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Procedure for maintenance and annual check of machines and related equipment

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1 Purpose

The purpose of this document is to describe how the maintenance and annual check of machines and related equipment at MAX IV is performed.

2 Scope

The scope of this document is limited to the maintenance and annual check of machines and related equipment.

3 Responsibilities

At MAXIV, we have several types of machines that requires different actions relating to maintenance and annual test.

When a machine is purchased and/or installed to be used at MAXIV, a person is appointed responsible for it.

The instructions in the machine's manual must be followed, and if there is demand for maintenance and regular checks/tests this must be performed and documented.

The group manager for the department where the machines is operated is responsible for this.

A detailed description of how these equipment's is handled and who is responsible can be found in the document: D_H_SA_MS_ Machine safety inventory.

For machines and machine lines that we construct ourselves, it is the machine safety engineer that is responsible for coordinating the work with the maintenance and annual check of the machine safety-related systems.

4 Definitions

Machine means an assembly consisting of linked parts or components that is powered by one or more energy sources (non human), at least one of which moves, and which are joined together for a specific application.

The following are also considered as machine:

Assembly of machines or complex plants. Complex plants include production lines, special purpose machinery made up of several machines, interlinked machinery.

Interchangeable equipment that can modify the basic functions of a machine.

Partly completed machinery.

5 References

MAX IV manuals, procedures and general requirements for machine safety	Location
Machine safety inventory	D H SA MS
Plans and building codes (2010:900)	boverket.se
AFS 2003:6 Inspection of lifting devices and certain others technical devices	av.se

6 Maintenance and annual check of machines

6.1 Machine safety related equipment's that are part of the building

Equipment that is part of the landlord's responsibility such as elevators, door openers and rolling gates are handled (annual testing and maintained) by Caverion who is following the requirement from Boverket (the Swedish administrative authority for issues concerning the built environment).

Monthly inspections and other requirements from the manufacturer's instructions are performed.

6.2 Vending machines and similar equipment

Equipment that is provided by external company but used in MAXIV such as vending machines and floor cleaning machines are handled by the respective external company since we rent the machines, this is included in the rental agreement, i.e. maintenance through regular service etc.

6.3 Floor cleaning machine

The floor cleaning machine is the property of LU Service who is the company in charge of handling the machine and its maintenance.

6.4 Cranes and lifting equipment

In Sweden it is the regulation AFS 2003:6 Inspection of lifting devices and certain others technical devices that are mandatory to follow).

Once a year, an approved inspection company inspects the cranes, as well as lifting beams and fall protection harnesses.

Cranes and lifting equipment of smaller tonnage (below 500kg) are checked and maintained regularly by MAXIV heavy lift department.

6.5 Forklifts and Aerial platforms

Once a year, an approved inspection company inspects the forklifts and the Aerial platforms.

6.6 Picking trucks

Picking trucks are subject to self control (the user is responsible to check the equipment before use and are not allowed to use any damaged equipment).

6.7 Workshop machines

Testing of the emergency stops on machines that is equipped with those must be performed annually and documented.

The form in the document D_H_SA_MS_Emergency stop test form at MAXIV is intended for this purpose. The group manager for the department where the machines is operated is responsible for this.

6.8 Machines that are constructed by MAXIV

All machines that are constructed by MAXIV and are equipped with a machine safety system must be tested once a year.

The machine safety engineer is responsible for coordinating the work with the maintenance and annual check of the machine safety-related systems.

The automation team in the engineering II group is responsible for performing maintenance work on the machine safety-related systems according to instructions developed together with the machine safety engineer.

The electricians in the electrical & power supply system team in the engineering II group are responsible for performing maintenance work on the machine safety related system according to instructions from the machine safety engineer and the automation team.

6.9 Other kind of machines

For any other kind of devices/equipment that can be defined as a machine, it is the manufacturers manual that gives the requirements for the maintenance and annual testing. The machine safety engineer can advise if there are any uncertainties.

6.10 Document revision history

Date	Remark	Revision	Prepared by
2022-08-01	First draft. To be internally reviewed.	0.1	Hasse Andersson
2023-07-12	Second draft. To be internally reviewed.	0.2	Hasse Andersson
2023-08-31	Third draft, to be reviewed	0.3	Hasse Andersson
2024-04-17	Approved and published	1.0	Hasse Andersson

7 Distribution list

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GM	All	All
Automation and Electrical & power supply system's team	Accelerator	Engineering II