

LOAD RESTRAINT GUIDELINE

Low friction sheet packs

1000 mm minimum length

700 mm minimum width

1. This guideline applies to:

- Low friction banded steel sheet packs. Low friction products are:
 - Pickled and oiled sheets
 - Cold reduced sheets
 - Coated sheet products.



The lowest friction factor for these products, determined as per EN 12195:2010-1 Annex B.1.2, is $\mu = 0.31$.

2. Essential requirements

- Packs must be banded with a minimum of 2 longitudinal and 2 lateral bands.
- All restraints must be web lashings compliant with EN 12195-2, minimum lashing capacity LC 2000 daN.
- Web lashings must be protected from all sharp edges and abrasive surfaces, including trailer side rails.
- Maximum stack weight 8 tonnes.
- Maximum stack height 900 mm.

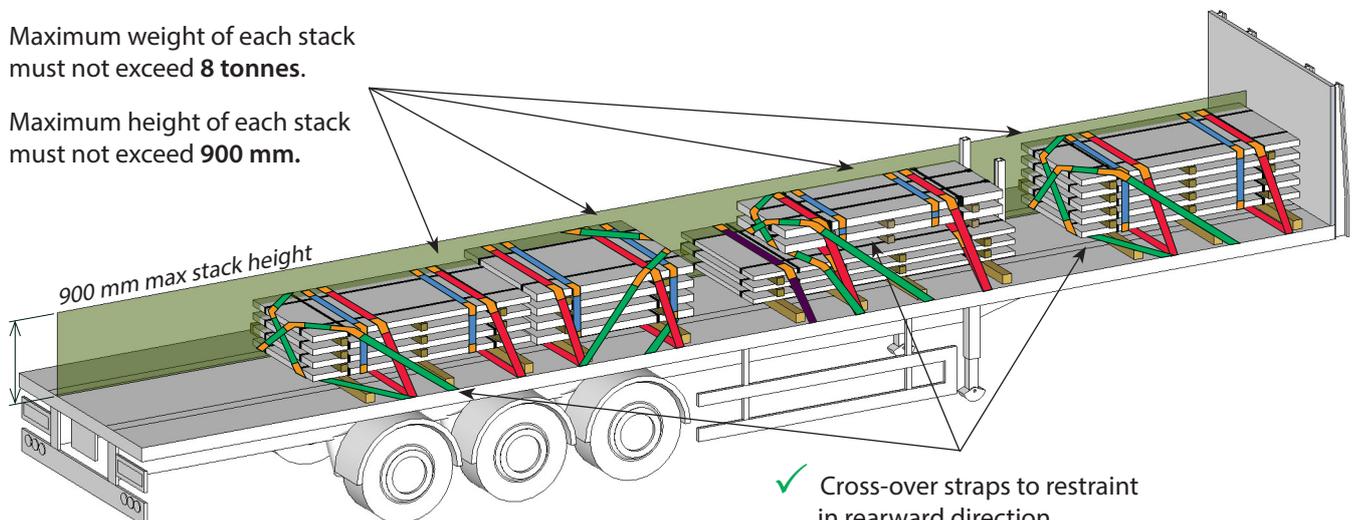
3. Overview of load configuration and restraint

✓ Stacks blocked forward.

✓ 2 pairs of opposing loops per stack for sideways restraint.

Maximum weight of each stack must not exceed **8 tonnes**.

Maximum height of each stack must not exceed **900 mm**.



✓ Cross-over straps to restrain in rearward direction.

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

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4. Overview of forward blocking options

4.1 Cross-over straps option

- ✓ Front of packs aligned and front cross-over straps covering all packs.
- ✓ Maximum **12 tonnes** combined weight* per pair of front cross-overs.

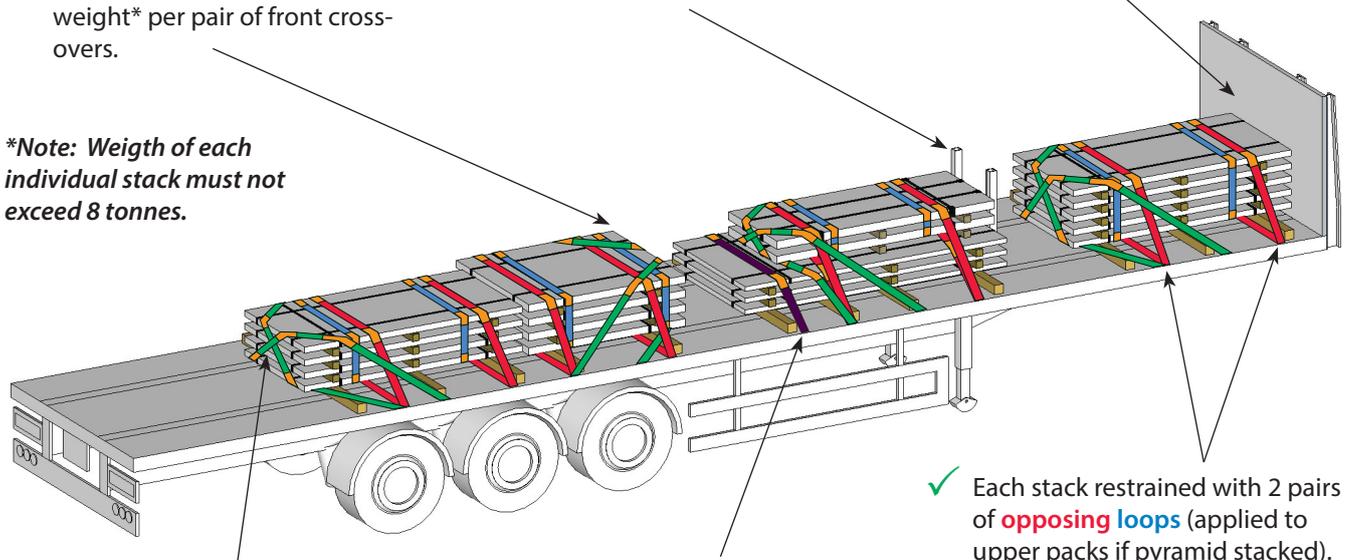
**Note: Weigh of each individual stack must not exceed 8 tonnes.*

4.2 Stanchions option

- ✓ Minimum stanchion size 80 x 80 x 5 mm.
- ✓ Maximum **10 tonnes** combined weight* per pair of stanchions.

4.3 Headboard option

- ✓ Maximum **10 tonnes** combined weight* if blocked against L rated headbord or **28 tonnes** if blocked against XL rated headboard.

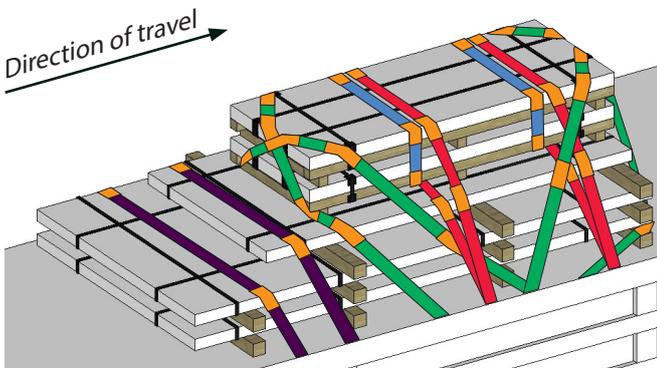


- ✓ Each group of stacks restrained with rear cross-over straps (applied to upper packs if pyramid stacked).

- ✓ Additional strap applied to the longer packs in pyramid stack.

- ✓ Each stack restrained with 2 pairs of **opposing loops** (applied to upper packs if pyramid stacked).

5. Pyramid stacking



Sheet packs of different sizes can be stacked together:

- Align stacks at the front to allow restraints to be applied for forward forces (see Section 4 for options).
- If different sizes of sheet packs are stacked together apply additional straps to the longer packs.
- Top packs must be restrained for forward, sideways and rearward forces.
- Total weight of packs secured using opposing loops must be 2.5 tonnes minimum.



Note:
Edge protection must be applied to webbing straps in contact with sharp edges.
Dunnage must be positioned away from edges of the material.

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