SECTION 13A STEEL PRODUCTS

13A.1 GENERAL HANDLING REQUIREMENT

KiwiRail and steel producers have a statutory obligation to ensure that no wagon is transported with an unsafe load. To ensure compliance wagons must be loaded in accordance with the following procedures.

DO…

- ✓ Wear leather gloves when loading wagons
- ✓ Wear mandatory company PPE
- ✓ Follow approved dogman signals
- ✓ Pass chains through / over product

DO NOT…

- ✘ Stand beneath loads
- ✘ Place any part of the body between rail wagons and lifting devices / steel products
- ✘ Allow cranes and loaders to work on the same wagon simultaneously.
- ✘ Throw chains over product

13A.2 WAGON LOAD CAPACITY

➔ These are the maximum loads for wagons

➔ Some loading patterns introduce further restrictions

➔ Refer to the Quick Guides for Container & Wagon Operating instruction

Wagon type	Maximum load (tonne)
JP	40
JPS*	40
JPC	37.4
JPK	40
JF	49 (@18t axle load)
US	40
USB	45
UKH	41
GBW	10

* When JPS wagons are loaded with GOA or GOS cradles, the cradle weight must be added to the products weight.
GOA = 1 tonne without lid.
= 1.6 tonne with lid.
GOS = 1 tonne.

Example: A JPS wagon loaded with four 5 tonne coils in GOS cradles, this will make a total load of 24 tonne.

13A.3 WAGON LOADING INSTRUCTIONS

WRAPPED SHEET PACKS

- This dunnaging drawing is based on wrapped steel sheet packs 1520mm wide, of various lengths.
  Packs of any other width shall comply with the requirements of this drawing.
- The overall height of the load on the wagon deck shall not exceed 900mm or 4 packs.
- The total capacity of the wagon must not be exceeded.
- The load must be located centrally across the wagon. However narrow packs may be placed side by side
- The load must be spread evenly over the length of the wagon.
- Strops only are to be used to secure sheet packs if the load is less than 2500kg
- When the load exseeds 2500kg a minimum combination of, 2 bond chain or 1 bond chain and 2 strop must be used. "Grooved"dunnage is to be used with bond chains (see page 14).

COILS

- The dunnaging of coils shall comply with the following:
- It is important to secure all dunnage to prevent longitudinal movement of product and bearers.
- To make unloading easier, the gap between coils should be at least 200mm or the width of two pieces of dunnage with the 100mm edge facing down.
- All coil angle bearers are to be hard against the ends of the wagon and cut to come flush with any floor packing for flat packs etc. All nails are to be 150mm long and driven right home.
- Use strops as, shown, to prevent lateral movement.
- Webbing strops and bond chains have been placed at intervals along the wagon side to secure loads.
- For coils over 5 tonnes bond chains placed (as shown) through centre of coils must be used. Bore protectors must be used with chains. Ensure coils are placed opposite bond chains.
- For coil diameters over 730mm and under 5 tonnes in weight, strops must be used as these coils will roll out of angle bearers under worst state conditions.
- Under no circumstances are coils to touch the wagon deck.
- For coil sizes over 10 tonnes a USB class wagon must be used.

Correct Use Of Wagon Load Securing Equipment

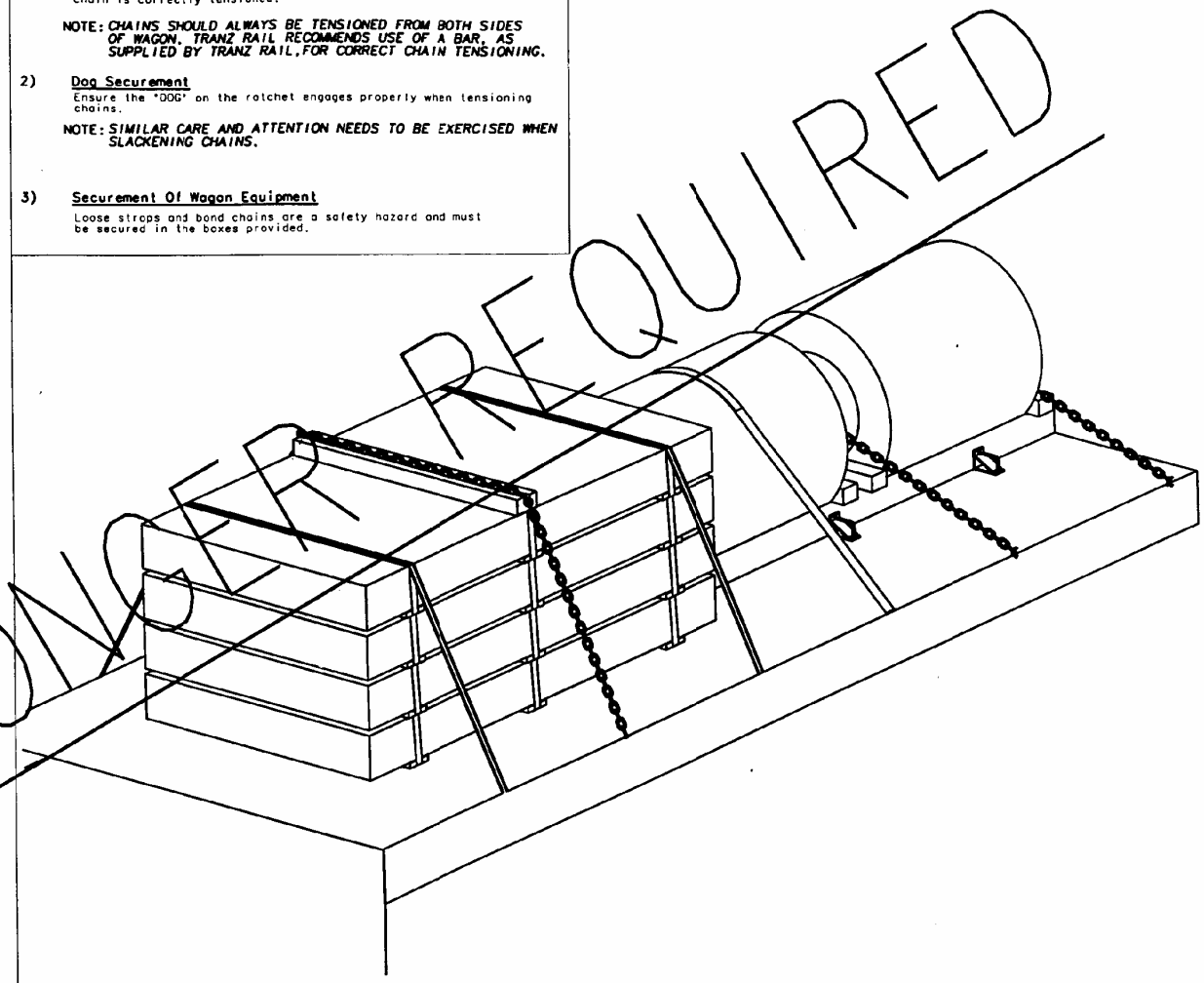
1) **Chain Tensioners**
Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**
Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**
Loose strops and bond chains are a safety hazard and must be secured in the boxes provided.



PAGE 3

VERSION C
DRAWING NUMBER 14000023
DATE 6-6-97

COLD ROLLED PRODUCTS, MIXED COIL & WRAPPED SHEET PACKS TRAFFIC IN JPS WAGONS

KiwiRail

LOADING

- The load must be positioned centrally along the length and across the width of the wagon.
- NOTE: JP/JPS wagon length allows two stacks of pipe up to 6.5 metres long. For 8 metre lengths see Page 9 for load distribution.
- Each bundle must be steel strapped in at least three places along its length.
- The load must not be more than five bundles or 2.1 metre maximum height.
- The total load capacity of the wagon must not be exceeded. See page 6.
- Rough sawn timber bearers to be 100mm x 75mm x 2260mm long positioned between each layer of bundles. The bearers are to be positioned such that a 100mm gap is provided between the bundles.
- Bundles of the same height and weight are to be carried in the same layer.
- When a complete layer cannot be made up of one size of bundles, two large bundles of the same size can be placed at the outside with the smaller bundles in the centre and dunnaged to fill the space between all small bundles and the timber bearers. All bundles on the top must have contact with the bond chains, so no longitudinal movment is possible This arrangement, however, must not apply to the two bottom layers. It is preferable that the bottom layer is made up of RHS.
- For single stacks of pipe bond chains cross over at the top (see drawing.)
- For two stacks on one wagon,ie JP type, secure chain to anchor point directly opposite.
- With loads of 8m RHS there must be a minimum of three bond chains over load. Any shorter length RHS secure the same as pipe

Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**

Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

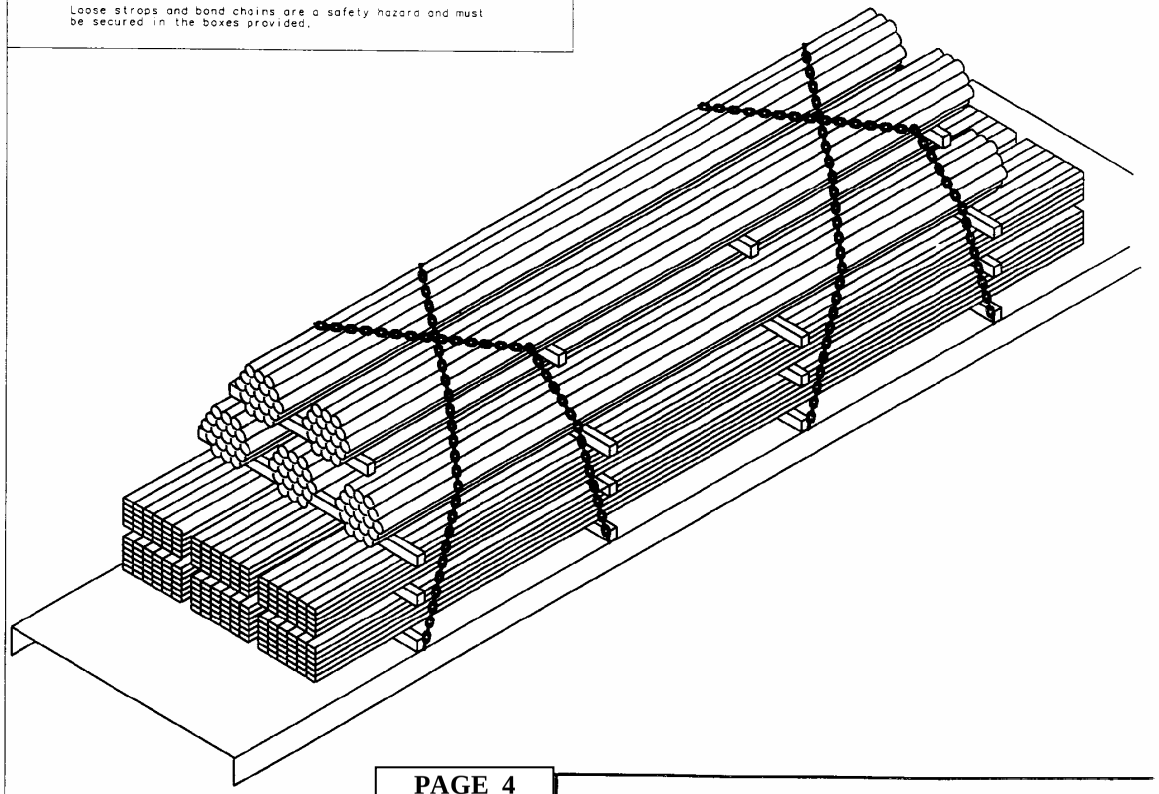
2) **Dog Securement**

Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**

Loose straps and bond chains are a safety hazard and must be secured in the boxes provided.

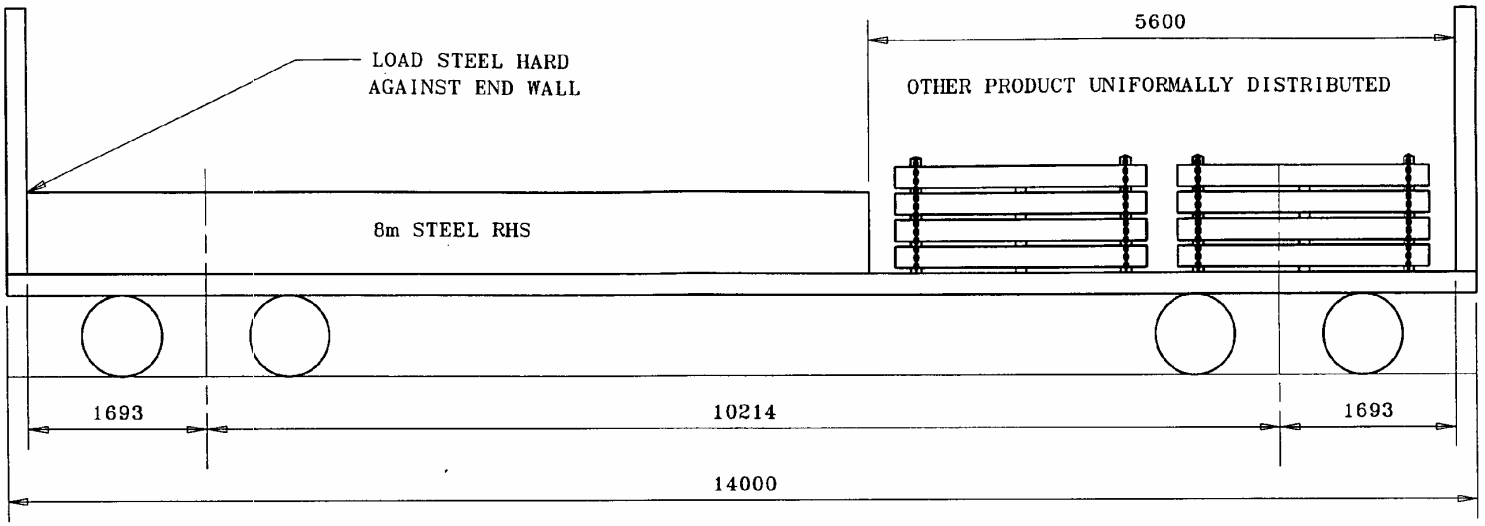


PAGE 4

VERSION D
DRAWING NUMBER 14090024
DATE 22-12-97
FILE MS204/01

HOLLOW SECTION PRODUCTS ON JP & JPS WAGONS

KiwiRail



MASS OF 8m STEEL PRODUCT (tonnes)	MASS OF OTHER PRODUCT (tonnes)
1	22.2
2	22.0
3	21.7
4	21.4
5	21.2
6	20.9
7	20.7
8	20.4
9	20.2
10	19.9
11	19.6
12	19.4
13	19.1
14	18.9
15	18.6
16	18.4
17	18.1
18	17.8
19	17.6
20	17.3
21	17.1
22	16.8
23	16.6
24	13.5
25	6.5
26	0

- Steel product is to be loaded hard against the end wall.
- All products are to be secured as detailed on the relevant page for that product.
- When using GOA or GOS cradles in JPS wagons. The cradles mass is to be added to the product mass.
  GOA 1000kg without lid
  1600kg with lid
  GOS 1000kg

MAXIMUM DOOR OPENING SIZE IS 8.1 METRES

PAGE 5

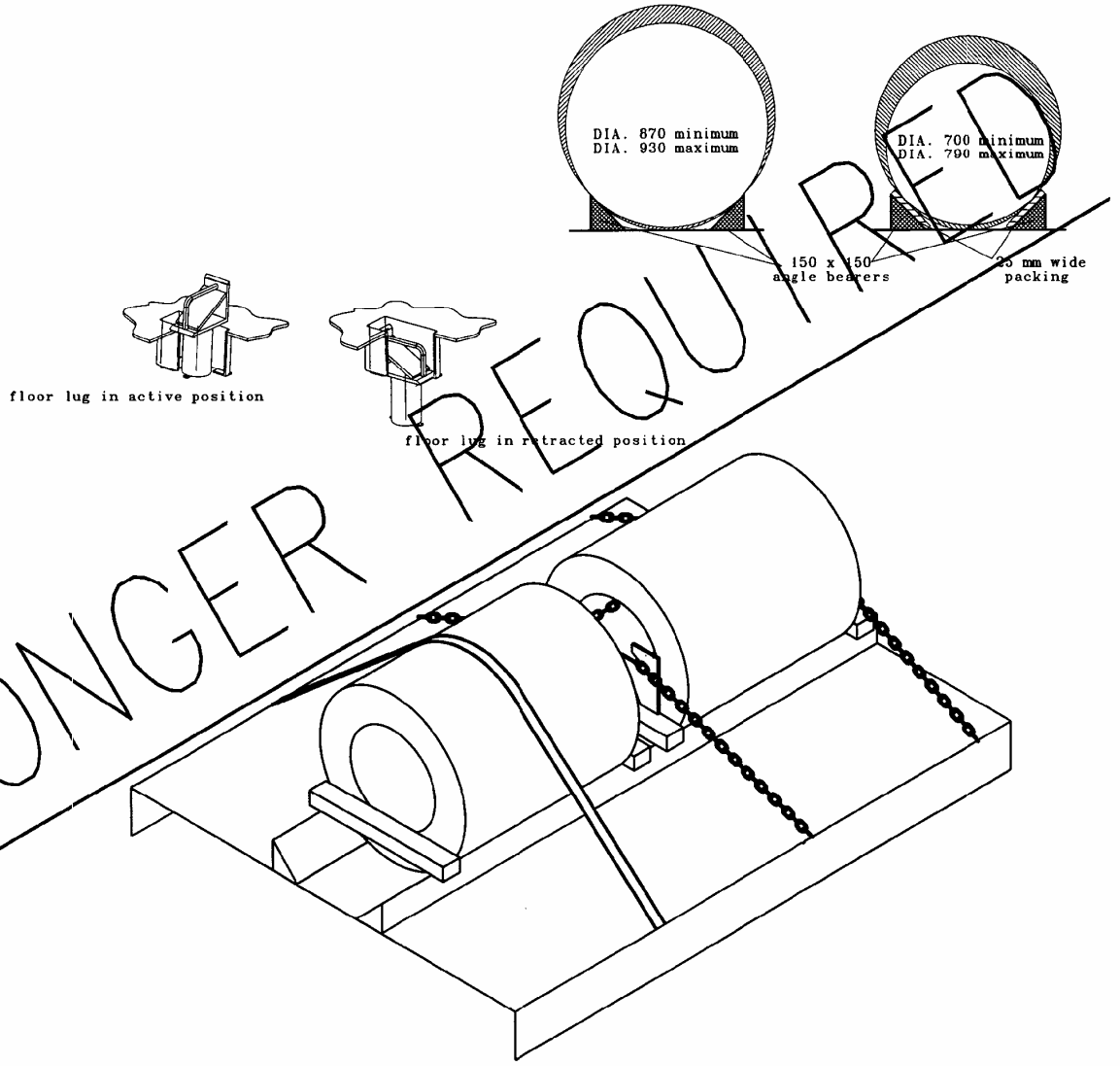
VERSION C

DISTRIBUTION OF LOAD ON JP & JPS WAGONS

8m STEEL AND OTHER PRODUCTS

LOADING

- It is important to secure all dunnage to prevent longitudinal movement of product and bearers.
- To make unloading easier, the gap between coils should be at least 200mm or the width of two pieces of dunnage with the 100mm edge facing down.
- All coil angle bearers are to be hard against the ends of the wagon and cut to come flush with any floor packing for flat packs etc. All nails are to be 150mm long and driven right home.
- Use strops, as shown, to prevent lateral movement.
- Webbing straps and bond chains have been placed at intervals along the wagon side to secure loads.
- For coils over 5 tonnes, bond chains placed (as shown) through centre of coils must be used. Bore protectors must be used with chains. Ensure coils are placed opposite bond chains.
- For coil diameters over 730mm and under 5 tonnes in weight, strops must be used as these coils will roll out of angle bearers under worst state conditions.
- Under no circumstances are coils to touch the wagon deck.
- For coil sizes over 10 tonnes a USB class wagon must be used.



Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**

Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / slow one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**

Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**

Loose strops and bond chains are a safety hazard and must be secured in the boxes provided.

PAGE 6

VERSION C
DRAWING NUMBER 14090025
DATE 6-6-07
FILE MB294/01

HORIZONTAL STEEL COIL TRAFFIC IN JPS WAGONS

LOADING

- This dunnaging drawing is based on steel packs up to 1520mm wide, of varying lengths–average length 2400mm. Packs of any other width shall comply with the requirements of this drawing.
- All plates of the same width and length must be stacked together. Longest and widest plate must ALWAYS form the base of the load.
- The overall height of the load on the wagon deck shall not exceed 900mm or 4 packs.
- The total capacity of wagon must not be exceeded.
  JP wagon 40 tonnes
  JPS wagon 40 tonnes
- The load must be spread evenly over the length of the wagon.
- The load must be located centrally across the wagon. However narrow packs may be placed side by side to form one unit.
- Strops are only to be used to secure steel sheet packs if the load is less than 2500kg.
- When the load exceeds 2500kg a minimum combination of, 2 bond chains or 1 bond chain with 2 strops must be used. "Grooved" dunnage is to be used with bond chains (see page 14).

Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**
Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**
Ensure the "DOG" on the ratchet engages properly when tensioning chains.

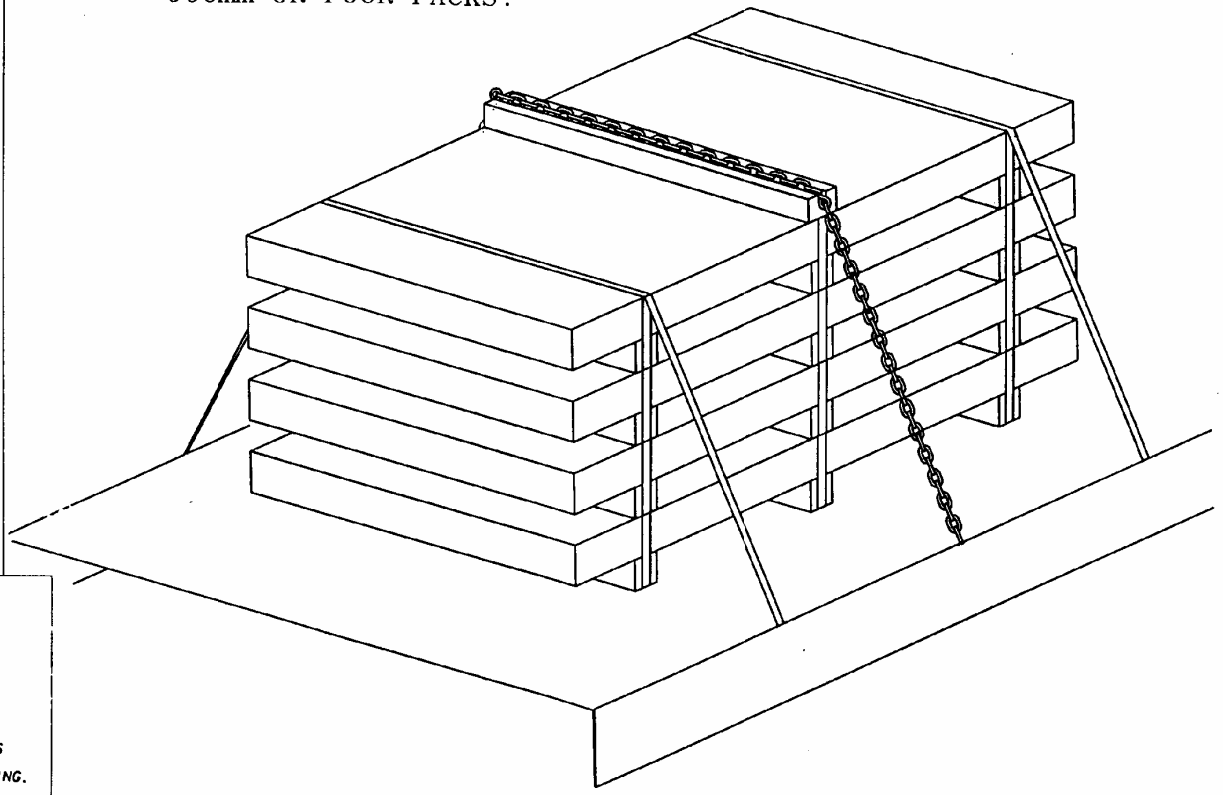
NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**
Loose strops and bond chains are a safety hazard and must be secured in the boxes provided.

LOADED EX COLD MILL & HRC

THESE PACKS ARE STEEL WRAPPED ON PALLETS WITH 75 X 100mm DUNNAGE STRAPPED TO THE PRODUCT

LOAD HEIGHT IS NOT TO EXCEED 900mm OR FOUR PACKS.



PAGE 7

VERSION C
DRAWING NUMBER 14090028
DATE 1-11-97
FILE MP004/01

WRAPPED STEEL SHEET PACK TRAFFIC IN JP & JPS WAGONS

- This dunnaging drawing is based on steel packs up to 1520mm wide, of various lengths. Packs of any other width shall comply with the requirements of this drawing.
- All plates of the same width and length must be stacked together. Longest and widest plate must ALWAYS form the base of the load.
- The overall height of the load on the wagon deck shall not exceed 900mm or 4 packs.
- The total capacity of Wagon must not be exceeded.
  - -JP wagon 40 tonnes
  - -JPS wagon 40 tonnes
- The load must be located centrally across the wagon. Narrow packs may be placed side by side
- The load must be spread evenly over the length of the wagon.
- Bond chains are to be used to secure loads. Strops may be used with corner protectors, or dunnage but a minimum of one bond chain with two strops per stack must be used. "Block dunnage" must be used under bond chains (see page 14).
- Each layer is to be dunnaged with a minimum size 75mm X 50mm timber, to be placed vertically in line with the chains/strops.

Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**

Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**

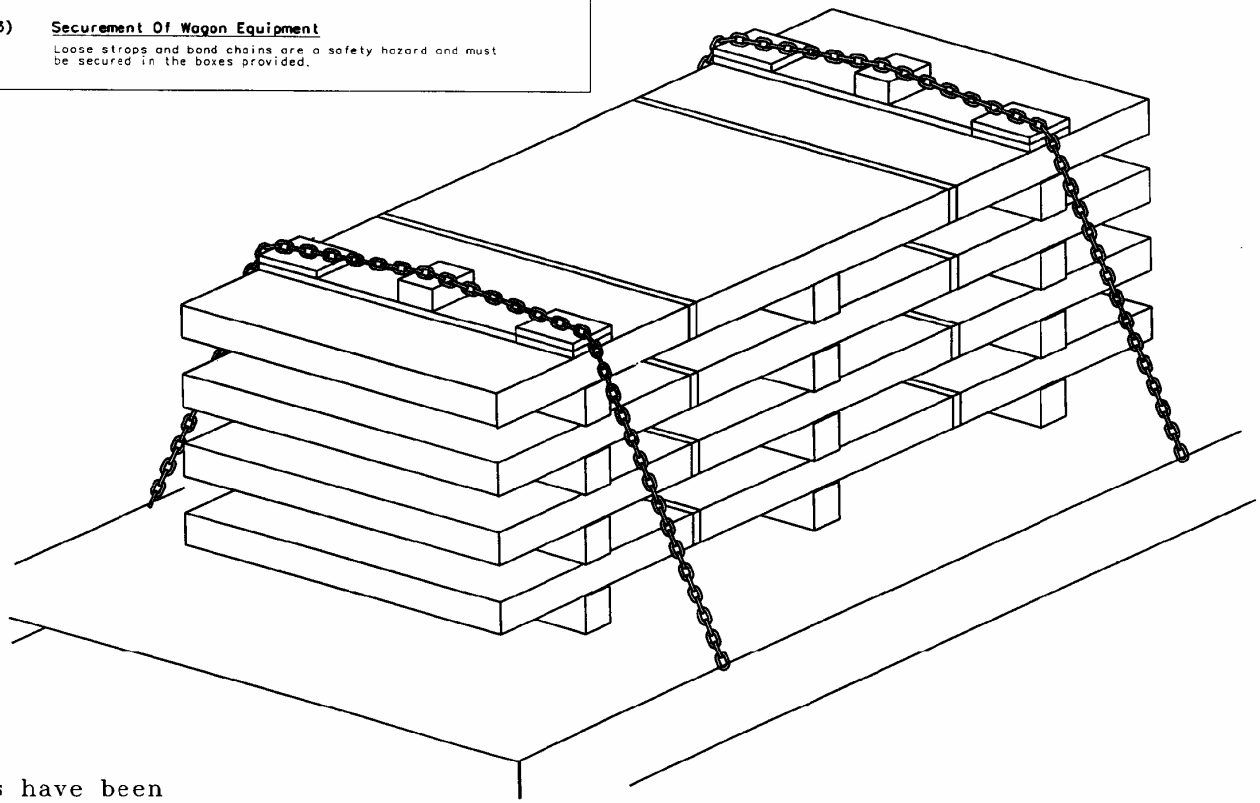
Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**

Loose strops and bond chains are a safety hazard and must be secured in the boxes provided.

LOAD HEIGHT IS NOT TO EXCEED 900mm OR FOUR PACKS.



Bond chains have been placed at intervals along the wagon side to secure load.

PAGE 8

VERSION D

LIGHT PLATE (HRC) TRAFFIC IN JP & JPS WAGONS

KiwiRail

LOADING

- This dunnaging drawing is based on steel packs up to 1520mm wide, of varying lengths with an average length of 2400mm. Packs of any other width shall comply with the requirements of this drawing.
- All plates of the same width and length must be stacked together. Longest and widest plate must ALWAYS form the base of the load.
- The overall height of the load on the wagon deck shall not exceed 900mm or four packs.
- For domestic customers, each layer of plate must be dunnaged with a minimum size 75mm x 50mm.
- For export customers, each layer of plate must be dunnaged with a minimum size 100 x 75mm.
- Dunnage must be placed vertically in line with the chains
- Grooved dunnage, as shown must be placed under the chains on the top layer, the chains placed through the groove (see page 14).
- The total capacity of the wagon must not be exceeded
  - -US wagons 40 tonnes
  - -UR wagons 30 tonnes
- The load must be located centrally across the wagon.
- The load must be spread evenly over the length of the wagon.
- Bond chains only are to be used to secure loads.
- Plates may be stacked together to form a pack, but MUST have a minimun of two straps over the length of the pack.

Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**

Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**

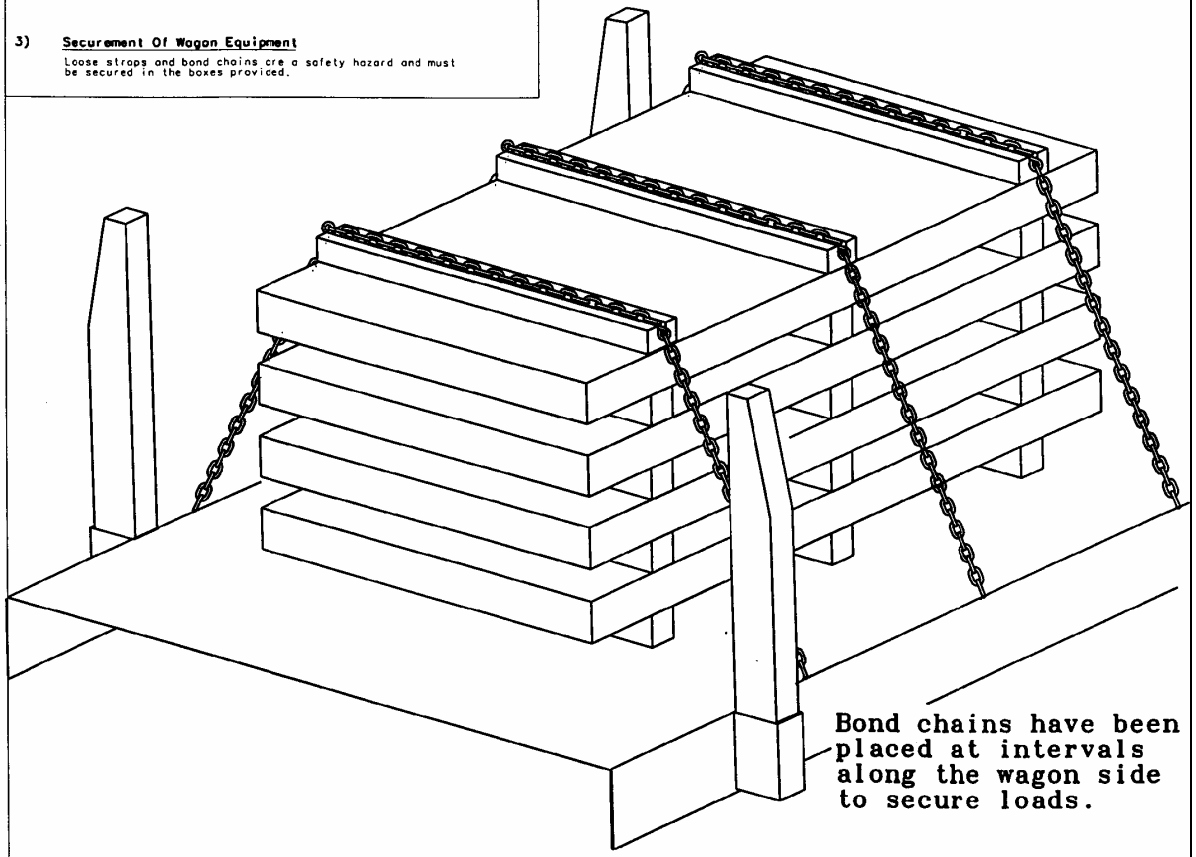
Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**

Loose straps and bond chains are a safety hazard and must be secured in the boxes provided.

LOAD HEIGHT IS NOT TO EXCEED 900mm OR FOUR PACKS



Bond chains have been placed at intervals along the wagon side to secure loads.

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VERSION C

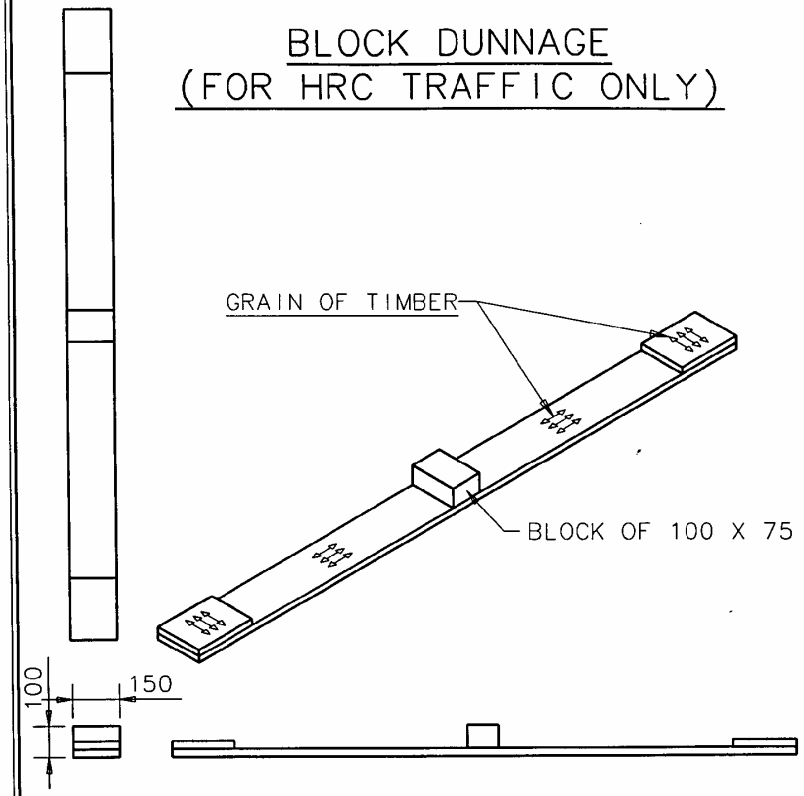
DRAWING NUMBER 14000687

DATE 1-11-07

HEAVY PLATE (HRM) TRAFFIC IN US WAGONS

KiwiRail

BLOCK DUNNAGE
(FOR HRC TRAFFIC ONLY)

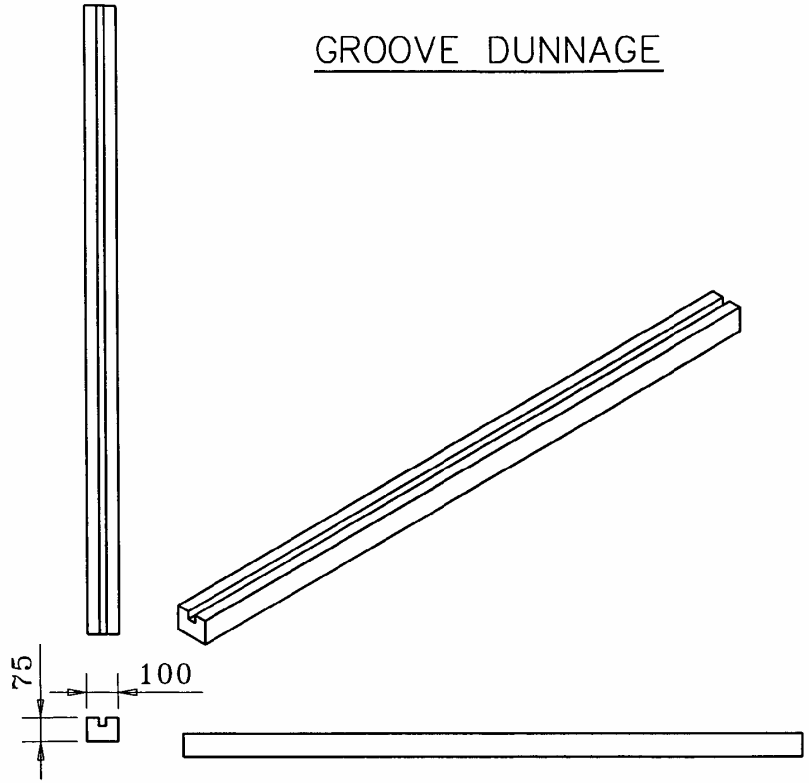


To be made from 150 x 25 rough sawn timber. Overall length is to be equal to the width of the top sheet/pack.

End blocks are to be made from offcuts of 150 x 25mm and nailed with grain at right angles to base (see drawing).This will prevent splitting.

The centre block is to be made from 100 x 75mm. This dunnage must be placed under chains.

GROOVE DUNNAGE



To be made from 100 x 75 rough sawn timber. The overall length is to be equal to the width of the top sheet.

The groove is to be 25mm wide by 25mm deep and in the centre of the 100mm face.

PAGE 10

VERSION C

TOP DUNNAGE

LOADING

- Load must be positioned so that weight is evenly spread over the length and width of the wagon.
- The total capacity of the wagon must not be exceeded.
  - -JP wagon 40 tonnes
  - -JPS wagon 40 tonnes
- Method of dunnaging of any other pattern of loading must comply with that shown on this drawing.
- Blocks must be placed between chain and coil where chain may contact coil. The block must be secured to chain with 150mm nail to maintain position in transit.
- The drawing shows a typical loading pattern only. The corner posts are to be hard against the coils and secured to the pallet.

CONFIGURATION MUST BE ONE OF THE FOLLOWING:

a) ○○○ c) ○○○ ○○○ e) ○

b) ○○ ○○ d) ○○

*NB. Groups of coils must be strapped, with high tensile strapping, top and bottom, as shown in drawing. Narrow coils must be at each end of any group to ensure strapping contacts all coils in group.

COILS FOR THE SAME DESTINATION ONLY ARE TO BE GROUPED TOGETHER. LIAISE WITH BHP STEEL DISTRIBUTION FOR ASSISTANCE IF REQUIRED.

Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**

Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**

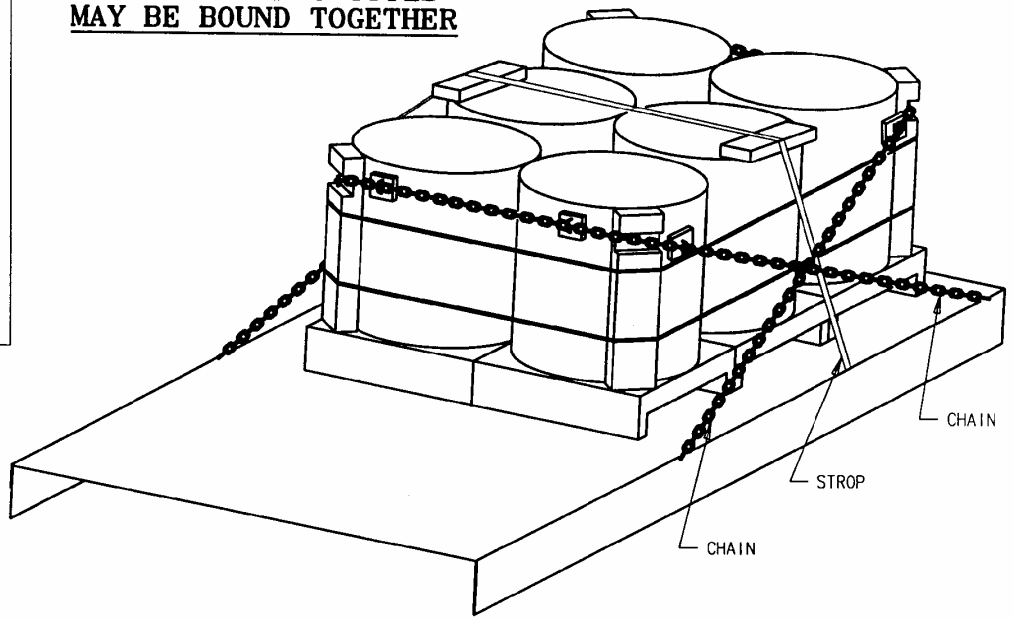
Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**

Loose straps and bond chains are a safety hazard and must be secured in the boxes provided.

A MAXIMUM OF 6 COILS MAY BE BOUND TOGETHER



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VERSION E

DRAWING NUMBER 14000000

DATE 22-10-07

FILE 00004/01

COLOR-STEEL TRAFFIC IN JP & JPS WAGONS

Kiwi Rail

LOADING USB WAGONS

1. BEFORE LOADING CRADLE CHECKS
   - 1.1 Two chains, each approximately 4 metres long, welded to cradle. If not do not load.
   - 1.2 Bearers must be in good condition with no large chunks out of the load bearing surface. If not do not load
   - 1.3 Bearer straps secured. If not do not load.
   - 1.4 Chain slots must retain chain without jamming. If not do not load.
   - 1.5 Two winged collars available per cradle. If not do not load.
   - 1.6 All four cradle guides are attached to cradle and in good working condition. If not do not load.
   - 1.7 IF THE CRADLE DOES NOT MEET THE STANDARD - DO NOT LOAD. Fax AER to Weighbridge (8805) recording wagon lD, cradle ID and brief description of defects. Distribute load evenly over remaining cradles on the wagon.

2. COIL LIMITS
   - 2.1 The maximum coil dimensions allowed per cradle are,
     Coil Diameter 1900mm
     Coil Width1560mm (coils can be placed side by side up to a maximum width of 2000mm)
     Coil Weight 18500kg
   - 2.2 In addition to the above limits. The coil diameter is limited to 2.5 times the width i.e. A coil 400mm wide could be no larger than l000mm in diameter.

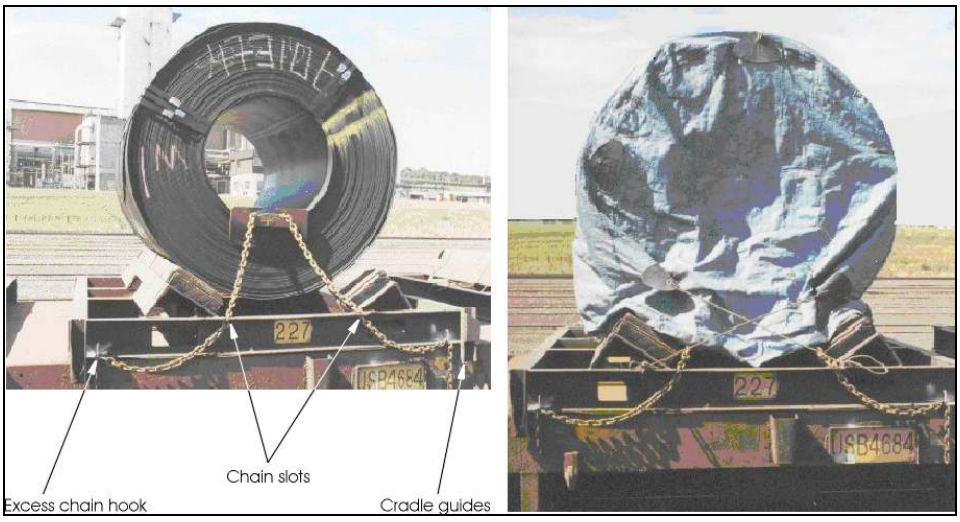
3. COIL LOADING
   - 3.1 Coils to be centrally positioned on cradles. Maximum tolerance is ± 50mm.
   - 3.2 Maximum load for USB wagons is 45 tonnes evenly distributed.
   - 3.3 18500kg coils must be loaded over the bogies, not in the centre of the wagon.

4. COIL CHAINING
   - 4.1 Both chains must be untwisted prior to commencing loading.
   - 4.2 Both collars must be held firm against coil sides after hand tightening chains.
   - 4.3 Both chains must be hand tight between cradle slots and collar slots, and through the bore between collars. The following sequence of chaining will help to ensure this:
     - Place collar into bore of welded chain end first.
     - Hold collar firmly against coil face while hand tightening and collar slotting each untwisted chain.
     - Off side Loader places collar into bore.
     - Loaders hold collars firmly against coil face while off side Loader pulls each untwisted chain, hand tight, between the collars before collar slotting.
     - Off side Loader tightens and cradle slots untwisted chains.
   - 4.4 Secure excess chain on hooks provided adjacent to cradle guides.

5. COIL LOADING REVIEW
   - 5.1 Check that each wagon has been loaded in accordance with this procedure.
   - 5.2 Complete the Distribution Rail Loading Advice form and fax to Rail Station.

6. TARPING
   - 6.1 All export coil is to be tarped to prevent entry of water and wind (refer to photograph for preferred method).
   - 6.2 Tightly tie tarp ropes using a "Round Turn and Two Half Hitches" knot (refer Page 18).

7. UNLOADED WAGONS
   - 7.1 Toll Logistics Warehouse staff to ensure that collars (one per side) flat side up and chains (welded side) are stowed in side pockets. If not RECTIFY.



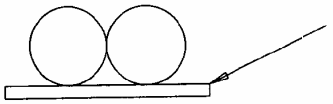
SCOPE

The procedure is for LWL consignments of Colorsteel products.

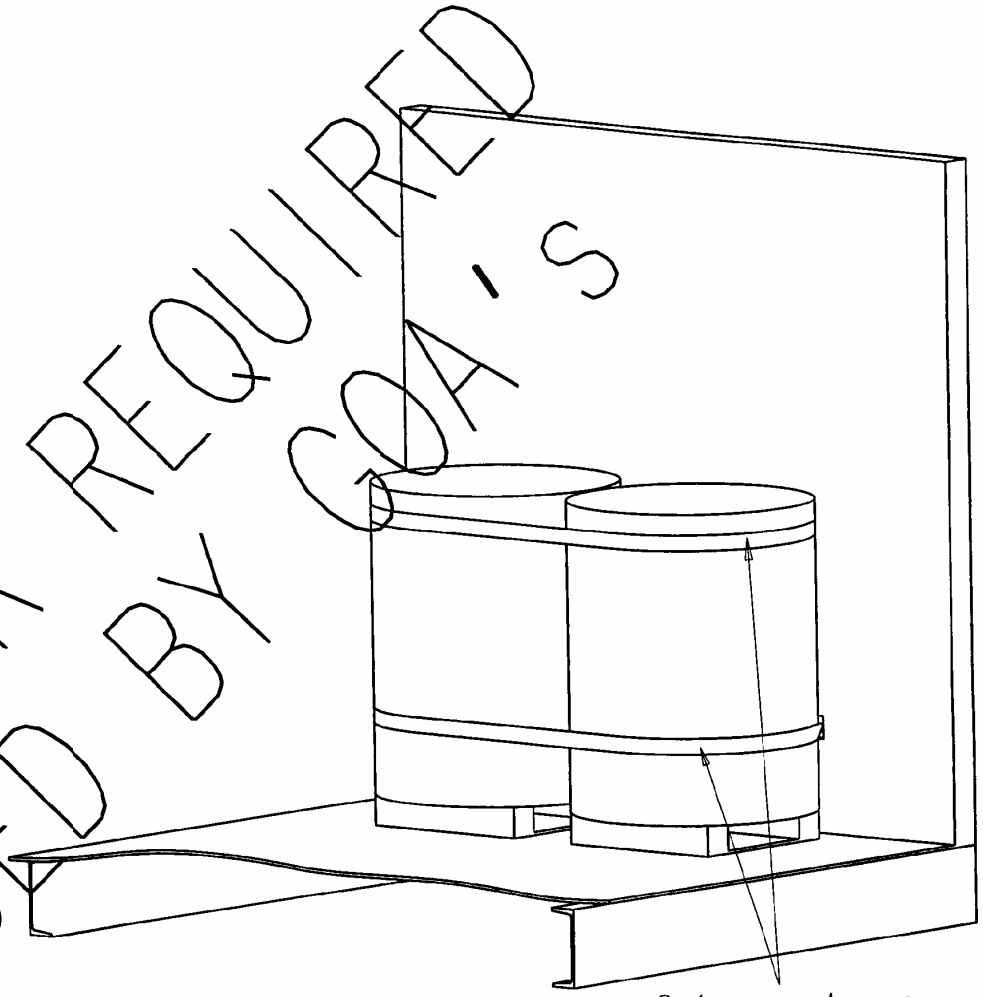
DETAIL

- Only GSW type containers are to be used.
- Coils must be loaded against the bulk head of the container, in groups no greater than one out from bulk head. Combined weight must not exceed maximum for container (10 tonnes) and be evenly distributed

birds-eye view



- All coils must be strapped top and bottom as a group or individually.
- Strops must be protected from the sharp edges of the coils.



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VERSION C

DRAWING NUMBER 14090033

DATE 9-6-97

FILE WRD94/01

COLORSTEEL

- The total load on the wagon must not exceed 40 Tonnes.
- The load must be located in the centre of the wagon.
- Bond chains must be no less than 300mm from the ends of the slab
- A minimum of four bond chains are required
- Each slab is to be dunnaged with six lengths (two side by side) of 100 X 75mm timber, positioned 1000mm from each end of the slab and in the centre, as shown.
- Tyre walls (supplied) must be placed where chain contacts the edges of the slab
- Staunchions must be in place

Empty Returns

- Dunnage must be stacked centrally on the wagon and secured by chain
- Tyre walls to be correctly placed in wool pack provided and secured by chains

Correct Use Of Wagon Load Securing Equipment

1) **Chain Tensioners**

Ensure at least half a turn of chain is on ratchet before tensioning. If unable to tension chain so that "DOG" engages, slacken chain, and place hook / claw one link further on chain and re-tension. Follow this method until satisfied chain is correctly tensioned.

NOTE: *CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF WAGON. TRANZ RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TRANZ RAIL, FOR CORRECT CHAIN TENSIONING.*

2) **Dog Securement**

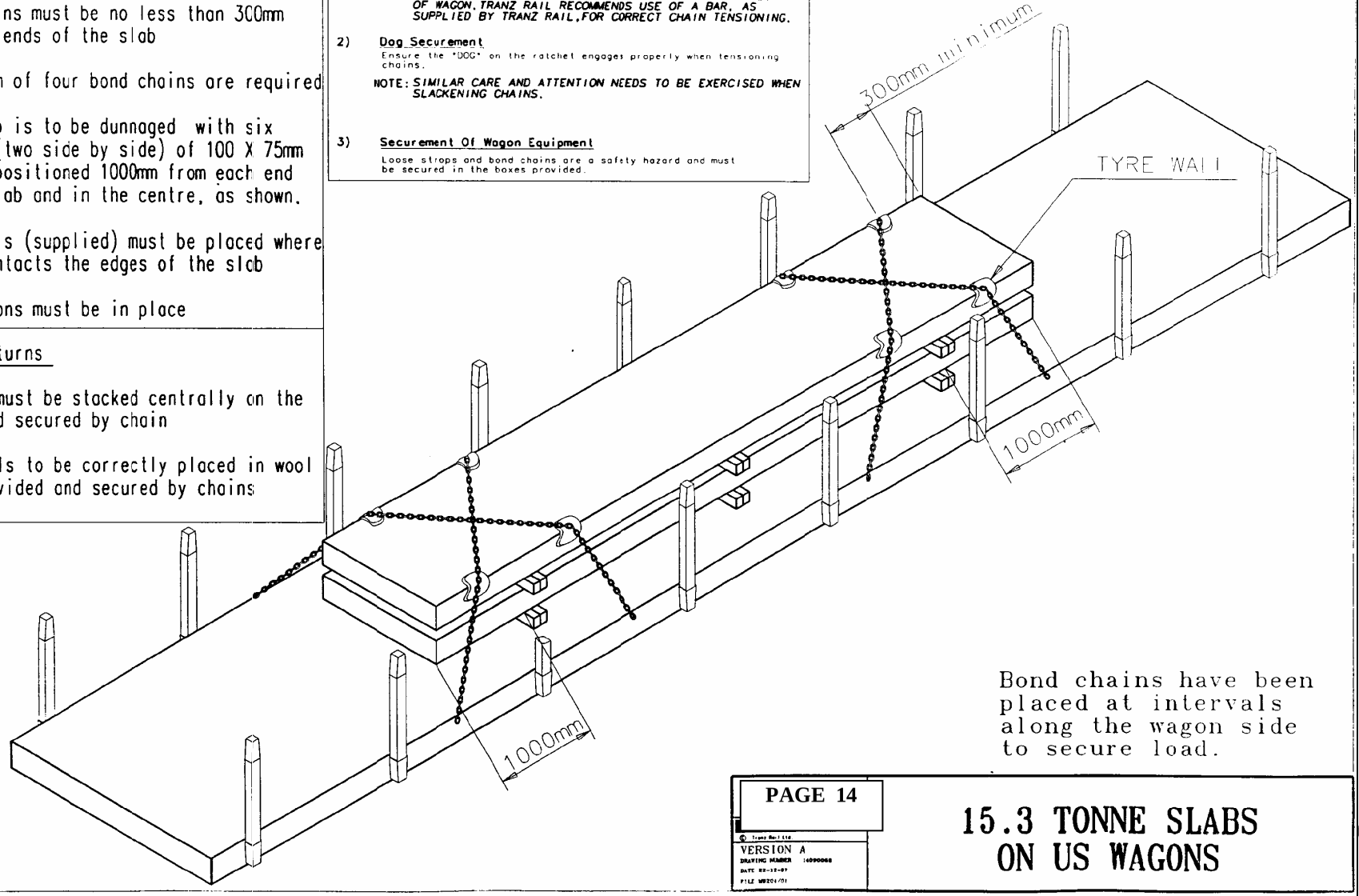
Ensure the "DOG" on the ratchet engages properly when tensioning chains.

NOTE: *SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.*

3) **Securement Of Wagon Equipment**

Loose straps and bond chains are a safety hazard and must be secured in the boxes provided.

MAXIMUM LOAD.
2 X 15.3 TONNE SLABS
PER WAGON



Bond chains have been placed at intervals along the wagon side to secure load.

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VERSION A
DRAWING NUMBER 14090068
DATE 22-12-97
FILE WB204/01

15.3 TONNE SLABS ON US WAGONS

KiwiRail

DO NOT SCALE | if in doubt ASK

No. REQD	ITEM	DESCRIPTION	MATERIAL No.	DRAWING No.
1	A	MODIFIED USQ FOR SLAB IMPORTS		15014796
1	B	BOND CHAIN AND CHAIN TENSIONERS		EXISTING
4	C	RATCHET LOAD BINDER (COOKES - 09026150)		COMMERCIAL
8	D	10mm WEITSLOCKS (COOKES - 02953510)		COMMERCIAL
AS REQD	E	Ø10mm GRADE 80 CHAIN		COMMERCIAL
1	F	LOAD		EXISTING

GENERAL NOTES
1. FOR USQ TYPE WAGONS ONLY.
2. THE LOAD MUST BE LOCATED IN THE CENTRE OF THE WAGON.
3. SLABS TO BE CUNNAGED AS INDICATED AND AS CLOSE TO THE END AS POSSIBLE.
4. BOND CHAINS ARE REQUIRED AS INDICATED. SEE DRAWING 15014796 FOR FITTING OF ADDITIONAL CHAINS
5. CHAINS ARE TO BE PROTECTED BY BRAKE HOSE WHERE THEY CONTACT THE EDGES OF THE SLAB.
6. ENSURE BRAKE HOSE PROTECTORS REMAIN ATTACHED TO CHAINS.

CORRECT USE OF WAGON LOAD SECURING EQUIPMENT (PERMANENT FITTED BOND CHAINS)
7. CHAIN TENSIONERS - ENSURE AT LEAST HALF A TURN OF CHAIN IS ON RATCHET BEFORE TENSIONING. IF UNABLE TO TENSION CHAIN SO THAT 'DOG' ENGAGES, SLACKEN CHAIN AND PLACE HOOK / CLAW ONE LINK FURTHER ON CHAIN, AND RE-TENSION. FOLLOW THIS METHOD UNTIL SATISFIED CHAIN IS CORRECTLY TENSIONED.

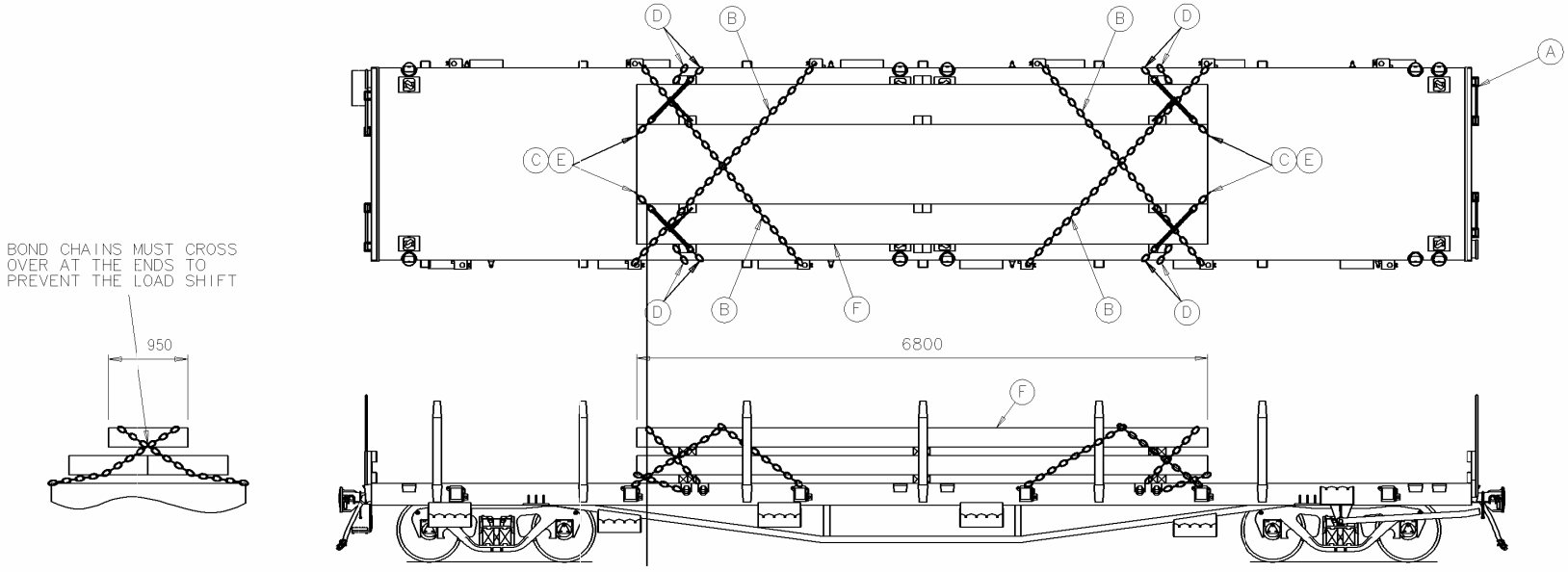
   NOTE: CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF THE WAGON.
   TOLL RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TOLL RAIL, FOR CORRECT CHAIN TENSIONING.

8. DOG SECUREMENT - ENSURE THE 'DOG' ON THE RATCHET ENGAGES PROPERLY WHEN TENSIONING CHAINS.

   NOTE: SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.

9. SECUREMENT OF WAGON EQUIPMENT - LOOSE STRAPS AND BOND CHAINS ARE A SAFETY HAZARD, AND MUST BE SECURED IN THE BOXES PROVIDED.

CAUTION: MAXIMUM COMBINED WEIGHT OF 6.8m LONG SLABS ON WAGON IS NOT TO EXCEED 35.1 TONNE



REV	DATE	ECN REF	REVISION	BY	APPD
B	24/03/06		CAUTION NOTE ADDED, LOAD & SECURING DETAILS CHANGED	DT	MSM

TOLERANCES - GENERAL + 10%
Dimensions up to and including 20mm D - 0
Dimensions between 20mm and 2500mm D ± 2.0
Dimensions over 2500mm D ± 4.0
Angular dimensions MAX 1.0 °

TOLERANCES - MACHINED COMPONENTS
Distance between centres of drilled holes D ± 0.3
Distance from centre of a drilled hole to machined face D ± 0.3
Distance over parallel machined faces D ± 0.3
Diameter of turned components D ± 0.3
Angular dimensions MAX 0.5 °

WELDING
Symbols to AS 1101.3 - 1987
Unless otherwise specified, all steel welding to NZS 1554.1:2004 or ANSI/AWS D15.1-93

I-DEAS CAD

PAGE 15

CHECKED W POWELL

APPROVED M S McKEON

AL MANAGER, ENGINEERING M S McKEON

DATE 11/08/05

MATERIAL

SIZE

EST. MASS

DIAGRAM USQ

THIRD ANGLE PROJECTION

TIE DOWN ARRANGEMENT FOR SLAB IMPORTS

15014795 ISSUE B

File: 15014795 Plotted : 4-4-06 10:51:49 a.m. SDRC I-DEAS Project: USE - JF Canopy

Kiwi Rail

DO NOT SCALE | if in doubt ASK

No. REQD	ITEM	DESCRIPTION	MATERIAL No.	DRAWING No.
1	A	MODIFIED USQ FOR SLAB IMPORTS		15014796
1	B	BOND CHAIN AND CHAIN TENSIONERS		EXISTING
4	C	RATCHET LOAD BINDER (COOKES - 09026150)		COMMERCIAL
8	D	10mm WEISLOCKS (COOKES - 02953510)		COMMERCIAL
AS REQD	E	ø10mm GRADE 80 CHAIN		COMMERCIAL
1	F	LOAD		EXISTING

GENERAL NOTES
1. FOR USQ TYPE WAGONS ONLY.
2. THE LOAD MUST BE LOCATED IN THE CENTRE OF THE WAGON.
3. SLABS TO BE DUNNAGED AS INDICATED AND AS CLOSE TO THE ENDS AS POSSIBLE.
4. BOND CHAINS ARE REQUIRED AS INDICATED. SEE DRAWING 15014796 FOR FITTING OF ADDITIONAL CHAINS
5. CHAINS ARE TO BE PROTECTED BY BRAKE HOSE WHERE THEY CONTACT THE EDGES OF THE SLAB.
6. ENSURE BRAKE HOSE PROTECTORS REMAIN ATTACHED TO CHAINS.

CORRECT USE OF WAGON LOAD SECURING EQUIPMENT (PERMANENT FITTED BOND CHAINS)
7. CHAIN TENSIONERS - ENSURE AT LEAST HALF A TURN OF CHAIN IS ON RATCHET BEFORE TENSIONING. IF UNABLE TO TENSION CHAIN SO THAT 'DOG' ENGAGES, SLACKEN CHAIN AND PLACE HOOK / CLAW ONE LINK FURTHER ON CHAIN, AND RE-TENSION. FOLLOW THIS METHOD UNTIL SATISFIED CHAIN IS CORRECTLY TENSIONED.

   NOTE: CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF THE WAGON.
   TOLL RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TOLL RAIL, FOR CORRECT CHAIN TENSIONING.

8. DOG SECUREMENT - ENSURE THE 'DOG' ON THE RATCHET ENGAGES PROPERLY WHEN TENSIONING CHAINS.

   NOTE: SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.

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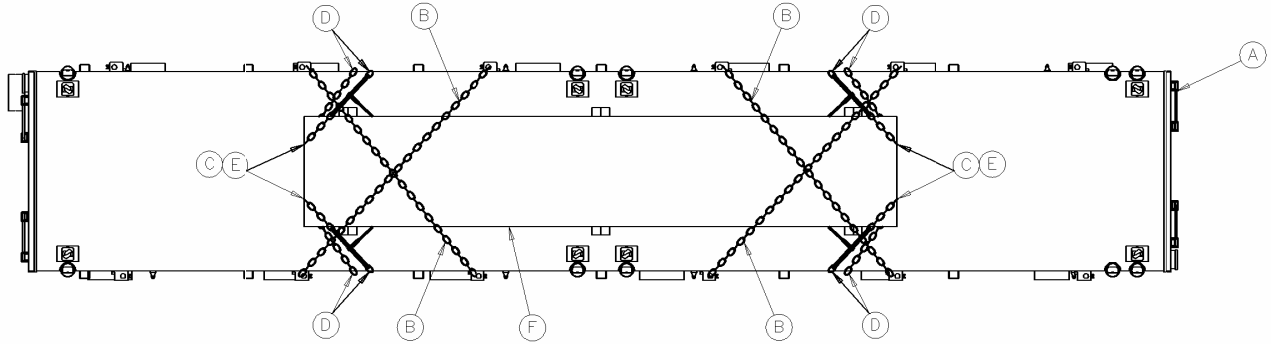
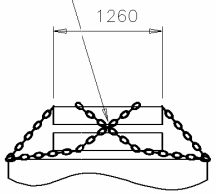
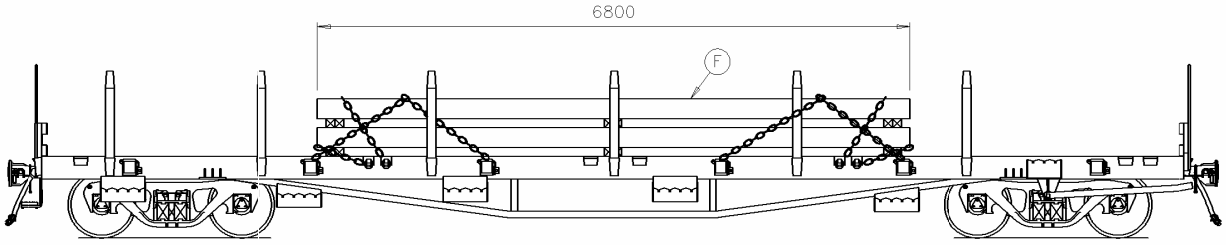
CAUTION: MAXIMUM COMBINED WEIGHT OF 6.8m LONG SLABS ON WAGON IS NOT TO EXCEED 35.1 TONNE



BOND CHAINS MUST CROSS OVER AT THE ENDS TO PREVENT THE LOAD SHIFT





TOLERANCES - GENERAL		TOLERANCES - MACHINED COMPONENTS	
Dimensions up to and including 20mm	D + 10% - 0	Distance between centres of drilled holes	D ± 0.3
Dimensions between 20mm and 2500mm	D ± 2.0	Distance from centre of a drilled hole to machined face	D ± 0.3
Dimensions over 2500mm	D ± 4.0	Distance over parallel machined faces	D ± 0.3
Angular dimensions	MAX 1.0 °	Diameter of turned components	D ± 0.3
		Angular dimensions	MAX 0.5 °

WELDING
Symbols to AS 1101.3 - 1987
Unless otherwise specified, all steel welding to NZS 1554.1:2004 or ANSI/AWS D15.1-93

I-DEAS CAD

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CHECKED W POWELL

APPROVED M S McKEON

GENERAL MANAGER, ENGINEERING M S McKEON

DATE 04/04/06

MATERIAL

SIZE

EST. MASS

DIAGRAM USQ

THIRD ANGLE PROJECTION

TIE DOWN ARRANGEMENT FOR SLAB IMPORTS - 2

15014788 ISSUE A

REV	DATE	ECN REF	REVISION	BY	APPD

File: 15014788 Plotted : 4-4-06 1:43:03 p.m. SDRC I-DEAS Project: USE - JF Canopy

Kiwi Rail

DO NOT SCALE | if in doubt ASK

No. REQD	ITEM	DESCRIPTION	MATERIAL No.	DRAWING No.
1	A	MODIFIED JPS FOR SLAB IMPORTS		15014798
1	B	BOND CHAIN AND CHAIN TENSIONERS		EXISTING
4	C	RATCHET LOAD BINDER (COOKES - 09026150)		COMMERCIAL
4	D	10mm WEITSLOCKS (COOKES - 02953510)		COMMERCIAL
AS REQD	E	ø10mm GRADE 80 CHAIN		COMMERCIAL
1	F	LOAD		EXISTING

GENERAL NOTES
1. FOR JPS TYPE WAGONS ONLY.
2. THE LOAD MUST BE LOCATED IN THE CENTRE OF THE WAGON.
3. SLABS TO BE DUNNAGED AS INDICATED AND AS CLOSE TO THE END AS POSSIBLE.
4. BOND CHAINS ARE REQUIRED AS INDICATED. SEE DRAWING 15014798 FOR FITTING OF ADDITIONAL CHAINS
5. CHAINS ARE TO BE PROTECTED BY BRAKE HOSE WHERE THEY CONTACT THE EDGES OF THE SLAB.
6. ENSURE BRAKE HOSE PROTECTORS REMAIN ATTACHED TO CHAINS.

CORRECT USE OF WAGON LOAD SECURING EQUIPMENT (PERMANENT FITTED BOND CHAINS)
7. CHAIN TENSIONERS - ENSURE AT LEAST HALF A TURN OF CHAIN IS ON RATCHET BEFORE TENSIONING. IF UNABLE TO TENSION CHAIN SO THAT 'DOG' ENGAGES, SLACKEN CHAIN AND PLACE HOOK / CLAW ONE LINK FURTHER ON CHAIN, AND RE-TENSION. FOLLOW THIS METHOD UNTIL SATISFIED CHAIN IS CORRECTLY TENSIONED.

   NOTE: CHAINS SHOULD ALWAYS BE TENSIONED FROM BOTH SIDES OF THE WAGON. TOLL RAIL RECOMMENDS USE OF A BAR, AS SUPPLIED BY TOLL RAIL, FOR CORRECT CHAIN TENSIONING.

8. DOG SECUREMENT - ENSURE THE 'DOG' ON THE RATCHET ENGAGES PROPERLY WHEN TENSIONING CHAINS.

   NOTE: SIMILAR CARE AND ATTENTION NEEDS TO BE EXERCISED WHEN SLACKENING CHAINS.

9. SECUREMENT OF WAGON EQUIPMENT - LOOSE STRAPS AND BOND CHAINS ARE A SAFETY HAZARD, AND MUST BE SECURED IN THE BOXES PROVIDED.

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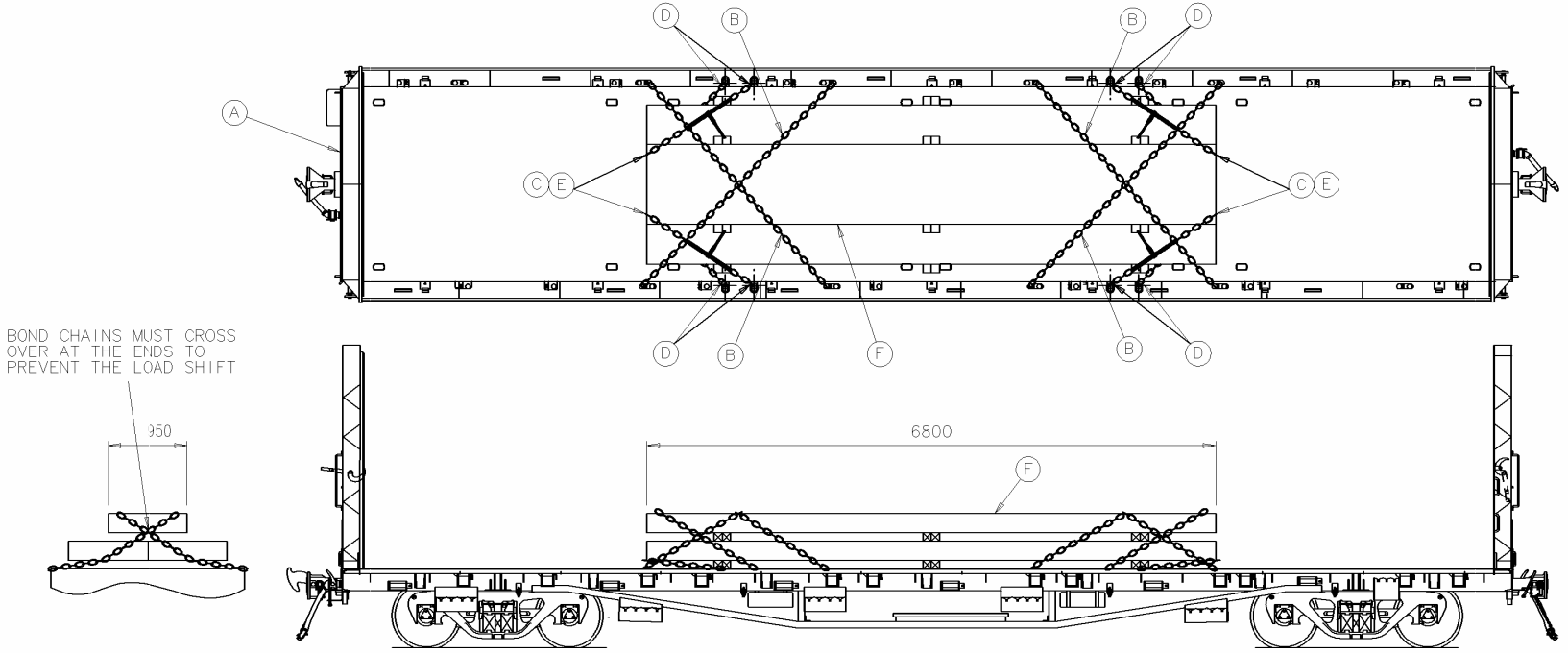

TOLERANCES - GENERAL (+ 10%)
Dimensions up to and including 20mm: D - 0
Dimensions between 20mm and 2500mm: D ± 2.0
Dimensions over 2500mm: D ± 4.0
Angular dimensions: MAX 1.0°

TOLERANCES - MACHINED COMPONENTS
Distance between centres of drilled holes: D ± 0.3
Distance from centre of a drilled hole to machined face: D ± 0.3
Distance over parallel machined faces: D ± 0.3
Diameter of turned components: D ± 0.3
Angular dimensions: MAX 0.5°

WELDING
Symbols to AS 1101.3 - 1987
Unless otherwise specified, all steel welding to NZS 1554.1:2004 or ANSI/AWS D15.1-93

I-DEAS CAD

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CHECKED: W POWELL
APPROVED: M S McKEON
AL MANAGER, ENGINEERING: M S McKEON
DATE: 11/08/05

MATERIAL
SIZE
EST. MASS
DIAGRAM: JPS
THIRD ANGLE PROJECTION

TIE DOWN ARRANGEMENT FOR SLAB IMPORTS

15014797 ISSUE B

REV	DATE	ECN REF	REVISION	BY	APPD
B	24/03/06		CAUTION NOTE ADDED, LOAD & SECURING DETAILS CHANGED	DT	MSM

File: 15014797 Plotted : 4-4-06 11:16:29 a.m. SDRC I-DEAS Project: USE - JF Canopy

KiwiRail

DO NOT SCALE | if in doubt ASK

No. REQD	ITEM	DESCRIPTION	MATERIAL No.	DRAWING No.
1	A	MODIFIED JPS FOR SLAB IMPORTS		15014798
1	B	BOND CHAIN AND CHAIN TENSIONERS		EXISTING
4	C	RATCHET LOAD BINDER (COOKES - 09026150)		COMMERCIAL
4	D	10mm WEISLOCKS (COOKES - 02953510)		COMMERCIAL
AS REQD	E	ø10mm GRADE 80 CHAIN		COMMERCIAL
1	F	LOAD		EXISTING

GENERAL NOTES
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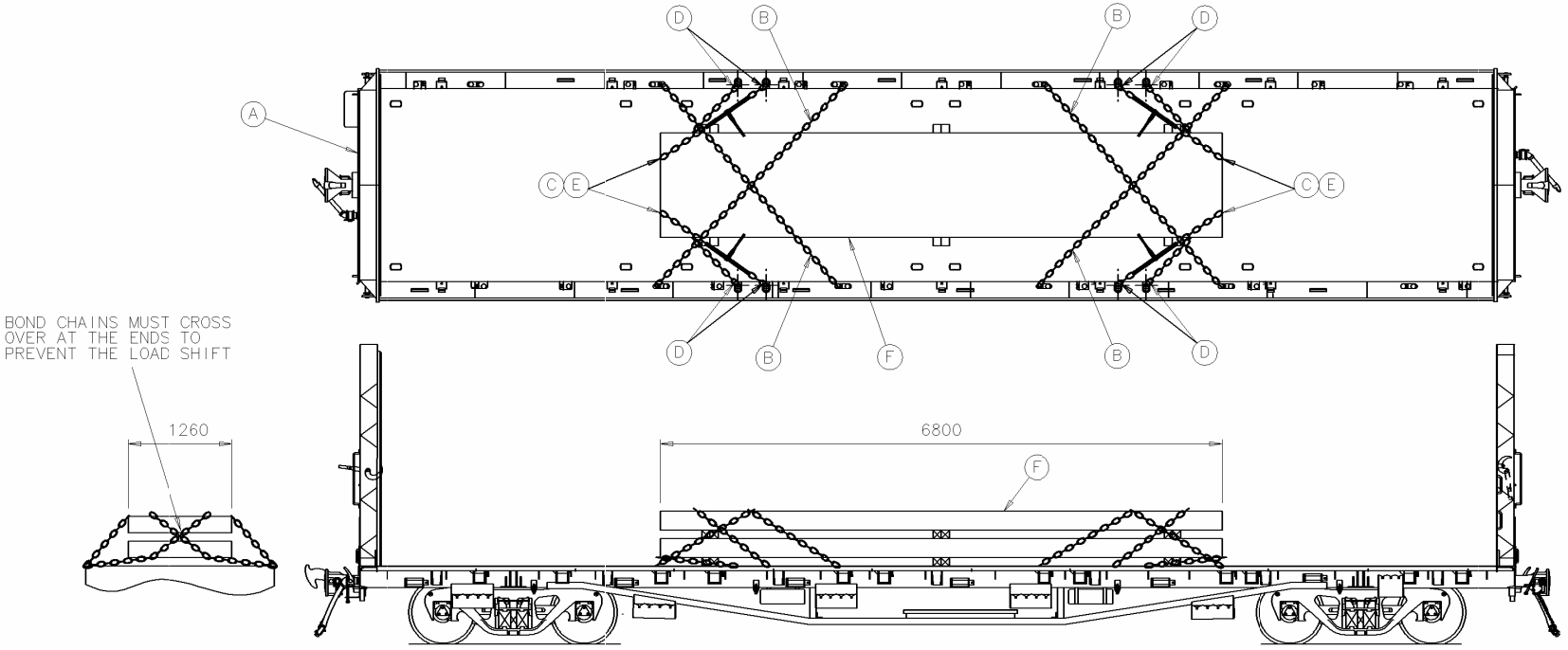


TOLERANCES - GENERAL
Dimensions up to and including 20mm D - 0 (+10%)
Dimensions between 20mm and 2500mm D ± 2.0
Dimensions over 2500mm D ± 4.0
Angular dimensions MAX 1.0°

TOLERANCES - MACHINED COMPONENTS
Distance between centres of drilled holes D ± 0.3
Distance from centre of a drilled hole to machined face D ± 0.3
Distance over parallel machined faces D ± 0.3
Diameter of turned components D ± 0.3
Angular dimensions MAX 0.5°

WELDING
Symbols to AS 1101.3 - 1987
Unless otherwise specified, all steel welding to NZS 1554.1:2004 or ANSI/AWS D15.1-93

I-DEAS CAD

PAGE 18

REV	DATE	ECN REF	REVISION	BY	APPD

CHECKED: W POWELL
APPROVED: M S McKEON
AL MANAGER, ENGINEERING: M S McKEON
DATE: 04/04/06

MATERIAL
SIZE
EST. MASS
DIAGRAM: JPS
THIRD ANGLE PROJECTION

TIE DOWN ARRANGEMENT FOR SLAB IMPORTS - 2

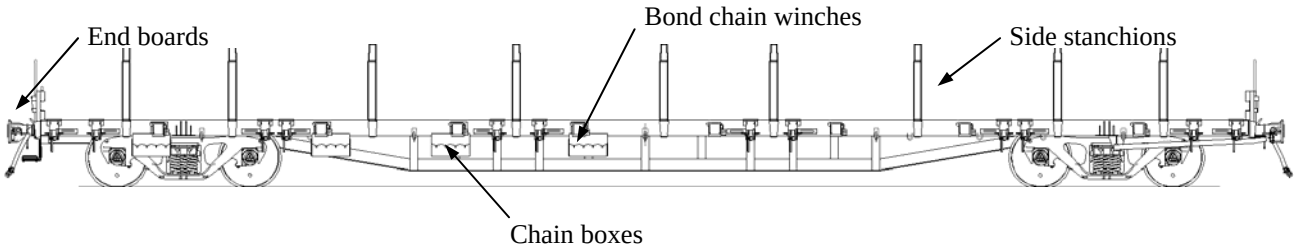
15014789 ISSUE A

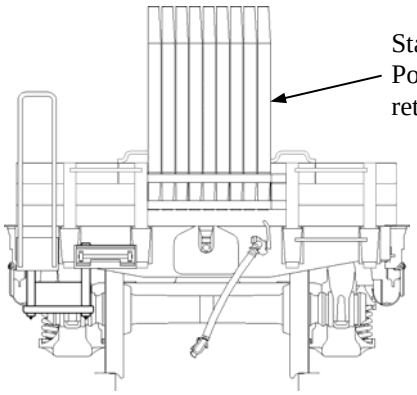
File: 15014789 Plotted : 4-4-06 2:03:00 p.m. SDRC I-DEAS Project: USE - JF Canopy

KiwiRail

Reinforcing Bar on UKH Wagons

The UKH wagon has been created to allow reinforcing bar packs up to 15m long (16m with headboards removed) to be carried without the need for special cradles to allow overhanging loads. The UKH wagon is a UK wagon, modified by the addition of bond chains, stanchion pockets and end boards that include storage for return of stanchions to the loading site. See drawing 15005085 for wagon modifications.





UKH Wagon Features

General Loading Rules

- Maximum load weight is 41 tonnes (but see further restrictions for specific loads below).
- Timber/rubber dunnage is to be used between load and deck of wagon.
- Timber/rubber dunnage is to be used between layers of load.
- Dunnage is to be aligned with tiedown chains.
- Rubber is to be used between the chains and the load.
- For loads with headboards fitted, at least one chain per 10t of load is required.
- For loads without headboards fitted, at least one chain per 5t of load is required.

Correct Use of Permanent Fitted Bond Chains

- Ensure at least half a turn of chain is on the winch scroll before tensioning.
- If you are unable to tension the chain so that the 'dog' engages on the ratchet, slacken the chain and place the hook/claw one link further along the chain. Re-tension the chain. Repeat until you are satisfied chain is correctly tensioned.
- Chains should always be tensioned from both sides of the wagon.
- Use the KiwiRail supplied bar to correctly tension the chains.
- Loose chains are a safety hazard. Chains must be stowed in the chain boxes provided.
- Be careful when undoing chains to remove the load. Movement of the load in transit can increase the tension in the chains. The energy stored in the tensioned chains needs to be carefully released or injury can result.

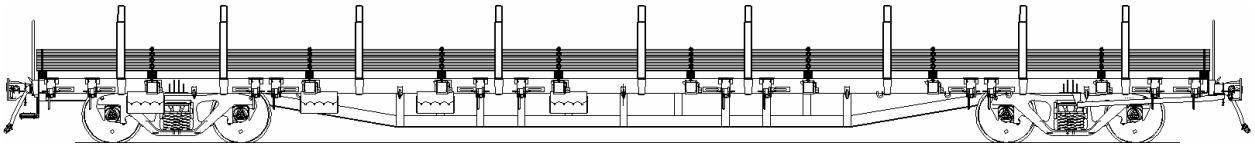
Load Restriction for less than Full Length Reinforcing Bar

The UKH wagon is designed to carry loads of reinforcing bar that are distributed over the full wagon length. For shorter bars, weight restrictions apply. The rules below are based on a standard weight of 2 tonnes for a pack of reinforcing bars.

- **For** 15m or 16m **long bars, each pack adds** 2t **to the wagon load.**
- **For** 12m and 9m **long bars, each pack adds** 3t **to the wagon load.**
- **For** 6m **long bars loaded** centrally**, each pack adds** 4t **to the wagon load.**
- **For** 6m **long bars loaded** at the ends of the wagon**, each pack adds 2t to the wagon load.**

Where different bar lengths are loaded on the same wagon, load the longest bars on the bottom. Total wagon load is to be determined using the rules above. The diagrams that follow illustrate these loading rules and other requirements applicable to some bar lengths.

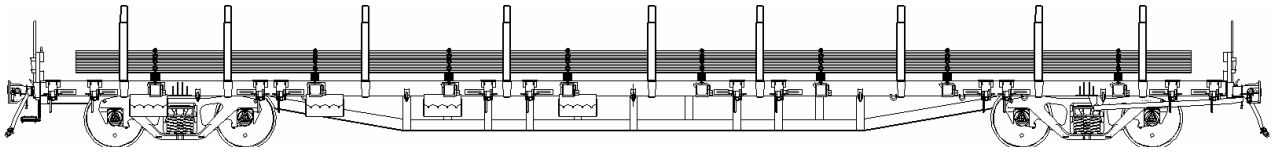
16m long reinforcing bars - Wagon headboards removed
Maximum load weight 40 tonnes (limited by chains)



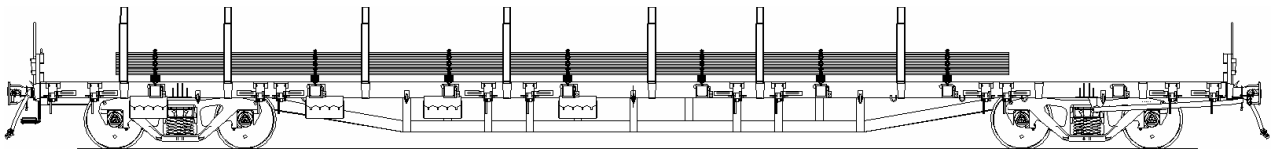
For this load, the following additional rules apply due to the end overhang:

- The load may project a maximum of 50mm beyond the headstock.
- The load must be secured with a minimum of 8 chains.
- The load must be dunnaged off the deck at the ends so that the brake cocks and drawgear are not fouled. This extra dunnage must be adequately secured to the wagon or load.
- The load must not foul end hand grabs or park brake.

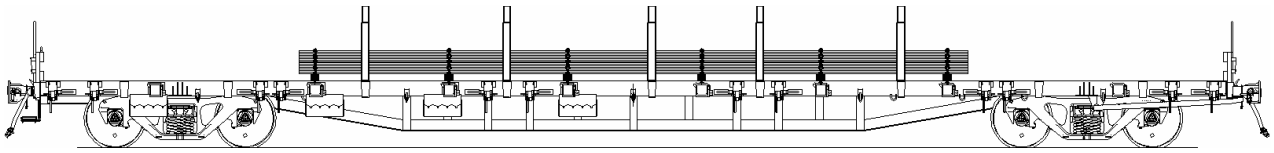
15m long reinforcing bars – maximum load weight 41 tonnes



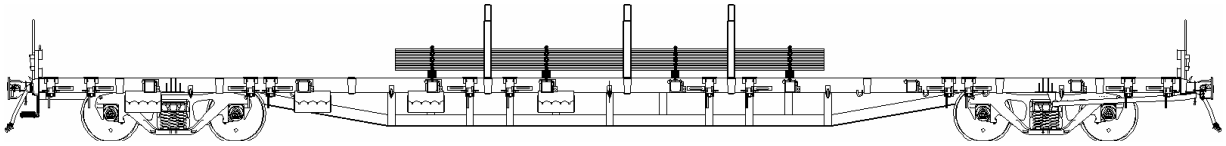
12m long reinforcing bars – maximum load weight 27 tonnes



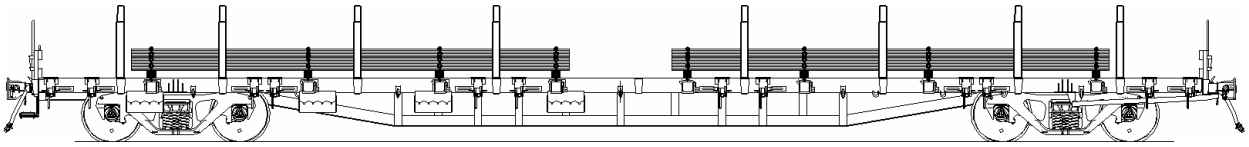
9m long reinforcing bars – maximum load weight 27 tonnes



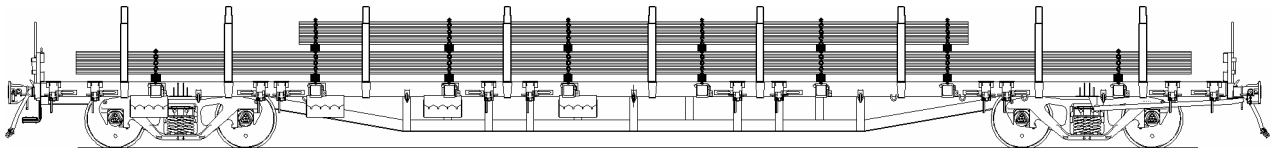
6m long reinforcing bars loaded centrally – maximum load weight 20 tonnes



6m long reinforcing bars loaded at ends – maximum load weight 41 tonnes



Mixed length loads



For mixed length loads, add together:

- 2 tonnes for each 15m pack.
- 3 tonnes for each 12 or 9m pack
- 4 tonnes for each centrally loaded 6m pack.
- 2 tonnes for each end loaded 6m pack.

The table on the next page gives some examples of mixed length loads.

Example loads. Total equivalent load must not exceed 41 tonnes						
15m packs or 6m packs at ends		12m or 9m packs		6m packs in centre		TOTAL EQUIVALENT LOAD
Number of packs	Equivalent load (tonnes)	Number of packs	Equivalent load (tonnes)	Number of packs	Equivalent load (tonnes)	
20	40					40 = **40 t**
16	32	**3**	9			32 + 9 = **41 t**
10	20	**7**	21			20 + 21 = **41 t**
5	10	**10**	30			10 + 30 = **40 t**
16	32			**2**	8	32 + 8 = **40 t**
10	20			**5**	20	20 + 20 = **40 t**
6	12			**7**	28	12 + 28 = **40 t**
15	30	**2**	6	**1**	4	30 + 6 + 4 = **40 t**
10	20	**3**	9	**3**	12	20 + 9 + 12 = **41 t**
5	10	**6**	18	**3**	12	10 + 18 + 12 = **40 t**
		13	39			39 = **39 t**
		9	27	**3**	12	27 + 12 = **39 t**
		5	15	**6**	24	15 + 24 = **39 t**
2	4			**9**	36	4 + 36 = **40 t**
				10	40	40 = **40 t**