

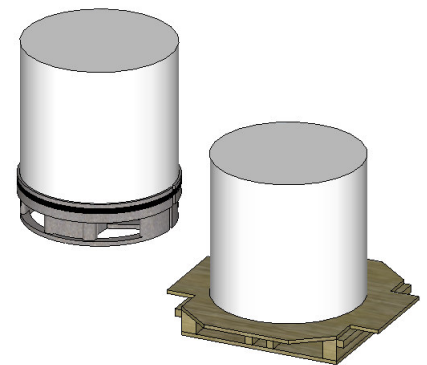
LOAD RESTRAINT GUIDELINE

Coil bore vertical

1. This guideline applies to:

- Coil bore vertical packaged onto plastic skid pallets.
- Coil bore vertical on specialised wooden pallets.

Note: This Load Restraint Guideline does not apply to slit coil on dunnage.



2. Essential requirements

- All restraints must be webbing straps with a minimum rating of LC 2000 daN and be compliant with EN 12195-2.
- Minimum lashing point rating of 2 tonnes (2000 daN).
- 8 webbing sleeves or suitable alternative edge protection.
- Anti-slip matting. If using strips they should be between 8 mm and 10 mm thick.
- Restraint system adopted must be appropriate to all modes of transport encountered on the journey.

3. Overview of basic restraint system

- ✓ Coil is placed on anti-slip matting (see Section 7).
- ✓ Coil is positioned centrally between two lashing points.
- ✓ 2 Up 'n' Over straps (blue and orange).
- ✓ 2 Sideways Alpha straps (red and violet).

Position straps to ensure a secure fit to the coil when the straps are tightened. The correct position will depend on coil shape and lashing point spacing.

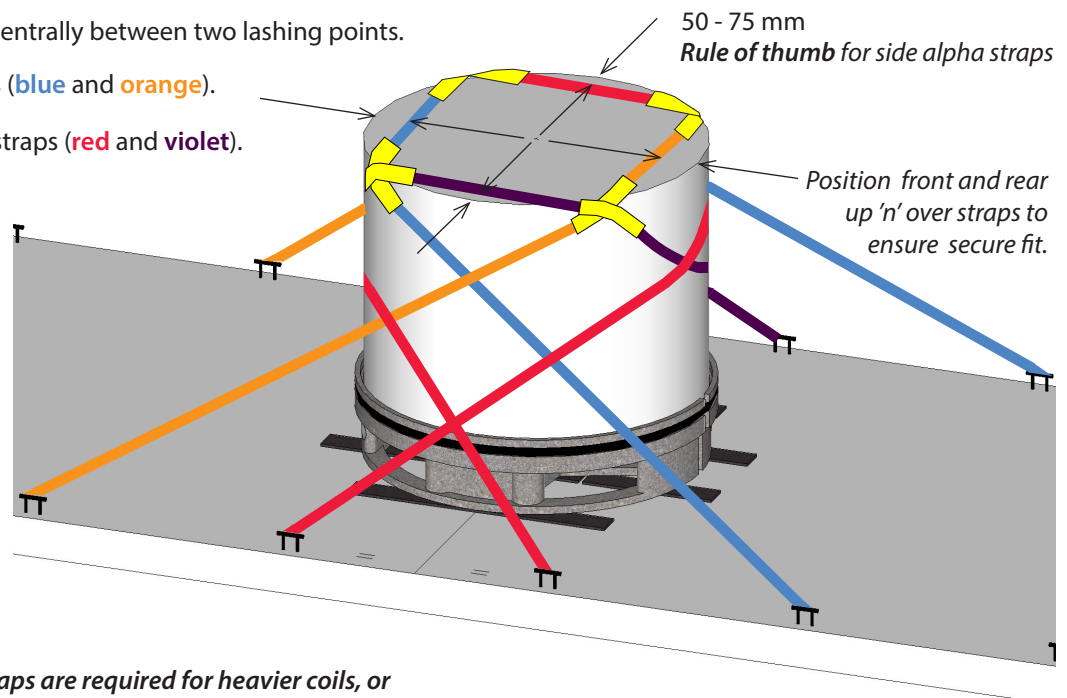


Illustration is for coils up to 10 tonnes for Road transport on a D pallet.

Note: Additional base straps are required for heavier coils, or coils moving on inter-modal rail routes (see Section 5).

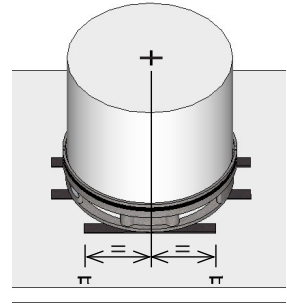
This Load Restraint Guideline has been designed and tested to be compliant with the forces stated in EN 12195-1:2010 and VDI 2700.

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4. Placement of coil

- ✓ Suitable amount of anti-slip matting to be used for the size of coil.
Typically 4 strips for small diameter coils and 6 for large diameter coils.
- ✓ Winding axis of coil is positioned centrally between two lashing points.



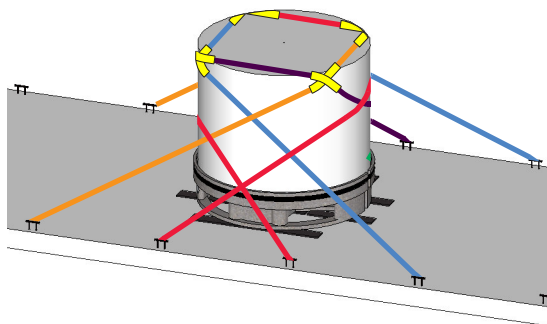
5. Lashing requirements

5.1 Road transport and/or sea crossings



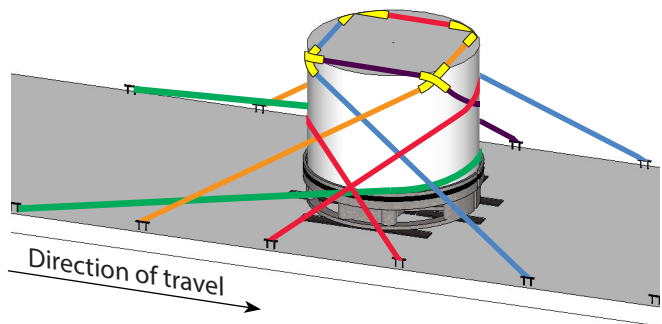
Coils up to 10 tonnes

- Basic restraint system of 4 straps per coil:
- 1 Forward Up 'n' Over strap (orange).
 - 1 Rearward Up 'n' Over strap (blue).
 - 2 Sideways Alpha straps. 1 in each direction. (red and violet)



Coils above 10 tonnes

Add 1 Forward Base strap (shown in green).

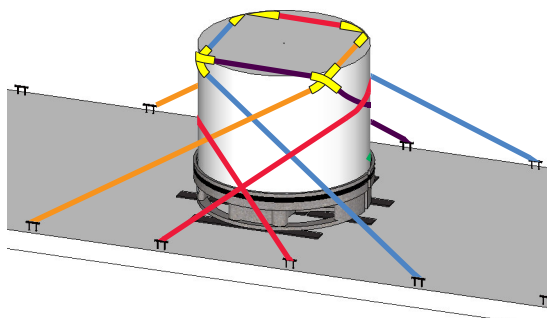


5.2 Inter-modal road/rail transport



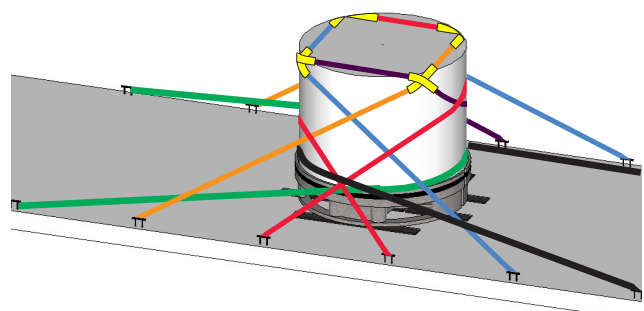
Coils up to 7 tonnes

- Basic restraint system of 4 straps per coil:
- 1 Forward Up 'n' Over strap (orange).
 - 1 Rearward Up 'n' Over strap (blue).
 - 2 Sideways Alpha straps. 1 in each direction. (red and violet)



Coils above 7 tonnes

Add 1 Forward Base strap (shown in green), and 1 Rearward Base strap (shown in black).



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Coil bore vertical

6. Applying the restraints

Sequence of applying straps:

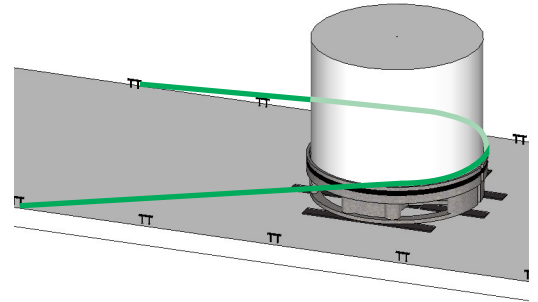
1. Base strap(s), where applicable.
2. Forward and Rearward Up 'n' Over straps.
3. Sideways Alpha straps.

6.1 Base straps

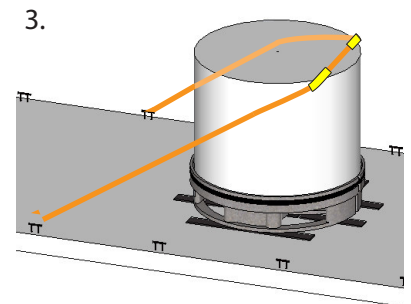
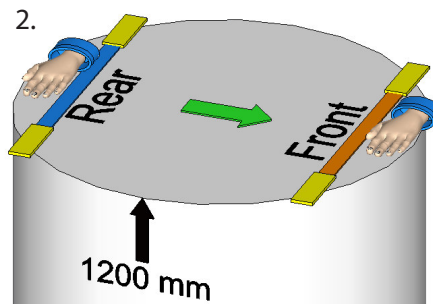
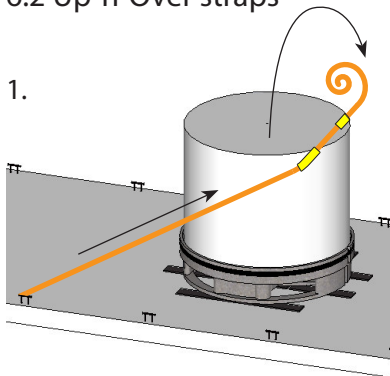
Attach the hook of the webbing strap to the 2nd lashing point behind the rear of the coil.

Pass the webbing strap around the base of the coil (just above the height of the pallet) and attach to the appropriate lashing point on the opposite side of the trailer using a webbing ratchet and apply tension.

Where required, repeat steps in the opposite direction.



6.2 Up 'n' Over straps

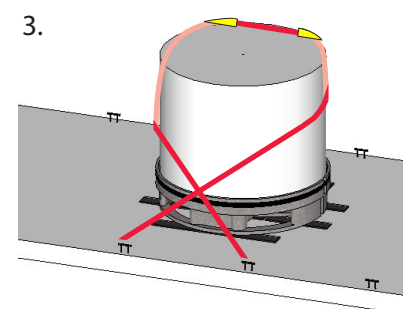
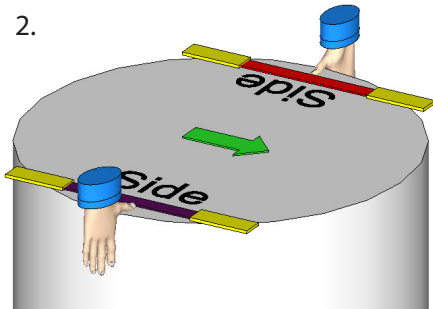
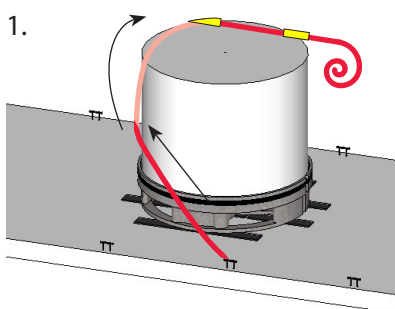


Attach a webbing strap to the 1st lashing point behind the coil. Bring the strap up to the front of the coil and pass over to the opposite side.

As the strap passes over the coil, position webbing sleeves at the edges. Position the straps to ensure the best fit when the straps are tightened. **Tall coils** will require straps to be fitted slightly further in as shown.

Continue to pass the webbing strap around the coil and bring the webbing strap to the lashing point opposite to the starting position.

6.3 Sideways Alpha straps



Attach a webbing strap to the 1st lashing point ahead of the coil winding axis. Bring the strap around the back of the coil and up to the top. Pass over the coil to the front.

As the strap passes over the coil, position webbing sleeves at the edges. Apply the **'rule of thumb'** for the distance from webbing strap to the edge of the coil at the sides.

Continue to pass the webbing strap around the coil and bring to the 1st lashing point behind the coil winding axis.

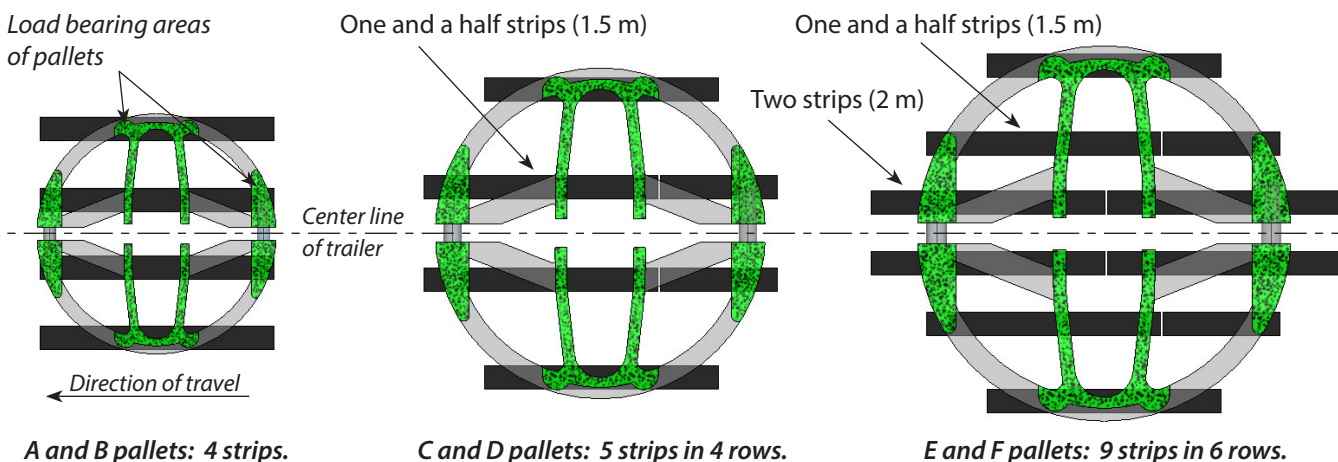
Repeat from other side of trailer.

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7. Anti-slip matting

- Coils must be placed on anti-slip matting to increase the friction beneath the coil.
- Anti-slip matting must cover the **load bearing areas** of the skid pallets as shown below.
- If using 1 m x 100 mm wide strips, use 8 -10 mm thick and place them as shown below according to the pallet size:



8. Webbing sleeves

- A total of 8 heavy duty webbing sleeves are required for the webbing straps passing over the top of the coil.
- The webbing sleeves must be heavy duty webbing sleeves made from the same material as the webbing strap (polyester).
- The webbing sleeves allow the webbing straps to pass around the coil freely when tension is applied.
- Alternative specialised edge protection must be approved by the Tata Steel Load Restraint Engineers.

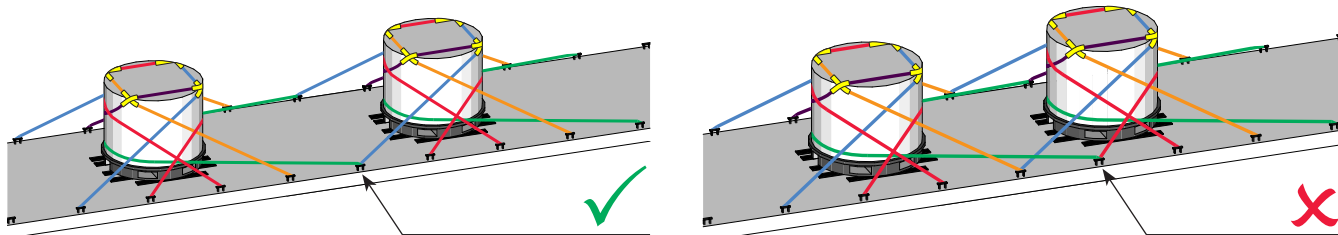


9. Sharing lashing points

In some cases it will be necessary for two hooks to be anchored to the same lashing point. This is acceptable so long as the webbing straps are acting in opposite directions. It would therefore be acceptable to have the Forward Base strap of one coil and the Rearward Base strap (or Rearward Up 'n' Over strap) of another coil anchored to the same lashing point.

The Sideways Alpha straps must not share a lashing point with any other webbing strap.

If a trailer has sufficient lashing points in the required position, each webbing strap should be anchored to its own lashing point.



Straps anchored to the same lashing point acting in opposite directions will not overload the lashing point.

Sideways alpha straps may not share a lashing point with any other webbing strap.

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