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Tata Steel IJmuiden Standard
Lifting Beams & Lifting points

Author : B. van de Kaa
English version : R.W.Heldoorn, PTC MCE

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1. Introduction

This standard describes the minimum requirements necessary for lifting beams and lifting points in factories, installations and machines for Tata steel in IJmuiden, NL.

Lifting beams and lifting points are lifting devices mounted on a concrete- or steel construction for the purpose of fitting a hoist directly to or via a beam trolley.

There is clearly a difference between a bridge-crane and a lifting beam. A crane is a complete lifting system (machine), and a lifting beam is a construction that can serve as a connection point for a lifting tool.

This standard has been written for persons who design, delivers and/ or assembles lifting-beams or points for Tata Steel in IJmuiden.

1.1. Range & application

This standard defines the principles and practices that are to be applied in the design, manufacture, installation, commissioning, use and maintenance of each fixed or movable lifting device and is mandatory at all locations operated by Tata Steel IJmuiden.

This standard applies to new lifting facilities as well as adjustments and/ or modifications to existing lifting facilities. In addition to this standard, other relevant standards, guidelines and QHSE's at Tata Steel IJmuiden must be followed on the basis of their scope.

The objectives of this document are to provide information/ instructions to:

- parties that design and produce any part of these standards, whether they are Tata Steel IJmuiden, contractors or consultants.
- suppliers who, as part of their contract, provide any form of lifting equipment so as stipulated in these standards.

1.2. Legal & Judicial conformity

In case of any contradiction, the strictest requirements shall prevail in the following priority order:

1. European and National legislation
2. QHSE guidelines of Tata Steel Europe
3. Tata Steel IJmuiden Standards
4. Tata Steel IJmuiden Directives

2. Definitions & Abbreviations

Table 2.1, Definitions

CEN	Countries that are affiliated with the European commitment for standardization.
Eurocode	The euro codes as noted in Chapter 5

Table 1.2, Abbreviations

CIV	Civil
KBT	Crane design and Transport
MCE	Mechanical and Civil Engineering
KDT	Inspection Department
WQR	Welders qualifications record
WPS	Welding procedure specification
WPQR	Welding procedure qualification record
PTC	Projects & Technical Consultancy
QHSE	Quality, Health, Safety and Environment

3. Requirements Lifting beams

This chapter contains the mandatory requirements imposed in the standard for Lifting beams.

Requirements	Description
Calculation(s), drawing(s) and specification(s)	Manufacture and assembly only with written approval PTC-MCE-CIV. Submit to; katbalken@tatasteeleurope.com
Free Profile	Minimum distance between load and obstacle >= 500 millimeters.
Deflection – between support points	According to NEN-EN 1993-6 art. 7.3, Table 7.2 c. with a maximum of 25 mm. This in combination with NEN-EN 1993-6/NB art. 7.3
Deflection – Extension beam length	Maximum B/250 with a maximum of 12.5 mm. where B represents the distance between the support point and the end of the extension. This in combination with NEN-EN 1993-6/NB art. 7.3
Cross section control of the beams lower flange	General section checks according to NEN-EN 1993-1-1 (art. 6.2 & 6.3); Local effects according to NEN-EN 1993-6 art. 5.8
Vertical Load	According to NEN-EN 1991-3 art. 2.5.1.1
Horizontal load	According to NEN-EN 1991-3 art. 2.5.1.2
Material Quality document EN10204 (2004)	Material from a CEN country: certificate 3.1 Material from a non-CEN country: certificate 3.2 + notified body from a CEN land
Material – Notch impact	Notch impact 27 J when – 20°C
Material - Quality	S275J2; S355J2 (EN10025-2)
Material - Options EN10025-2(2004)	The following options according to EN10025-2 apply: - Mechanical properties; - Option 2: product analysis - Option 7: internal faults

Exit prevention - Position	Both ends of the lifting beam
Exit prevention – Size	Full width and height of the lifting beam profile
Exit prevention - Connection	Removeable (bolted)
Welding category	Category 1 according to Tata standard S1450401
Corosion protection	Corosion protection: Tata standard S3105601. Surface pre-treatment: P3 accord. ISO 8501-3 Color scheme: RAL 1003
Identification	QHSE 4.05, chapter 7.
Inspection - Procedure	QHSE 4.05, article 7.10
Testing – Load test	NEN EN 1991-3 article 2.10
Inspection – Deflection between support points	According to NEN-EN 1993-6 aticle. 7.3, table 7.2 c. with a max. of 25 mm. This in combination with NEN-EN 1993-6/NB art. 7.3
Inspection – deflection beam extension	Maximum B/250 with a maximum of 12.5 mm. Where B represents the distance between the support point and the end of the extention. This in combination with NEN-EN 1993-6/NB art. 7.3
Connection – Steel construction	Nuts, bolts & locking ring
Connection – Concrete construction	Chemical Anchor or threaded ends with fixation plate and nut(s)
Commisioning -	According to QHSE 4.05, article 7.2

4. Requirements lifting points

This chapter contains the mandatory requirements for lifting points.

Requirements	Descripton
Calculations, drawing(s) and specification(s)	Manufacture and assembly only with written approval PTC-MCE-CIV. Submit to: katbalken@tatasteeleurope.com
Calculations – Lifting points	According to DNV 2.7.1 Appendix D
Corrosion protection	Corosion protection: Tata standard S3105601. Surface pre-treatment: P3 accord. ISO 8501-3 Color scheme: RAL 1003
Material Quality document EN10204 (2004)	Material from a CEN country: certificate 3.1 Material from a non-CEN country: certificate 3.2 + notified body from a CEN country
Material Notch impact	27J when – 20°C
Material - Quality	S275J2; S355J2 (EN10025-2)
Material - Options EN10025-2(2004)	The following options according to EN10025-2 apply: - Mechanical properties; - Option 2: product analysis - Option 7: internal faults
Welding – connection lifting points	Weldings between the lifting points and steel construction are to be fully butt welded
Welding – welding category	Category 1 according to Tata standard S1450401
Identification	QHSE 4.05, chapter 7.
Inspection - Procedure	QHSE 4.05, article 7.10
Testing – Load test	NEN EN 1991-3 article 2.10
Commisioning - technical documentation	According to QHSE 4.05, article 7.2

5. References

Tata Steel:	
QHSE 4.05-version 1.0	Lifting cranes, lifting points, Crane tracks and lifting beams.
S 14 50 401	Execution and inspection of welding work
S 31 05 601	Corrosion protection
National legislation:	
NEN-EN-ISO 148.1 : 2010	specifies the Charpy (V-notch and U-notch) pendulum impact test method for determining the energy absorbed in an impact test of metallic materials.
NEN-EN- ISO-3834-1 :2006 nl	general outline and criteria to be taken into account for the selection of the appropriate level of quality requirements for fusion welding of metallic materials
EN 10204:2004	Metal products – Inspection documents
NEN-EN 1090-2:2008+A1:2011	Technical requirements for steel constructions
NEN-EN 1990+A1+A1/ C2:2011	Eurocode 0: Bases of structural design
NEN-EN 1990 NB:2011	National annex with NEN-EN 1990+A1+A1/C2: Eurocode: Bases of the structural design
NEN-EN 10025-2:2004	Hot rolled products of construction steel - Part 2: Technical delivery conditions for unalloyed construction steel
NEN-EN 1991-3:2006+C1:2012	Eurocode 1: Loads on constructions - Part 3: Loads caused by cranes and machinery
NEN-EN 1991-3 NB:2006/NB:2013	National Annex to NEN-EN 1991-3 Eurocode 1: Loads on constructions - Part 3: Loads caused by cranes and machinery
NEN-EN 1993-1-1+C2:2011/NB:2011	Eurocode 3: Design and calculation of steel structures – Part 1-1: General rules and rules for buildings
NEN-EN 1993-6:2008+C12009	Eurocode 3: Design and calculation of steel structures - Part 6: Crane track

NEN-EN 1993-6 NB:2008/NB:2012	National Annex to NEN-EN 1993-6 Eurocode 3: Design and calculation of steel structures - Part 6: Crane tracks (including C1:2009)
DNV	DNV Standard for Certification 2.7-1, June 2013

6. Revision history

Version 1.0:
Tata Directive R1 51 01 03 (Directive for new lifting beams and Lifting points) Translated and upgraded to Standards and fully revised on current legislation and standards.