

STANDARD OPERATING PROCEDURE

Load Restraint – Reels

1.0 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.

2.0 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.

3.0 REFERENCES

National Load Restraint Guide (2018), Published by National Transport Commission

Bekaert Ropes Australia Road Transport Code of Practice

WRW-WH-SOP-003. Transport Planning and Co-ordination

WRW-WH-FRM-002. Despatch – Warehouse Quality Monitoring

WRW-WH-CAC-001. Load, Unload at Door 1, 3, 6 & CM3

4.0 RESPONSIBILITIES

Process owner Operations Manager

5.0 QUALIFICATION, TRAINING & COMPETENCE REQUIREMENTS

- Load restraint training
- Road transport Code of Practice training

6.0 DEFINITIONS

7.0 RECORDING / REPORTING REQUIREMENTS

- WRW-WH-FRM-002. Despatch – Warehouse Quality Monitoring

These guidelines are provided by Bekaert Wire Ropes Pty Ltd (trading as BBRG Australia) for guidance only. Compliance with applicable laws and standards remains your responsibility.

They are based on guidelines provided to preceding entities under license from BlueScope Steel. Whilst BBRG, in co-operation with transport operators, has taken considerable care to develop load restraint guidelines that are effective and comply with all requirements, BBRG makes no warranty as to the applicability of these methods in all circumstances.

It remains your responsibility, at all times, to ensure that the methods you use are adequate for the particular situation and, where applicable, you should take further precautions.

These guidelines are confidential to, and the property of, BBRG and you may only use these guidelines with permission of BBRG.

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Wire Rope Reels

This Guideline applies to:

- Restraint of Wire Rope Reels with an outside diameter between 770mm and 2600mm.

Essential Requirements

- ✓ All restraints must be **8mm transport chain**, with a Lashing Capacity of **3.0 tonnes** or greater, and comply with AS4344.
 - ✓ All full reels **MUST** be loaded **on reel racks or cradles** as detailed below
 - ✓ Reel Racks with Tie-rods must be used for large reels (e.g., 1700 mm diameter) – refer Figure 2:
 - Two lengths of 100 x 100mm hardwood timbers, which are the full width of the trailer to prevent excessive sideways sliding;
 - Minimum width of 800mm; and
 - With 2 x 16mm threaded rods with nuts and washers.
 - ✓ Alternatively, Steel Racks may be used on smaller reels – refer Figure 3
 - Two lengths of 75 x 75mm hardwood timbers within two Steel Racks; and
 - Conveyor Belting or Industrial Rubber between the Steel Racks and trailer deck.
 - Typically used for Industrial rope products on smaller reels.
 - ✓ Mining products which exceed 9 tonnes gross mass must be transported in specialised cradles, not timber racks.
- See *Wire Rope Reels on Specialised Cradles* on page 6.
- ✓ Chain numbers and configurations **MUST** comply with the Sections *Load Restraint – Full Reels, Empty Reels* on pages 4 & 5.
 - ✓ Only reels of the same outside diameter can be transported two abreast.
 - ✓ Chains angled to the front and rear **MUST** be anchored at least 600mm from the centre of the reel.

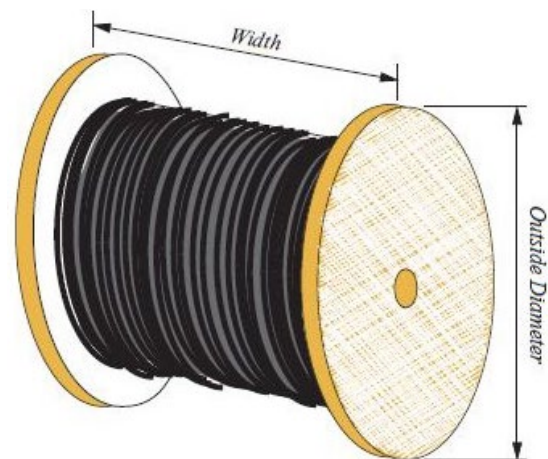


Figure 1: Wire Rope Reel

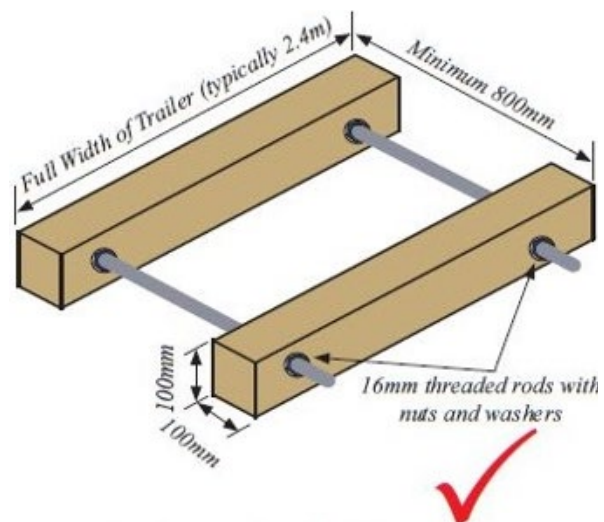


Figure 2: Reel Racks with Tie-rods

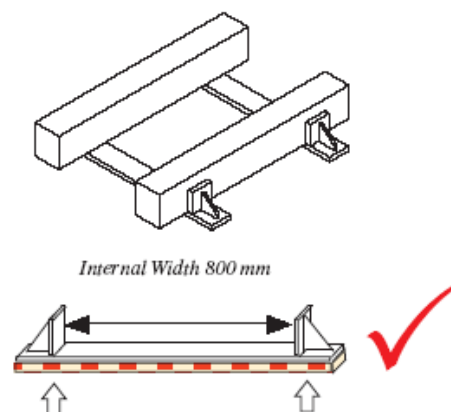


Figure 3: Alternative arrangement for Industrial Products: Timber Dunnage on Steel Rack on Conveyor Belting or Industrial Rubber

- ✗ **DO NOT** allow reels to touch the trailer deck. See Figure 4. **No steel-on-steel contact allowed.**
 - If the rack is too big for the reel, **an alternative reel rack must be used**, as per Figure 3.
 - The clearance between reel and trailer deck is to be no greater than 75mm.

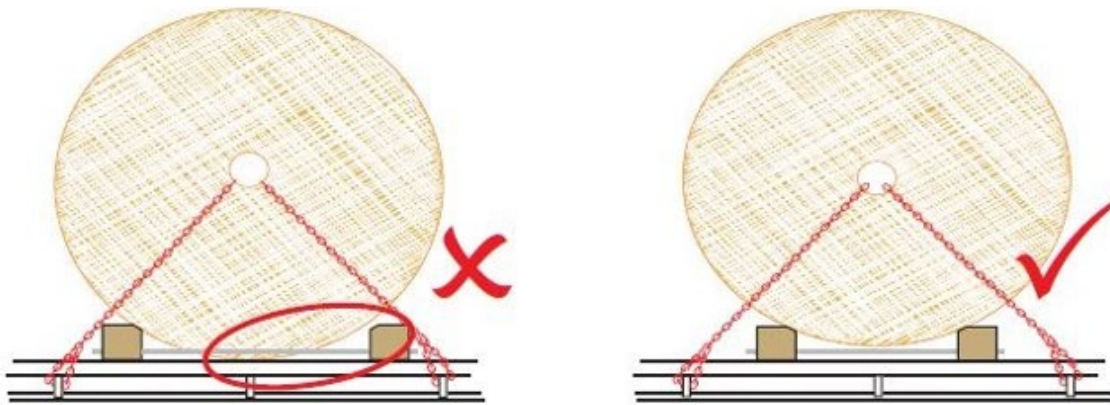


Figure 4: Reels must **NOT** touch the trailer deck. No steel-on-steel contact allowed.

Load Restraint – Full Reels

Table 1: Weight Limits and Chain Requirements

Maximum Reel Weight (tonnes)	Number of Chains Required	Maximum Combined Reel Weights (tonnes)	Number of Chains Required
0 – 2.5	1*	0 – 5.0	1*
2.25 – 6.0	2	5.0 – 7.0	2
6.0 – 12.0	3	7.0 – 10.0	3
12.0 – 14.0	4	* Chain MUST vertical to coaming rail, otherwise apply two chains	
14.0 – 17.0	5		
17.0 – 22.0	6		

* Chain **MUST** be vertical to coaming rail, otherwise apply two chains

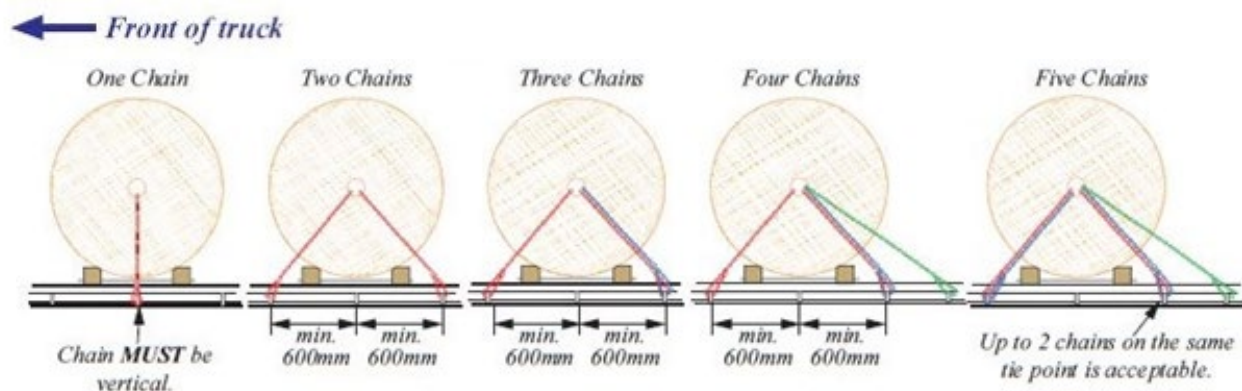


Figure 5: Chain Arrangements

✓ In certain truck configurations and reel positions on the trailer deck, additional chains may be required to restrain the load. Examples as per green chains in Figure 5:

- Reels placed on top deck of a drop-deck trailer are immediately behind the driver and may also be subject to increased bounce; or
- Reels placed immediately above a wheel arch may require chains to be attached to a lashing point greater than 600mm from reel centre, reducing the effective direct downward restraint.

Load Restraint – Empty Reels

- ✓ Empty reels placed in reel racks **MUST** be transported separately, as per Essential Requirements on page 3.
- ✓ Empty reels not in racks **MUST** be interlocked into groups – See Figure 6 below.
- ✓ Each group of reels is to have a combined maximum weight of **3.1 tonnes**.
- ✓ Largest reels to be at the front and rear of each group – See Figure 6 below.
- ✓ Each group of reels is to have one chain angled back a minimum of 600mm from the centreline on the front reel and one chain angled forward on the back reel – See Figure 6 below.
- ✓ All centre reels in a group are to have one chain through the bore. Maximum weight per row is 0.8 tonnes.
- ✓ Only reels of the same outside diameter can be transported two abreast.

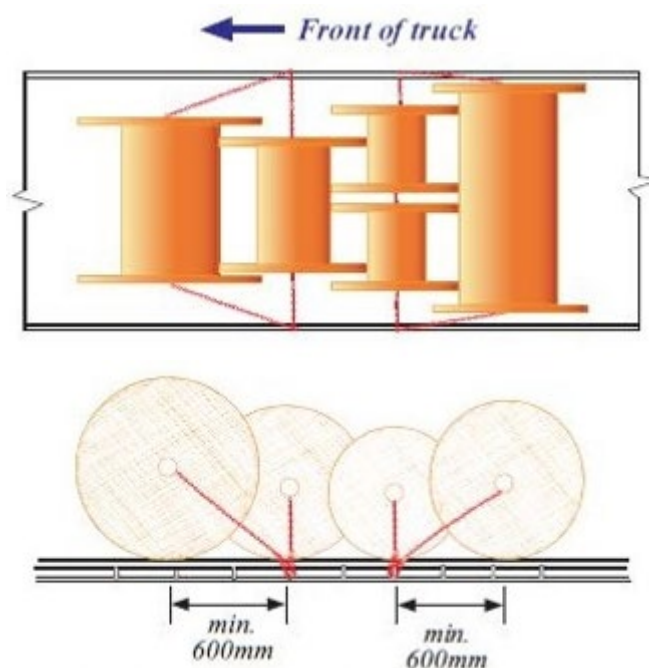


Figure 6: An example of a group of interlocked empty reels with the largest reels at the front and rear

Wire Rope Reels on Specialised Cradles

This Guideline applies to

- Restraint of large Wire Rope Reels with outside diameters between 2900mm and 3200mm in specialised steel cradles.
- Maximum weight of Wire Rope Reel is 28 tonnes.

Essential Requirements

- ✓ All restraints **MUST** be 8mm transport chain, with a Lashing Capacity of **3.0 tonnes** or greater, and comply with AS4344.
- ✓ All reels **MUST** be transported on low loaders or drop deck trailers.
- ✓ All full reels **MUST** be transported in specially manufactured steel cradles as per BBRG drawings 2727 and 39808 – See Figure 8.
- ✓ Place rubber, with assumed coefficient of friction of 0.40, between the cradle and the trailer deck. No steel-to-steel contact.
- ✓ Place rubber between the cradle and the wire rope reel. No steel to steel contact.
- ✓ Use the appropriate number of transport chains as per *Weight Limits and Chain Requirements* on page 4.
- ✓ Chains angled to the front and rear **MUST** be anchored as close as possible to 1600mm from the centre of the reel.
- ✗ Do **NOT** allow reels to touch the trailer deck. **No steel-on-steel contact allowed.**
 - If the cradle is too big for the reel, insert 75mm x 75mm hardwood timbers (that are the full width of the trailer), into the back of the cradle, to raise it from the trailer deck.
 - Restrain the hardwood timbers/dunnage into the cradle, using webbing straps and binders.
 - Refer to Figure 9 below.

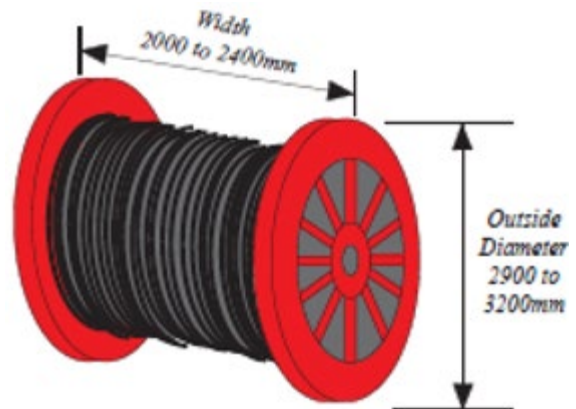


Figure 7: Wire Rope Steel Reel

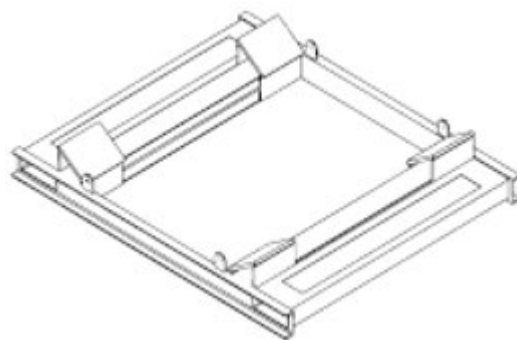


Figure 8: Example Special-purpose Steel Cradle

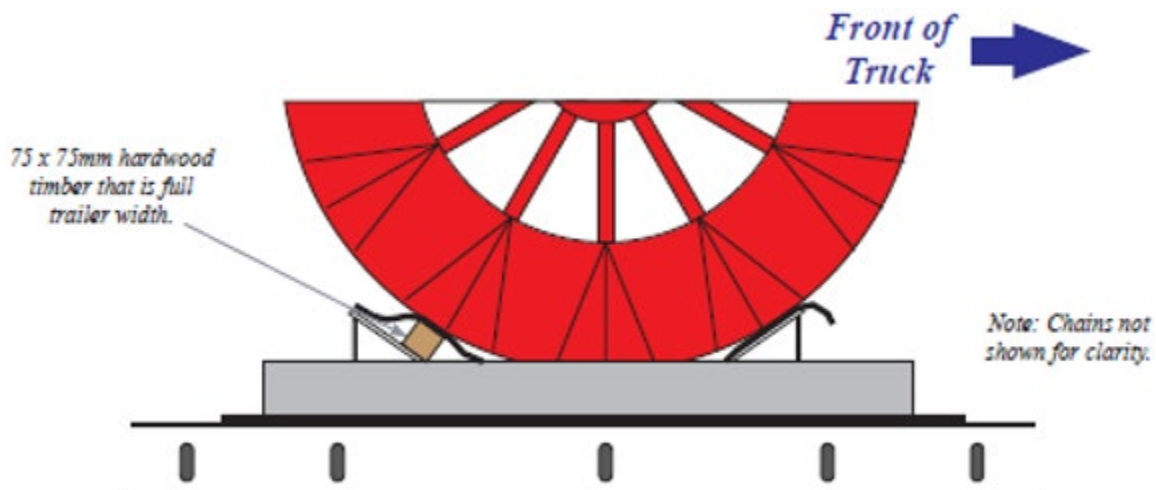


Figure 9: Reel must not be touching trailer deck; insert hardwood timber dunnage in rear of cradle

Load Restraint – Cradles & Reels in Cradles

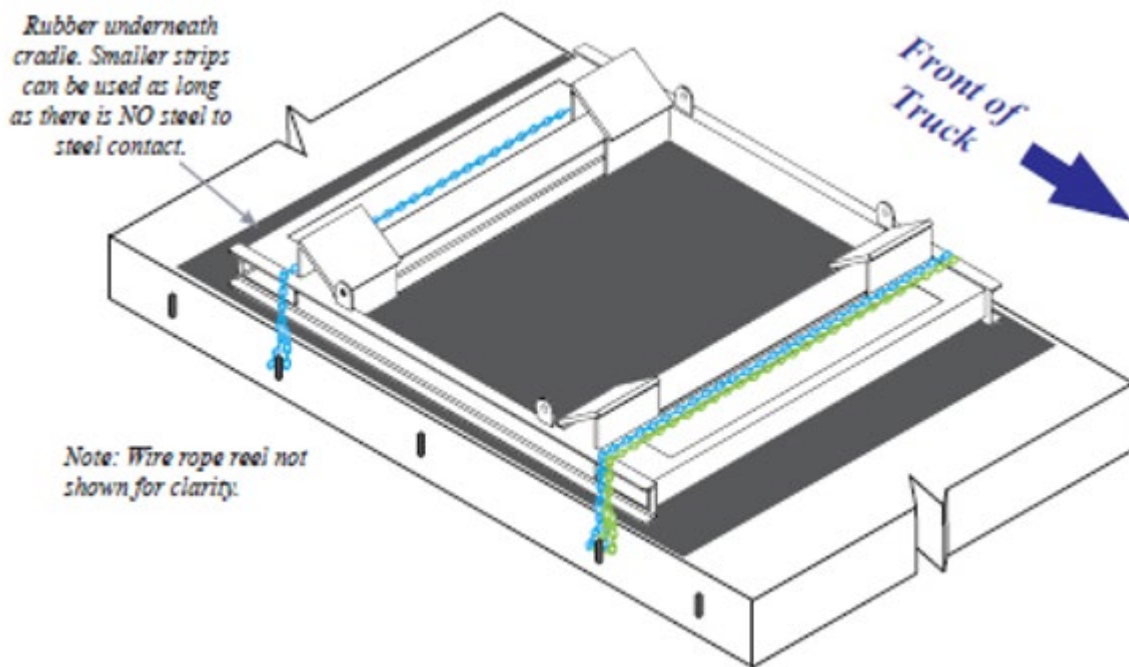


Figure 10: Chain Configuration for Cradle

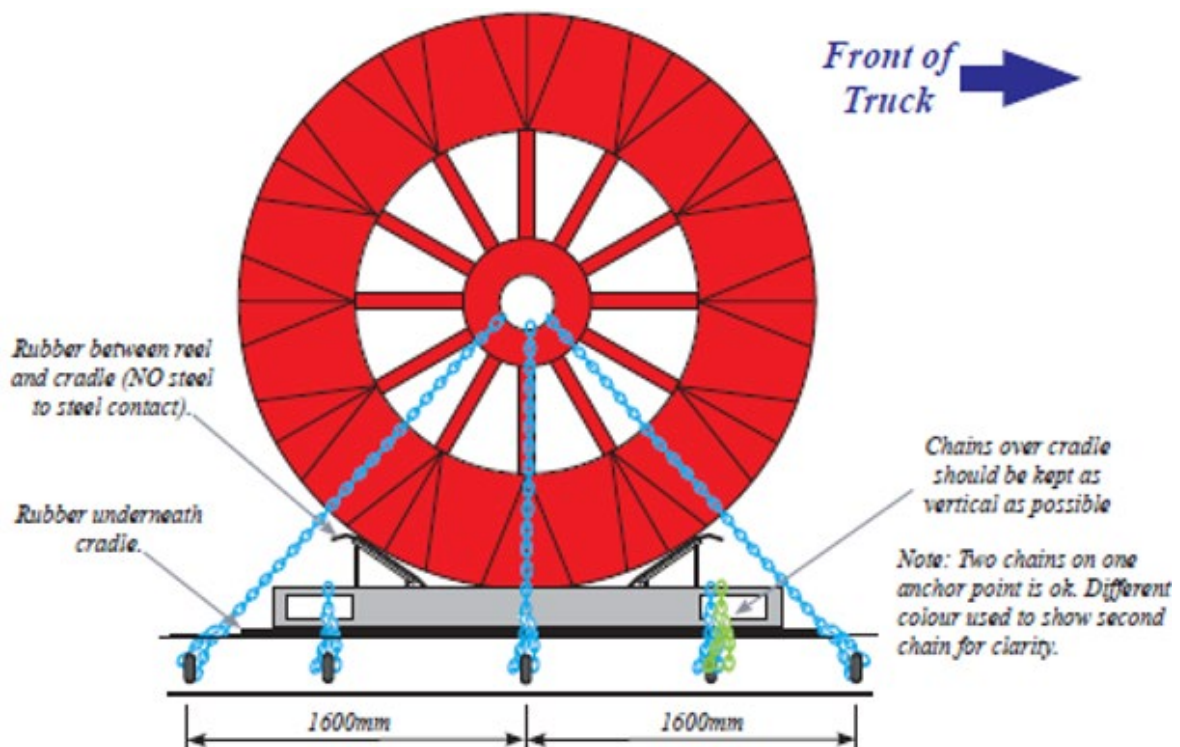
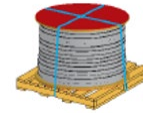


Figure 11: Chain Configuration for Reel and Cradle

Wire Rope Reels on Pallets

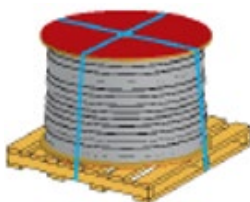
This Guideline applies to

- Wire rope reels that are attached to pallets; but
- Does NOT allow transport of loose reels.

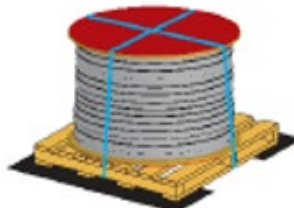


Essential Requirements

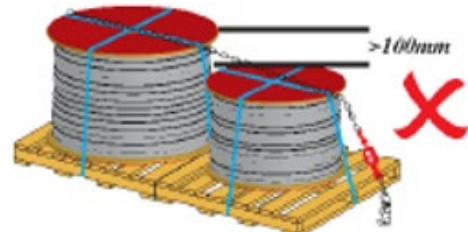
- ✓ Wire rope reels must be secured to pallets at a force equivalent to 80% of the reel weight.
- ✓ Place anti-slip rubber beneath all corners of the pallets. Rubber can be strips, mats or squares.
- ✓ The height variation between adjacent, two abreast reels must not exceed 100mm.
- ✓ The mass of adjacent, two abreast reels must be similar.
- ✓ Reels must be restrained as per **section 3, Restraint Requirements**.
- ✓ Ensure packaging is tight and the reel is secure and there is no visible damage.
- ✓ Chain must be 8mm transport chain, assumed 3.0 tonnes Lashing Capacity, which meets Australian Standard AS4344 or equivalent.
- ✗ Reels must **NOT** weigh more than 2.0 tonnes.
- ✗ **DO NOT** load if packaging is damaged.
- ✗ **DO NOT** load if pallet is damaged. Check pallets for cracks or damage.



Wire products secured to pallets at a force equivalent to 80% of the pallet weight



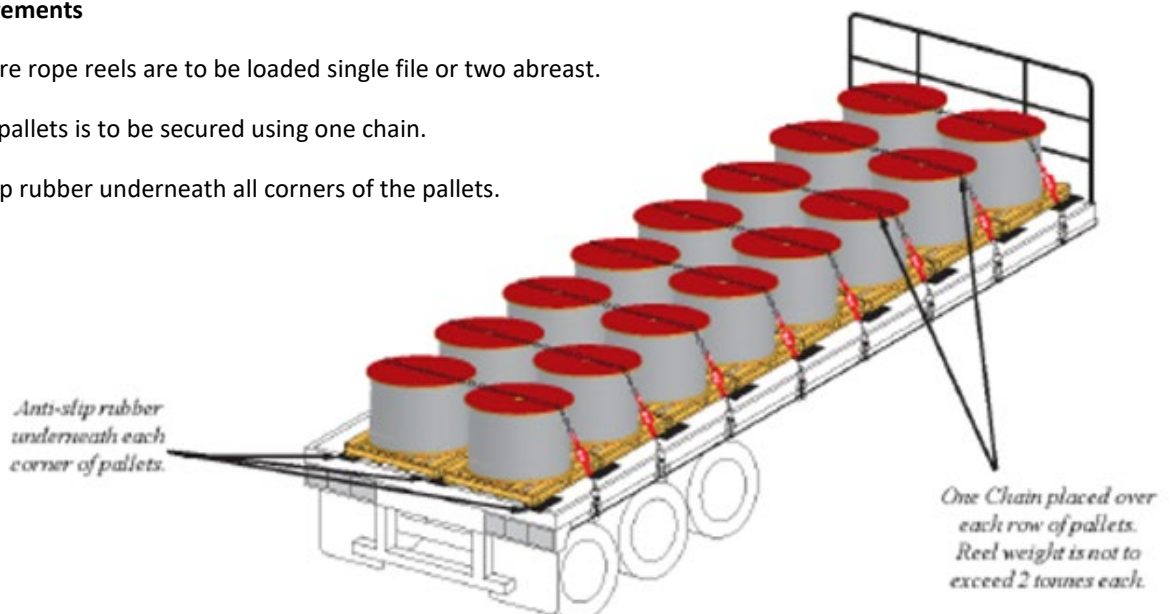
Anti-slip rubber placed underneath all corners of pallets



Height variation between adjacent reels must not exceed 100mm and must be of similar mass.

Restraint Requirements

- ✓ Palletised wire rope reels are to be loaded single file or two abreast.
- ✓ Each row of pallets is to be secured using one chain.
- ✓ Place anti-slip rubber underneath all corners of the pallets.



VERSION HISTORY

Version	Issue Date	Key Changes	Authorised by	Review Date
6	28/9/2017	Added clarification: specialised cradles for products exceeding 9 tonnes	BR	28/9/2019
7	24/9/2018	Rebranded as BBRG. Migrated from previous entity (MolyCop/OneSteel) guidelines (based on BlueScope LRG37 16/10/14, LRG37 21/4/2001, LRG94 18/1/10, LRG126 27/10/11). Added clarifications for certain truck configurations and reel positions, restraining dunnage in cradles	BR	24/09/2020
8	16/09/2021	Version update – change of authoriser	GC	16/09/2024
9	15/08/2023	Authoriser changed from Operational Support Superintendent to Operations Superintendent	TM	15/08/2024