

# LOAD RESTRAINT GUIDELINE

## Automotive blanks on wooden pallets

### 1. This guideline applies to:

- Automotive blank steel sheet packs; **securely banded** to wooden pallets.
- Steel-on-steel friction factor  $\mu = 0.31$  tested according to EN 12195-1:2010 Annex B.1.2.

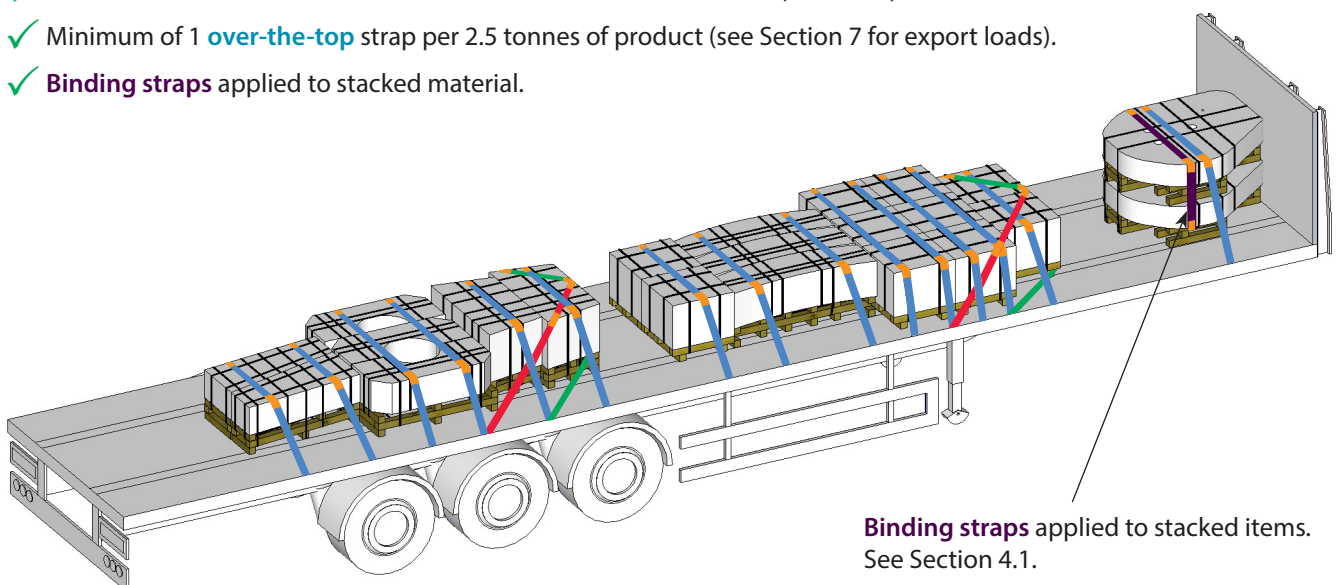
### 2. Essential requirements

- 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, including trailer side raves.
- Automotive blank packs must be banded as per Section 6 on page 4.
- Headboard must be high enough to cover full height of the load.
- Rows of Automotive blanks must be blocked as per Section 5.

### 3. Overview of restraint system - road transport



- ✓ Each row of Automotive blanks must be blocked in front direction (Section 5).
- ✓ Minimum of 1 **over-the-top** strap per 2.5 tonnes of product (see Section 7 for export loads).
- ✓ **Binding straps** applied to stacked material.



**Binding straps** applied to stacked items.  
See Section 4.1.



**Note:**  
*Edge protection must be applied to webbing straps in contact with sharp edges including side raves.*

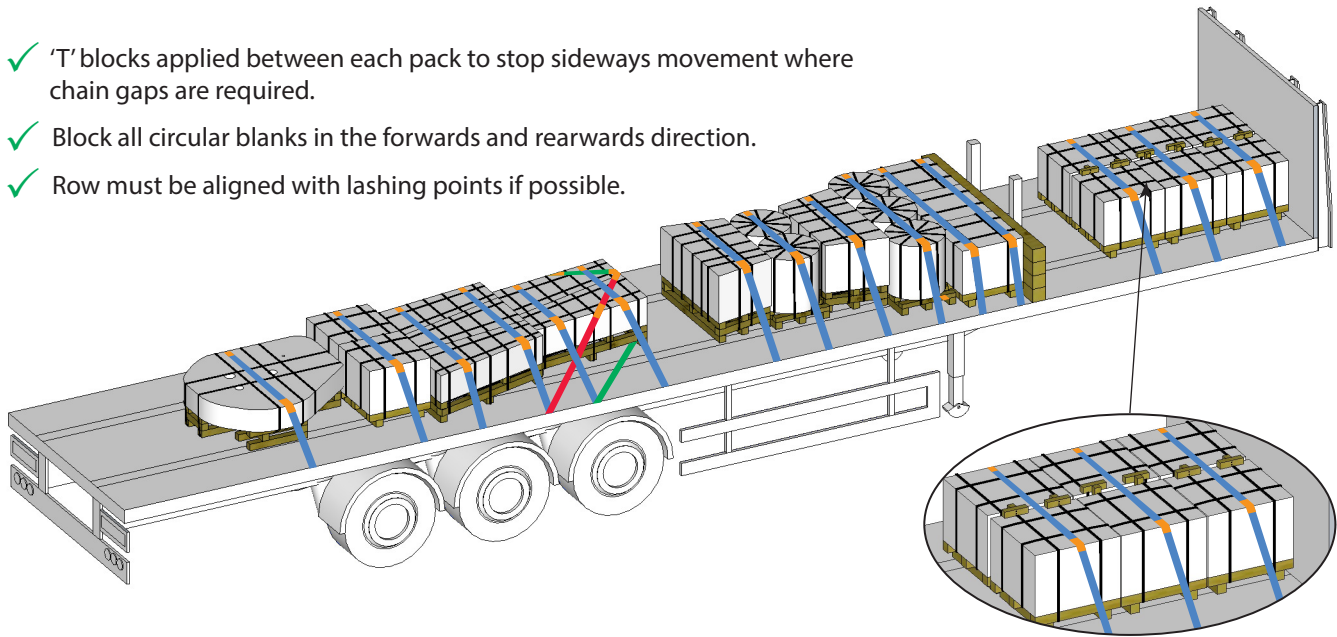
*This Load Restraint Guideline has been designed and tested to meet the forces for road and sea transport as stated in EN 12195-1:2010 and VDI 2700.*

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### 4. Load configuration

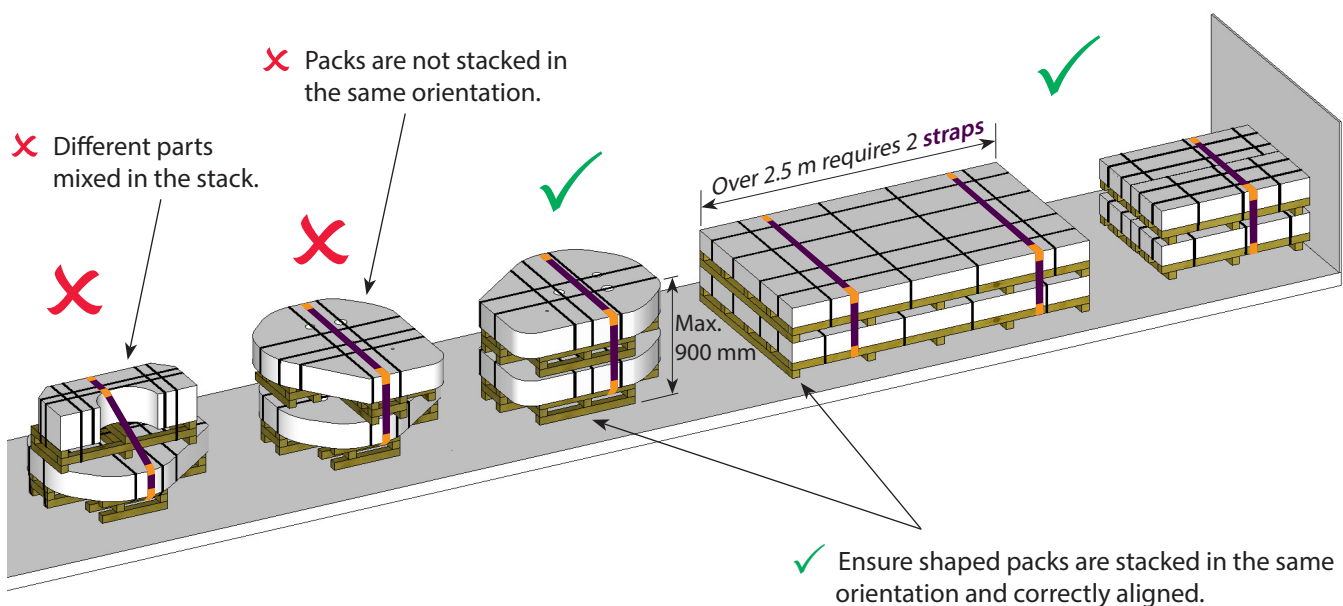
- ✓ 'T' blocks applied between each pack to stop sideways movement where chain gaps are required.
- ✓ Block all circular blanks in the forwards and rearwards direction.
- ✓ Row must be aligned with lashing points if possible.



### 4.1 Multiple stacked packs

Automotive blanks on wooden pallets can be stacked together:

- Bind the layers together using **straps** to help unitize the load.
- If the length is 2.5 m or less the stacked arrangement requires 1 **binding strap**.
- If the length is more than 2.5 m the stacked arrangement requires 2 **binding straps**.
- The total height of the stacked items must be no more than 900 mm.
- Different shape parts must not be mixed in the stack.



Note: Load restraint straps have been omitted for clarity.

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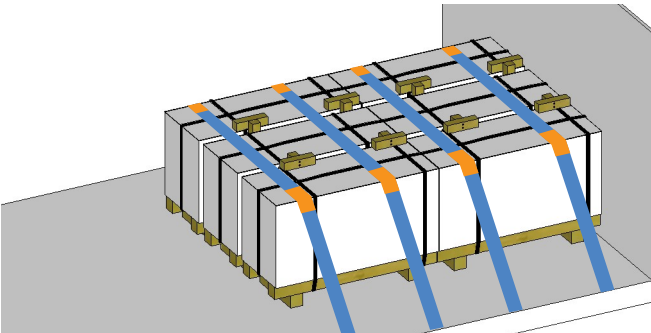
## Automotive blanks on wooden pallets

### 5. Forward restraint options



Note:  
Minimum of 1 **over-the-top** strap per 2.5 tonnes of product.

#### 5.1 Blocking to headboard option



Shown for 3 x 1 tonne packs in a row.

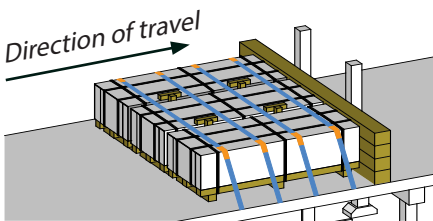
**Table 1: Trailer headboard - EN 12642**

Trailer type	Permissible payload
Code L or equivalent*	10 t
Code XL or equivalent*	28 t

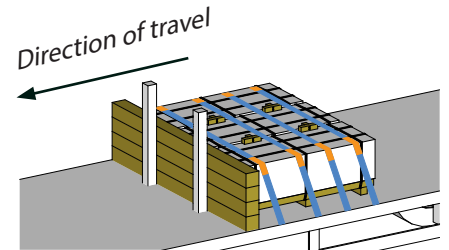
\* See Technical Information Sheet TIS-0010

✓ Gaps between stacks must be either closed or chocked with timbers.

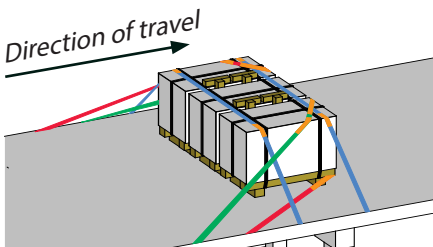
#### 5.2 Stanchion post option



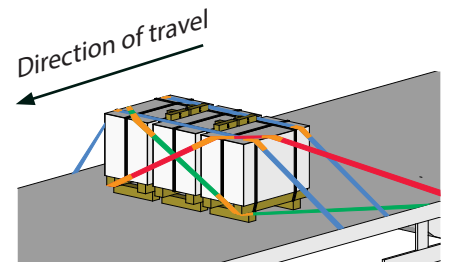
- ✓ Maximum of **10 tonnes** per pair of stanchion posts.
- ✓ Timbers applied between packs and stanchions if necessary.



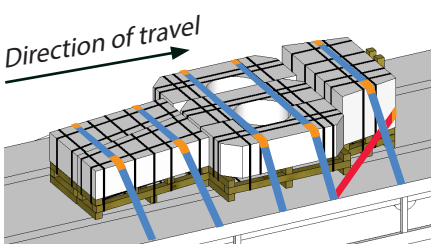
#### 5.3 Cross-over straps option



- ✓ Maximum of **12 tonnes** per pair of **cross-over** straps.
- ✓ Front of packs aligned with **cross-over** straps.

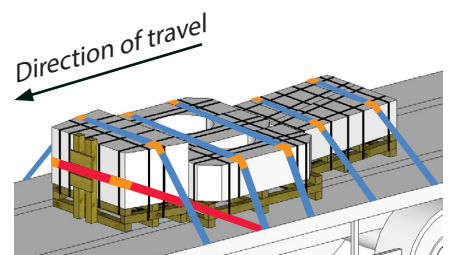


#### 5.4 'H' frames



**Table 2: Timber 'H' frame**

Number of direct straps	Permissible payload
1	6 t
2	12 t

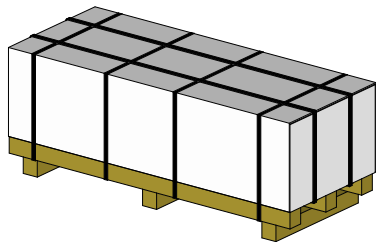


Well boards or euro pallets can be used as an alternative to the timber 'H' frames.

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### 6. Unitizing the Automotive blanks



A 4 tonne pack

Table 3: Number of packaging bands required

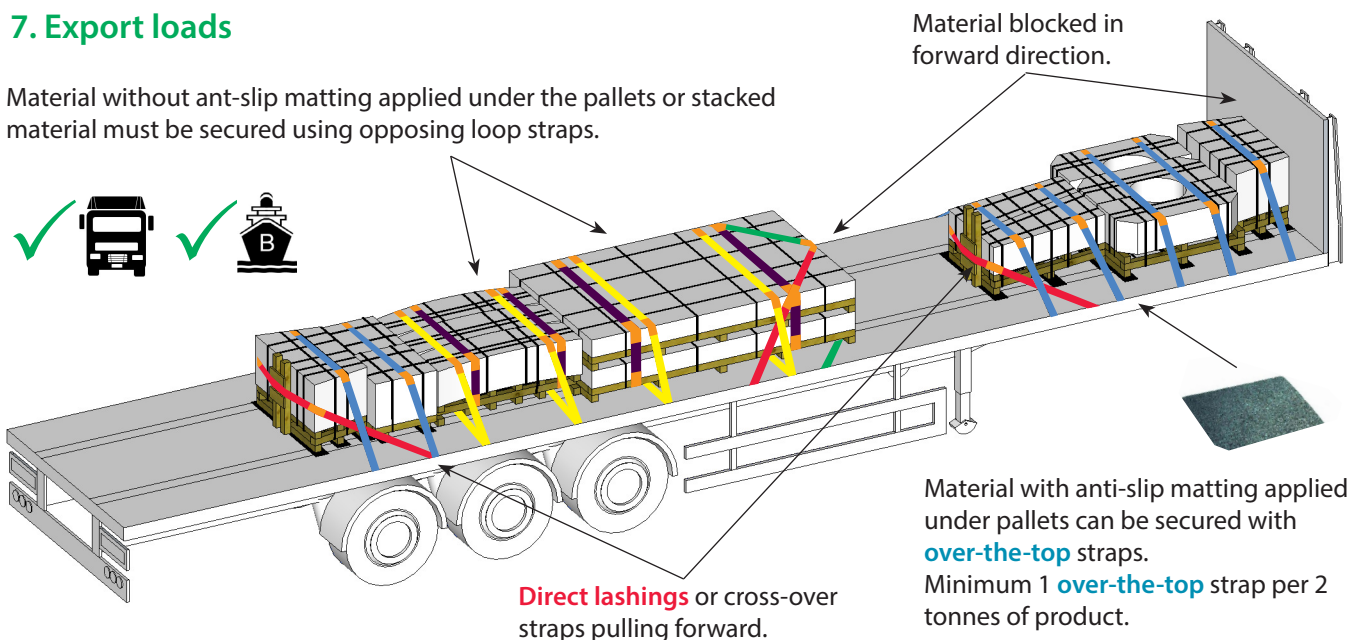
Weight of pack	Number of bands
Up to 1.5 tonnes	2
" 2 tonnes	3
" 2.5 tonnes	4
" 3 tonnes	4
" 3.5 tonnes	5
" 4 tonnes	6
" 5 tonnes	7



Note:  
If packs do not have sufficient bands to unitize them, they must be treated as low friction sheet packs and secured as per LRG-0015-SP.

### 7. Export loads

Material without anti-slip matting applied under the pallets or stacked material must be secured using opposing loop straps.



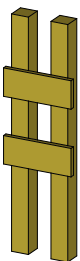
Direct lashings or cross-over straps pulling forward.

Material with anti-slip matting applied under pallets can be secured with **over-the-top** straps. Minimum 1 **over-the-top** strap per 2 tonnes of product.

### 8. Equipment

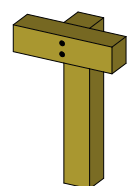
#### 8.1 Timber 'H' frame

- Frame height must cover the height of the stack being restrained.
- Example of 'H' frame is shown opposite - size may vary.
- 'H' frames can be used either way up to allow strap to be positioned close the centre of the stack.



#### 8.2 Timber 'T' block

- Used for chocking gaps between stacks, can be positioned from floor removing the need to access the bed of trailer.
- Minimum timber section 75 x 75 mm, length dependant on the height of material stack.



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