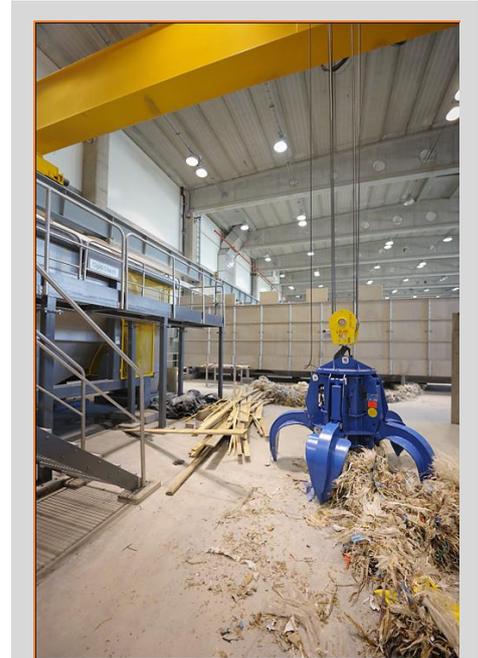




Safety requirements for cranes



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Scope

This practice note applies to all Mondi paper mills. All mills are to assess their associated risks in their respective paper machine areas, and develop plans to implement the requirements listed in this practice note.

Crane operations means all operations related to lifting equipment. It covers all forms of lifting gear and lifting appliances.

Objective

To standardise the minimum requirements for use of paper machine cranes and lifting equipment across all Mondi operations.

This practice note supports the Zero Harm approach. The requirements shall be incorporated into site controls. It sets out the responsibilities and arrangements relating to design, manufacture, registration, periodic examination, repair, modification, use and decommissioning of lifting equipment. If the additional hazards exist, the scope needs to be extended based on risk assessment approach.

All mills are to adhere to the minimum requirements within five years (2018 to 2022). The relevant BU CEO and/or COO shall approve any exceptions of the requirements as listed in this practice note.

Definitions

Drop Zone	It is the area where a person is at risk of a falling, shifting, moving or swinging load. The size of the drop zone must be determined for each lift, taking into consideration the size and weight of the load. This area shall be kept clear of persons at all times.
Danger Zone	The area or path along which the load will be moved. This area is to be barricaded off, or cleared by the crane operator, flagman or rigger. Only authorised persons may enter the danger zone during the lift, however may not enter the drop zone at any time.



Tasks and hazards

1. Tasks conducted using cranes or work on cranes including but not limited:

- All moving activities of tambours and spools (with paper) from reel area to the winder;
- Temporary storage of tambour (with paper) on machine floor;
- Exchange of rolls throughout length of paper machine;
- Exchange of machine clothing;
- Lifting objects between various levels (i.e. equipment, chemicals, machine clothing etc.);
- Removing ragger from the pulper;
- Planned shut activities and rebuilds;
- Maintenance and inspections of cranes and attachments.

2. Main hazards and risks include but not limited to:

- Falling of the lifted object;
- Falling of damaged hoist or other crane elements;
- Person entering the drop zone;
- Unauthorised persons entering the danger zone;
- Person squeezed between suspended load and other objects;
- Collision hazard of floor rail operated overhead crane with personnel;
- Cranes colliding with each other or other objects (e.g. scaffolds);
- Collision with equipment, machines or structures;
- Temperature extremes;
- Electric shock.

Minimum requirements

The following requirements are based on three of the five elements of the hierarchy of controls, being engineering controls, administration and personal protective clothing and equipment.

1. Engineering controls

In order to reduce the risk levels to an acceptable level, the following is required to prevent incidents:

- Installation of handrails and safe access for working at height;
- Installation of stopper blocks;

2. Administrative controls

Although implementing administrative controls does not necessarily reduce the risk levels, sites shall provide the necessary information of the risks and provide safe tools and equipment and warnings to enable the operators to conduct the tasks safely, these include:

- Providing fall arrest equipment including life lines and attachment points;
- Emergency stop button for each crane fully functional;



- Providing locking mechanism for control;
- Installation of sirens and blue light (during operation);
- Maximum safe working load to be displayed on crane and attachments;
- Rescue plans available for working at height;
- Safe operating procedures for maintenance and operation of cranes;
- Controls implemented related to solitary work, temperature extremes and other hazards;
- Manual check and non-destructive testing conducted at a minimum frequency of once per year and records kept for a period of ten years or per Local Legislation;
- Annual inspection of slings and static load when required by a competent person and inspection records kept;
- Marking of slings with unique number, validity, and a register to be kept;
- Crane hooks to have a life history record (i.e. incidents, modifications and inspections);
- Hooks inspected by ultrasound by a competent person, following a hook related incident;
- Suitable sling and cable storage to prevent kinks and ensure integrity;
- Internal crane system auditing based on a checklist, to ensure all important assessment aspects are taken into consideration (based on Local Legislation and on a risk based approach);
- Implementation of suitable maintenance checklists;
- Use of lowest available speed at the crane for lowering the jumbo reel (as defined in the practice note for Pope reel);
- Issuing and use of tag-lines and push bars which are readily available at the workplace;
- Clear rules for use of cranes by contractors and clear handover controls;
- Availability of barricading if and when required.

3. Personal protective clothing and equipment

Suitable personal protective clothing and equipment shall be issued (risk-based approach) in addition to the controls listed above and in the site-specific task based risk assessments and safe operating procedures. This should include requirements for crane operators, flagmen and riggers.

Additional requirements

The following requirements are compulsory when designing and/or purchasing new cranes

1. Substitution

- When purchasing or rebuilding the paper machines: Install full length, continuous rail system (from Pope Reel to Rewinder to guide Jumbo tambours and spools), to minimise handling of tambours by crane.

2. Other controls

- Install remote control on cranes;
- Ensure access to control suspended object at cranes where visibility or view of the danger zone is required;
- Based on risk assessment for high temperature work environment at the paper machine hall ceiling where cranes and rails have to be repaired, install curtains at crane rails to



improve maintenance environment. Alternatively, use cooling vests and portable cool air ventilation;

- Installation of collision prevention technology (crane against object or another crane);
- Marking on the crane beams for safe position of hooks and trolleys when moving crane above paper machine;
- Display system of actual load lifted with sensors on the crane;
- Installation of trip sensors on floor mounted cranes.



References

- SD PR19.14 - Use of lifting Equipment.
- SD PR19.07 - Plant and equipment integrity for controlled equipment.
- Mondi Safety Rules to Live By - Rule 7, (Lifting and material handling).
- ISO 12478, 1997 Cranes - Maintenance manual (Part 5: Overhead travelling and portal bridge cranes).
- BS 7121, Part 1:1889 Code of Practice for safe use of cranes.
- ASME B30 Safety Standard for Cableways, Cranes Derricks, Hoists, Hooks, Jacks, and Slings.
- FM Global DS 1-62 CRANES which contains general information on operation and maintenance of various crane types.

Document Control

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