

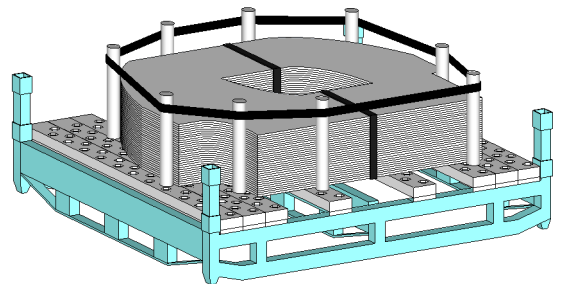
LOAD RESTRAINT GUIDELINE

Automotive bespoke steel pallet loads

1. This guideline applies to:

- Automotive blanks loaded and secured on bespoke customers' steel pallets (e.g. BMW, Jaguar Land Rover, Nissan etc.).
- Maximum loaded pallet weight for this LRG is 5.8 tonnes.

The friction factor for these pallets on wooden trailer decks determined as per EN 12195-1:2010 Annex B.1.2, is $\mu=0.6$.



2. Essential requirements

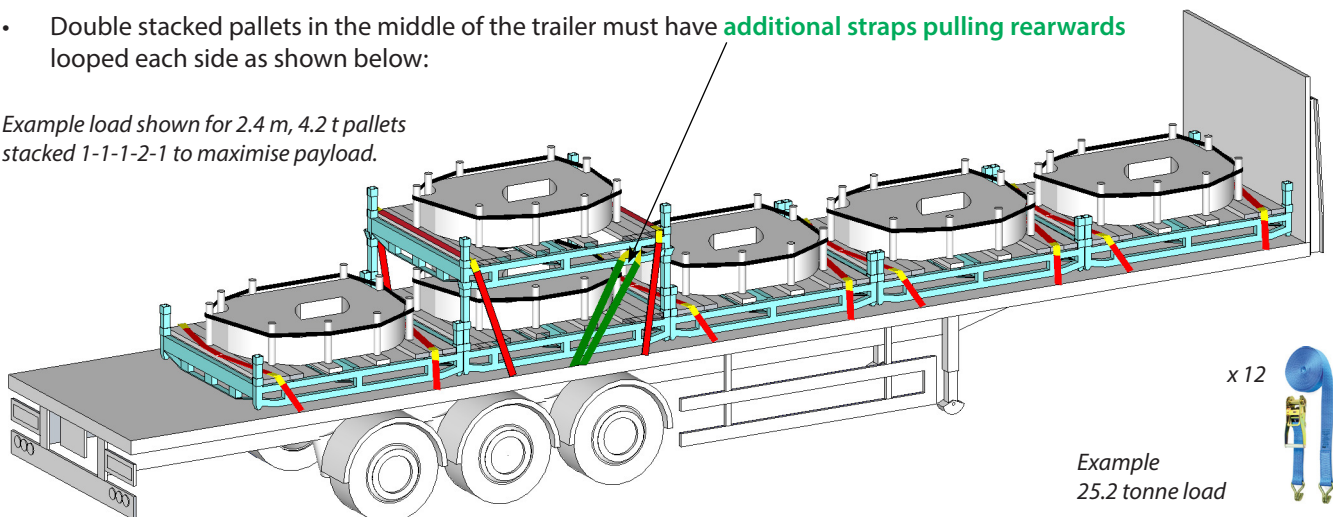
- All webbing straps must be compliant with EN 12195-2, minimum lashing capacity LC 2000 daN.
- Edge protection must be used on all sharp edges.
- Automotive blank packs must be secured on steel pallets as per Section 6 on page 4.
- Headboard must be capable of providing 5 tonnes of restraint force.



3. Overview of restraint system

- Front pallets loaded against the headboard, all others loaded tight together.
- When double stacking pallets, ensure that the four extension posts are in good condition and fit for purpose.
- The lightest pallet must be placed on top when double stacking.
- Each row of pallets must be restrained with a minimum of **2 'over-the-top' restraints**, pulling down as straight as possible to the nearest lashing point.
- The **'over-the-top'** restraints must be located in a position on the pallet where they cannot come off.
- Double stacked pallets in the middle of the trailer must have **additional straps pulling rearwards** looped each side as shown below:

Example load shown for 2.4 m, 4.2 t pallets stacked 1-1-1-2-1 to maximise payload.



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.

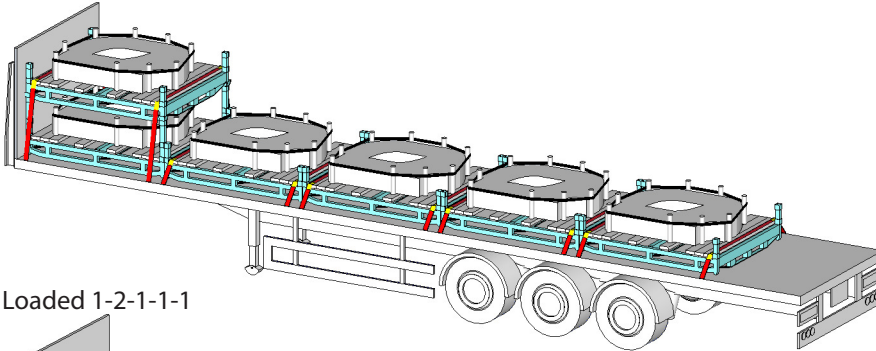
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4. Examples of BMW pallets (2.4 m long, 4.2 tonnes each, 25.2 tonnes total load)

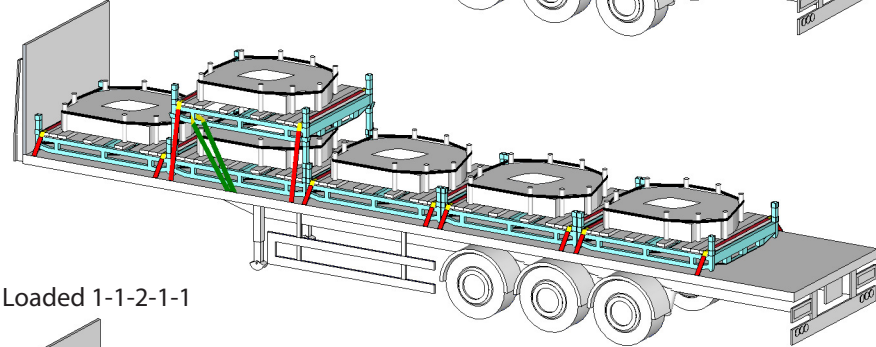
The pallets must be positioned on the trailer to ensure compliance with legal axle weight limits. The driver of the vehicle should advise the loader how to distribute the pallets accordingly. The following diagrams are provided as guidance for a typical 3-axle tractor unit and a 13.6 m (45') trailer.

Loaded 2-1-1-1-1



This load configuration may overload the tractor unit drive axle.

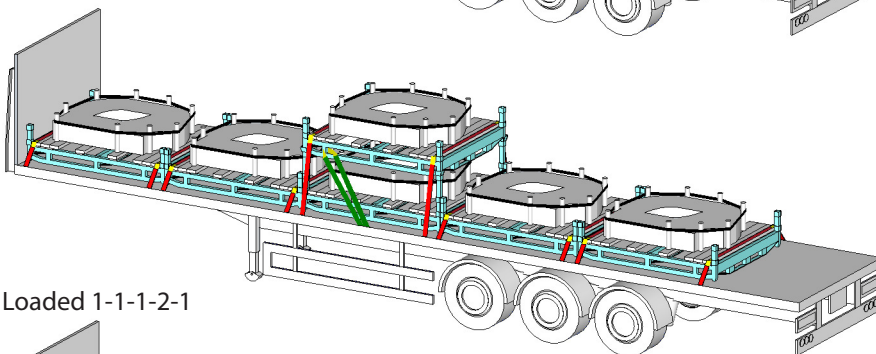
Loaded 1-2-1-1-1



x 12



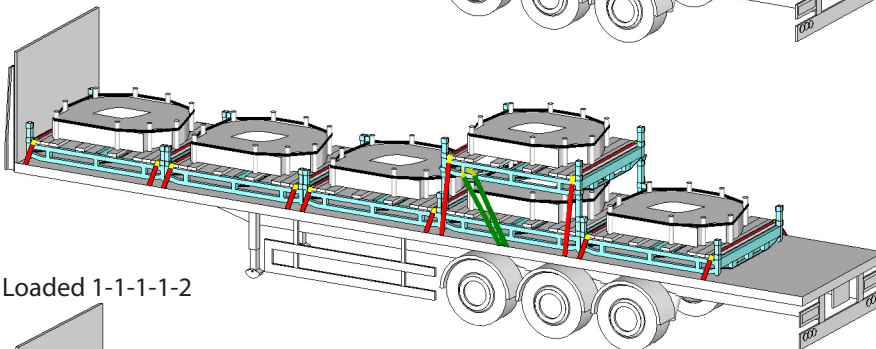
Loaded 1-1-2-1-1



x 12



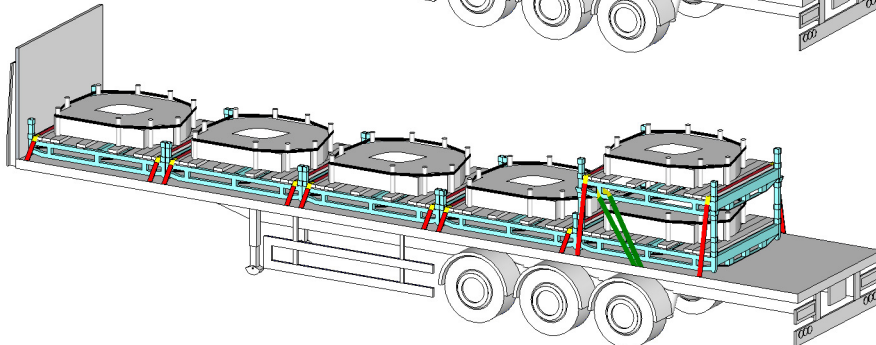
Loaded 1-1-1-2-1



x 12



Loaded 1-1-1-1-2



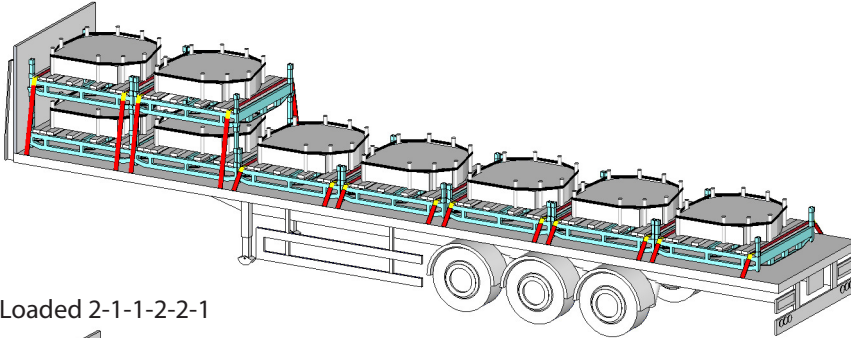
This load configuration may overload the trailer axles and will adversely affect trailer stability.

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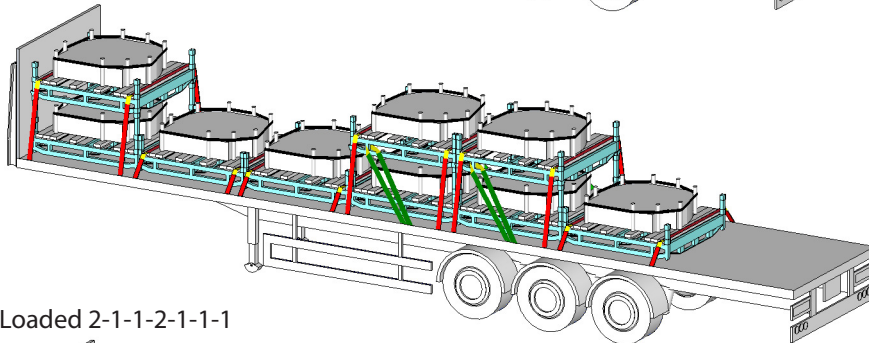
5. Examples of Nissan pallets (1.8 m long, 3 tonnes each, 27 tonnes total load)

Loaded 2-2-1-1-1-1-1



This load configuration may overload the tractor unit drive axle.

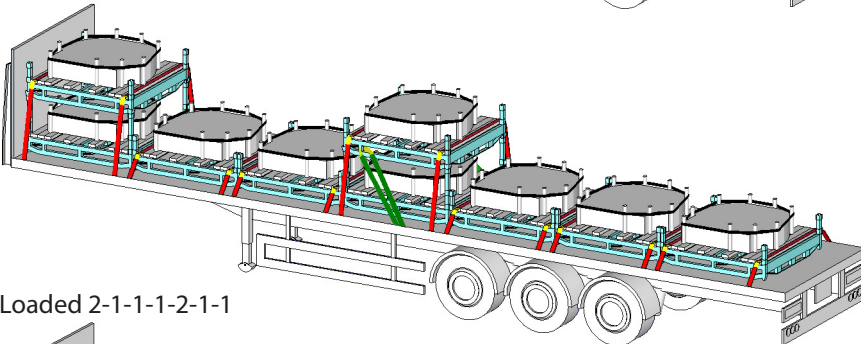
Loaded 2-1-1-2-2-1



x 16



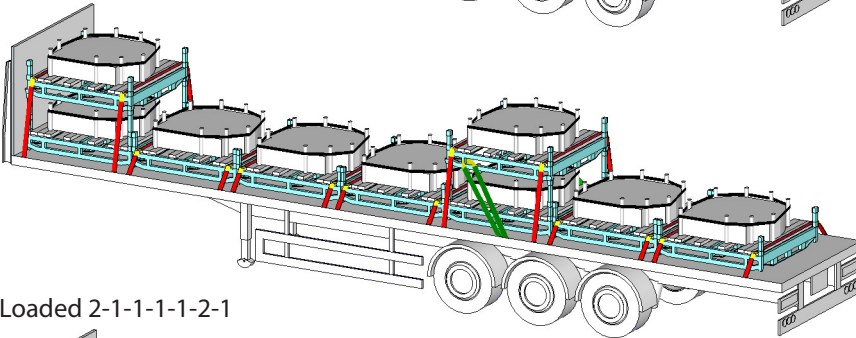
Loaded 2-1-1-2-1-1-1



x 16



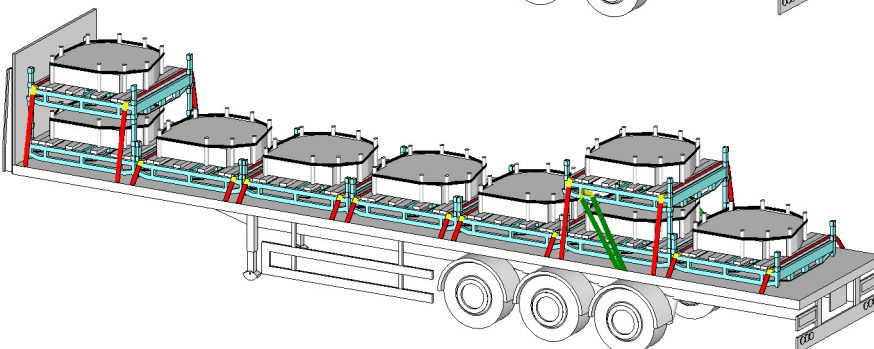
Loaded 2-1-1-1-2-1-1



x 16



Loaded 2-1-1-1-1-2-1



x 16

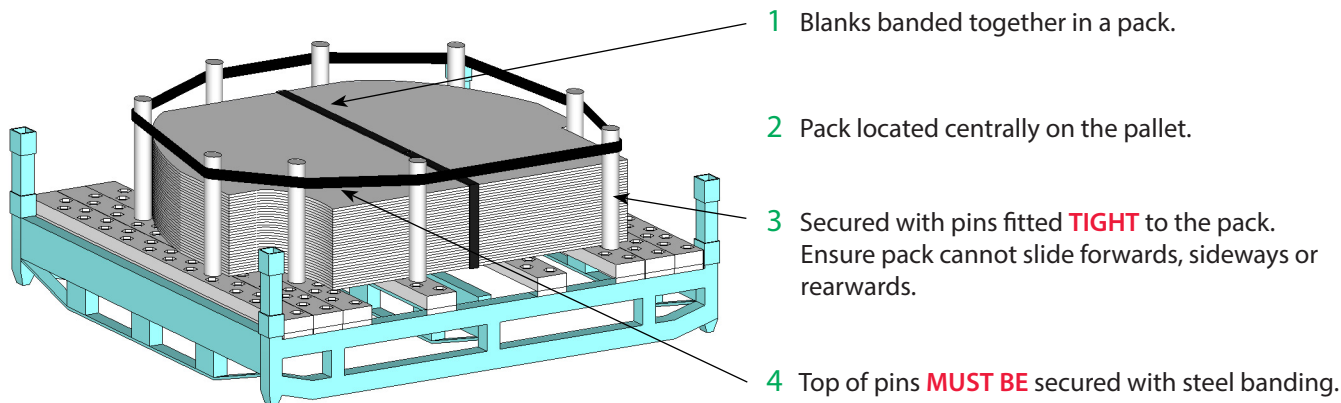


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6. Securing blanks to customers' pallets

Packs of blanks must be secured to the customers' bespoke pallets as per their loading instructions. Four key elements apply to all loads:

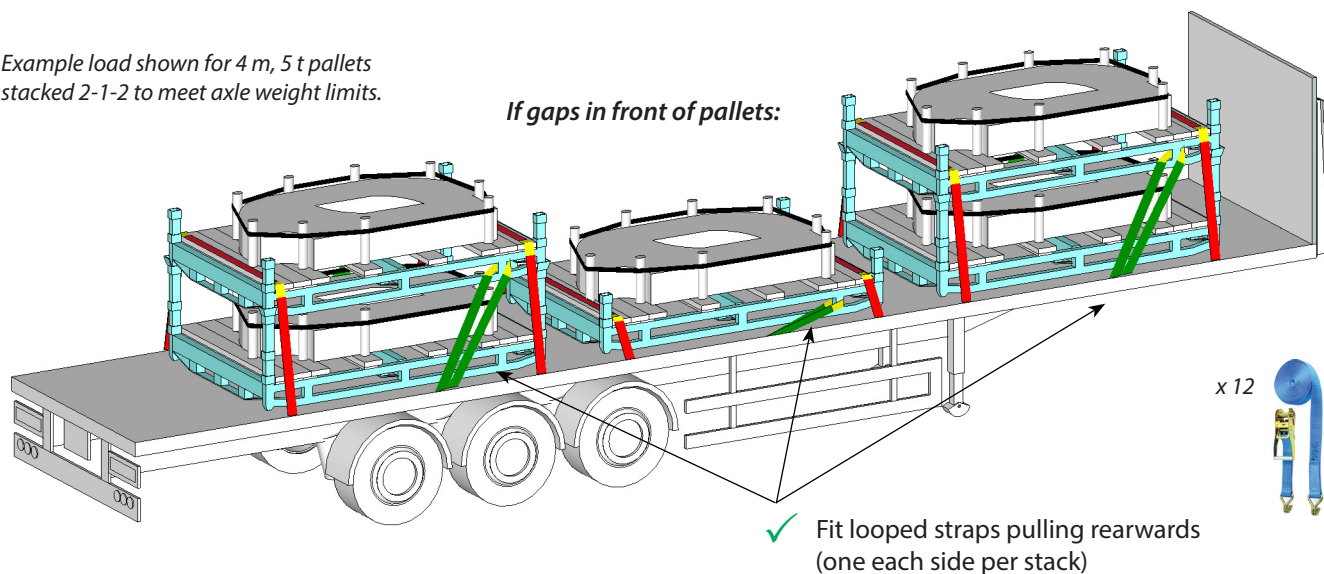


7. Loading away from headboard or gaps between pallets

Wherever possible, the front pallets should be loaded against the trailer headboard, and then all subsequent pallets should be loaded tight to the pallet in front. In some instances, pallets may have to be loaded away from the headboard, and/or gaps left between pallets to ensure axle weights are legally compliant. Whenever this is the case, each stack must have the following restraints:

- Each stack of pallets must be restrained with a minimum of **2 'over-the-top' restraints**.
- The **'over-the-top'** restraints must be located in a position on the pallet where they cannot come off.
- Each stack of pallets with a gap in front of it must have a **pair of looped straps (one each side)** pulling rearwards.
- Double stacked pallets will have the straps applied to the upper pallet as shown.

Example load shown for 4 m, 5 t pallets stacked 2-1-2 to meet axle weight limits.



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