Tata Steel Technical Standard

S1920001 Height restriction barrier for piping over roads

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Information and changes

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Inhoudsopgave

1 GENERAL

1.1 Scope

To prevent damage and dangerous a situation due to the unintentional release of media as a result of collision of pipes by vehicles that are too high.

An overview of the driving restrictions on the Tata Steel IJmuiden site can be found at: http://atlas.eu.tatasteel.com and select “Doorrijbeperkingen” in the selection ribbon. (only in Dutch available)

This standard is mandatory for all situations that occur on the Tata Steel IJmuiden site. If insurmountable, it is possible to deviate form this standard. For this, the Health Safety & Environment (SPME.HSE) and PTC.HPM department (SPME.PTC.MCE.HPM) must be consulted, after which Tata Steel can give written permission as the client.

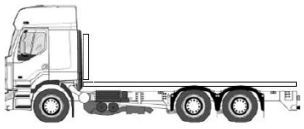
This standard has been compiled in collaboration with the following departments: ENB, OSL, SF, HSE, Traffic committee and PTC-media.

1.2 Responsible owner

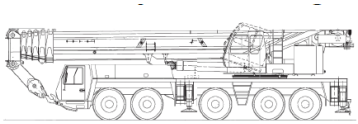
- The piping manager is responsible for the management and maintenance of the crossing pipeline including the required height protection.
- All companies operating tipping vehicles must document the driving routes used, these routes must be agreed in accordance with Tata Steel and must be recorded as part of the risk assessment.
- Before using the vehicle, the inspection lists must oblige the driver to check the operation of the alarm when the container / tank is upright.
- The pre-service inspection lists must make clear for which defects the vehicle must be immediately taken out of service.
- During maintenance, the software limitation of 7 km/h and the alarm operation of the upright container/tank must be checked and registered.

1.3 Regulations

Standard road vehicles in the Netherlands have the following maximum dimensions:



Length	12,00	meter.
Width	2,55	meter.
Height	4,00	meter.
Width conditioned transport	2,60	meter.



Length	20,00	meter.
Width	3,00	meter.
Height	4,00	meter.

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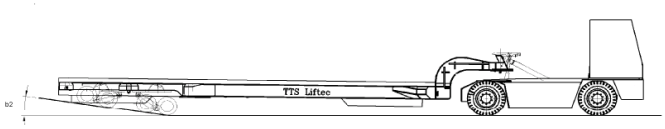
On the site of Tata Steel IJmuiden drive special vehicles such as

- Wheel loaders
- Excavators and modified variants
- Liftec LTH130 (max. 18,0 x 3,5 x 5,10m)



Standard vehicles also have to be extra alert in some situations, for example with:

- Low passages;
- Truck with a high load;
- Tipper trucks with the container/ tank in upright position.

1.4 Safety

The height protection prevents a pipe with a dangerous or critical medium from being hit by a vehicle. In the photo below, the truck driver remained unharmed and the height restriction barrier prevented worse.

1 https://www.rdw.nl/-/media/rdw/rdw/pdf/sitecollectiondocuments/ontheffingen-tet/themasite-ontheffingen/handleidingen/2-b-1097b-overzicht-maten-en-gewichten.pdf

1.4.1 Road Types

The chance of a collision depends on the type of road. Three definitions can be distinguished on the Tata Steel IJmuiden site, namely the Main access road, the Secondary access road and the Parking area.

Main access road: is the main road in an area or between two locations, preferred route, the fastest way.

Secondary access road: the road that leads to one specific location for local traffic; less frequently used route.

Parking area: location where vehicles can be temporarily placed but where no work is required.

In addition, two maximum speeds are possible, 30km/h or 50km/h.

2 Types of height restriction barriers

Two types of height restriction barriers are possible on the site. A hard or a soft height restriction barrier.

2.1 Hard height restriction barrier “fixed construction”

Image 2.1: Example of an hard/fixed height restriction barrier

2.2 Soft height restriction barrier “Ball line”

Image 2.2: Example of an soft/ball line height restriction barrier

The selection of the type of height restriction barrier depends on the height of the piping above the road and the type of road.

2.3 Height restriction barrier selection table

Check the overview of driving restrictions to see if there is not already a height guard in the street. An overview of the driving restrictions on the Tata Steel IJmuiden site can be found at: http://atlas.eu.tatasteel.com and select on the left “Doorrijbeperkingen” (Driving restrictions). This map is only in Dutch available.

The table below determines which type of height restriction barrier is chosen.

The height from the bottom of the piping to the road surface should be measured on both sides of the road. The lowest measured value is leading.

Subsequently, a distinction is made between an Main access road, Secondary access road and the Parking area, see section 1.4.1

Height; Bottom piping to road [meter]	Main access road	Secondary access road	Parking area
< 6	Fixed	Fixed	Fixed
6 – 8	Fixed	Fixed	Ball line
8 – 10	Fixed	Ball line	None
> 10	Ball line	None	None

Tabel 2.1: Category type height restriction barrier

Rail transport has the height restriction “ball line”. The transport on these routes does not vary in height, so that no additional measures are required for transport by rail. See S3518001.

3 Location of the height restriction barrier

The distance from a height restriction barrier to the overhanging piping depends on the braking distance of the vehicles on the road concerned. The braking distance consists of the speed applicable to that road (30 or 50 km/h), the reaction time of the driver and the braking deceleration.

Allowed maximum speed	Distance travelled in reaction time [meter]	Truck braking distance [meter]	Distance piping to height restriction barrier [meter]
30 km/h	9	9	18
50 km/h	14	25	39

If there is an exit or secondary road within the distance specified in the table above, it must be assessed whether this road must also be equipped with height restriction barrier.

When the calculated location of the height restriction barrier is exactly in a bend, the height restriction barrier will be placed in front of the bend, taking into account the sight lines, see R3908001.

4 Technical requirements

4.1 Lifespan

De height restriction barrier shall be designed for the environmental conditions of the Tata Steel location in IJmuiden with a lifespan of at least 20 years.

4.2 Field of vision

The field of vision of the driver of a vehicle must not be hindered by the height restriction barrier.

4.3 Height

The distance between the road surface and the bottom of the height barrier restriction barrier must be 10 to 20 cm smaller than the distance between the road and the piping for which the height restriction barrier is intended. The clearance mentioned can thus be adjusted to 1 decimal in favour of the reading speed.

4.4 Width

Location, road type and available space shall be taken into account in favour of the users of the road and always in accordance with S3518001 and R3908001, example drawing 814897. Always to assess the traffic engineering. Commonly used on a straight:
Roads: Place portal leg at least 575mm from the edge of the road surface
Tracks: Place portal leg at least 2575mm from the edge of the center of the track, see S3518001.

4.5 Demountable

The construction must be dismountable for exceptional situations and circularity.

4.6 Materials

Construction: S235JR according to NEN-EN 10025-2, bolts minimum M20 8.8. Unless stated otherwise on technical drawings.

4.7 Welding

Welding in accordance with standard S1450401. Welding category 3.

4.8 Design calculation

The height restriction barrier must be calculated for environmental conditions and for stopping the vehicle with a speed of 30 km/h or 50 km/h and the corresponding mass. For example see document C43766.

4.9 Foundation

Newly installed height protection must be signalled before installation. The Ground Work Instruction procedure (GWI) also applies. The foundation must be of such size and weight as to prevent it from being pulled out of the ground or moved in the event of a collision. On a road with a maximum speed of 30 km/h, this can be smaller and lighter than on a road with a maximum speed of 50 km/h.

The design of the foundation must be approved by means of a design drawing by the department SPME-PTC-MCE-CIV. See sample document: C43771.

4.10 Conservation

Standard S3105601 Corrosion control by preservation provides different preservation systems. For the carbon steel construction, a pre-treatment according to S01 and preservation according to T01 will apply.

End colors according to S1917301 Application of colors and safety colors. Construction parts in light gray RAL7035, platinum gray RAL7036 or dust gray RAL7037. Warning bar must be provided with a straight hatching prohibition situation for vehicles that are too high with the colors Signal red RAL3001 and signal white RAL9003.

For extra visibility, you can choose to have the entire construction in red and white.

4.11 Marking

The headroom is always indicated on traffic signs and on the fixed height safety device by means of black text. The number has one decimal place and the value is always 0.1 to 0.2m lower than the measured headroom. Depending on the headroom, there are two options:

- <4 meters: C19; Closed to vehicles which, including the load, are higher than indicated on the sign.
- > 4 <4.6 meters: L1; Additional marking due to the increasing number of special transports.

Traffic sign C19

Traffic sign L1

4.12 Examples

4.12.1 Hard/fixed height restriction barriers

C43765
C43766
C43767
C43768
C43771

4.12.2 Soft/ ball line height restriction barriers

802990
814897
A16846
A16847
A35187
A35188
A35189
A35190
A35191

5 References

S3105601 Corrosion control through preservation

S1917301 Application of colours and safety colours

S3518001 Civiele eisen rondom spoorwegen (only in Dutch)

R3908001 Uitzicht bij wegkruizingen (only in Dutch)

Site Facilities – Doorrijbeperkingen kaart (only in Dutch)
http://atlas.eu.tatasteel.com/WEP_template/Default.aspx