

Load Restraint Certification

Barrier Reels on their side



PURPOSE

The purpose of this procedure is to ensure product and material delivered to and produced by Bekaert Ropes Australia complies with industry safety standards for positioning and restraint of the load.

SCOPE

This procedure applies to Bekaert Ropes Australia personnel (primarily Warehouse/Despatch), customers, transport drivers and providers responsible for loading, restraining and transporting Ropes material and products via road transport.

REFERENCES

WRW-OHS-SOP-002 CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT (PPE) STANDARD
National Load Restraint Guide (2018), Published by National Transport Commission
WRW-WH-SOP-001 WRI Australia Transport Specification
WRW-WH-SOP-113 Load Restraint - Equipment Guidelines
WRW-WH-SOP-118. Load Unload at Door 1 3 6 CM3

RESPONSIBILITIES

Process owner Operations Manager

QUALIFICATIONS, TRAINING & COMPETENCE REQUIREMENTS

Bekaert Ropes Australia – Level 1 Induction
Bekaert Ropes Australia George St - Level 2 Induction
Load restraint training

DEFINITIONS

RECORDING / REPORTING REQUIREMENTS

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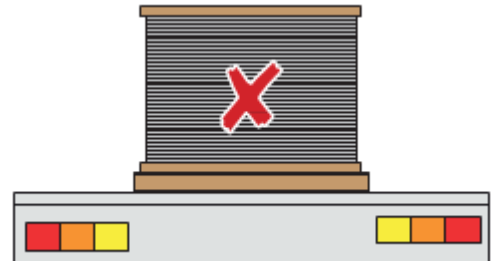
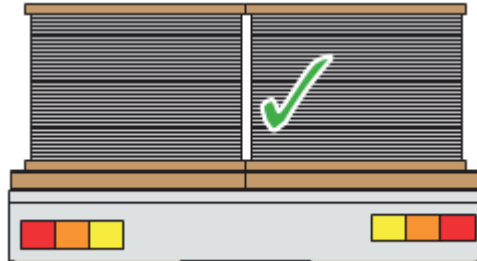
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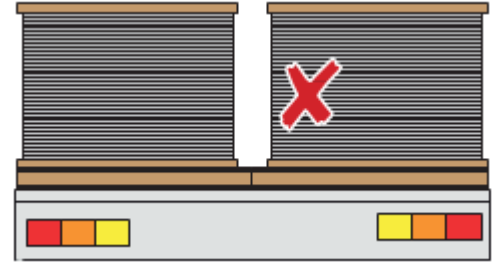
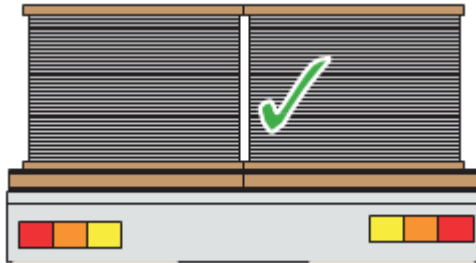
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Loading and Configuration

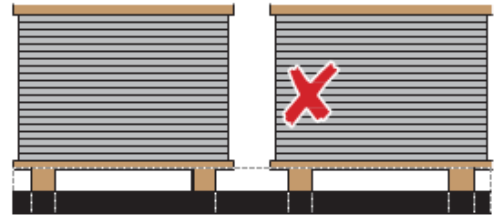
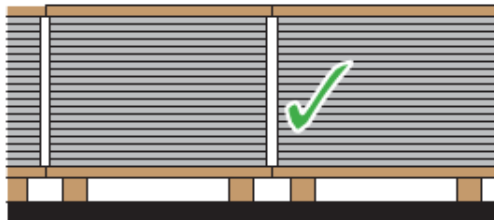
- **DO NOT LOAD REELS UNDERNEATH TOP FLANGES (MUST SUPPORT FROM BENEATH)**
- Barrier reels must be loaded two abreast, centered across the trailer.
- Do not load barrier reels single file



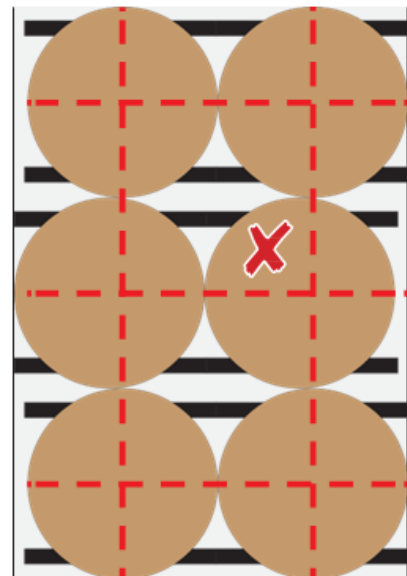
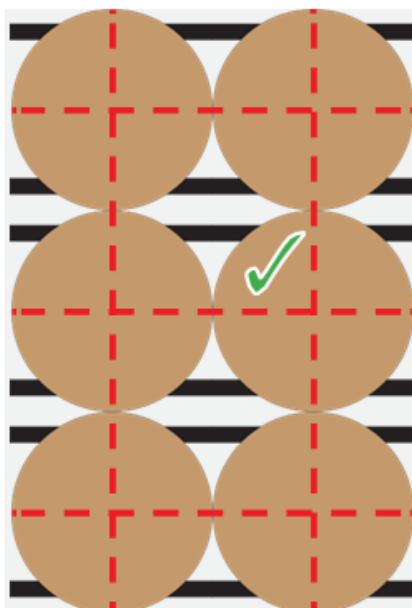
- Barrier reels must be butted together across the trailer.
- Do not leave gaps across the trailer.



- Barrier reels must be butted together along the trailer.
- Do not leave gaps along the trailer.



- Barrier reels centres must align both along and across the trailer.

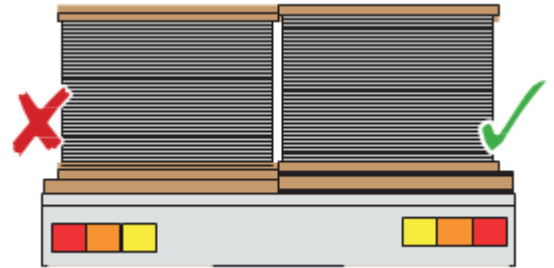
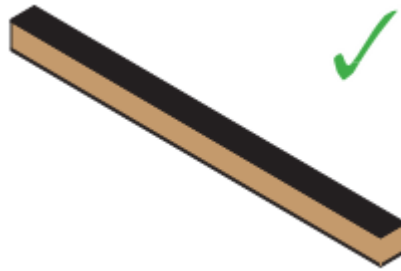


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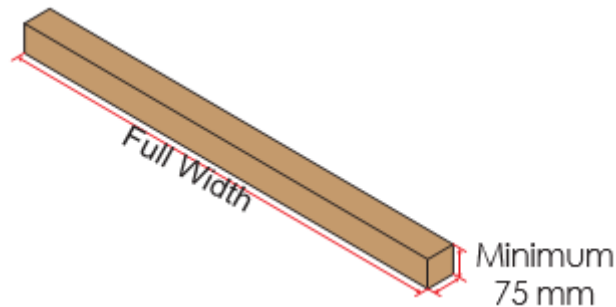
Barrier Reels on their side

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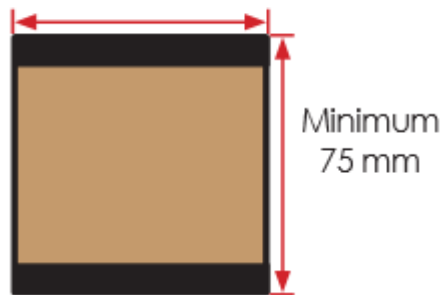
- Barrier reels must have anti-slip matting between all contact surfaces, e.g. between trailer and dunnage and dunnage and barrier reel.



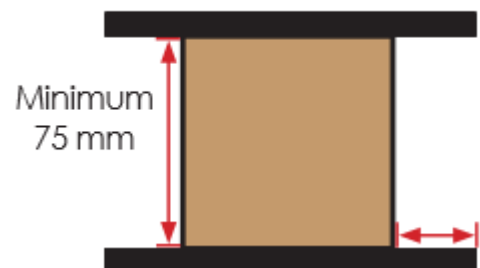
- Where timber is used, it must be full width of both reels and square with a minimum height of 75 mm.



Equal to
Height

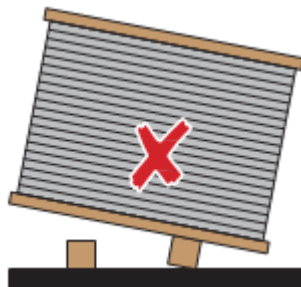


For anti-slip matting attached to dunnage ensure it is square

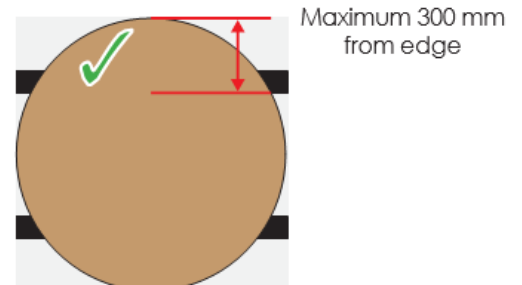


Ensure anti-slip matting extends beyond the timber when placed either side of dunnage

- Timber / Anti-slip must be positioned approximately 1/4 along (no more than 300 mm) from the front / rear outside edge towards the center of the barrier reel.



Timber positioned more than 300 mm from the edge



- Apply one (1) tie-down chain per row of barrier reels.
- Fully tension all chains with a load binder.

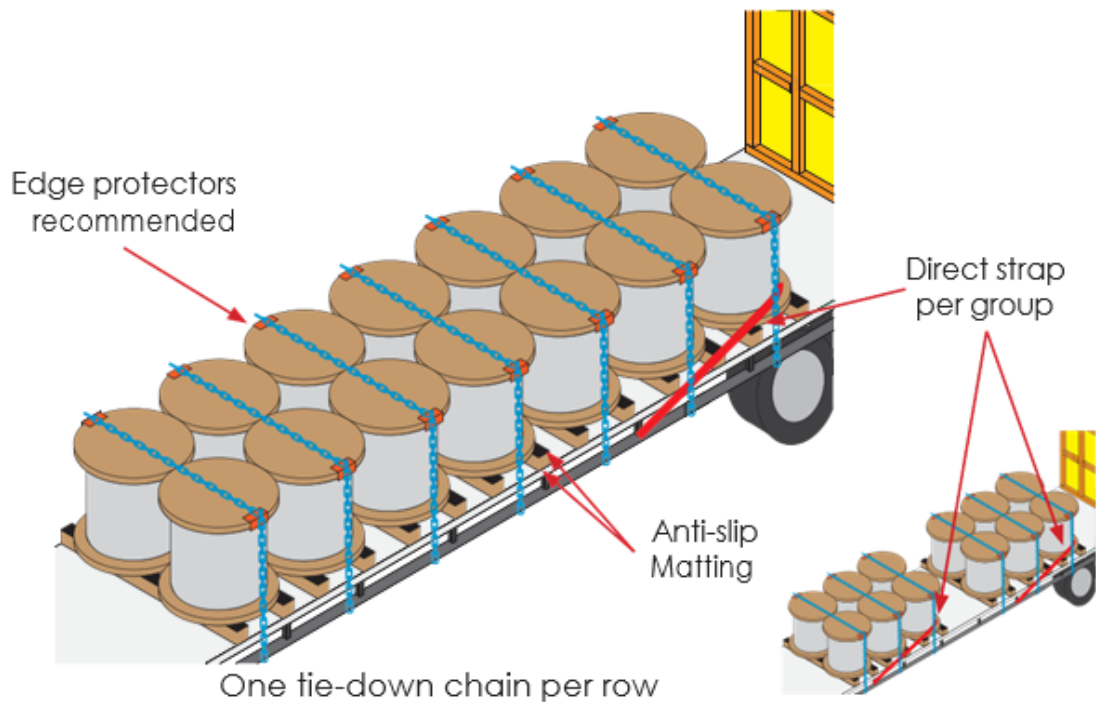
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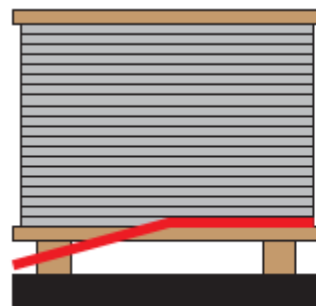
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Load Restraint Method

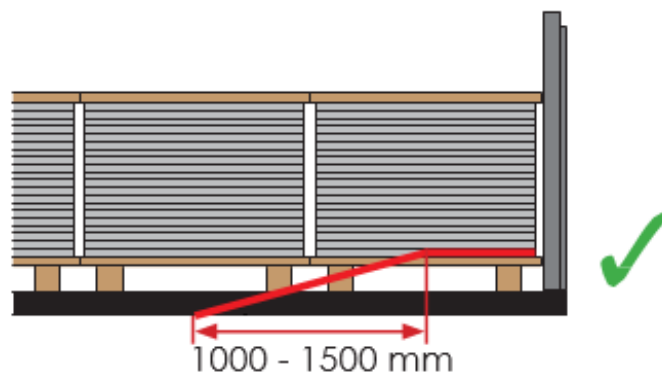


- Wrap one (1) direct webbing around the front barrier reels of every group. This direct webbing must sit above the bottom lip of the barrier reel bobbin.
- Tension the direct webbing tight



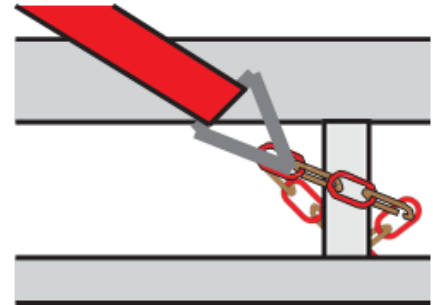
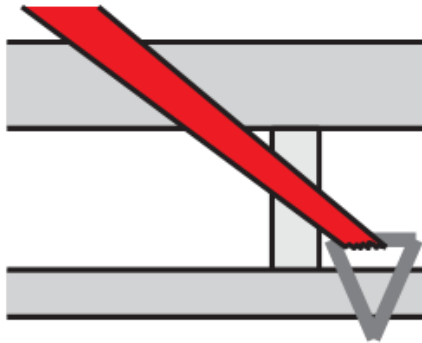
Direct webbing strap must sit above the lip of the barrier reel. Avoid clumping of the strap.

- The direct webbing must pull back 1000 - 1500 mm from the center of the barrier reel along the trailer towards the rear.

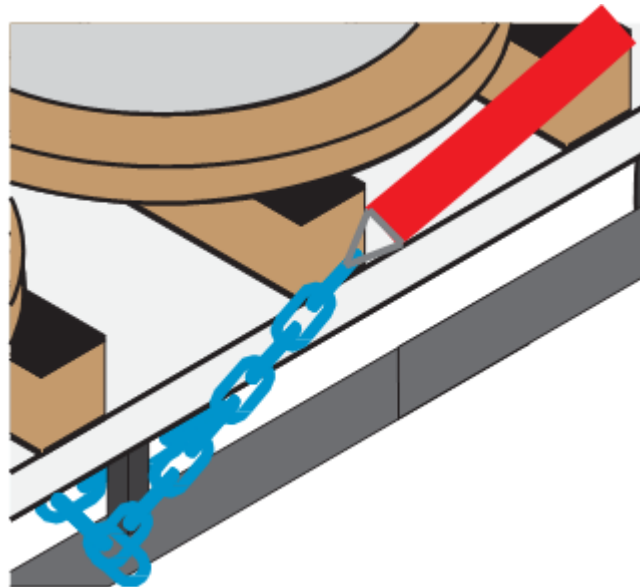
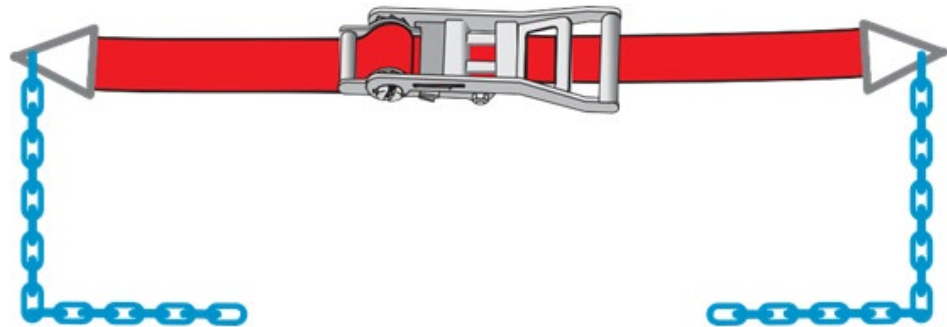


Load Restraint Method

- Direct webbing has a low lashing angle. If clumping occurs at the hook/keeper, apply a looped chain to the load post, on each side of the trailer, and attach the webbing to it.



- Direct webbing with a chain attachment can be used to reduce clumping and avoid need for separate short chain length



- Ensure direct webbing (or attachments) do not deflect around tie-down chains.
- Ensure direct webbing (or attachments) do not deflect around dunnage.

Operational advice

The following are considerations that need to be addressed outside of a certified load restraint system. Potential minimum controls for the identified risks are listed. The end user is responsible for implementing appropriate controls and monitoring of the controls.

- ◇ Damage to, or incorrect installation of, restraint components.
Refer to AS/NZS 4344 and AS/NZS 4380 for relevant wear limits and other information for chains and webbing respectively.
 - ◇ Inspection of restraint equipment prior to use to ensure they are not damaged and in good working order.
 - ◇ Anti-slip mat in good condition (no timber to steel or timber to timber contact).
- Chains working loose (e.g. load settling).
 - ◇ Re-check all chains after the last one has been tensioned;
 - ◇ Re-tension load binders once travelled a short distance from the loading point (e.g. 20 km's from loading point) and periodically throughout the trip (e.g. at rest breaks). Safe locations for the driver to preform checks should be identified. This may include side streets that are suitable for trucks.
- Human error (e.g. incorrect quantity of chains applied, anti-slip, etc.).
 - ◇ Auditing (need not be every load).
- Manual handling
 - ◇ Consideration for correct technique when handling and positioning the chains over the load;
- Damage to product by load restraint equipment.
 - ◇ Use protective edges or similar as requested by manufacturer or customer.
- Axle loads
 - ◇ Do not exceed legal axle loads. This remains the responsibility of the truck driver, loader and loading manager to ensure legal axle weight limits.
- Loading and Unloading Safety
 - ◇ Safety hazards may exist during loading or unloading the trailer depending on space, slope, weather conditions and equipment used. Appropriate risk assessment should be undertaken and controls implemented.
- Height Safety
 - ◇ Positioning the chain should be completed from the ground.
 - ◇ Positioning edge protection on the load should be completed either prior to loading or using a suitable tool to complete from the ground.

These risks need to be reviewed and implemented by the operator. Ongoing operational reviews of the risks should be undertaken to ensure the controls are effective and that new risks are identified.

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Appendix A: Restraint Calculations	
Forwards, sideways and rearwards	$m \times c_{x,y} \times g \leq \mu \times m \times g + 2 \times \mu \times \sin \alpha \times F_T$ Note toppling calculations also performed.
	Where: m is mass (kg) c_x = 0.8 acceleration coefficient (forwards) $c_{x,y}$ = 0.5 acceleration coefficient (rearwards / sideways) g is gravitational acceleration (9.81 m/s²) μ is the coefficient of friction α is the lashing angle as measured from the horizontal (°) F_T is the tension force of a lashing device (N)
Assumptions	1. Minimum static coefficient of friction between anti-slip matting and other surfaces is 0.6. 2. Chains are tensioned to a minimum 7358 N average through the lashing. 3. Maximum load mass per barrier reel is 1500 kg

Description of the load	Barrier wire rope reels on their side (eye to the sky) with a diameter of 1150 mm, height of 860 mm and weight up to 1500 kg loaded two abreast. The reel is manufactured with ends out of 25 mm thick timber crisscrossed (perpendicular) to each other. (Ends are 50 mm thick). The reels have sufficient strength to not break or be ripped apart by the transport chains at lashing capacity.
Description of the vehicle	Flatbed truck or trailer including curtain side trailers.
Load restraint equipment	• Minimum 8 mm transport chain to AS/NZS 4344. Larger sizes may be used provided they are to AS/NZS 4344. • Chain tensioned by a load binder capable of achieving a minimum 750 kg force pretension averaged across the load conforming to AS/NZS 4344. e.g. Maxibinder, SpanSet WebDog, turnbuckle, etc. • Webbing strap, minimum 50 mm wide (2.5 tonne lashing capacity), to AS/NZS 4380. • Anti-slip matting with a coefficient of friction of at least 0.6 against steel and timber. • Square hardwood timber dunnage minimum 75 mm high and full width. Timbers may be in steel reel racks, however the reel rack must also have anti-slip matting bonded to its base, full length. • Edge protectors may be required

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