SAFETY REGULATION VV03 HOIST	nyrstar Balen/Pelt
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1 PURPOSE

The purpose of this document is to describe how lifting and hoisting operations and lifting and hoisting equipment should be handled within Nyrstar, to ensure that the requirements for hoisting operations are described and that the risks associated with hoisting have been correctly identified, handled and managed.

To support the follow-up of the requirements of this Safety Regulation, two fill-in documents have been drawn up.

- For all the routine and hoisting work without a mobile crane, the functional test must be carried out and this must be noted on the LMRA card that you carry in your pocket. For all works with a mobile crane with or without a hoisting plan, one must complete the XF-452-FCH-0-00003 This document must also be in your pocket during the execution of the hoisting works.

2 SCOPE

This standard covers all hoisting materials (cranes, hoists, mobile cranes and hoisting accessories) on the Nyrstar site (both own material and material from contractors) and hoisting work on the Nyrstar site carried out by our own personnel or contractors.

3 REFERENCES AND DEFINITIONS

3.1 Credentials

Nyrstar group document : Technical Safety & Health Standard TS 215 Lifting & Rigging

3.2 Definitions

Hoisting accessories	All materials needed to attach loads to the load hook such as brackets, steel lengths, nylon slings, chains, etc.
Rigger	Competent person who prepares the load to be hoisted. He confirms the load by means of hoisting accessories. He is also responsible for fastening and loosening the load of the load hook.
Signaller	Competent person who gives the instructions to the crane operator to move the load with attention to the load, the environment and people. He may not give instructions to the crane man before he has the approval of the rigger to be allowed to hoist.
Special lifting	Hoisting operations that are not carried out frequently, or hoisting operations that are different because of the usual hoisting equipment or hoisting accessories. Works with an increased risk or a high complexity are: • A load with an unclear centre of gravity, which has an abnormal

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	shape or dimensions with no predefined attachment points • Loads that need to be positioned very precisely and therefore needs advanced anchoring techniques and/or rigging techniques • In case the load has to be transferred with a risk of collision with buildings, other cranes or if two cranes are hoisting a load at the same time. • Loads that are lifted above critical places such as buildings, hazardous installations, chemical storage, near high-voltage lines, over train tracks, etc. • If the load has to be lifted by more than one lifting tool
Routine hoisting	Concerns all routine hoisting operations in which the same hoisting equipment, the same load and the same hoisting accessories are always used.
Hoisting equipment	A generic term used to cover both, lifting and hoisting gear and lifting and hoisting appliances/ machines. This covers any work equipment used for hoisting or lowering loads, and includes its attachments(slings, braces, chains) used for anchoring, fixing or supporting the to be anchored load.
Hoisting tool	Any manual or driven device capable of hoisting, lowering or suspending loads. Including the rails, suspension structures, gearboxes and gear used in connection with such a machine. Excluded from this description are automatically controlled installations. (e.g. cathode depot)
Hoisting accessories	All the material needed to attach a load to the load hook such as slings, chains, brackets, etc.
Inspection	This refers to the check that checks whether the material may be used as described by the manufacturer and for the authorised application. This concerns both the quarterly inspection of lifting and hoisting equipment and the annual inspection of the mechanisms and structures.
Designated person	Person appointed by the employer and found competent to perform certain tasks.
Qualified person	Person who demonstrates through diplomas, training certificates, extensive knowledge, training or experience that he is competent to solve problems in a particular field.
Independent organism	Inspection company that, as an independent body, is able to issue legal certificates about their established inspections.
Maximum load	The maximum permissible load that can be safely hoisted by a hoisting device or lifting accessories. This load is applied to each device. This is also stated in the inspection reports.

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4 REQUIREMENTS

Each Nyrstar site must establish, implement and maintain a written hoisting procedure in accordance with the Nyrstar Standard and local legal obligations. As required by Nyrstar standard, Nyrstar Balen-Pelt has appointed a person responsible for the hoisting work and management of the lifting equipment on its site. The SHEQ manager takes on this task and is responsible for ensuring that the following tasks are carried out:

- The review and adjustment of the "Safety Regulation Hoisting" by the person responsible for this procedure. The manager SHEQ will pass on to him any changes in the Nyrstar standard. Changes in the legal regulations will be reported by the prevention advisor.
- Verification of compliance with the conditions described in the Nyrstar standard and the legal obligations such as training, inspections and required certificates. (this is done by internal audits)
- Conducting a yearly self-assessment concerning the follow-up of the safety requirement for hoisting, which guarantees the Nyrstar standard and legal obligations. (this is done by internal audits)

4.1 Inventory and identification of lifting materials

The site must maintain an inventory in which the following information is included

- The maximum load
- The unique identification number
- The date of the last inspection

All hoisting equipment must be marked with an unique identification number and its maximum load to allow checks on inspection or use during hoisting operations.

If different max loads are possible for an equipment, a load table must be present. This load table must be clearly visible and available to the user.

Hoisting equipment without a clear identification should be taken out of use.

4.2 Education

Anyone involved with hoisting equipment regarding the operation or maintenance of it should receive training tailored to the assigned tasks.

4.2.1 Hoisting machine operators / Riggers / signalers

Only designated personnel will be allowed to operate hoisting equipment and will receive appropriate theoretical and practical training in function of the hoisting equipment to be operated. This training will include at least the following

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- Working conditions in which the works are carried out
- Performance characteristics and complexity of hoisting equipment
- The type of load(s) to be handled
- The responsibility of the operator and other persons involved in the hoisting work

Training records shall be kept and training shall be refreshed at least every five years. In the case of mobile cranes the lifting machine operators shall have a legally recognized certificate.

4.2.2 Performers of specific routine lifting works

The performers of specific routine hoisting works are trained through a shortened training based on a task risk analysis to be able to perform their tasks safely. These persons may not perform any other hoisting activities outside their training.

4.2.3 Other persons

Persons who are exposed to hoisting activities but who are not themselves involved in these works should receive general training with regard to the dangers of hoisting activities. For our site, this is included in the VCA training.

4.3 Maintenance and inspections

Lifting and hoisting equipment must get the necessary maintenance and the mandatory inspection based on the manufacturer's requirements and the legal requirements.

4.3.1 Functional test of overhead- and gantry cranes

For all cranes, a functional test must be carried out by the user and registered on the LMRA card or the local control form at the start of each shift or before the first use during that shift. This test will include the following checks

- A test of all the controls and the emergency stop: if controls do not work, they must be repaired before the works can start.
- Carry out a visual inspection of the cables and hoisting equipment to avoid major risks associated with damaged material.
- Check that the crane and the hoisting equipment have the valid colour code of the last inspection of lifting and hoisting material.
- The functional test is noted on the LMRA card or the local control form that the user of the hoisting equipment carries in his pocket during the works as is customary with the work permit. In this way, the user can demonstrate that he has performed the test.

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4.3.2 Lifting and hoisting equipment

- As legally required, our lifting and hoisting equipment is inspected quarterly by a recognized body. All the material that has been inspected is given a colored strap so that one can see when the last inspection has been carried out. The mechanisms and structures are inspected annually as prescribed by law. All this data is managed in the inspection database and the inspection reports of AIB Vincotte that we have in our possession.
- Each user must check the lifting and hoisting material for damage or deformations before the hoisting work. The material must be replaced if it is not in order.

4.4 Lifting equipment used for hoisting people

Hoisting equipment designed to hoist persons must be clearly marked that the material is suitable for this purpose. There should also be an indication of the maximum number of persons that may be hoisted corresponding to the maximum load to be hoisted.

Hoisting equipment that is not designed for hoisting persons may only be used in exceptional circumstances if there are no other safer methods of carrying out the work. A risk analysis must then be carried out and all the necessary tests and inspections must be carried out to ensure the safe use of these products.

If a crane is used, it must be checked whether this crane is suitable for carrying out these works safely. The crane must be equipped with all legally required safety features such as load limiter and limit switch. Before starting the works, an inspection certificate of the combination crane with the accompanying passenger box must be submitted. This examines the safe attachment of the passenger box to the crane, the safe securing of the fall protection of the persons to the crane and also examines whether the combination is suitable for the weight to be hoisted. The crane and passenger box must be checked daily.

The hoisting of persons may only be carried out with the written permission of the prevention adviser or his replacer.

4.5 Lifting plans

All hoisting works require a hoisting plan, but this depends on the hoisting equipment used and the complexity of the hoisting works. That is why the hoisting works are divided into two groups

- Special hoisting
- Routine hoisting

4.5.1 Special hoisting

Special hoisting works need increased attention and caution. For all special hoisting works with an increased risk or a high complexity, a hoisting plan must be drawn up. The hoisting plan must be drawn up by a competent person. To draw up this hoisting plan, we call on expert external firms

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because we do not have these competencies in-house. For the other special hoisting works, it is sufficient to make a task risk analysis.
For the other special lifting works that are infrequent or abnormal, but are not works with increased risk or high complexity, it is sufficient to make a task risk analysis. Deviations from the hoisting plan must be discussed with all those involved (operator, rigger, signaller, client, owner)and must not result in reduced safety.

The following items must at least be included in the hoisting plan:

- names of the parties involved and their contact persons.+ the certificates of crane man and rigger (+possibly involved persons, asset people eg)
- name of the rigger.
- RI&E of the hoisting project. These can be the results of a Task Risk Analysis;
- method of supervision of the work;
- tasks and responsibilities of the crane operators, the hoiser(s) or (riggers) and the contact person of the client.
- date and time of execution.
- details of the cranes to be used, including crane type and capacity
- drawing, mass and dimensions of the hoisting load indicated with the hoisting points and to this the load of the cranes is linked and a centre of gravity calculation location. The hoisting plan shows the applicable hoisting tables and/or hoisting graphs of the crane in correct configuration, or the hoisting plan is accompanied by the current hoisting tables.
- overview drawing of the installation points with reference point for the installation and sufficient load-bearing capacity of the subsoil, the hoisting load and the distances to high-voltage lines if work is carried out within a distance of 15m, the substantiation for sufficient hoisting capacity of the crane.
- applicable hoisting tools and a slinging plan, including the maximum load occurring.
- any limitations due to weather influences such as maximum wind pressure, extreme temperature / rain.
- list of crane movements to be performed, possibly with time schedule, and the route of the load, with start and end point.
- description of how the load is accompanied, for example by steering lines.
- communication procedures and resources between the crane operators and rigger.
- Demarcate zone to be applied.
- agreements with the department(s) involved.
- personal protective equipment
- content of start-up discussion just before the execution with all parties involved.

4.5.2 Routine hoisting work

For routine hoisting work, a one-time hoisting plan is required and this can be described through a task risk analysis. However, these task risk analyses should be reviewed at regular intervals to ensure that they are still up to date. All routine hoisting work must be preceded by performing the

functional test and fill in the results on the LMRA card, except for the automatic hoisting equipment.

4.6 General precautions during hoisting work

4.6.1 Cranes, overhead cranes and hoists.

- All cranes must have an indication of the maximum load that is visible from the ground, if there are two lifting points on a hoist, the max load must be present on both.
- The person responsible for the hoisting works will check the necessary documents of the mobile hoisting equipment and of the crane man and rigger before the start of the works and mention them on the hoisting plan.
- All hooks shall be in accordance with the max load of the crane and shall have a safety valve to prevent detachment from the load.
- One should never overload hoisting equipment or hoisting equipment, so check whether the material is suitable for the load that needs to be hoisted.
- Protect the hoisting equipment from damage due to loads with sharp edges and make sure that the hoisting equipment does not rub against anything during hoisting.
- The load shall be well secured and properly balanced in the sling or hoisting device before it is hoisted and/ or after it is lifted just a few centimeters, make the necessary correction to properly attach the load.
- The operator will never leave a hoisted load unattended, except for tasks for which a deviation can be granted through a task risk analysis.
- The operator of cranes or overhead cranes will not be allowed to use a mobile phone or walkie talkie during the lifting works other than related to the hoisting works.
- For mobile cranes, the load table must be clearly visible to the operator. The load limiter must be in operation and shall be never be bypassed.
- When working with mobile cranes, the hoisting zone must be demarcated and people who do not belong to the works are not allowed in this danger zone.
- If the load is to be left in a hoisted state, the area around the load must be demarcated and the attachment of the load must be ensured.
- If the operator of the crane cannot visually follow the load over the entire hoisting route, an appropriate means must be provided for the signaller to ensure good communication with the operator.
- If there are works in the vicinity of the tracks of overhead cranes, the crane must not come closer than 6m if there is a possibility of collision.

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- The minimum distance from cranes to high-voltage lines mounted on steel pylons is 15m. If the works have to be carried out within these distances, the high voltage must be switched off or a shield must be placed to prevent an approximation of the high-voltage lines.
- Outrigger pads should always be used because the entire terrain is considered to be stirred soil. Therefore, the outrigger pads should have a minimum surface area so as not to exceed the maximum dynamic ground pressure of 25 ton/m2
- No crane may be installed in places where there is a risk of damage to underground pipes or sewers.
- If the installation or use of the hoisting equipment leads to the blocking of roads or escape routes, road signs and alternative routes must be indicated.

4.6.2 Lifting accessories

- All hoisting accessories must be legible and marked with a maximum load.
- All hoisting material must be stored in a suitable place to prevent rusting, rotting or deterioration of the material. This environment depends on the material used.
- Before using hoisting equipment, the user must check this material for damage or defects. Damaged or defective material must be taken out of use immediately. If the material cannot be repaired, it must be destroyed and removed from the inspection lists.
- Workers must stand at a safe distance from loads to be hoisted and already hoisted loads. One should never move under hanging loads.
- During the hoisting work, appropriate PPE such as suitable gloves must be worn.

4.6.3 Wind and thunderstorms

If the hoisting equipment or load is exposed to wind or thunderstorms, this material must be equipped with devices that make it possible to detect dangerous situations and to take measures to stop the use of the hoisting equipment. When using mobile cranes, the site will ensure that an anemometer is available at the workplace. For the sites Balen and Pelt, a measuring device is available at the asset department. This will be set up in the highest possible place. In any case, the site will ensure that the hoisting works are stopped at wind speeds higher than 38 Km/h or if the protections on the crane or the crane man himself can no longer guarantee safe operation. If the instructions for use and protections of the crane allow a higher wind speed to work, this can be allowed.