1.0 This Certification:

This document provides certification for the restraint of general steel freight for Valmont Coatings or their subcontractors. Alternative load restraint systems or methods may be used provided they are supported by testing or engineering advice that demonstrates compliance with schedule 7 of the Heavy Vehicle (Mass, Dimension and Loading) National regulation 2018.

Applies to :

- Road transport of general steel freight to the requirements of the performance standards in schedule 7 of the Heavy Vehicle (Mass, Dimension and Loading) National regulation 2018.
- All packaged items restrained using this guideline to be packaged per ELRG615

2.0 Load Restraint Equipment Requirements:

- Slippery surfaces (eg steel to steel); must be avoided where possible.
- 50mm webbing, conforming to AS/NZS4380 tensioned to a minimum pre-tension of 300kg.f averaged across the load with a Standard Ratchet.
- Equipment must be in good working order. Inspect the webbings for wear, and do not use if more than 10% worn.



Stretched Webbing

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More than 10% wear

- Recommend hardwood dunnage. Software dunnage can be used for single use applications unless specified. Dunnage min 75 x 75 to be used under loads at all times.
- 8mm transport chain, conforming to AS/NZ 4344 tensioned to a minimum pre-tension of 750kg.f averaged across the load.
- X Chains with excessively damaged, worn or bent links must not be used.
- 🗶 Over center lever load binders (dogs) are a high risk and are not to be used.
- Ausbinders, Turnbuckle ratchet, Web-dog binders or similar are a suitable alternative to dogs provided a minimum pre-tension of 750kg.f can be achieved.



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General Load Restraint Guide - Ingal 3.0 Blocking



- A load more than 200mm from the headboard is unblocked.
- Engineered headboards are preferred over reinforced pipe gates.
- Do not use pipe gate headboards without reinforcing



Stillages can not be used for blocking

Engineered Headboard:



Recommended Headboard type



Top layer must not extend more than half its height above the headboard to be considered blocked

Reinforced Pipe Gate:



Reinforce pipe gates by placing two chains through RHS sections welded to the pipe gate.



Pipe gates are only suitable for loads that are covered by both reinforcing chains.



Divisible loads covered by both chains.

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General Load Restraint Guide - Ingal

6.0 Load Configuration

- Where practicable ensure the load configuration reflects the delivery sequence.
- Before Loading; Packaging of bundles and or pallets must be completed to Engistics ELRG615 Packaging Guideline.

Key load building objectives

- Block loads wherever possible.
- Pyramid load is recommended to ensure all items in the load have sufficient clamping.
- ✓ Guard rails require hardwood timber dunnage.
- ✓ Short product on top of longer product
- Maximum 2 items on top layer.
- ✓ Narrow product on top of wider product
- Light products on top of heavier products
- Build layers of product that allow each item to have some down force from the product above
- Consider the unloading requirements side of vehicle, location of on-truck crane etc.
- Always consider how the load will look after each drop. Belly wrapping/choking will be required for multidrop loads.
- Slippery surfaces (eg steel to steel); must be avoided where possible.



Stillages can not be used for blocking

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sition loads so that axle loads are within specified limits

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6.0 Load Configuration - Risks and Solutions



Item 1: not clamped. Item 2: centre items in layer have clamping



Item 1: Small bulk items do not receive clamping or blocking



Item 1: clamped into freight with load choke Item 2: Pyramid stack provides clamping to all items



Crates can also be used if blocking capacity sufficient.

Item 1: Small bulk items restrained in crates or stillages blocked in all directions.



Curved poles stacked to side of load can topple easily



Pyramid stack by placing packaged steel poles on top of other product

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ounnage has unsupported span and is likely to break Strengthen span with nested dunnage

Place low height items on top



No Steel on Steel loads



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General Load Restraint Guide - Ingal

6.0 Load Configuration - Continued



to increase friction between packs and prevent spearing when unblocked

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7.0 Multi Drop Considerations

Loads should be built so that each layer will maintain clamping if the one above is removed.

- Litems that receive clamping from dunnage above may not be clamped once it is removed.
- A Items may need to be removed from load if clamping cannot be achieved across all drops.
- Restrain loads so that when above layers are removed the remaining lashings can restrain the mass for the next drop.

Load

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All items have clamping

Drop 1 - Problem 1 gaps in load



Pipe Bundle removed on first drop leaving gap to centre

Drop 2 - Problem 2 spearing



Structural Beams in centre have no clamping and could spear

Move product in



Belly wrap the layer to help prevent spearing



Blocking preferred to prevent spearing



Unitise with 2 x chains minimum around load, then tie down per section 11 & 12



Blocking preferred to prevent spearing

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9.0 Load Restraint - Belly Wrapping or Load Choking

- Load choke or belly wrap loads with multiple loose items
- Choking helps prevent spearing of packs by pulling load together
- Load choking is preferred over belly wrapping.
- Multi drop loads require load choking or belly wrapping at all times unless load is blocked.
- It is good practise to place binders on alternative sides of the truck to achieve better clamping
- Place lashings as close to dunnage positions as possible.



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Load chokers over unblocked load to prevent spearing



10.0 Load Restraint - Tie Down

- Tie down large indivisible items, packaged pallets or stillages
- It is good practise to place binders on alternative sides of the truck to achieve better clamping
- Place lashings as close to dunnage positions as possible
- 🛕 Maximum Height (H) difference in loads across deck 300mm
- Each row of pallets must be restrained according to their mass



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11.0 Blocked Loads (preferred) - Restraint Requirements:

- All product must be **within 200mm** of blocking surface : headboard or other blocked items Ensure loads are packaged to Engistics ELRG615 before restraining load.
- Multi-abreast top rows must be belly wrapped/choked and may require extra lashings.
- No gaps between stacks.

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Unsatisfactory - Braking forces may lead to instability



1/2 height of pallet behind

Lashing Requirements: RawTimber Dunnage

- The weight of the load determines the number of lashings.
- Belly wrap or load choke every layer of multidrop loads. Preferably apply chokes during load building before higher layers are added. This assists with closing gaps.
- These tables assume downward pressure on all items
- Apply number of lashings per table below

REMEMBER: each layer can have different lashing angles

Rough Sawn Dunnage : Number of lashings required for payload mass.

Blocked loads (eg Engineered Headboard) Payload (kg) Webbing Chain Lashing Angle 60 - 90° 30 - 59° 30 - 59° 60 - 90° 1 - 1000 2 1001 - 2000 4 2 2 2001 - 3000 5 2 3001 - 4000 7 3 3 4001 - 5000 8 4 4 5001 - 6000 Not Practical



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General Load Restraint Guide - Ingal 12.0 Non Blocked Loads (non preferred) - Restraint Requirements:

All product **more than 200mm** of blocking surface : headboard or other blocked items Ensure loads are packaged to Engistics ELRG615 before restraining load.

- Multi-abreast top rows must be belly wrapped/choked and may require extra lashings.
- No gaps between stacks.

Unblocked loads have high potential of spearing ensure packaging is sufficient.





Lashing Requirements: Raw Timber Dunnage

- The weight of the load determines the number of lashings.
- Belly wrap or load choke every layer of multidrop loads. Preferably apply chokes during load building before higher layers are added. This assists with closing gaps.
- These tables assume downward pressure on all items
- Apply number of lashings per table below

Rough Sawn Dunnage : Number of lashings required for payload mass.

Pavload	Non Blocked Loads					
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Webbing		Chain			
Lashing Angle	30 - 59°	60 - 90°	30 - 59°	60 - 90°		
1 - 1000kg	7	7	3	2		
1001 - 2000	Not Practical	Not Practical	6	4		
2001 - 3000	Not Practical	Not Practical	8	6		
3001 - 4000	Not Practical	Not Practical	Not Practical	8		





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