

1. This guideline applies to:

- The transportation of roll finished, shot blasted or painted bulb flats by road and by sea.
- Typical lengths of 12 m.
- A maximum product load of 30 tonnes subject to a maximum axle weight limit of 44 tonnes.

The friction factor for this product on timber dunnage, as determined by EN 12195-1:2010 Annex B.1.2, is $\mu=0.62$.

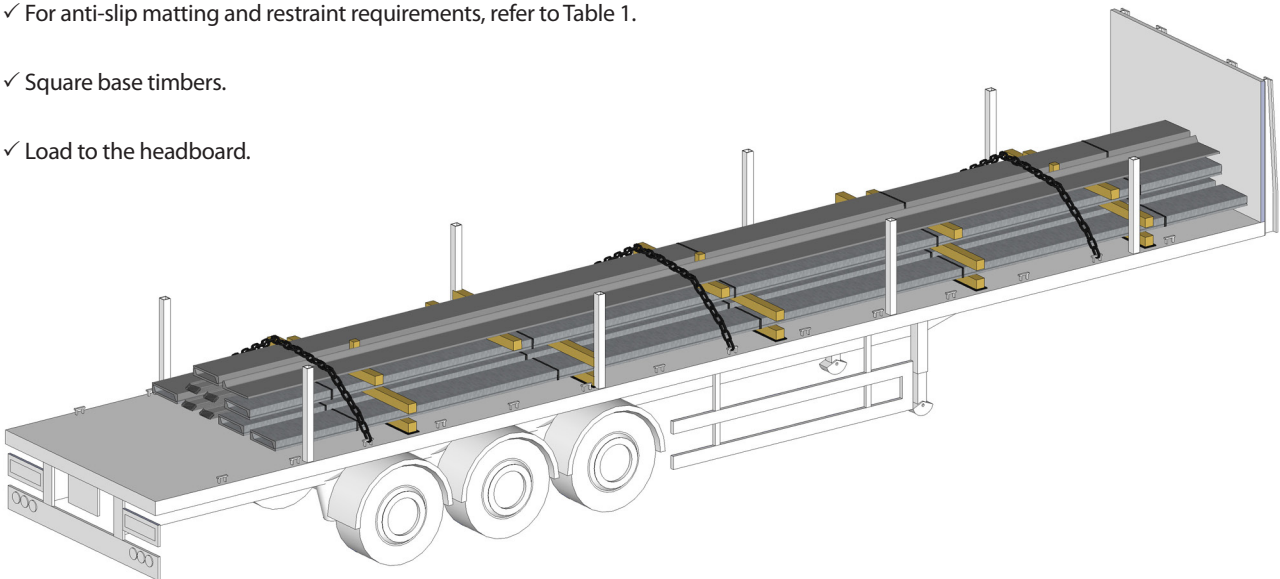
2. Essential requirements

- Chains must be minimum 8 mm Grade 8 chains compliant with EN 12195-3.
- Webbing straps must have a minimum lashing capacity of 2000 daN and must be compliant with EN 12195-2.
- Lashing points must have a suitable capacity to match the restraining method.
- Base timbers must have a minimum cross-section of at least 75 mm x 75 mm.
- Intermediate timbers must have a minimum cross-section of 100 mm x 100 mm.
- When using either opposing loops or belly-wraps, if chain gaps are required for loading/unloading purposes, vertical dunnage **MUST** be used to control the gaps in the top row.
- Edge protection must be used on all unprotected corners.
- For axle loading guidance, see Technical Information Sheet TIS-0012 Axle weights and load distribution.

3. UK loads using chains

3.1 Full length product

- ✓ For anti-slip matting and restraint requirements, refer to Table 1.
- ✓ Square base timbers.
- ✓ Load to the headboard.



8 mm Grade 8 LC 40 kN

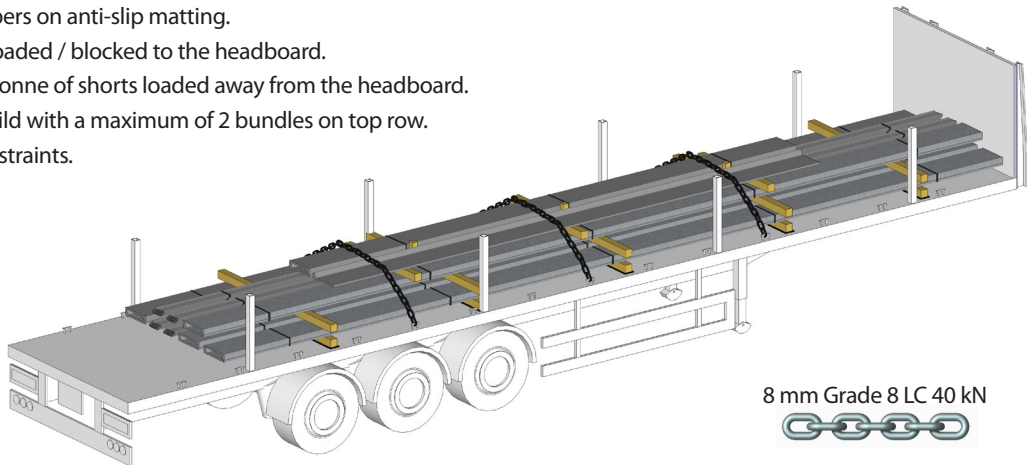


Table 1: Restraint system for trailers with headboards rated to

5 tonne	10 tonne
ASM under base timbers + 3 over-the-top restraints	3 over-the-top restraints

3.2 UK loads with shorts

- ✓ Square base timbers on anti-slip matting.
- ✓ Bottom layer(s) loaded / blocked to the headboard.
- ✓ Maximum of 10 tonne of shorts loaded away from the headboard.
- ✓ Pyramid load build with a maximum of 2 bundles on top row.
- ✓ 3 over-the-top restraints.

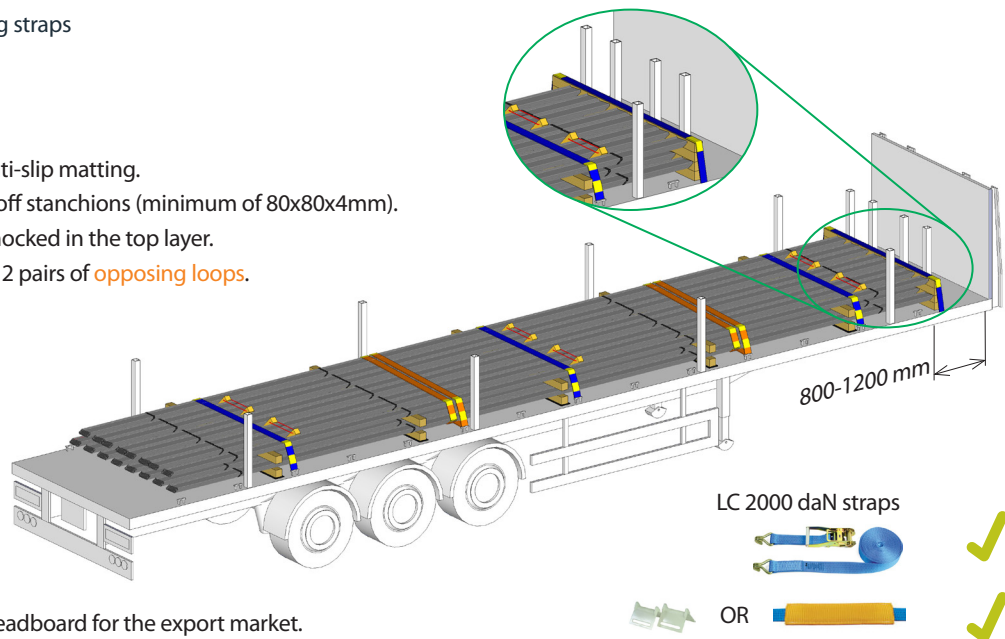


Note: 28 t load with top layer loaded away from the headboard for the UK market.

4 Export loads using webbing straps

4.1 Full length product

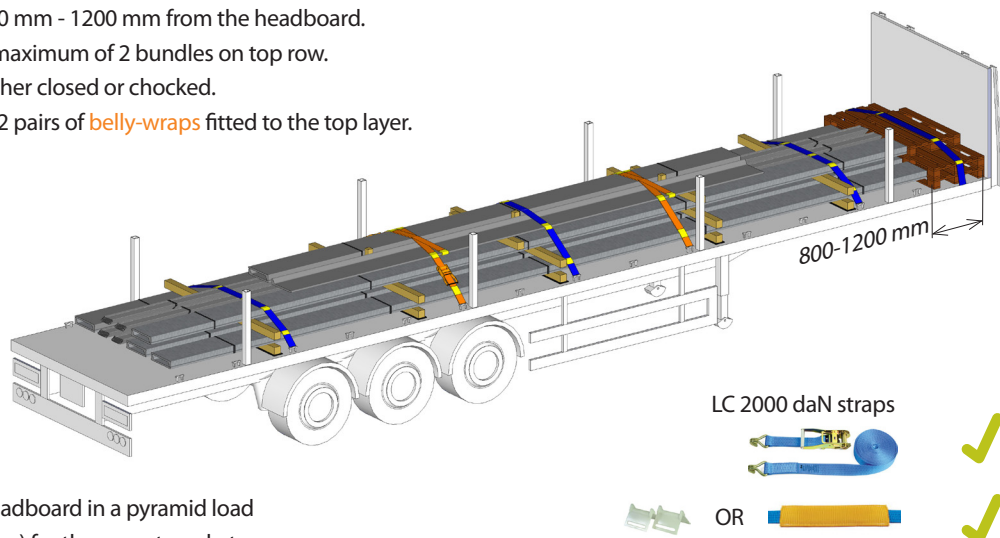
- ✓ Square base timbers on anti-slip matting.
- ✓ Blocked with timbers to 4 off stanchions (minimum of 80x80x4mm).
- ✓ 2 layers with chain gaps chocked in the top layer.
- ✓ 3 over-the-top restraints + 2 pairs of opposing loops.



Note: 25.6 t blocked to the headboard for the export market.

4.2 Export loads with shorts

- ✓ Square base timbers on anti-slip matting.
- ✓ Bottom layer(s) blocked 800 mm - 1200 mm from the headboard.
- ✓ Pyramid load build with a maximum of 2 bundles on top row.
- ✓ Gaps in top tier must be either closed or chocked.
- ✓ 3 over-the-top restraints + 2 pairs of belly-wraps fitted to the top layer.

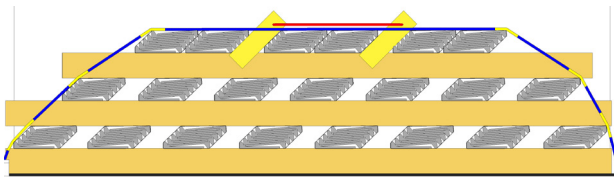


Note: 25.6 t blocked to the headboard in a pyramid load (with short products on the top) for the export market



5. Load build

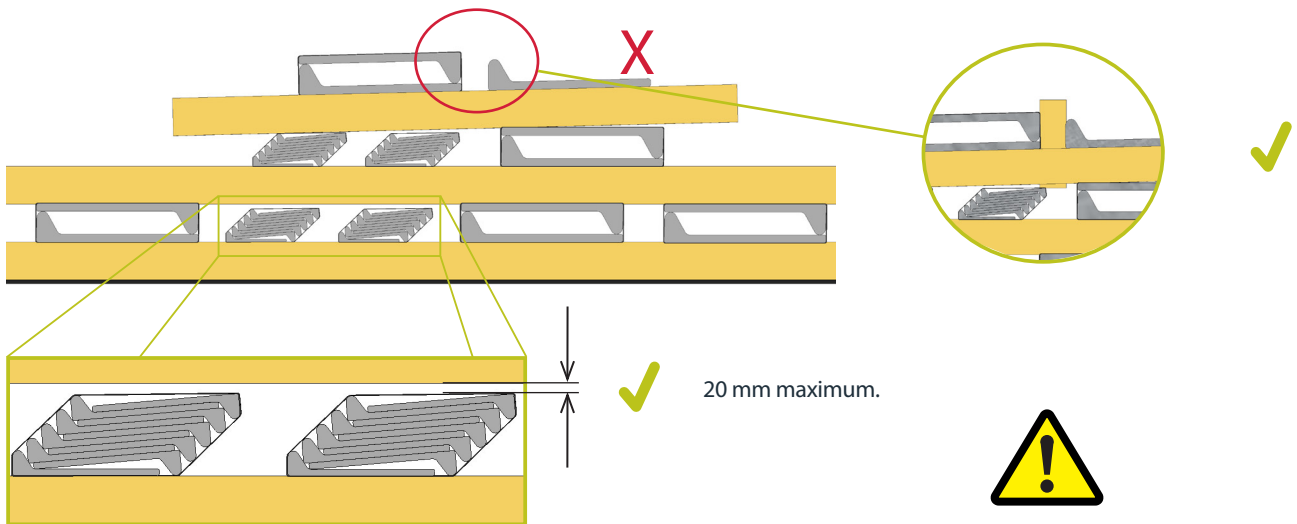
5.1 Uniform load build



- ✓ Intermediate dunnage must be a minimum of 100 mm x 100 mm cross section.
- ✓ Load must be evenly distributed.
- ✓ When using either opposing loops or belly-wraps, gaps in top tier must be either closed or chocked.

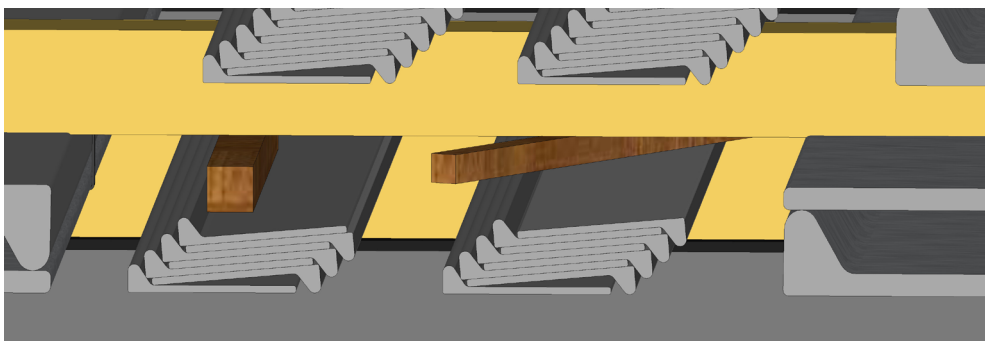
5.2 Irregular load build

- Every effort must be made to achieve uniformity within the load build.
- When using either opposing loops or belly-wraps, if chain gaps are required for loading/unloading purposes, vertical dunnage **MUST** be used to control the gaps in the top row.
- See Technical Information Sheet TIS-0007 for further details.



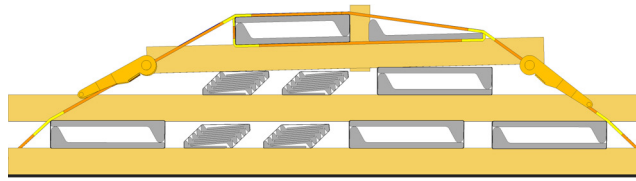
5.3 Grillage

- Any gaps between product and intermediate timbers greater than 20 mm **MUST** be chocked with suitable timber.
- Minimum length of longitudinal bearers must be 600 mm.
- Longitudinal bearers must be placed centrally beneath the intermediate dunnage with a maximum offset angle of 45° from the perpendicular.
- See Technical Information Sheet TIS-0002 for further details.

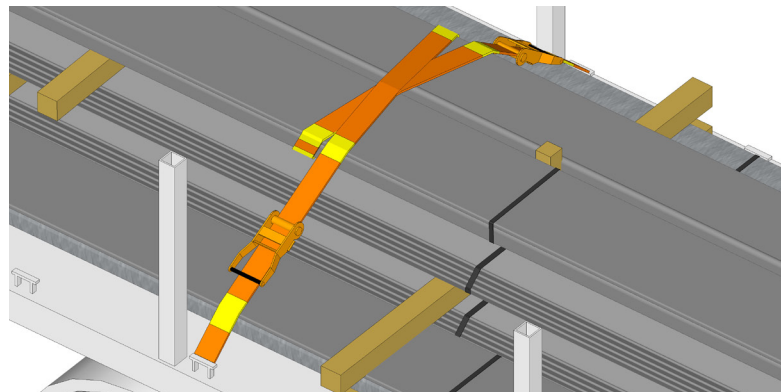


5.4 Belly-wrap application

- When applying a belly-wrap, ensure that the restraint is in a forward 'crossed-over' position.
- This applies for both webbing straps and chains.
- Where required, separate edge protection must be used for each corner contact point.

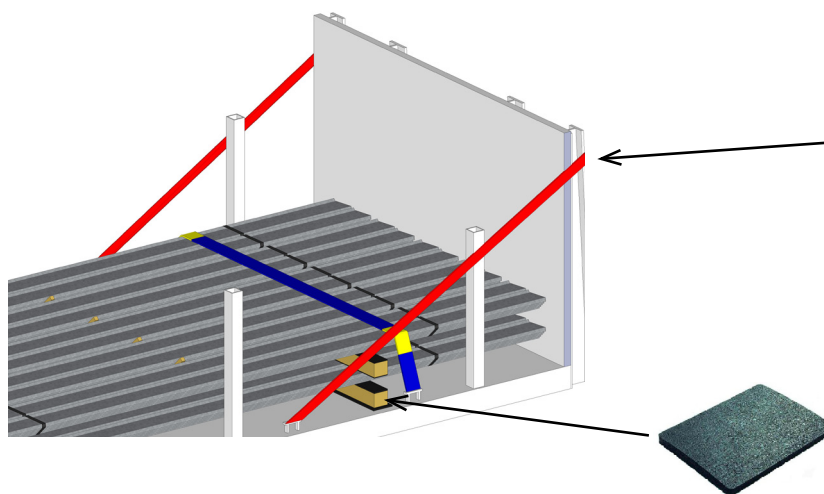
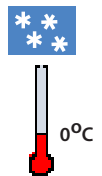


- ✓ 2 tensioners required for each belly-wrap.
- ✓ Restraints applied in a forward 'cross-over' position.
- ✓ Separate edge protection for each corner contact point.



6. Severe winter weather advisory periods

- Anti-slip matting to be placed on both sides of ALL timbers for ALL loads.
- Trailers must have headboards rated to 7.5 tonnes or above, or approved by Tata Steel Load Restraint Engineers, or trailers that have headboards manufactured to EN 12642 Code XL.
- If the headboard strength cannot be verified, the headboard will require lashing back with a minimum 8 mm Grade 8 LC 40 kN chain (as shown)



8 mm Grade 8 LC 40 kN
Lash back the headboard. ✓

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