TATA STEEL

TATA

LOAD RESTRAINT GUIDELINE

Circular Pipe: Non-bundled, layered

1. This guideline applies to:

- Circular hollow section pipes, non-bundled.
- High and medium friction pipe: self-coloured, varnished, tempered through.

The lowest friction factor for these products, determined as per EN 12195-1:2010 Annex B.1.2, is μ*=0.38.*

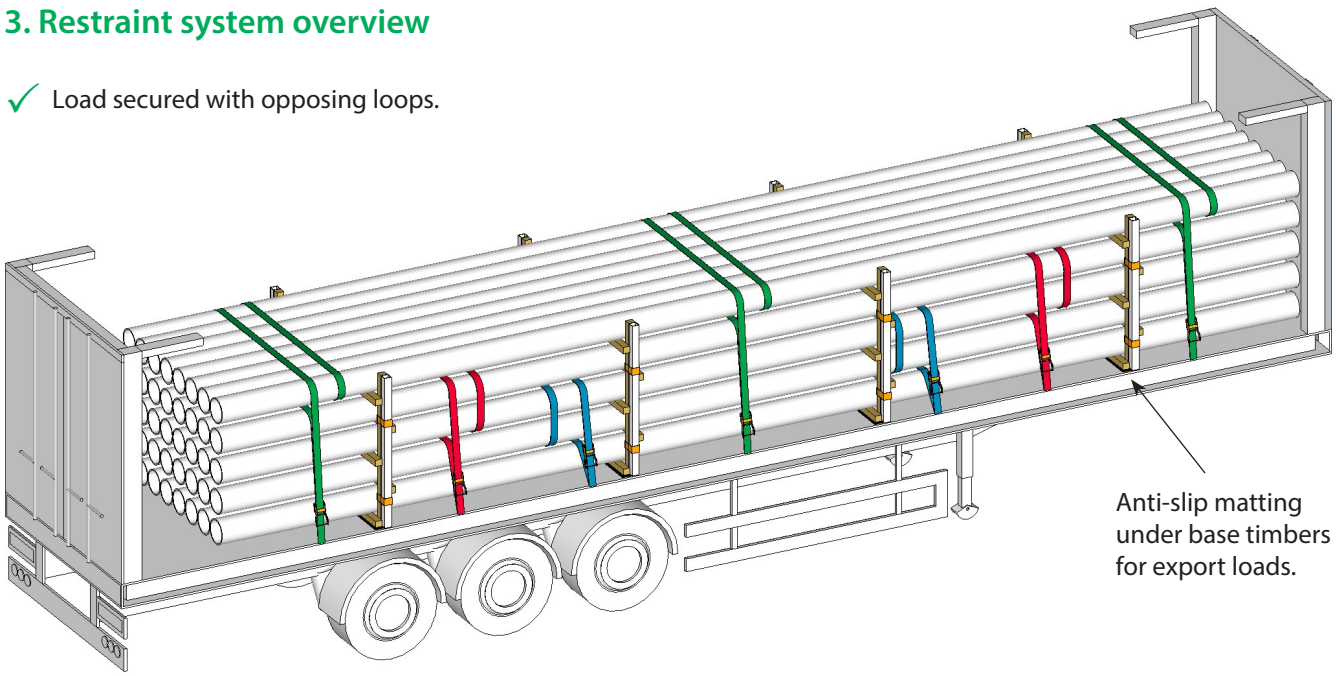
2. Essential requirements

- All restraints must be webbing straps with minimum lashing capacity of 2000 daN compliant with EN 12195-2.
- Edge protection must be fitted to all straps in contact with abrasive surfaces and sharp edges.
- Trailer headboard must be a minimum 1.5 m high and cover the entire load.
- Side pins must be a minimum 1.5 m high.
- Minimum of 4 pairs of side pins.
- Each pipe must be covered by 2 pairs of side pins minimum.
- Export loads must have anti-slip matting applied under base timbers.

Note: To secure some of the loads (e.g. 5 layers) long straps are required (i.e. 10 m).

3. Restraint system overview

✓ Load secured with opposing loops.



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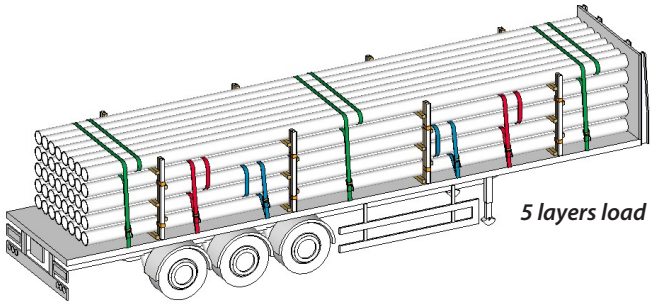
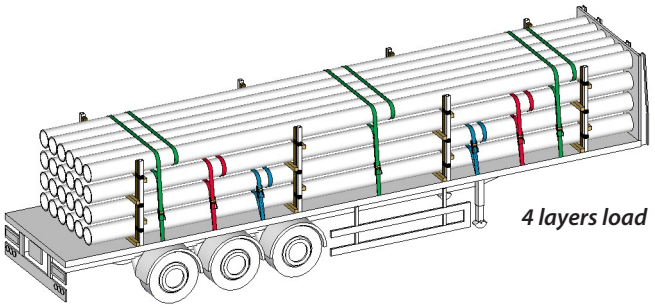
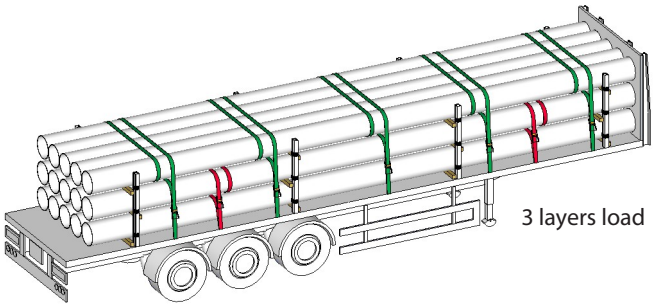
4. Strap application



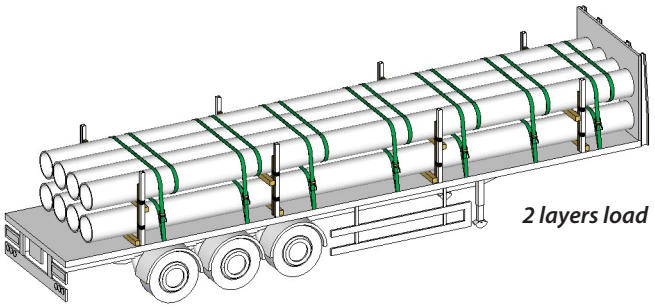
- ✓ **2 pairs** of opposing loops applied to 2nd and 3rd layer.
- ✓ **2 pairs** of opposing loops applied to 3rd and 4th layer.
- ✓ **3 pairs** of opposing loops applied to the top layer.



- ✓ **2 pairs** of opposing loops applied to 2nd layer.
- ✓ **2 pairs** of opposing loops applied to 3rd layer.
- ✓ **3 pairs** of opposing loops applied to the top layer.

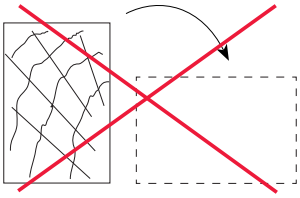


- ✓ **2 pairs** of opposing loops applied to the middle layer.
- ✓ **5 pairs** of opposing loops applied to the top layer.

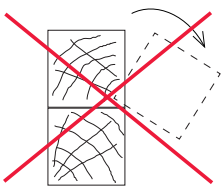


- ✓ **7 pairs** of opposing loops applied to the top layer.

5. Timber dunnage



- ✗ Under heavy braking, rectangular dunnage on end will topple, thereby releasing tension in the restraints.
- ✗ Under heavy braking, upper dunnage will slide off the lower dunnage, and tension in the restraint will be lost.



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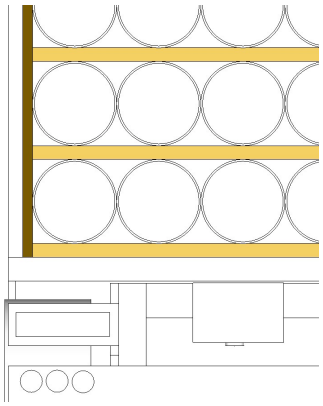
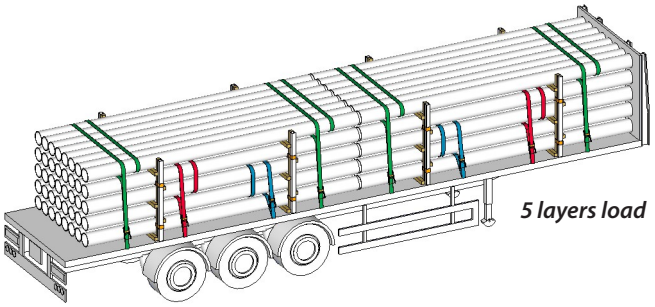
6. Side pins



- ✓ Material loaded tight against all side pins.
- ✓ Gaps filled with packing timbers where necessary.
- ✓ Packing timbers must be secured to side posts to prevent them from falling from the trailer during transport.

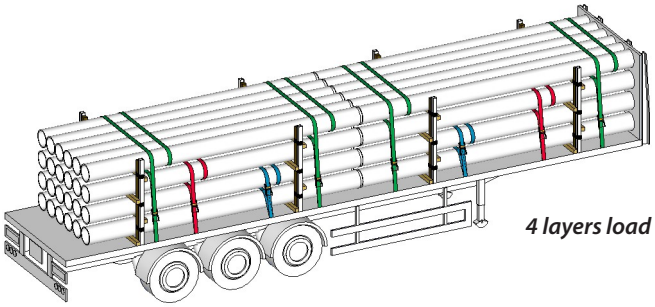
Caution: Be aware of rolling risk whilst loading and unloading pipe - apply temporary chocks as required.

7. Strap application - back to back configuration



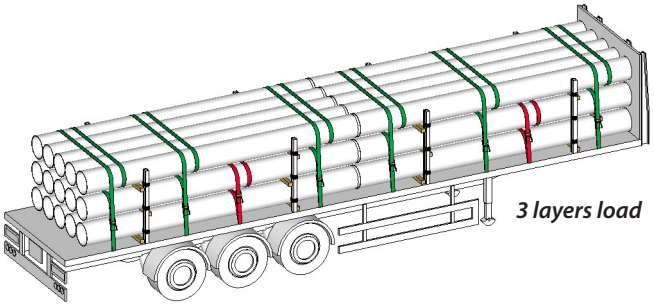
5 layers load

- ✓ **2 pairs** of opposing loops applied to 2nd and 3rd layers.
- ✓ **2 pairs** of opposing loops applied to 3rd and 4th layers.
- ✓ **4 pairs** of opposing loops applied to the top layers.



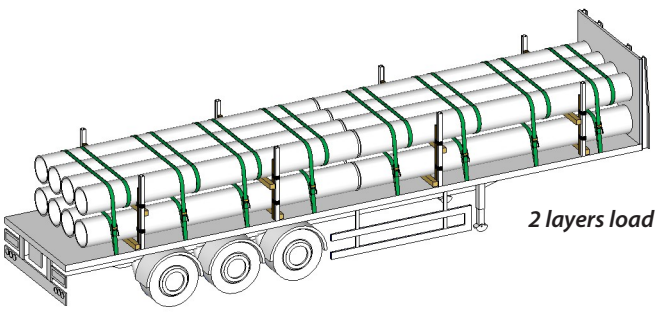
4 layers load

- ✓ **2 pairs** of opposing loops applied to 2nd layers.
- ✓ **2 pairs** of opposing loops applied to 3rd layers.
- ✓ **4 pairs** of opposing loops applied to the top layers.



3 layers load

- ✓ **2 pairs** of opposing loops applied to the middle layers.
- ✓ **6 pairs** of opposing loops applied to the top layers.



2 layers load

- ✓ **8 pairs** of opposing loops applied to the top layers.

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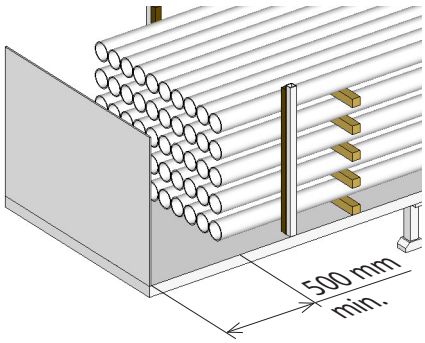
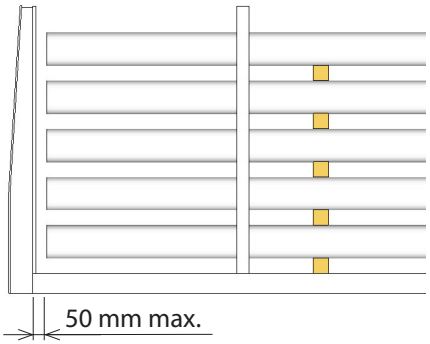
8. Headboards

IMPORTANT NOTE: The restraint system has been designed to work either with, or without the trailer headboard, subject to the conditions below. When loaded away from the headboard a gap of at least 500 mm is required all allow the load restraint straps to tension up fully to their lashing capacity and thereby clamp the whole load securely to the trailer.





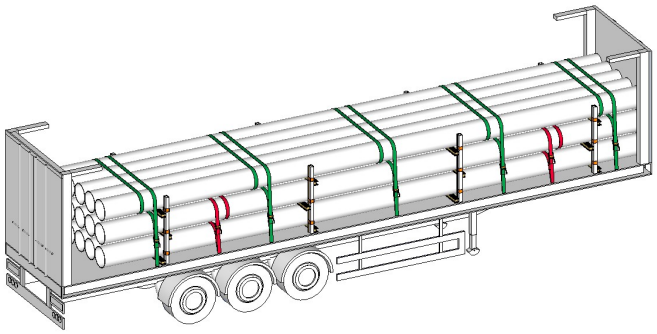
Typical plaque on a trailer with a headboard rated to EN 12642 Code XL.

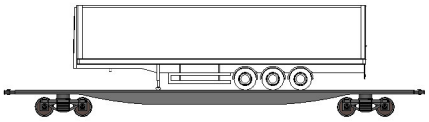
✓ When loaded away from the headboard distance between material and headboard must be 500 mm or more.

✓ When loaded against headboard maximum distance between the headboard and material must be 50 mm or less to avoid impact damage to the trailer in the event of an emergency braking incident.

✓ Trailers manufactured to EN 12642 Code XL, or approved by Tata Steel Load Restraint Engineers, can be loaded with full load against the trailer headboard to provide forward restraint (subject to axle weights).

9. Intermodal transport (road and rail)





✓ Anti-slip matting applied to the both sides of the timbers.

✓ Other restraint requirements remain the same.

10. Winter weather restraint

✓ Anti-slip matting applied to the both sides of the timbers.

✓ Trailer deck must be clear of snow and ice before loading.

✓ Other restraint requirements remain the same.

✗ During winter weather periods flat bed trailers cannot be used for intermodal transport.