SAFETY INSTRUCTIONS VV03 **Hoisting**	nyrstar Balen/Pelt

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1 PURPOSE

The purpose of this regulation is to describe how lifting and hoisting operations and the equipment used in them are to be managed on the Nyrstar site. This ensures that the requirements for lifting activities are clearly defined and that the risks associated with lifting are correctlyidentified, assessed and managed.

2 APPLICATION AREA

This regulation applies to all lifting equipment on the Nyrstar site, including travelling cranes, hoists, mobile cranes and lifting accessories, both owned by Nyrstar and contractors. It also applies to all lifting and hoisting work carried out on the site by Nyrstar personnel or by contractors.

3 REFERENCES AND DEFINITIONS

3.1 References

Nyrstar Lifting and Rigging Standard: NG-HS-ST-112
PBW Lifting Plan : XF-452-FCH-0-00003

3.2 Definitions

Rigger	A trained person who is responsible for correctly rigging loads. This includes determining the correct lifting methods, attaching the lifting accessories and ensuring that the load is moved safely.
Signalling	Competent person who gives instructions to the crane operator to move the load with attention to the load, the environment and people. He is not allowed to give instructions to the crane operator before he has the rigger's approval to be allowed to lift.
Standard lifting	Are lifting operations with simple loads and predictable working conditions that do not involve increased risks or complexities.
Complex lifting	Are lifting activities that are characterized by an increased risk and/or an increased degree of technical and operational complexity. These risks may arise from the nature of the load, the lifting equipment involved, the working environment or the specific execution conditions.
Hoisting equipment	A general name for lifting and hoisting equipment and lifting and hoisting accessories. This means that all the material is used to lift or lower loads, both the cranes and bridges and all the stop material (slings, brackets, chains,...) that is used to rig, attach or support the loads to be lifted.

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Inspection	This refers to the check that checks whether the material may be used as described by the manufacturer and for the permitted application. This concerns both the quarterly inspection of the lifting and hoisting equipment and the annual inspection of the mechanisms and structures.
Designated person	Person who has been 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 certain field.
Maximum load	The maximum permissible load that can be safely lifted by a hoist or lifting accessories. This load is applied to every device and is also stated in the inspection report.
Lifting plan	A detailed and prescribed document that is prepared to carry out a lifting operation in a safe and organized manner. It includes all essential information related to the preparation, execution and safety measures of lifting operations. The lifting plan serves as a guideline for all parties involved in lifting loads, with the aim of limiting risks and ensuring safety.
Active installations	Active installations within Nyrstar are operational installations or systems that are in operation and of which damage, disruption or malfunction can lead to: - Injury to persons, such as burns, contact with hazardous substances, or exposure to heat, vapors, or toxic gases, - Disruption of critical processes, such as furnaces, reaction vessels or unprotected tanks, or - Environmental damage, for example due to the release of toxic, corrosive or polluting substances. For example: Lifting work **over** the Power Station, the Hamons, K11/K12, the ovens, open tubs, ... Shielded installations, such as pipe racks or pipes that are structurally integrated and protected against external influences, are not included, unless a risk analysis determines otherwise. *In case of doubt, advice can always be sought from safety.
Tower Crane	A fixed crane that is built in sections at one location.
Quick Assembly Crane	A crane that is folded out hydraulically or mechanically.
Mobile Crane	A mobile crane on wheels or tracks.

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4 PREREQUISITES

4.1 Inventory and identification of lifting equipment

Each site will keep an inventory that includes the following data:

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

All lifting equipment must be marked with a unique identification number and its maximum load. This is to enable inspections in connection with the inspection or use during lifting activities.

If different max. loads, a load table must be present that is clearly visible and available to the user.

Lifting equipment without a clear identification or valid inspection must be taken out of use, apply the STOP reflex.

4.2 Education

Everyone involved in the use or maintenance of lifting equipment must be appropriately trained for this.

4.2.1 Crane operator and rigger

Only designated personnel will be allowed to operate or rig hoisting equipment and will receive appropriate theoretical and practical training in function of the work to be carried out. This training will include at least the following:

- Working conditions in which the work is carried out.
- The characteristics, possibilities and complexity of the hoisting equipment.
- The type of charges that need to be handled.
- The responsibility of the operator and other persons involved in the lifting operations.

The training data of the persons must be stored and it must be ensured that the training is repeated at least every five years. In the case of mobile cranes, operators must obtain a legally recognized certificate.

4.2.2 Other persons

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

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4.3 Maintenance, tests and inspections

Lifting and hoisting equipment must be maintained and periodically inspected in accordance with the manufacturer's instructions and the applicable Belgian legislation.

Lifting and hoisting equipment is inspected every 3 months by an External Service for Technical Control (EDTC), as determined by law. After inspection, each material is provided with a colored band that indicates when the last inspection took place. The color code that applies is displayed in various places within the department.

The mechanisms and structures are inspected annually, in accordance with the legal provisions. All inspection data and reports are kept in the inspection database.

When using lifting and hoisting equipment without a Belgian inspection, an administrative check must be carried out by an EDTC in Belgium. It is always the responsibility of the user or his employer to ensure this.

Before any lifting activity, the user must visually check the lifting and hoisting equipment for damage or deformations. If defects are detected, the material must be taken out of service immediately, apply the STOP reflex.

4.3.1 Functional test of cranes

A functional test must be carried out and recorded for all cranes (mobile cranes, gantry cranes, overhead cranes, tower cranes) with an SWL > 5 tonnes at the beginning of each shift, or before the first use of the crane during the shift. Registration can be done on the LMRA card, in the lifting plan or on the checklist 'Functional test lifting'.

This functional test should include:

- Test the controls and the emergency stop: If any of the controls are not working correctly, it must be adjusted or repaired before starting work.
- Carry out a visual inspection of the cables and the stop material: During this visual inspection, attention must be paid to any obvious damage that may pose a risk.
- Check whether the inspections are up-to-date: Check whether the inspections of, for example, cables, chains and the crane itself are up to date, on the basis of the inspection label or the inspection report.

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4.4 Lifting equipment used for lifting persons

Lifting equipment designed to lift persons must be clearly marked as suitable for this purpose and bear an indication of the permitted number of persons and the nominal load.

Lifting equipment that is not designed for lifting persons may only be used for this purpose in exceptional circumstances, when there is no safer alternative. In that case, a risk analysis must be carried out and all necessary checks, tests and inspections must take place to guarantee safe use.

If a crane is used, it must be checked whether it is technically suitable and equipped with the legally required safety devices such as load and end-of-run limiters. Before the start of the work, an inspection certificate for the combination crane/passenger box must be available.

The crane and the passenger box are checked daily and taken out of service if defects are detected, apply the STOP reflex. Lifting work with persons may only be carried out with the written permission of the prevention advisor or his or her replacement.

4.5 General precautions during lifting work

- The person in charge of the lifting works will check the necessary documents of the mobile hoisting and lifting equipment and of the crane operator and rigger before the start of the work.
- All lifting equipment should be stored in a suitable place to prevent rusting, rotting or deterioration of the material. This environment depends on the material used.
- Before using lifting equipment, the user must check this equipment for damage or defects. Damaged or defective material should be removed from service immediately, apply the STOP reflex. If the material cannot be repaired, it must be destroyed and removed from the inspection lists.
- All the hooks must be in accordance with the max. load of the crane and must have a safety valve to prevent the load from coming loose.
- You should never overload lifting equipment or stop material, so check whether the material is suitable for the load that needs to be lifted. The load limiter must be in operation and must never be bypassed.
- Protect the stop material from damage to sharp-edged loads and ensure that the stop material does not rub against anything during lifting.
- The load must be securely rigged both in terms of the stability of the load and the release of the load. The rigger determines whether it is safe to lift the load, apply the STOP reflex in case of doubt or unsafe situations.
- The supervision of the load must always take place outside the line-of-fire (see figure below). Only after a risk analysis has been drawn up, with adequate measures, can guidance within the line-of-fire be permitted.

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- Manual manipulation of the load must be kept to a minimum by providing appropriate tools (rope, magnet, stick, etc.). Only in exceptional cases and after a risk analysis has been drawn up, it is permitted to manually supervise the order. Impact resistant gloves are recommended.
- No lifted load should ever be left unattended. This is only permitted if a task risk analysis shows that this can be done in a safe manner.
- It is forbidden for the operator of cranes or overhead cranes to use a mobile phone or walkie-talkie (other than related to the lifting work) during the lifting work.
- If the operator of the crane cannot visually follow the load over the entire lifting path, an appropriate means of communication must be provided for the signaller to ensure good communication with the operator.
- If there are works near the tracks of overhead cranes, the crane may not come closer than 6m if there is a possibility of collision.
- When working with cranes in the vicinity of high-voltage lines, the prescribed minimum distances must be strictly respected (4 metres for lines from 30 kV to 70 kV, 5 metres for lines from 70 kV to 150 kV, and 6 metres for lines from 150 kV to 380 kV), and it is mandatory to provide a detailed lifting plan, as described in Lifting Plan Part B – Layout Plan, . Always contact the grid operator for specific measures imposed.
- Outrigger pads should always be used because the entire site is considered to be disturbed soil. Therefore, the outrigger pads must have a minimum surface area in order not to exceed the maximum dynamic ground pressure of 25 tons/m2.
- No crane may be set up in places where there is a risk of damage to underground pipes or sewers.
- If the installation or use of the hoist leads to the blocking of roads or escape routes, road signs and alternative routes must be indicated.
- When working with mobile cranes, the lifting zone must be demarcated and persons who are not part of the work are not allowed in this zone. If demarcation is not possible, the zone may be guarded by authorised persons accompanied by an audible signal.
- All cranes must be equipped with an anemometer. For the Balen and Pelt sites, a measuring device is also available from the asset department. This will be set up in the highest possible place

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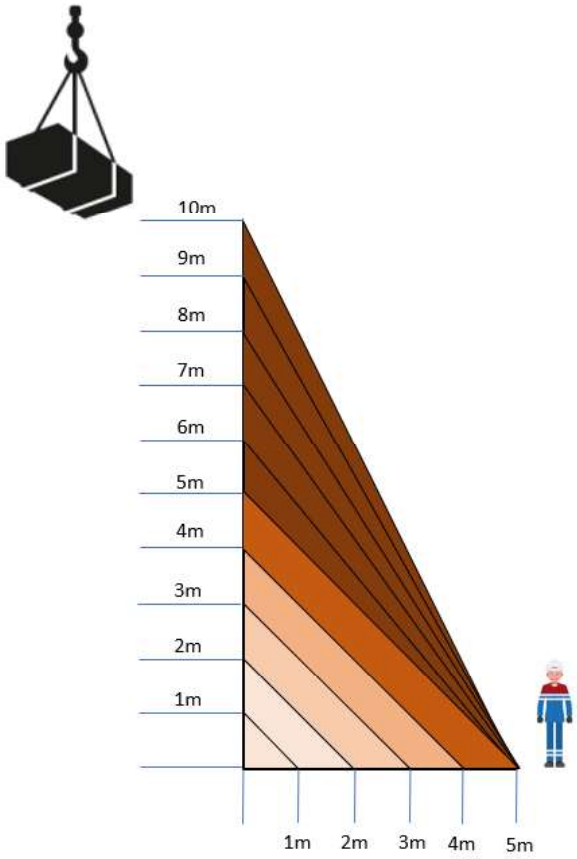
- It is forbidden for anyone to go under hanging loads. Please take into account the following safety distances.



4.5.1 Wind and thunderstorms

See safety instructions VV 28 "Severe weather" .

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4.6 Lifting plan for the use of (mobile) cranes

To ensure safety during lifting operations, these are divided into standard and complex lifting works. Depending on the complexity, different requirements apply with regard to the preparation of a lifting plan and the associated appendices. This lifting plan is submitted to the work planner, area planner or the person in charge of the department. Advice can always be sought from the prevention advisor and/or safety coordinator.

4.6.1 Content of the lifting plan

For every lifting work with cranes, the checklist from the lifting plan (form XF-452-FCH-0-00003) will have to be completed as a minimum. An important part is the assurance of the risks and measures to be taken in, for example, a general RIE crane, TRA, TI, Method Statement, etc. This must always be present at the location specifically, completed and signed.

Depending on the type of lifting, the following mandatory attachments must be added:

- Appendix 1 : Development plan with the work area, the location of the crane with turning radius, the indication of critical buildings, pipes, obstacles, etc. and the demarcated lifting zone.
- Appendix 2 : Specific work description stating the lifting equipment to be used and specific anchoring method and any additional precautions.

4.6.2 Specific requirements for tower cranes and quick erecting cranes

For tower and quick erecting cranes, Annex 1 is always mandatory, regardless of the complexity of the lifting work.

This layout plan is submitted for approval to the External Technical Control Service (EDTC) during the inspection of the crane upon commissioning.

Without approval from the EDTC, the crane may not be put into operation.

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4.6.3 Standard lifting

Standard lifting works have a limited risk and therefore do not require an extensive lifting plan.

4.6.3.1 Criteria for standard lifting

A hoisting is considered standard when all of the following criteria are met:

- The load has a clearly defined centre of gravity and has well-developed attachment points.
- No lifting work is carried out above vulnerable zones, such as:
  - Buildings that are in use.
  - Active installations.
- No presence of critical factors near the site, such as:
  - High-voltage lines (HS lines).
  - Underground structures (e.g. tunnels or pipes).
- The lifting work does not require simultaneous use of multiple cranes.

4.6.3.2 Requirements for standard lifting

For these lifting works, only the checklist of the lifting plan (form XF-452-FCH-0-00003) needs to be completed. This also applies to lifting with forklift trucks with crane arms, telehandlers, or other mobile work equipment equipped for lifting.

This checklist must be fully completed and signed at the work location.

4.6.4 Complex lifting

Complex lifting works involve increased risks and therefore require a complete lifting plan, including a specific risk analysis and any additional measures.

4.6.4.1 Criteria for complex lifting

A hoisting work is complex when one or more of the following criteria apply:

- The load has a deviating or unknown center of gravity, or does not have defined attachment points.
- Several cranes are used at the same time.
- The lifting work is carried out:
  - Above a building in which staff is present.
  - Active installations.
- Near the stand there are:
  - High-voltage lines (HS lines).
  - Underground structures that may affect the stability of the crane.

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4.6.4.2 Requirements for complex lifting

For these lifting works, appendix 1 of the lifting plan (form XF-452-FCH-0-00003) will always have to be drawn up.

- Appendix 1: Development plan of the work zone, including the crane location, indication of critical buildings, pipes, obstacles and the demarcated lifting zone.

If the load has a deviating or unknown centre of gravity, or does not have defined attachment points, appendix 2 will have to be added.

- Appendix 2: Specific work description, stating the lifting tools to be used, anchoring methods and precautions.

In addition, a risk analysis is mandatory, in which the specific risks of the lifting work are assessed and control measures are determined.

The approved lifting plan, including appendices, must always be available at the work location.

4.6.5 Determine FLOW schedule content of lifting plan