

1. This guideline applies to:

- Square billets and small blooms up to 283 x 230 mm cross-section.
- Minimum length covered by this guideline is 6 metres.
- Loaded to a maximum of two layers high (with the exception of 75 x 75 mm billets that may be loaded 3 layers high).

The friction factor for this product on timber dunnage, determined as per EN 12195-1:2010 Annex B.1.2, is  $m=0.6$ .

2. Essential requirements

- All restraints must be a minimum 8 mm Grade 8, LC40 kN chains compliant with EN 12195-3.
- Minimum lashing point rating of 3 tonnes. See Technical Information Sheet TIS-0009 Lashing points.
- Anti-slip matting must be placed between base timbers and the trailer deck for ALL loads.
- All timber dunnage to have a minimum cross-section of 75 mm x 75 mm. Larger timber dunnage must be used to facilitate loading with forklift trucks.
- Load must not exceed 2100 mm in width, and must have no uncontrolled gaps between individual products.
- For axle loading guidance, see Technical Information Sheet TIS-0012 Axle weights and load distribution.

3. Overview of direct restraint system

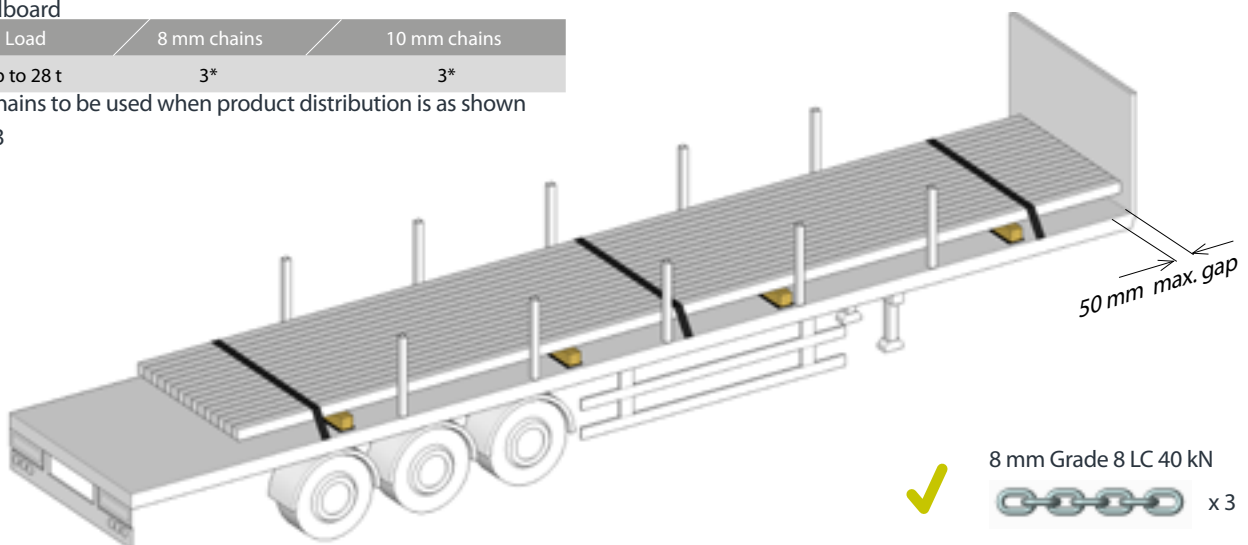
3.1 Loaded up to the headboard - single layer

- ✓ Square base timbers on anti-slip matting.
- ✓ 3 over-the-top chains 8mm LC 40 kN chains minimum.
- ✓ Load up to the headboard.

Table 1: Over-the-top restraints required for loading up to the headboard

Load	8 mm chains	10 mm chains
Up to 28 t	3*	3*

\* 4 chains to be used when product distribution is as shown in 3.3

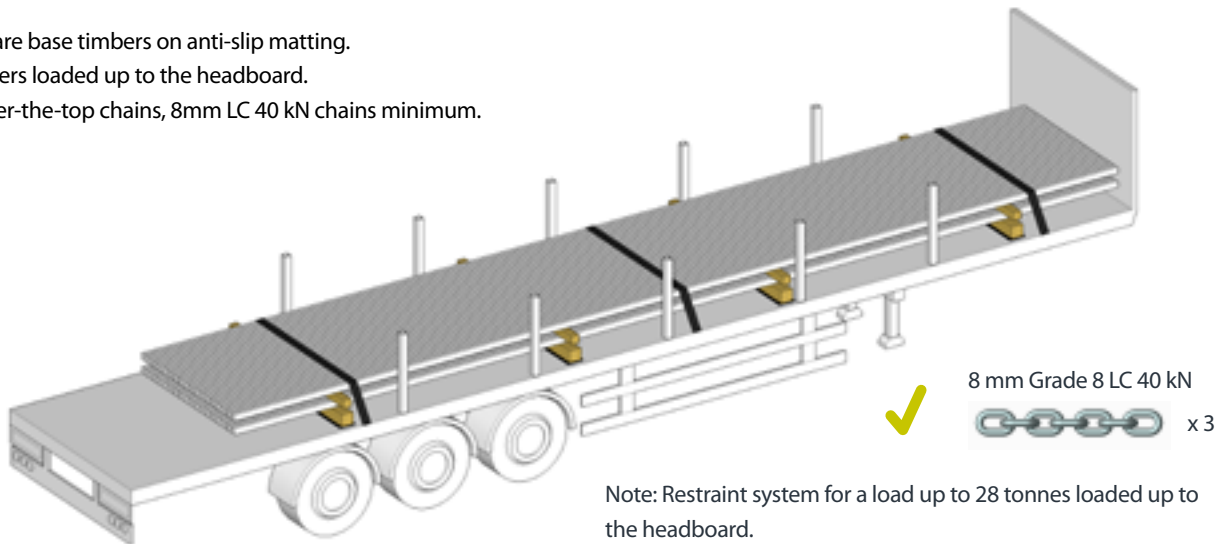


Note: Restraint system for up to 28 tonnes loaded up to the headboard

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

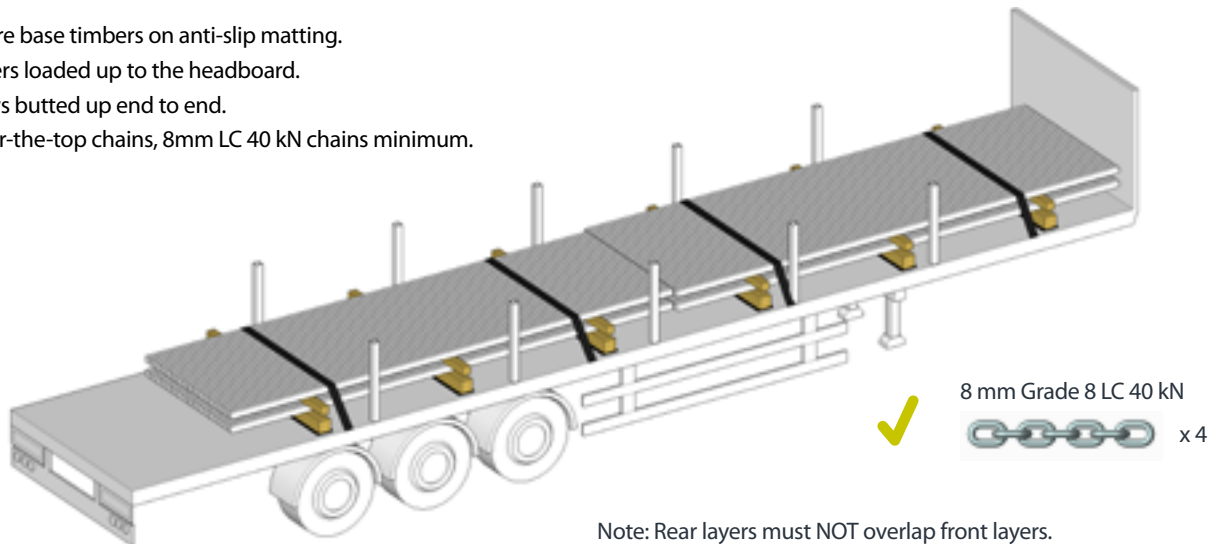
### 3.2 Loaded up to the headboard - 2 layers

- ✓ Square base timbers on anti-slip matting.
- ✓ 2 layers loaded up to the headboard.
- ✓ 3 over-the-top chains, 8mm LC 40 kN chains minimum.



### 3.3 Butted end to end - 2 layers

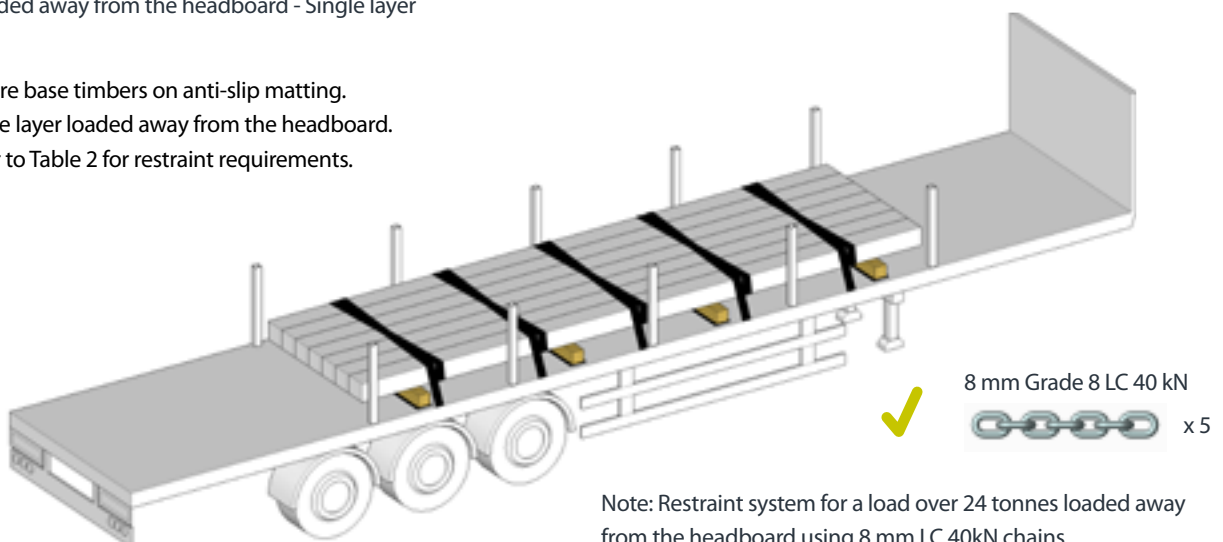
- ✓ Square base timbers on anti-slip matting.
- ✓ 2 layers loaded up to the headboard.
- ✓ 2 rows butted up end to end.
- ✓ 4 over-the-top chains, 8mm LC 40 kN chains minimum.



### 4. Tie-down restraint system

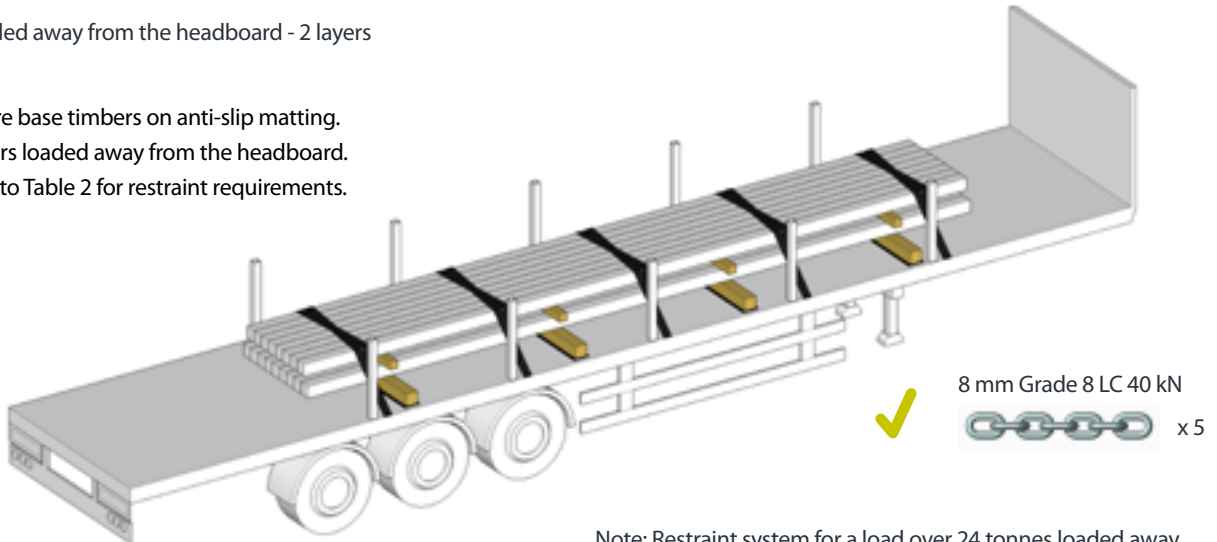
#### 4.1 Loaded away from the headboard - Single layer

- ✓ Square base timbers on anti-slip matting.
- ✓ Single layer loaded away from the headboard.
- ✓ Refer to Table 2 for restraint requirements.



#### 4.2 Loaded away from the headboard - 2 layers

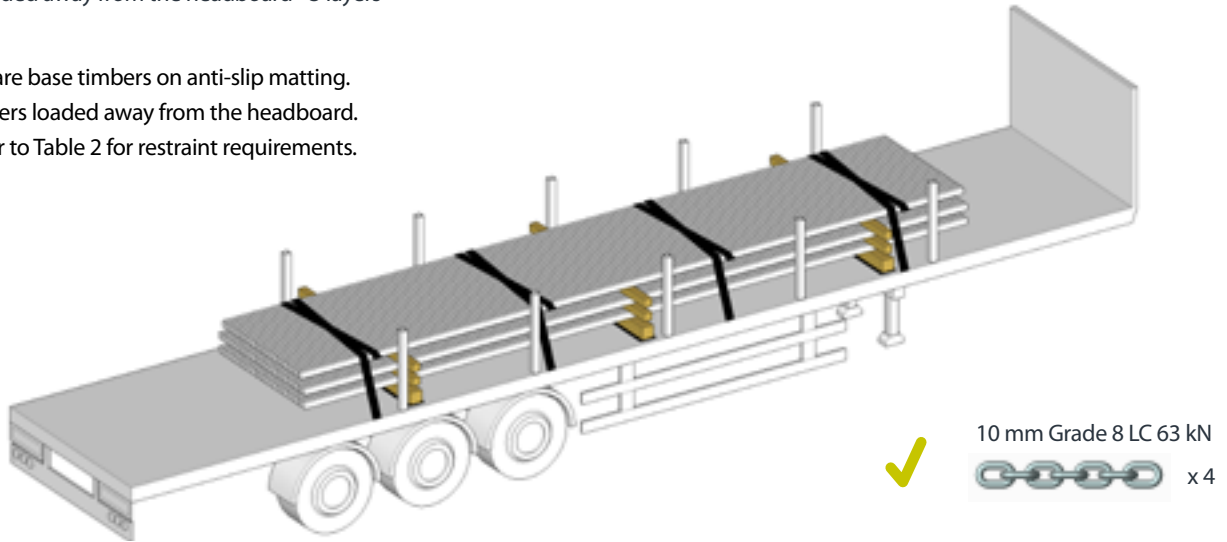
- ✓ Square base timbers on anti-slip matting.
- ✓ 2 layers loaded away from the headboard.
- ✓ Refer to Table 2 for restraint requirements.



Note: Restraint system for a load over 24 tonnes loaded away from the headboard using 8 mm LC 40kN chains.

#### 4.3 Loaded away from the headboard - 3 layers

- ✓ Square base timbers on anti-slip matting.
- ✓ 3 layers loaded away from the headboard.
- ✓ Refer to Table 2 for restraint requirements.



Note: Restraint system for a load over 24 tonnes loaded away from the headboard using 10 mm LC 63kN chains.

Table 2: Restraints required for loading away from the headboard

Load	8 mm belly-wrapped chains	10 mm belly-wrapped chains
Up to 24 t	4	3
Over 24 t	5	4

#### 5. Belly-wrap application

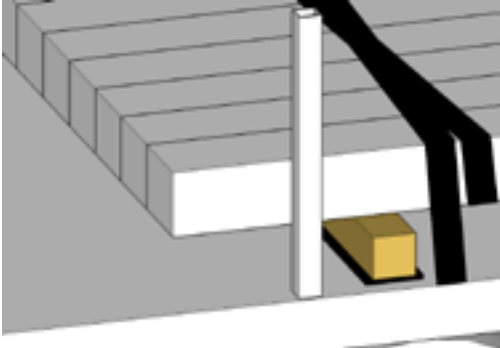


Note: ALL belly-wrap restraints must have tensioners applied to both sides.

## 6. Anti-slip matting

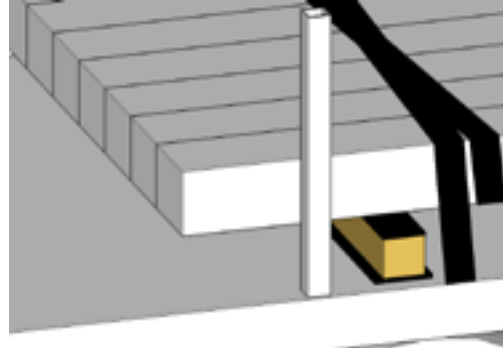
- Recommended thickness: 10 mm is suitable for most applications.
- Anti-slip matting is to be applied in strips to effectively prevent timber on deck, or steel on timber contact where required.

Standard restraint system



✓ Anti-slip matting under base timbers.

Winter restraint system

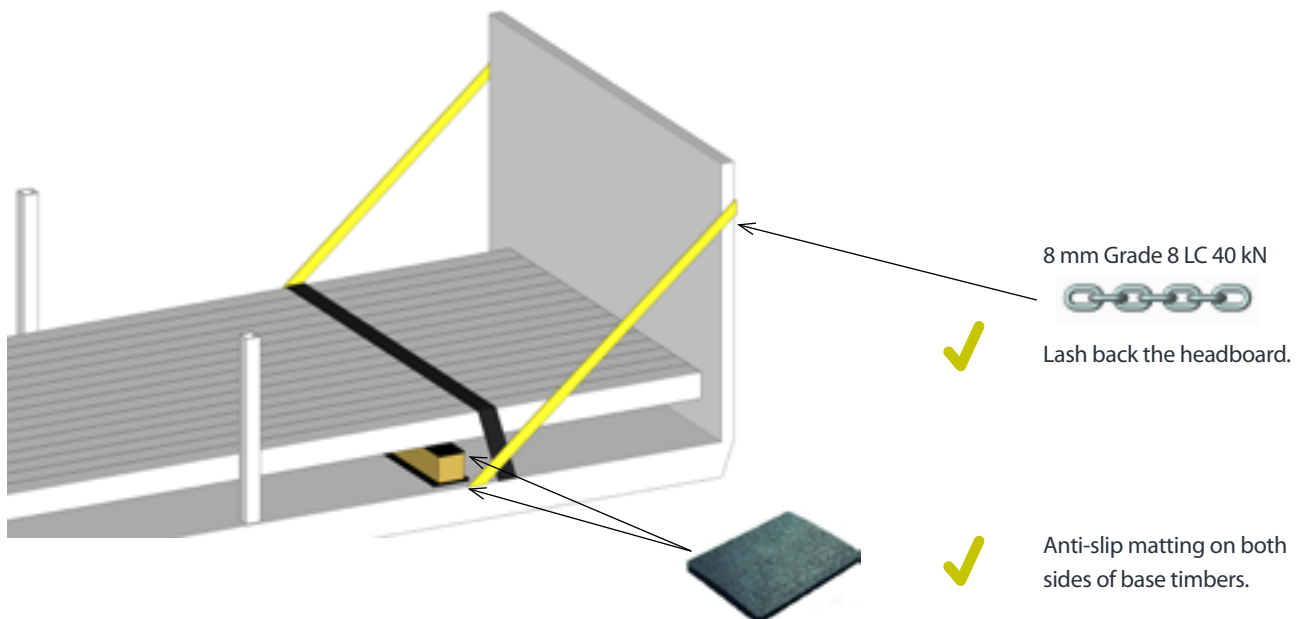


✓ Anti-slip matting on both sides of base timbers.

Note: It is important to ensure that the anti-slip matting is visible beneath the product for inspection purposes.

## 7. Severe winter weather advisory periods

- Anti-slip matting to be placed on both sides of ALL base timbers for ALL loads.
- Trailers with headboards rated to 7.5 tonnes or above, or approved by British Steel, or trailers with headboards manufactured to EN 12642 Code XL, can be loaded with product against the trailer headboard to provide forward restraint.
- 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).



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