

## Tata Steel Technical Standard

**S3518001      Civil engineering requirements railways**

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### **Information and changes**

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## 1 Purpose

In order to guarantee safe and unobstructed rail traffic, this Tata Steel standard is binding for railways on Tata Steel sites.

This standard provides the normal and minimum structure gauge of free clearance of tracks as well as the view on unguarded open railway crossings / lines of sight in curved track.

Within the free clearance structure gauge of tracks - also in factories, workshops and installations – OSL Rail Company regulations apply. Deviating arrangements must be laid down in mutually (written) regulations and require the approval of the Head of the relevant Business Unit and the Rail Manager.

## 2 Free structure gauge clearance of rail tracks

### 2.1 Gauges

The drawn gauges apply to straight tracks. With curved tracks there must be consultation with the company planner about which width increases should be applied.

### 2.2 Approval of plans

All plans for work activities and construction in the vicinity of rail tracks must be submitted to the company planner for approval conform QHSE 3.27.

This planner will only grant approval after acceptance of the Signalling drawings by the department in whose section the notified project is located.

For the Rail department, the signalling drawing is offered to the Rail Manager for approval.

### 2.3 Sizes

The normal free clearance gauge for rail tracks is 5 meters wide and 7 meters high. In cases where constructions within this space are required, approval will be requested from the Rail Manager. Optionally, the minimum free clearance gauge with the sizes registered can be applied (for example with doors: see figure 2).

The placement of a structure gauge template must be considered.

If a track ends, a free space of at least 5 meters must be maintained in the extension of the track.

### 2.4 Safety

To prevent accidents, any unevenness of ground level within a distance of 2.5 meters from the centre of the track must be secured in such manner that unsafe situations are avoided.

### 2.5 Thresholds

Thresholds in buildings must be at equal level with the top side of the track.

### 2.6 Activities

If for the benefit of activities (such as, for example, assembly, disassembly, hoisting) tracks need to be crossed, consultation with the Rail Manager must be held.

## 3 Views on unguarded open level crossings and lines of sight in curved track

### 3.1 Maximum speeds

#### 3.1.1 Rail traffic

The maximum speed for rail traffic is 15 km/hr = 4,2 m/s.

#### 3.1.2 Road Traffic

The maximum speed for road traffic is determined by the road category:

1. primary road (main access road) 50 km/h;
2. secondary road (access road) 30 km/h;
3. tertiary road (yard or residential area) 15 km/h.

At level crossings, this speed will generally be adjusted to (15 km/h or slower).

### 3.2 Priority rules

#### 3.2.1 Road Traffic

Road traffic must give priority to rail traffic and clear the crossover plane in time.

#### 3.2.2 Crossings

The crossing is confined by the road width and the normal free clearance gauge for rail tracks. See Chapter 2.

### 3.3 Brake delay and -distances

Braking deceleration of road vehicles should be calculated with the minimum brake deceleration of an articulated truck in accordance with technical directive *R3 90 80 01 Uitzicht bij wegkruisingen (View at road intersections)*. This also applies to the braking distances.

### 3.4 Maximum dimensions of road vehicles

Table 1

Type of combination	max. length in m	max. width in m
Trucks (articulated vehicles for the benefit of loading and unloading of products etc.) subjected to the (Dutch) Road Traffic Act (WVV) (Wegen Verkeers Wet)		
Truck	12	2.6
Truck with semi-trailer	16.5	2.6
Truck / trailer	18.75	2.6
Bus	12	2.5
Commercial vehicles, exclusive for internal transports; Not subjected to the WVV like:		
Skip Trucks	12	2.85
Heavy tipper trucks	12	2.9
Lift platform vehicles	unloaded	without pallet
	13.1	3
	loaded	with pallet
	18	3.6
Occasional special transports of loads and / or vehicles with extreme dimensions (length and / or width and / or height) including:		
Heavy engine shovel	Under supervision of traffic control	Under supervision of traffic control
Bulldozers etc.	>18	>3 to 3.2

## 3.5 Viewable distance

### 3.5.1 Perpendicular level crossing

The braking distance of the train is always so long that it can't stop in time. In the following calculations it is therefore assumed that a vehicle must be able to stop in time, before the intersection.

In the case of perpendicular level crossings, the viewable distance can be regarded as the overseen distance from the driver's seat, whereby the vehicle must be able to clear the entire intersection plane in good time.

The minimum viewable distance is 18,750 (maximum length vehicle without supervision) + 5,000 (intersection plane) + 1,250 reserve = total 25,000 mm (see figure 4).

### 3.5.2 Angled crossing

In the case of angled railway crossing, a viewable distance must be taken into account as shown in figure 6.

The vehicle must not be obstructed within this viewable distance so the intersection plane can be completely cleared.

## 3.6 Field of view on roads and tracks

### 3.6.1 Perpendicular crossing

In the case of a perpendicular or as good as perpendicular crossings, a driver on approach, must be able to access such a field of view when approaching these railway crossings so that he can decide on time whether to drive on or to come to a stop (see figures 4 and 5). To be able to drive safely, the driver must be able to see if there is sufficient space to bring his entire vehicle past the intersection plane.

### 3.6.2 Angled level crossing

In the case of angled crossings (see Figure 6) where road and rail traffic drivers approach each other in the same direction, they must be able to observe each other's speed on time. The vehicle driver must be able to take the decision to "continue" or "slow down/stop" in time. This minimum field of view must be determined separately for each case.

The measures to be taken follow from sections 3.7 and 3.8. The field of view on angled railway crossings and spatially limited situations must be included in consultations with:

1. the traffic commission IJmuiden
2. the OSL Rail department

In the case of particularly dangerous situations, measures concerning rail traffic should also be considered.

## 3.7 Train driver / shunter

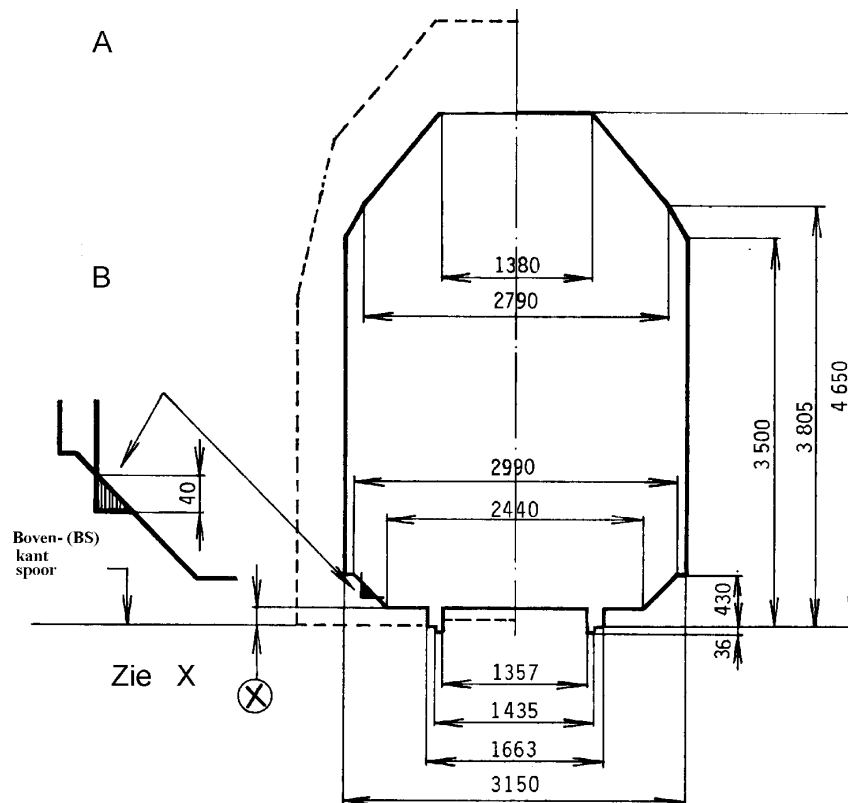
The driver of a rail vehicle and his shunter must have a line of sight at any point of an arced track of at least 100 m and up to 150 m, creating a field of vision according to figure 7.

## 3.8 Spatially limited situations

In spatially limited situations, the speed of the rail/road vehicle must be reduced such that the driver can stop the vehicle before the danger point.

## 4 Figures

Sizes in mm



*A = The free space gauge for tracks surrounded by installations (see figure 2).*

*B = The foot boards of flat and iron cars can extend a maximum of 40 mm beyond the free space gauge.*

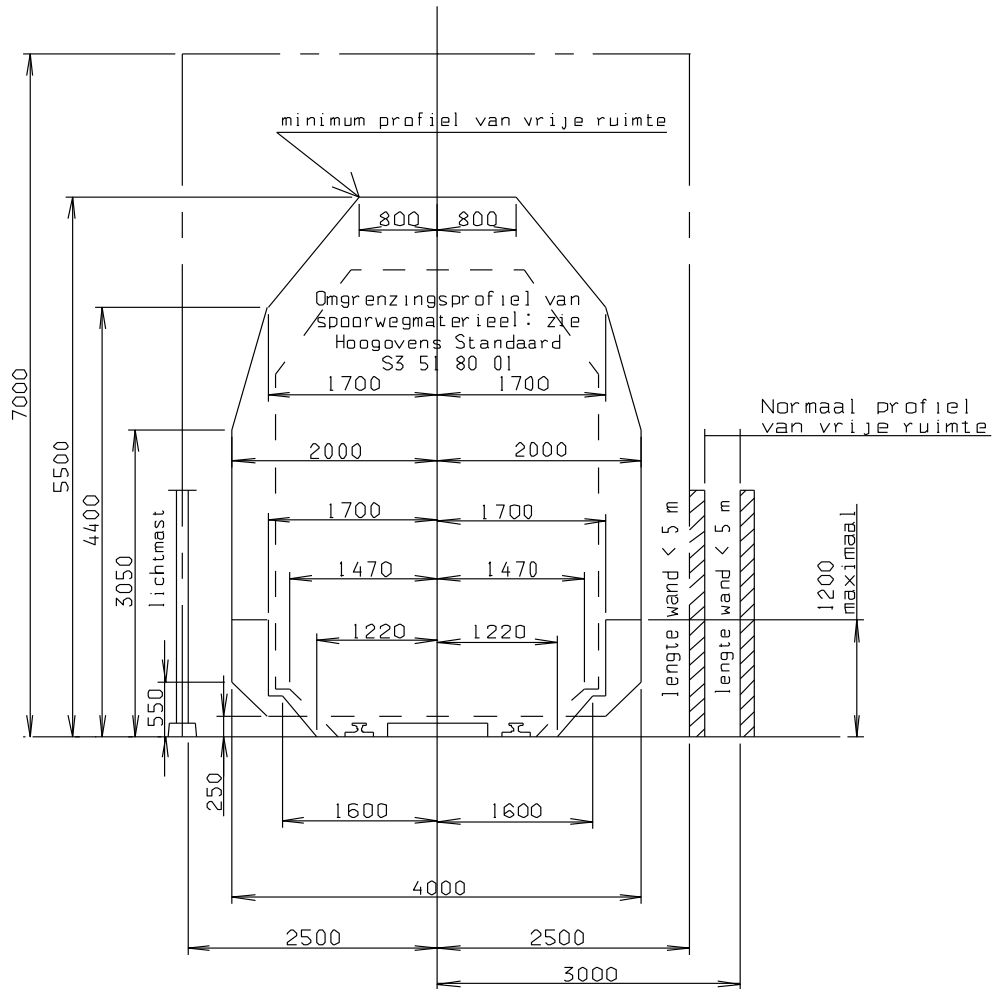
*X = The clearance underneath wagons and locos for:*

- *with sprung components or*
- *blocked springs is at least 45 mm.*

**Figure 1 Normal free clearance gauge**



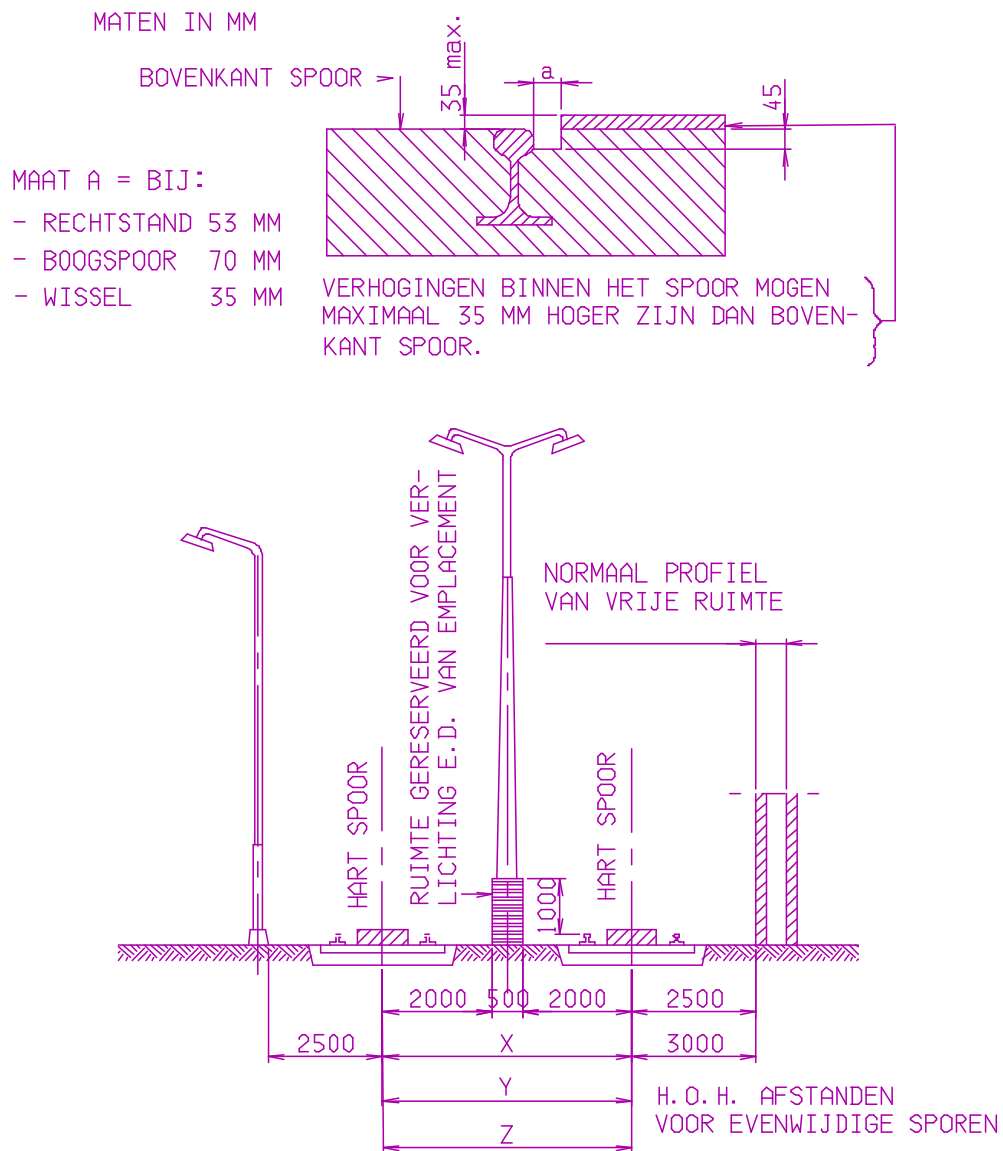
Sizes in mm



Bij perrons en dergelijke is de begrenzing van het minimum profiel van vrije ruimte volgens de — — — — — lijn toegestaan

Figure 2 Free clearance gauge

## Sizes in mm



X= ZONDER OBSTAKELS HOGER DAN 1000 MM EN BREDER DAN 500 MM TUSSEN DE SPOREN; 4500 MM

(DEZE RUIMTE IS GEHEEL TER BESCHIKING VAN DE AFDELING RAILVERVOER)

Y= MET KOLOMMEN TUSSEN DE SPOREN;  $2 \times 2250 + D$  MM 1)

Z= VOOR OOPSLAGSPOREN 5600 MM 2)

1) D = DIKTE KOLOM E.D. ( IN MM)

2) IN VERBAND DRAAICIRCEL KRANEN

Figure 3

If multiple side by side tracks form the crossover plane with the road, then the viewing distance becomes so much greater as the crossover plane becomes wider. Sizes in mm.

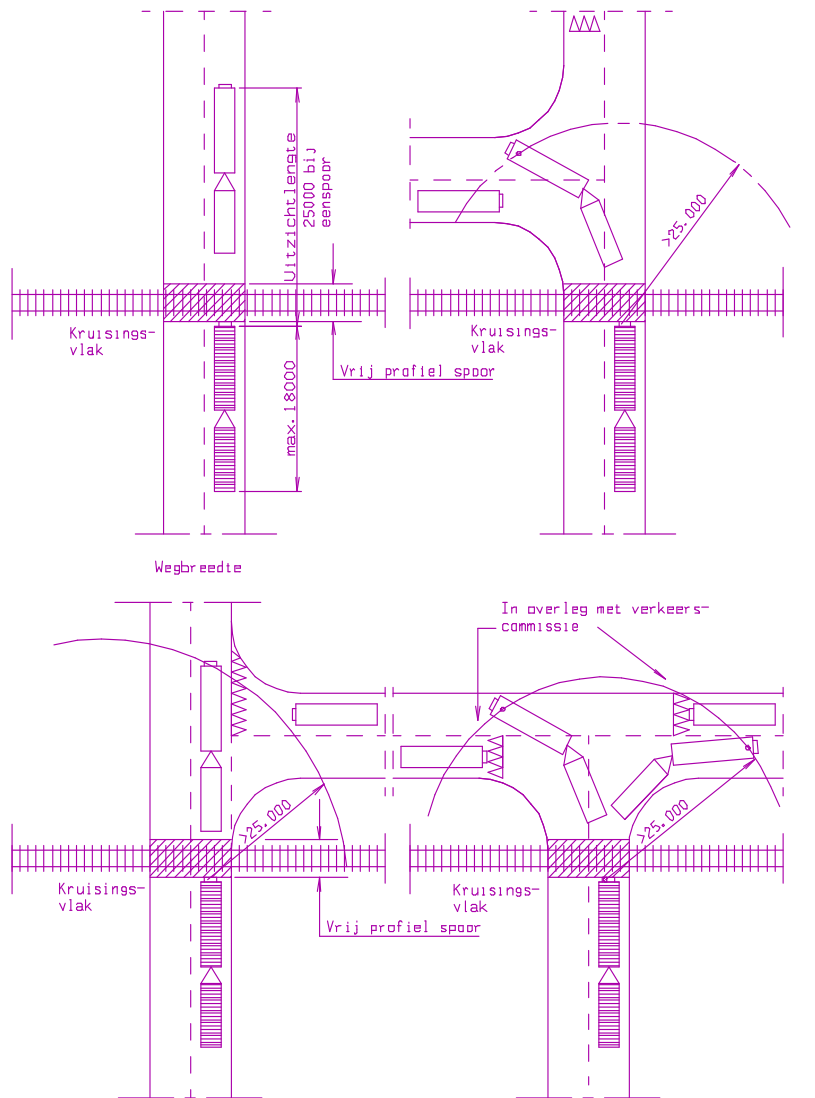
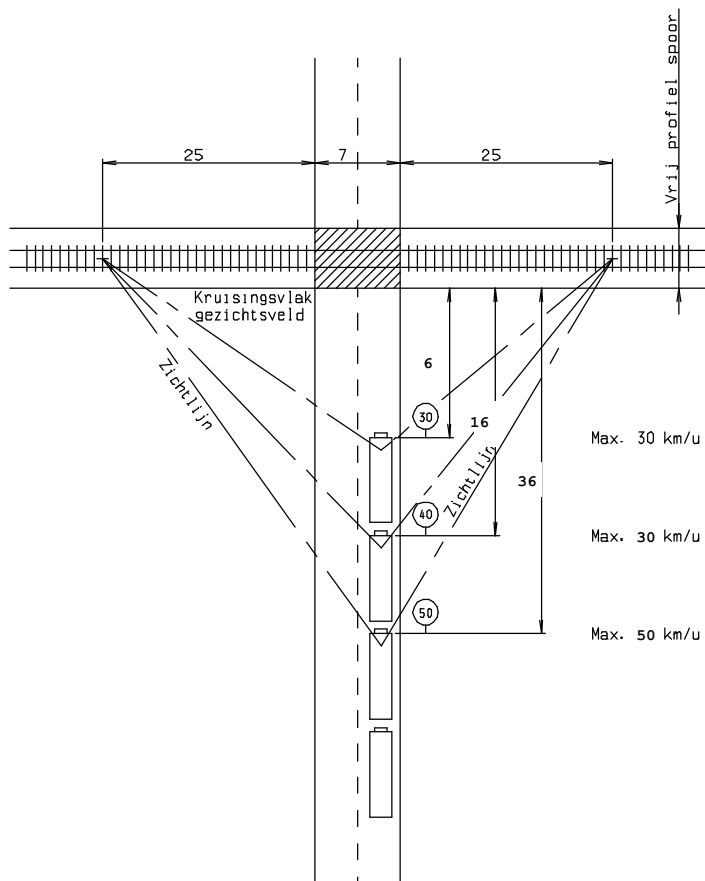


Figure 4

Field of view angled railway crossing.  
 Field of view and braking distance.  
 Sizes in m.



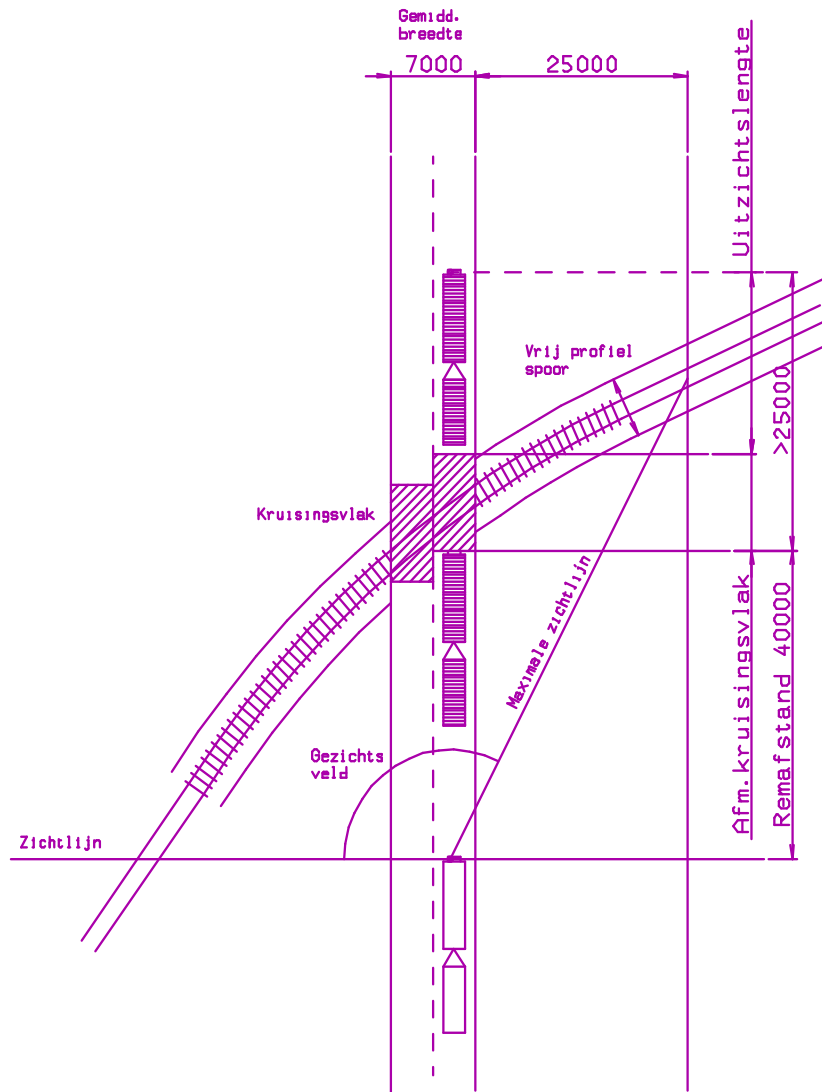
In the plane, delimited by minimal lines of sight no constructions or obstacles may be arranged higher than 700 mm.

For braking distance in a spatially limited situation, see chapter 3.9.

**Figure 5**

Field of view angled level crossing.  
 Field of view and braking distance.  
 Viewable distance.

Sizes in mm



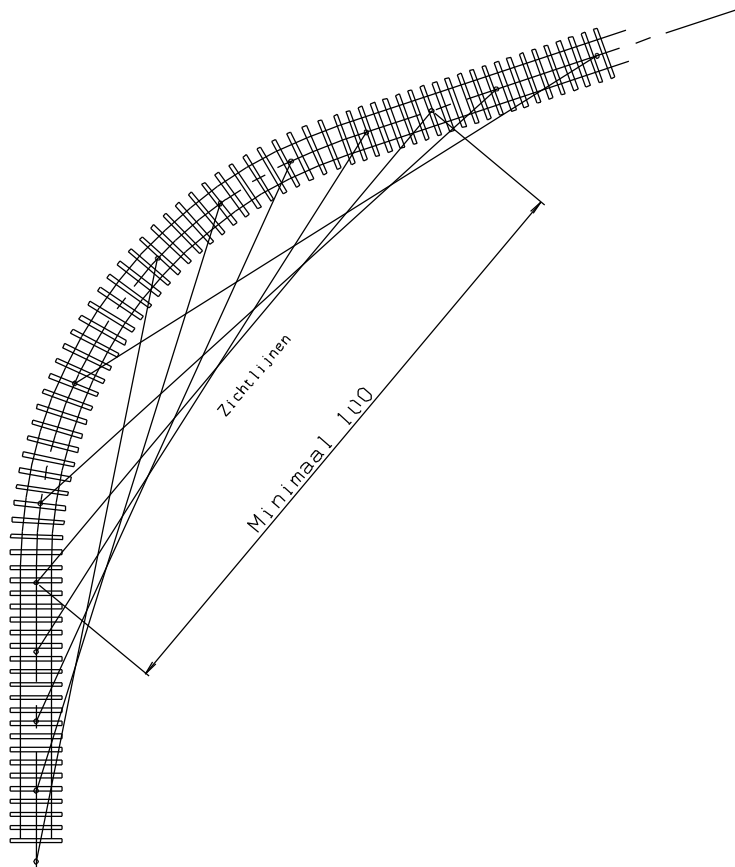
In the plane delimited by lines of sight and the rail track (field of view), no constructions or obstacles may be arranged higher than 700 mm.

To determine the **minimal** viewing distances see chapter 3.5.

**Figure 6**

### Lines of sight in curved rail track

Within "the tracks centre line" and "lines of sight", no constructions or obstacles may be arranged higher than 700 mm.



The aim should be to create lines of sight at 125 m.

For the maximum line of sight do not exceed 150 m.

**Figure 7**

## 5 Declaration

### Version 1.0:

This Tata Steel Standard replaces HO-standard 51.00.80.003.

### Version 1.1:

Hoogovens replaced by Corus  
Page layout adjusted.

### Version 1.2:

Authors name entered.

### Version 1.3:

Layout changed to Tata Steel standard  
Naming updated to 2013

### Version 1.4:

Former Standards S3518001 Railway Equipment free clearance structure gauge,  
S3518002 Normal and minimum profile of free clearance of tracks and  
S3808001\_view\_on\_unguarded\_open\_level crossings-lines of sight\_in\_curved track merged together  
in this standard

### Version 1.5:

Sections about braking deceleration, -distance and calculation removed and referred to technical  
directive *R3 90 80 01 Uitzicht bij wegekruisingen*.  
Braking distances updated due to update of brake deceleration in legislation.