

As the controller of a heavy vehicle you are legally responsible for restraining your load so that

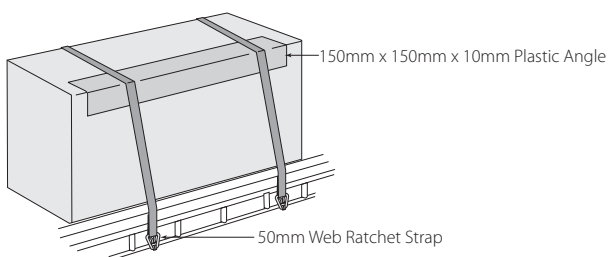
- It does not come off your vehicle under normal driving conditions, including heavy braking, and minor collisions. If it comes off, this is evidence you have breached the law.
- It does not negatively affect the stability of the vehicle, which can cause the vehicle to roll over or swerve uncontrollably and cause an accident.
- It does not stick out of the vehicle in a way that could injure people, damage property or obstruct others' paths.

The law sets out Performance Standards for load restraint. You can choose how to restrain your load to meet these standards, the performance standards define what is required but not how to do it, this guide provides general information to help you choose a load restraint system suitable for your load, you should be familiar with the Load Restraint Guide 2018 published by the National Transport Commission.

You can use alternative load restraint methods provided you can show that they meet the Performance Standards. The best way to do this is to get your restraint system certified by a qualified engineer (certification).

Protecting Lashings and Loads

Webbing straps can be easily cut on sharp edges. Sharp edges and rough surfaces prevent the lashing tension from equalising on both sides of the load. Smooth rounded corner protectors enable high tension on both sides of the load thereby increasing load restraint. Plastic 150mm x 150mm x 10mm or 75mm x 75mm x 4mm steel angles are deemed suitable.



Cross Over Webbing Restraint

Front row(s) of product blocked forward by the headboard. Any subsequent row(s) not blocked by a secured loading rack or a secured movable barrier will require the front pallet(s) to have two cross over webbing straps and one tie down webbing strap. **The angle of the strap to the deck must be $\leq 45^\circ$**

Minimum strap requirements: 50mm, 2500kg rated webbing, pretensioned to 300kg. The remaining pallets to be secured by appropriate number of straps as per Baines Masonry Guide.



STRETCH AND SHRINK WRAPPING

When To Use Stretch And Shrink Wrapping

Use stretch and shrink film wrapping to consolidate multiple product items into one pack, making them more stable and easier to restrain – Figure 1.

Use stretch and shrink wrapping to protect products from the elements.

Stretch and shrink wrapping can be used as part of a load restraint system provided it is of sufficient strength or sufficiently layered to withstand the forces indicated by the Performance Standards

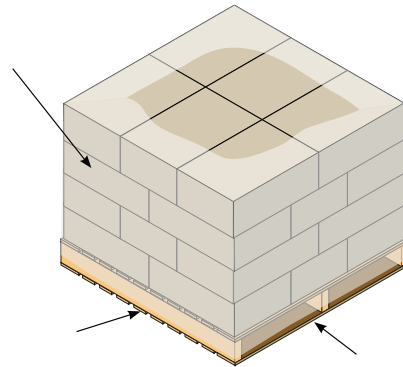


Figure 1. Multiple Items Packaged To A Pallet With Wrapping

HEADBOARDS AND LOADING RACKS

What Are Rated Headboards And Loading Racks?

Rated headboards have been certified to withstand a certain force. They are designed based on accepted limits on strength and deflection for the load weight and design g-force – Figure 2.

A loading rack is a pipe gate that has been reinforced by direct restraint chains – Figure 3.

Plywood, metal sheeting or mesh can be used behind a loading rack to spread the load and support product packaging.

If there is no rating stated on the headboard or loading rack, it is assumed to be unrated.

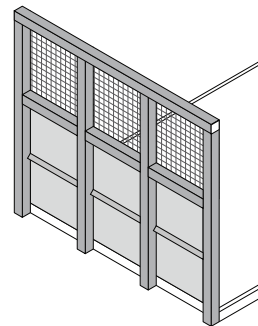


Figure 2.
Typical rated headboard

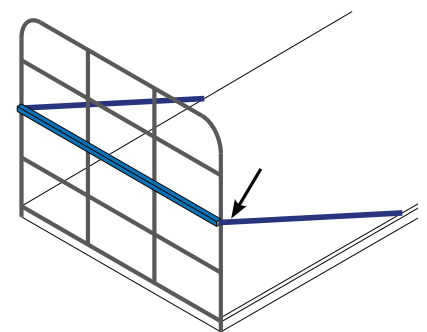


Figure 3.
Reinforced "pipe gate" style load rack

WHEN TO USE HEADBOARDS AND LOADING RACKS

Use headboards and loading racks to provide some or all of the **forward** restraint, depending on whether they are rated, reinforced or otherwise.

- Additional restraints will be required for other directions.
- Most headboards and loading racks that are not rated are not strong enough to fully restrain heavy loads under heavy braking.

Use **rated headboards** to provide some or all of the forwards restraint (depending on rating), as follows:

- as part of full blocking systems, where the load is blocked sideways and
- rearwards by other means of restraint, or- in combination with tie-down restraint to reduce the number of tie-down lashings required.

HOW TO USE HEADBOARDS AND LOADING RACKS

Position the load as close as practical to the headboard or loading rack.

Within 200 mm to the headboard is generally considered blocked – Figure 4.

Make sure the load does not sit above the height of the headboard, unless the packaging is of adequate strength to contain the product against the full forward force.

If using rated headboards, check the rating is suitable to restrain the load before loading the vehicle. If needed, use additional restraint for forward blocking.

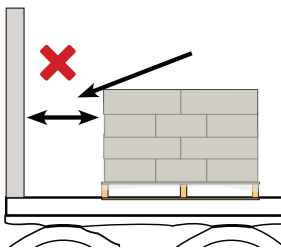


Figure 4.
Unblocked load

BARRIERS

WHAT ARE BARRIERS?

Barriers are movable blocking devices, also known as “intermediate headboards”.

WHEN TO USE BARRIERS

Use barriers when there are gaps between

loads along the length of the truck and the rear part of the load needs to be blocked in the forward direction.

Use barriers to restrain the rear part of a load that is separated into two parts to maintain correct axle weight limits.

HOW TO USE BARRIERS

Make sure that the barrier is loaded against the freight – Figure 5 and Figure 6

Barriers are usually placed against the load after loading; chains are then applied to lash the barrier.

Make sure that the barrier and its support chains are strong enough to block the forward forces from the load.

Chain the barrier to the tie rails on both sides, near the top and bottom.

Barriers can restrain the load against all the forward forces or act together with tie-downs to provide all of the forwards restraint.

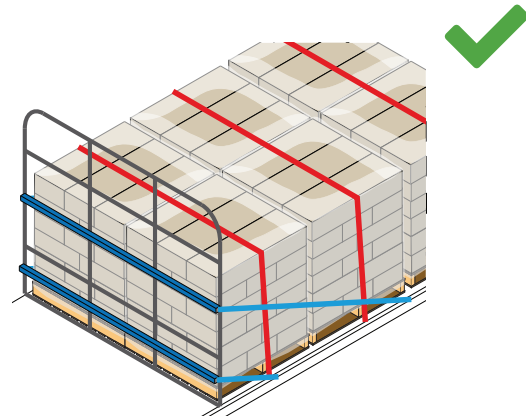


Figure 5. Load against barrier

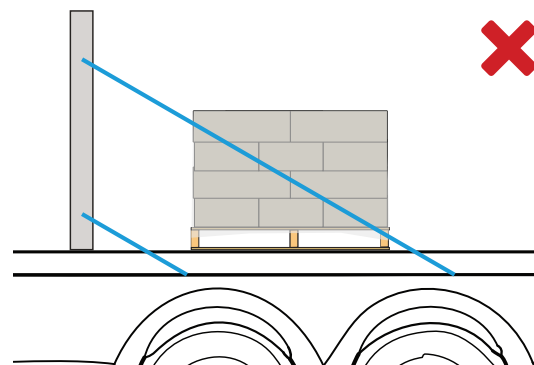


Figure 6. Load not against barrier



LOADING RESTRAINT GUIDE FOR BAINES MASONRY

2 PALLETS LOADED SIDE BY SIDE						1 PALLET LOADED TO CENTRE OF VEHICLE											
Front of load blocked?			No			Yes			Front of load blocked?			No			Yes		
Minimum Average Strap Tension 600kgf									Minimum Average Strap Tension 600kgf								
What is the Friction			Medium	High	High	What is the Friction			Medium	High	High						
What is on what?			Timber on Smooth Steel	Rusty Steel on Timber or Smooth Steel on Rubber Load Mat	Rusty Steel on Timber or Smooth Steel on Rubber Load Mat	What is on what?			Timber on Smooth Steel	Rusty Steel on Timber or Smooth Steel on Rubber Load Mat	Rusty Steel on Timber or Smooth Steel on Rubber Load Mat						
Product	Weight/ Pallet (t)	Strap Angle At Least	Straps required	Straps required	Straps required	Product	Weight/ Pallet (t)	Strap Angle At Least	Straps required	Straps required	Straps required						
20-01BB	2.8	75°	3	1	1	20-01BB	1.4	60°	2	1	1						
20-42BB	2.8	75°	3	1	1	20-42BB	1.4	60°	2	1	1						
20-48BB	2.5	75°	3	1	1	20-48BB	1.22	60°	2	1	1						
30-42BB	2.5	75°	3	1	1	30-42BB	1.24	60°	2	1	1						
30-48BB	2.1	75°	3	1	1	30-48BB	1.1	60°	2	1	1						
15-01BB	3.25	75°	3	1	1	15-01BB	1.62	60°	2	1	1						
15-48BB	2.9	75°	3	1	1	15-48BB	1.44	60°	2	1	1						
10-01BB	3.7	75°	4	2	1	10-01BB	1.93	60°	2	1	1						
50-31 NAT	3.2	75°	3	1	1	50-31 NAT	1.6	60°	2	1	1						
10-31BB	4.1	75°	4	2	1	10-31BB	2.05	60°	3	1	1						
20-121	3.0	75°	3	1	1	20-121	1.6	60°	2	1	1						
15-121	3.1	75°	3	1	1	15-121	1.5	60°	2	1	1						
10-121	3.6	75°	4	2	1	10-121	1.8	60°	2	1	1						
20-42/01	2.8	75°	3	1	1	20-42/01	1.4	60°	2	1	1						
50-33	3.6	75°	4	2	1	50-33	1.8	60°	2	1	1						
50-31 COL	3.7	75°	4	2	1	50-31 COL	1.84	60°	2	1	1						
020-144	3.4	75°	4	2	1	020-144	1.7	60°	2	1	1						
020-146	4	75°	4	2	1	020-146	2	60°	3	1	1						
225-01	3.5	75°	4	2	1	225-01	1.75	60°	2	1	1						
60-200	3.2	75°	3	1	1	60-200	1.6	60°	2	1	1						
140-31	3.4	75°	4	2	1	140-31	1.68	60°	2	1	1						
140-31DW	3.7	75°	4	2	1	140-31DW	1.83	60°	2	1	1						

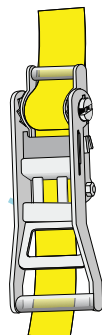
* This table complies to Appendices on pages 271 and 272 of the 'Load Restraint Guide 2018'

** This table is calculated based on the Maximum Weight each 50mm webbing Strap can Restrain

*** Part Pallets: When two (2) pallets are side by side and one pallet is 50% or less than the height of the other pallet, twice as many straps must be used to secure the part pallet.

LASHING	SIZE	TENSIONER	PRE-TENSION
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Webbing 50 mm Hand ratchet 600 kgf (pull-down)



Pull-down hand ratchet

WHAT ARE LASHING TENSIONERS?

- i** Lashing tensioners provide pre-tension to the lashings used in tie-down or direct restraint; most lashings (other than rope or small webbing) require greater tensioning than can be applied by hand
- i** The pre-tension generated by the lashing tensioner can remove slack from lashings used in direct restraint.
- i** Pre-tension capability of a tensioner is critical for the tie-down capacity of lashings used in tie-down restraint.

LOADING RESTRAINT GUIDE FOR BAINES MASONRY

2 PALLETS LOADED SIDE BY SIDE						1 PALLET LOADED TO CENTRE OF VEHICLE											
Front of load blocked?			No			Yes			Front of load blocked?			No			Yes		
Minimum Average Strap Tension 300kgf			   			   			Minimum Average Strap Tension 300kgf			   			   		
What is the Friction			Medium		High		High		What is the Friction			Medium		High		High	
What is on what?			Timber on Smooth Steel		Rusty Steel on Timber or Smooth Steel on Rubber Load Mat		Rusty Steel on Timber or Smooth Steel on Rubber Load Mat		What is on what?			Timber on Smooth Steel		Rusty Steel on Timber or Smooth Steel on Rubber Load Mat		Rusty Steel on Timber or Smooth Steel on Rubber Load Mat	
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140-31DW	3.6	75°	7	3	3	140-31DW	1.8	60°	4	2	2	140-31DW	1.8	60°	4	2	2

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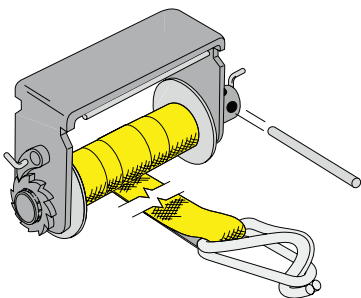
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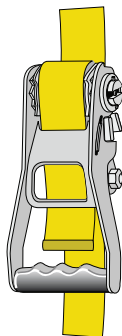
LASHING	SIZE	TENSIONER	PRE-TENSION
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Webbing	50 mm	Truck winch	300 kgf
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	50 mm	Hand ratchet (push-up)	300 kgf
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Truck webbing winch



Push-up hand ratchet

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