

LOAD RESTRAINT GUIDELINE

Wide coil in well

600 mm minimum sheet width

2000 mm maximum diameter

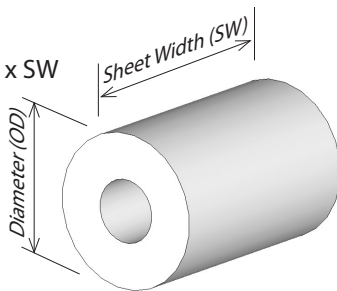
Sheet width > diameter/2.5

1. This guideline applies to:

- All **wide** coils, loaded bore horizontal in a well trailer.
- Coils are classed as **stable** or **topple sensitive** based on the ratio of outside diameter (OD) to sheet width (SW).

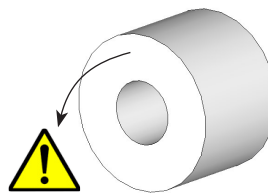
Stable

$OD < 1.4 \times SW$



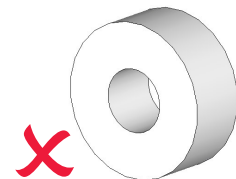
Topple sensitive

$OD > 1.4 \times SW$



Narrow coil

$OD > 2.5 \times SW$



Note:
Narrow coils
are **not** covered
by this Load
Restraint
Guideline.

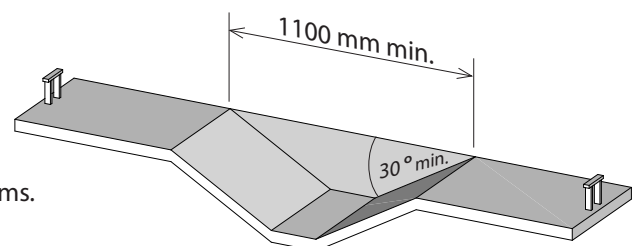
- The following coils are classed as **low friction**:
 - Coils that have been wrapped in plastic film or paper.
 - Coils that have been pickled and oiled, galvanised, painted or coated.
 - Cold rolled coils.

2. Essential requirements

- All webbing straps must have a minimum lashing capacity of 2000 daN (unless otherwise stated) and must be compliant with EN 12195-2.
- All lashing points must have a minimum working load limit of 2000 daN (unless otherwise stated).
- Edge protection must be used on all unprotected sharp corners.
- Well posts must be in good condition and have a minimum moment capacity of 14.6 kNm. The following section sizes in S355 steel are acceptable: 80 x 80 x 5; 90 x 90 x 4; 100 x 60 x 5; 100 x 100 x 3.6; 110 x 60 x 4; 120 x 60 x 3.2. **Note: Rectangular posts must be used in the strongest orientation to prevent bending.**
- Coils originating in mainland Europe shall be placed on anti-slip matting.

3. Pre-loading considerations

- ✓ Well width must be a minimum of 1100 mm.
- ✓ Well angle must be a minimum of 30 degrees.
- ✓ Coil well must be dry and clear of debris and other loose items.
- ✓ Coil must be clear of well base by a minimum of 20 mm.
- ✓ Well boards used for blocking must comply with the Technical Information Sheet for well boards - document reference *TIS-0006 Well boards for well trailers*.



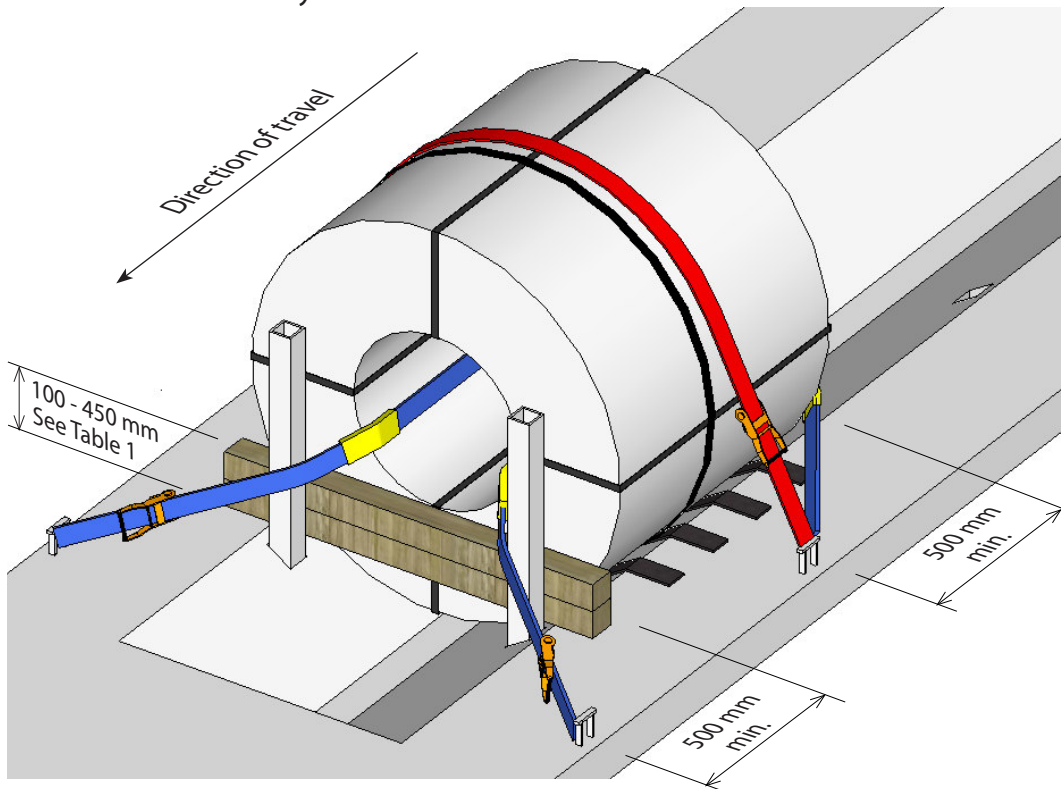
This Load Restraint Guideline is designed and tested to meet the forces for road transport as specified in EN 12195-1:2010 and VDI 2700.

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4. Restraint systems with well posts

4.1 General restraint system



- ✓ Stable coils
- ✓ Topple sensitive

Table 1:
Minimum blocking height (mm)

Coil Outside Diameter	Minimum blocking height
1400	100
1500	150
1600	190
1700	230
1800	270
1900	300
2000	340
Max height	450

Anti-slip matting shown for coils originating in mainland Europe.

Weight limits:

- Valid for **hot rolled coils** (not pickled and oiled) up to **30 tonnes**.
- Valid for **low friction coils** up to **24 tonnes**.
- **Low friction coils above 24 tonnes** must be restrained with **2500 daN bore straps**, anchored a minimum of 1000 mm from the front and rear faces of the coil and attached to 2500 daN lashing points. Alternatively, an additional pair of 2000 daN **bore straps** may be fitted, provided they are attached to different anchor points.

General requirements:

- ✓ Timber dunnage stacked between the coil and well posts - minimum recommended timber size 100 x 100 mm (nom).
- ✓ Steel well posts may be used as blocking with anti-slip matting between the horizontal faces of the steel posts.
- ✓ The **minimum** blocking height to prevent the coil from toppling is shown in Table 1. The **maximum** blocking height is 450 mm to prevent the posts from bending.
- ✓ Well boards may also be used in the upright position as a form of blocking between the vertical well posts and coil providing they do not exceed 450 mm - see TIS-0006.
- ✓ Dunnage must extend beyond outer edges of the trailer well and well posts.
- ✓ Maximum gap of 20 mm between coil face and blocking.
- ✓ **1 strap** over-the-top.
- ✓ **2 straps** through the bore pulling forward with the ratchets positioned as shown above.
- ✓ **Bore straps** to be anchored a minimum of 500 mm from front and rear faces of coil.

*Note 1: Coefficient of static friction between as-rolled coil and anti-slip matting is taken to be 0.6.
Coefficient of static friction between as-rolled coil and wood / rubber lined well is taken to be 0.4.
Testing the worst-case low-friction coil confirmed a coefficient of static friction of 0.3.*

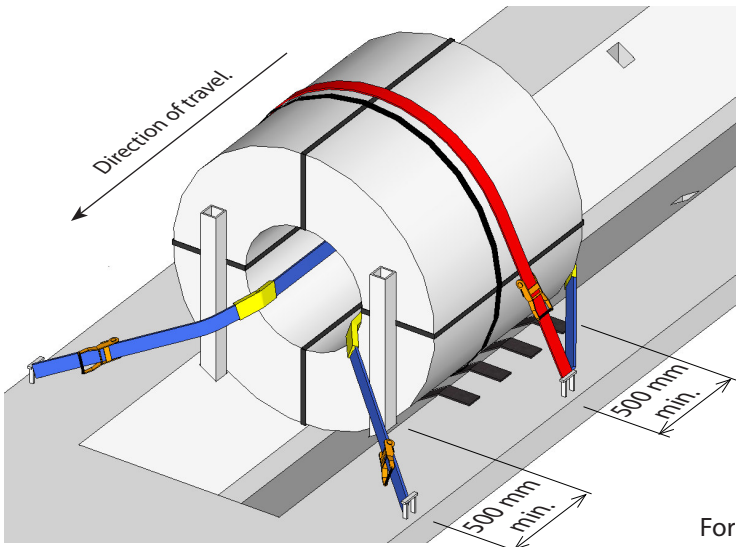
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4.2 Option for stable coils, and for topple sensitive coils up to 10 tonnes

✓ Stable coils

! Topple sensitive
10 tonnes max



Anti-slip matting shown for coils originating in mainland Europe.

- ✓ Place coil directly against well posts. Maximum gap of 20 mm.
- ✓ Coil diameter must extend beyond the outer edges of the well post. (If not, use Section 4.1 or Section 5 as appropriate).
- ✓ 1 strap over-the-top.
- ✓ 2 straps through the bore pulling forward with the ratchets positioned as shown.
- ✓ Bore straps must be anchored a minimum of 500 mm from front and rear faces of coil.

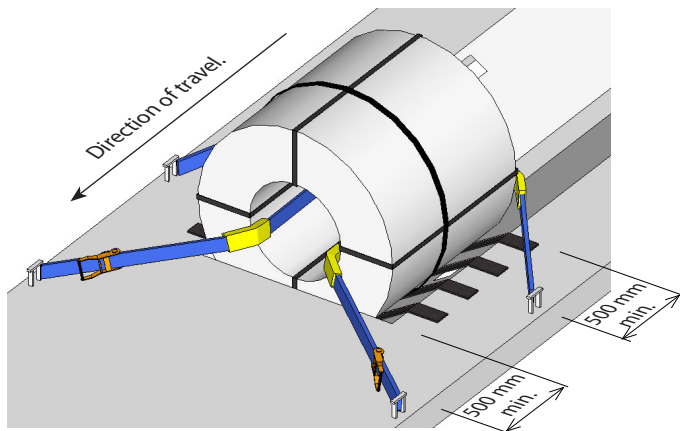
For topple-sensitive coils above 10 tonnes use Section 4.1. Weight limits for stable coils are as stated in Section 4.1.

5. Options for stable coils up to 10 tonnes maximum

5.1 Blocked against front of trailer well

✓ Stable coils
10 tonnes max

✗ Topple sensitive



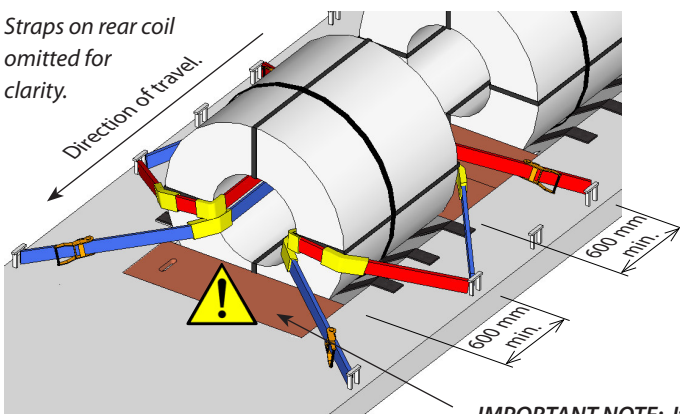
Anti-slip matting shown for coils originating in mainland Europe.

- ✓ The front coil must be positioned against the front of the well. **Do not** rely on a well board against the front lip of the well unless additional bore straps are fitted as shown in Section 5.2.
- ✓ 2 straps through the bore pulling forward with the ratchets positioned as shown.
- ✓ Bore straps must be anchored a minimum of 500 mm from front and rear faces of coil.

Note: Axle weight limits may restrict the size of coil that can be placed against the front of the trailer well.

5.2 Blocked against well boards

Straps on rear coil omitted for clarity.



To space coils out sufficiently for either axle weights or to provide a sufficient gap between coils for crane tongs, it is sometimes necessary to block the front coil against a well board, or fit more than one well board between coils. In such cases, the following must be applied to prevent the well boards from flipping out:

- ✓ 2 straps through the bore pulling rearward with the ratchets positioned as shown.
- ✓ These straps must be anchored a minimum of 600 mm from front and rear faces of coil.
- ✓ 2 straps through the bore pulling forward with the ratchets positioned as shown.

IMPORTANT NOTE: If a well board is used against the front lip of the well, or more than 1 well board is used between coils, the coils **must have 4 bore straps** fitted as shown.

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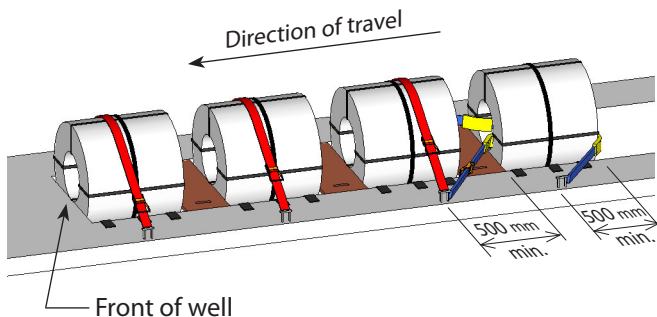
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6. Multiple coil loads - (stable coils only up to 10 tonnes each)

✓ Stable coils
10 tonnes max

✗ Topple sensitive

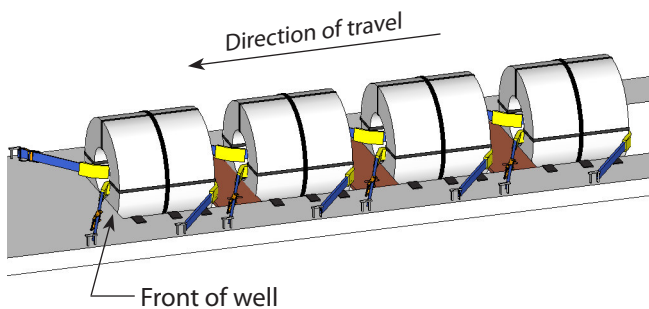
6.1 Option with over-the-top straps



Anti-slip matting shown for coils originating in mainland Europe.

- ✓ Front coil placed against front of well or well posts.
- ✓ No more than ONE well board to be placed in the well between coils as blocking (or see Section 5.2).
- ✓ NO GAPS in the load.
- ✓ 1 strap over-the-top of each coil (not required for the rear coil with bore straps).
- ✓ 2 straps through the bore of the rear coil pulling forwards.
- ✓ Rear straps must be anchored a minimum of 500 mm from the faces of the coil.

6.2 Option with bore straps



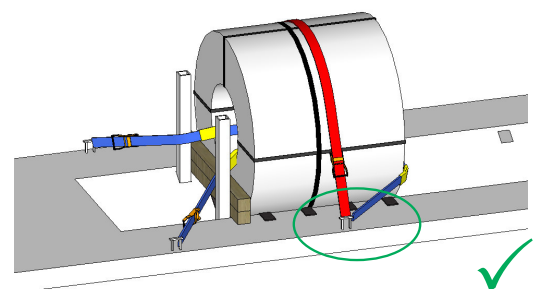
Anti-slip matting shown for coils originating in mainland Europe.

- ✓ Front coil placed against front of well or well posts.
- ✓ No more than ONE well board to be placed in the well between coils as blocking. NO GAPS.
- ✓ 2 straps through the bore of each coil, pulling forwards.

7. Other loading considerations

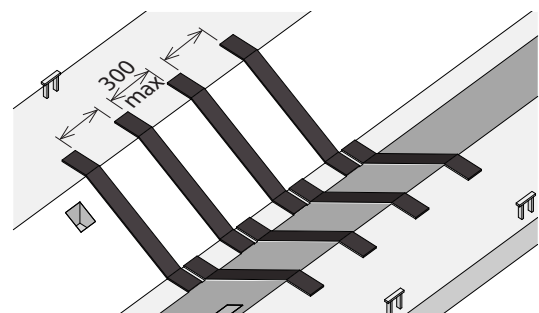
7.1 Lashing points

- ✓ Maximum of 2 straps per lashing point and the lashings must be pulling in different directions.
- ✓ Straps for rearward restraint may be applied to the same lashing point as the over-the-top straps.



7.2 Anti-slip matting

- ✓ Minimum thickness 8 mm.
- ✓ Maximum of 300 mm space between each strip.
- ✓ Anti-slip matting must extend beyond the coil well so that it remains visible once the coil is placed in the well.
- ✗ Conveyor belt is NOT a form of anti-slip matting.



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