SPECIFIC SAFETY INSTRUCTION SSI-M-1-2

CRANES, BRIDGE CRANES, GANTRY CRANES AND POWER-DRIVEN HOISTS
1 INTRODUCTION

For the convenience of the reader, this Specific Safety Instruction uses the masculine gender only. However, its use shall be understood as referring to both genders unless the context clearly indicates a reference to one gender only.

1.1 Legal basis

In accordance with its intergovernmental status, the Organization establishes and updates Safety Rules to implement its Safety Policy.

This Specific Safety Instruction forms part of the CERN Safety Rules and is issued pursuant to the Staff Rules and Regulations and the CERN Safety Policy.

1.2 Purpose and scope

The purpose of this Specific Safety Instruction is to define the additional Safety requirements relating to cranes, bridge cranes, gantry cranes and power-driven hoists, and their accessories, compared to General Safety Instruction GSI-M-1 “Lifting equipment and accessories”.

1.3 Definitions

For the purposes of this Specific Safety Instruction, the following definitions shall apply:

- **Applicable Laws**: all laws, treaties, rules, regulations and orders of any local, national or other authority having jurisdiction over a contractor or a collaborating institution.
- **Assembly and installation test of lifting equipment**: test to make sure that the lifting equipment is safely and securely assembled and installed, in compliance with the manufacturer’s instructions.
- **Dynamic test of lifting equipment**: test in which the lifting equipment is used to move a load corresponding to the maximum operating load, multiplied by the dynamic test coefficient, in such a way as to bring the load into all its possible positions, without taking account of the resulting speed or the warming-up of the equipment.
- **Examination of the condition of lifting accessories**: examination whose purpose is to check that the lifting accessories are in good condition and identify any wear and tear that could represent a hazard.
- **Examination of the condition of lifting equipment**: examination whose purpose is to check that the lifting equipment and its supports are in good condition and to identify any wear and tear that could represent a hazard and which must include the following essential components:
  - chocking, anchoring and braking devices designed to immobilise mobile lifting equipment when not in operation;
  - brakes or equivalent devices designed to stop and then maintain the load or equipment in all positions;
  - devices designed to control the lowering of loads;
  - lifting blocks and pulley rims;
  - load and tipping/moment limiters;
  - devices limiting the movements of the lifting equipment and the load, such as motion limiters, derrickng limiters, slewing limiters, anti-collision devices and fall protection devices;
  - hooks and mechanical, electromagnetic or pneumatic gripping devices;
  - load-bearing cables and chains.
- **Member of the Personnel**: CERN Members of the Personnel as defined by the CERN Staff Rules and Regulations. Members of the Personnel comprise both employed and associated Members of the Personnel.
• **Operating test of lifting equipment:**
  test consisting in:
  − using the lifting equipment, with or without its accessories, to move a test load into the most unfavourable
    positions, applying a force to the mechanical components corresponding to the maximum values of the
    capacity stated by the manufacturer;
  − verifying the operating efficiency:
    • of the brakes or equivalent devices designed to stop and then maintain the load or equipment in all
      positions;
    • of the systems designed to control the lowering of the loads;
    • of the systems limiting the movements of the lifting equipment and the load, such as motion limiters,
      derricking limiters, slewing limiters, anti-collision devices and fall protection devices;
  − triggering the load-moment limiters and overturning-moment limiters, where they exist, in order to check
    that they operate correctly at the values defined in the manufacturer’s instructions or, where no
    instructions exist, at values beyond the maximum operating load and at least 1.1 times the load or
    maximum moment.

• **Static test of lifting accessories:** test in which the lifting accessories are used to bear a load corresponding
  to the maximum operating load, multiplied by the static test coefficient, without moving the load, for a fixed
  period of time.

• **Static test of lifting equipment:** test in which the lifting equipment and its supports, with all accessories fitted,
  are used to bear a load corresponding to the maximum operating load, multiplied by the static test
  coefficient, without moving the load, for a fixed period of time.

• **User entity:** organic unit or contractor authorised to use an item of mechanical equipment belonging to or
  hired by CERN or a collaborating institution.

For other definitions please refer to section 1.3 of Safety Regulation SR-M “Mechanical equipment” and to
General Safety Instruction GSI-M-1 “Lifting equipment and accessories”.

### 1.4 CERN Safety Rules and Laws

This Specific Safety Instruction is supplemented by the documents listed below, where they exist:

• Safety Regulations (SR);
• General Safety Instructions (GSI);
• Specific Safety Instructions (SSI);

and by the relevant provisions of the following Laws:

• Arrêté du 1 mars 2004 relatif aux vérifications des appareils et accessoires de levage (France).
• Arrêté du 2 décembre 1998 relatif à la formation à la conduite des équipements de travail mobiles
  automoteurs et des équipements de levage de charges ou de personnes (France).
• EN 13000 – Cranes – Mobile cranes (Europe).
• EN 13001 – Cranes – General design (Europe).
• EN 14439 – Cranes – Safety – Tower cranes (Europe).
• EN 12999 – Cranes – Loader cranes (Europe).
• EN 15011 – Cranes – Bridge and gantry cranes (Europe).
• EN 14492-2 – Cranes – Power-driven winches and hoists – Part 2: Power driven hoists (Europe).
• EN ISO 14122 – Safety of machinery – Permanent means of access to machinery (Europe).

In the event of any ambiguity or contradiction between the above-mentioned documents, they shall apply in
decreasing order of priority, starting from the top.
## ADDITIONAL SAFETY REQUIREMENTS COMPARED TO GSI-M-1

The following additional Safety requirements compared to General Safety Instruction GSI-M-1 shall apply to cranes, bridge cranes, gantry cranes and power-driven hoists, and their accessories:

<table>
<thead>
<tr>
<th>Relevant section of GSI-M-1</th>
<th>Phase of life cycle</th>
<th>Additional Safety requirements compared to GSI-M-1</th>
</tr>
</thead>
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<tr>
<td>2.1</td>
<td>Design</td>
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<td>Illustrative examples</td>
<td>Mobile cranes. Mobile cranes and their accessories shall be designed to meet standards EN 13000 and EN 13001.</td>
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<td></td>
<td>Illustrative examples</td>
<td>Tower cranes. Tower cranes and their accessories shall be designed to meet standards EN 14439 and EN 13001.</td>
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<td>Illustrative examples</td>
<td>Auxiliary hydraulic cranes. Auxiliary hydraulic cranes and their accessories shall be designed to meet standards EN 12999 and EN 13001.</td>
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<td>Illustrative examples</td>
<td>Bridge and gantry cranes. Bridge cranes, gantry cranes and their accessories shall be designed to meet standards EN 15011 and EN 13001 and, in the case of means of access, standard EN ISO 14122, parts 1 to 4.</td>
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<td>Illustrative examples</td>
<td>Power-driven hoists. Power-driven hoists and their accessories shall be designed to meet standards EN 14492-2 and EN 13001.</td>
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<td>2.2</td>
<td>Manufacture</td>
<td>Manufacture at CERN is subject to approval by the HSE Unit.</td>
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<td>2.3</td>
<td>Procurement or arrival/presence on the CERN site</td>
<td>No additional Safety requirement compared to GSI-M-1.</td>
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<td>2.4</td>
<td>Installation</td>
<td>No additional Safety requirement compared to GSI-M-1.</td>
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</table>
| 2.5                        | Acceptance and commissioning | In the case of equipment and accessories assembled at CERN the following Safety requirements are required:  
  - Safety requirements laid down in section 2.5 of GSI-M-1;  
  - static test (1.25 test coefficient and one hour);  
  - dynamic test (1.1 test coefficient). In the case of an equipment to be installed on an existing support the following Safety requirements are required:  
  - Safety requirements laid down in section 2.5 of GSI-M-1;  
  - examination of condition of support. |
<table>
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<td>2.6</td>
<td>Use</td>
<td>The user entity shall ensure that persons under its responsibility using cranes, bridges, gantry cranes and power-driven hoists:</td>
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<td>• have received training in accordance with chapter 3, including recycling if applicable;</td>
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<td>• have been medically fit;</td>
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<td>• have been provided with the relevant training for their workplace or workstation. Where deemed necessary for the safe operation of the equipment, the users shall operate the equipment at least in pairs.</td>
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<td>2.7</td>
<td>Periodic inspections</td>
<td>In the case of cranes and their accessories the following examination is required:</td>
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<td>• examination of the condition of the equipment: twice-yearly or at intervals specified by the manufacturer if required more than every six months.</td>
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<td>In the case of bridge cranes, gantry cranes and power-driven hoists, and their accessories the following examination is required:</td>
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<td>• examination of the condition of the equipment: annually or at intervals specified by the manufacturer if required more than once per year.</td>
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<td>2.8</td>
<td>Maintenance</td>
<td>No additional Safety requirement compared to GSI-M-1.</td>
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<td>2.9</td>
<td>Recommissioning</td>
<td>Following the repair or the replacement of an essential load-bearing component, an assembly and installation test and an operating test shall be carried out. Following dismantling/reassembly, recommissioning shall be carried out in accordance with section 2.5 above.</td>
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<td>2.10</td>
<td>Decommissioning/ dismantling</td>
<td>No additional Safety requirement compared to GSI-M-1.</td>
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3 TRAINING

For Members of the Personnel CERN recognises the following training:

- for cranes:
  - training in accordance with the laws of one of the Host States;
- for bridge cranes, gantry cranes and power-driven hoists, the “Overhead Crane – Operator and Slinger” training course provided by:
  - an organisation approved by the French authorities, or
  - a training body recognised by SUVA (Swiss Accident Insurance Fund), or
  - CERN.

Contractors’ personnel shall have successfully completed training in accordance with the Applicable Laws.

4 FINAL PROVISIONS

4.1 Entry into force

This Specific Safety Instruction (version 1) enters into force upon its publication on the CERN website dedicated to the CERN Safety Rules: [https://www.cern.ch/safety-rules](https://www.cern.ch/safety-rules).

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1 In the case of associated Members of the Personnel, the employer shall certify that its personnel have the required qualifications and training.