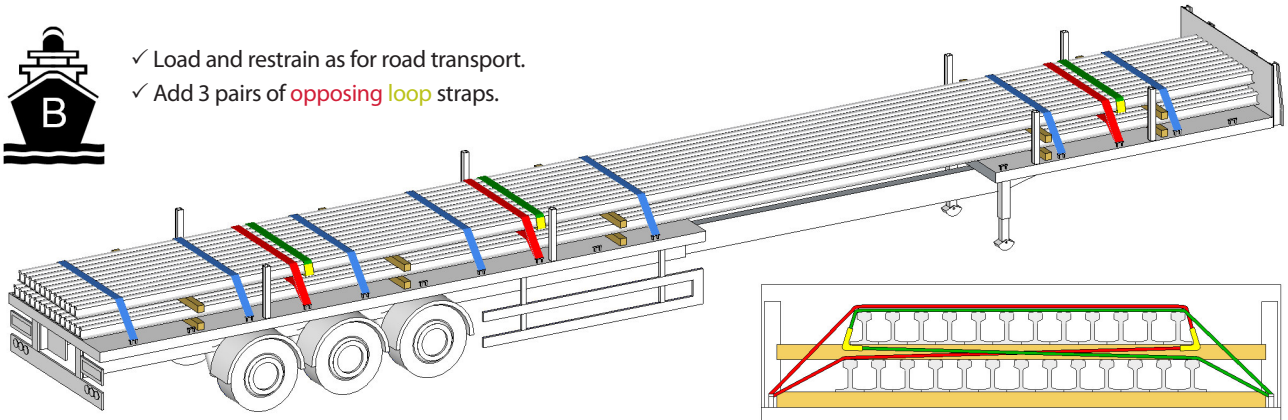
If the top row is only 8 or 9 rails wide, fit 2 additional straps because of low lashing angles.

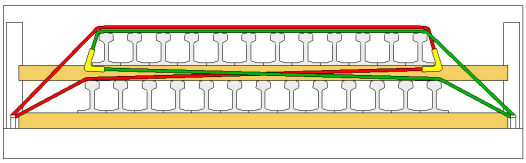


X Intermediate timber is not wide enough to cover all rails in the bottom row.

5. Ferry crossings - require additional sideways restraint

✓ Load and restrain as for road transport.
✓ Add 3 pairs of opposing loop straps.



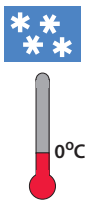


Opposing loop straps around the top row of the load.
Note: Must use edge protection around rail feet.


x 13 + 6

or


6. Winter weather advisory periods

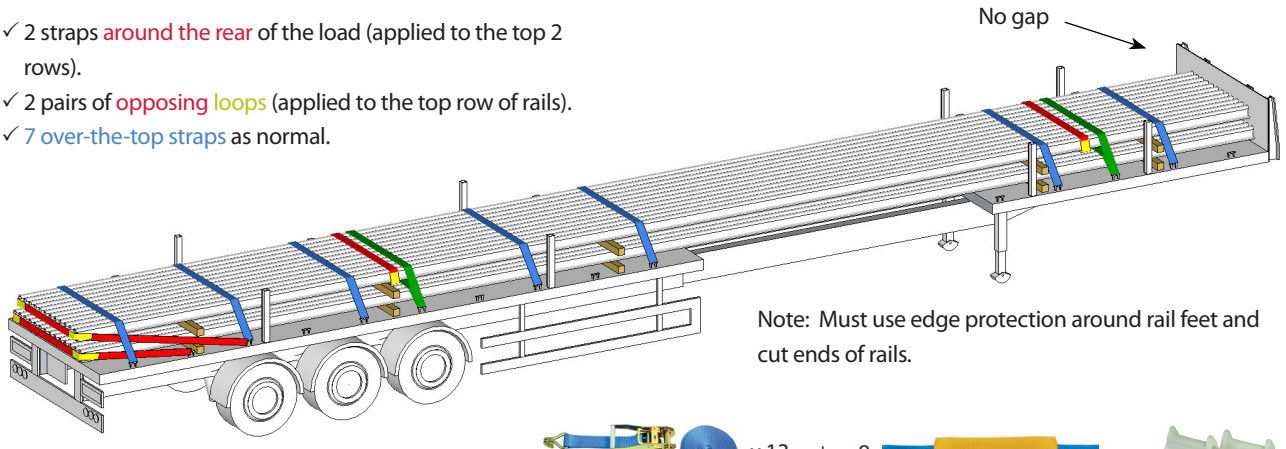


During winter when the air temperature is below 0°C and there is a risk of frost, ice or snow present in the load, additional load restraint precautions must be taken by applying either Option 1 or Option 2 below.

Note: Trailer decks should be cleared of snow and ice, and timbers should be kept in a dry location. In winter conditions rails must be loaded tight to the headboard.

6.1 Option 1 - without anti-slip matting

✓ 2 straps around the rear of the load (applied to the top 2 rows).
✓ 2 pairs of opposing loops (applied to the top row of rails).
✓ 7 over-the-top straps as normal.



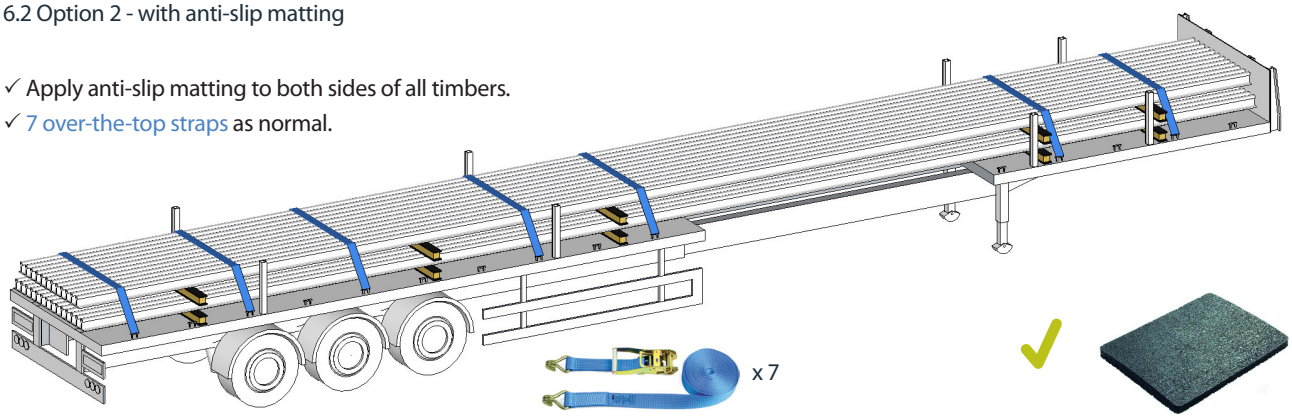
Note: Must use edge protection around rail feet and cut ends of rails.


x 13 + 8

or


6.2 Option 2 - with anti-slip matting

✓ Apply anti-slip matting to both sides of all timbers.
✓ 7 over-the-top straps as normal.



x 7

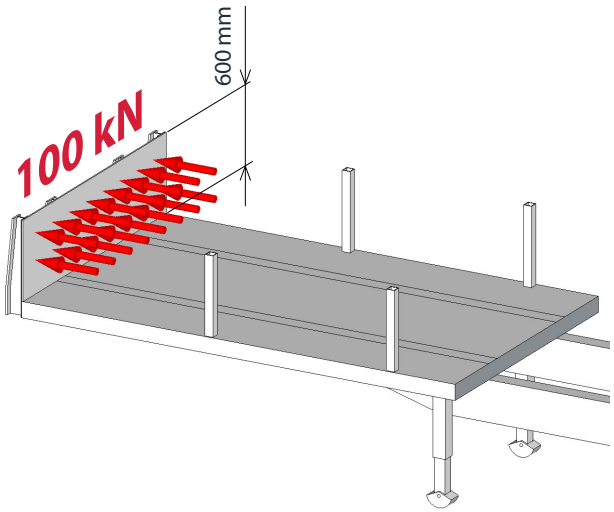
7. Trailer requirements

7.1 Headboard

Strength

This Load Restraint Guideline relies on the trailer headboard to provide a significant proportion of the required load restraint forces in the forwards direction. Under emergency braking, the headboard must be capable of withstanding the following forces:

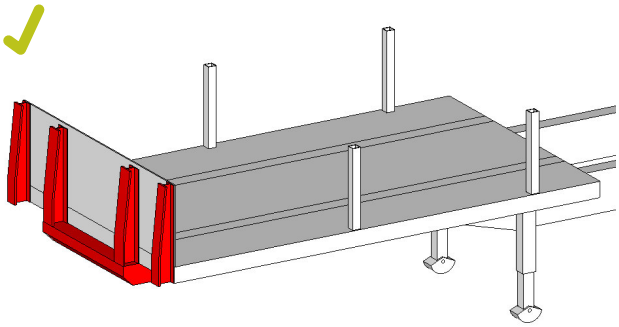
- 100 kN evenly distributed across the full width of the headboard, up to a height of 600 mm;
- A maximum bending moment of 30 kNm.



Structure

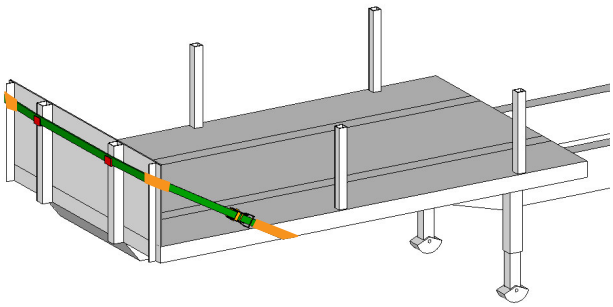
As a guide, the above forces would require a headboard consisting of the following:

- 4 substantial vertical members;
- Adequately welded to strengthened chassis frame;
- Steel plate facing (not wooden).



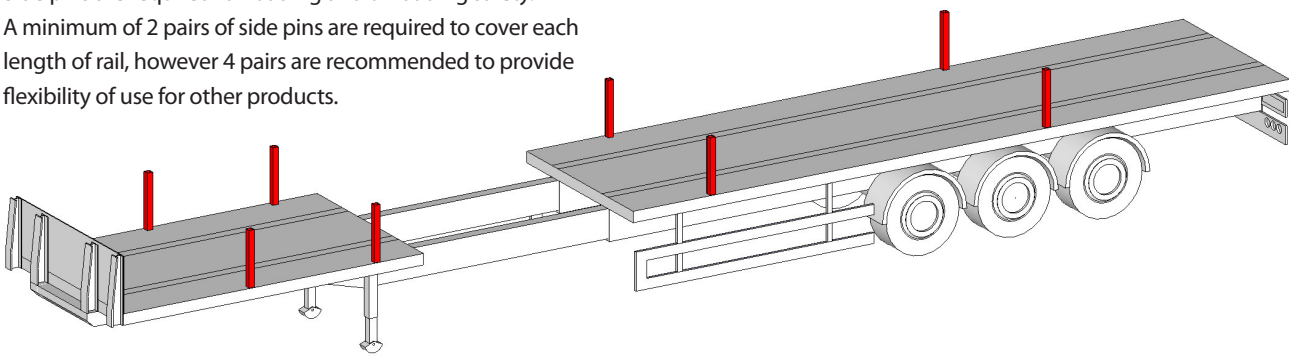
Trailers manufactured to EN 12642 code XL will have headboards of sufficient strength to comply with this Load Restraint Guideline.

Less substantial headboards, or headboards with unknown load bearing capacity must be lashed back with webbing straps (or chains) to provide the necessary strength.



7.2 Side pins

Side pins are required for loading and unloading safety.
A minimum of 2 pairs of side pins are required to cover each length of rail, however 4 pairs are recommended to provide flexibility of use for other products.



BRITISHSTEEL.CO.UK

A | PO Box 1, Brigg Road, Scunthorpe, North Lincolnshire, DN16 1XA
T | +44 (0)1724 402436 E | logistics@britishsteel.co.uk

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