SPECIFIC SAFETY INSTRUCTION SSI-M-2-2

SIMPLE PRESSURE VESSELS
1 INTRODUCTION

For the convenience of the reader, this Specific Safety Instruction used 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 simple pressure vessels and their safety accessories used at CERN, compared to General Safety Instruction GSI-M-2 “Standard pressure equipment”.

Cryogenic vessels are excluded from the scope of this Specific Safety Instruction.

1.3 Definitions

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

- **Cryogenic vessel**: vessel used at a temperature equal to or lower than 123.15 K.
- **Maximum allowable pressure PS**: maximum pressure for which the equipment is designed, as specified by the manufacturer.
- **Simple pressure vessel**: any welded vessel subjected to an internal pressure greater than 0.5 bar¹ which is intended to contain air or nitrogen and which is not intended to be fired, as defined in Directive 2009/105/CE of the European Parliament and the Council of 16 September 2009.
- **Sound Engineering Practice (SEP)**: means that pressure equipment is designed taking into account all relevant factors influencing its safety. Furthermore, such equipment is manufactured, verified and delivered with instructions for use in order to ensure its safety during its intended life, when used in foreseeable or reasonably foreseeable conditions.
- **V**: volume of vessel.

For other definitions please refer to section 1.3 Safety Regulation SR-M “Mechanical equipment” and to General Safety Instruction GSI-M-2 “Standard pressure equipment”.

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:

- EN 286 – Simple unfired pressure vessels designed to contain air or nitrogen (Europe).
- EN 13445 – Unfired pressure vessels (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.
2 ADDITIONAL SAFETY REQUIREMENTS COMPARED TO GSI-M-2

The following additional Safety requirements compared to General Safety Instruction GSI-M-2 shall apply to simple pressure vessels:

<table>
<thead>
<tr>
<th>Relevant section GSI-M-2</th>
<th>Phase of life cycle</th>
<th>Additional Safety requirements compared to GSI-M-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Design</td>
<td>For simple pressure vessels in respect of which the value PS·V exceeds 50 bar·l, the design shall comply with the Essential Safety Requirements of Annex 1 of Directive 2009/105/CE of the European Parliament and of the Council of 16 September 2009. For vessels in respect of which the value PS·V is less than 50 bar·l, the design shall comply with Sound Engineering Practice. Simple pressure vessels manufactured at CERN shall be designed in accordance with standard EN 286 or EN 13445, as applicable.</td>
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<tr>
<td>2.2</td>
<td>Manufacture</td>
<td>For vessels in respect of which the value PS·V exceeds 50 bar·l, the manufacture shall comply with the Essential Safety Requirements of Annex 1 of Directive 2009/105/CE of the European Parliament and of the Council of 16 September 2009. For vessels in respect of which the value PS·V is less than 50 bar·l, the manufacture shall comply with Sound Engineering Practice.</td>
</tr>
<tr>
<td>2.3</td>
<td>Procurement or arrival/presence on the CERN site</td>
<td>No additional Safety requirement compared to GSI-M-2.</td>
</tr>
</tbody>
</table>
| 2.4                      | Installation        | The installation shall allow:  
  • the vessel to be inspected on all sides;  
  • the markings to be clearly visible;  
  • safe control and safe handling. |
| 2.5                      | Acceptance and commissioning | For vessels in respect of which the value PS·V exceeds 50 bar·l, a hydrostatic pressure test shall be carried out. The pressure of this proof test shall be equal to the maximum allowable pressure multiplied by the coefficient 1.5. The hydrostatic pressure test may be replaced by a pneumatic pressure test at the same value, subject to the agreement of the HSE Unit. CE-marked equipment is not tested. |
| 2.6                      | Use                 | No additional Safety requirement compared to GSI-M-2. |
| 2.7                      | Periodic inspections | Periodic inspections in accordance with section 2.7 of GSI-M-2 shall be carried out every 36 months. |
| 2.8                      | Maintenance         | No additional Safety requirement compared to GSI-M-2. |
| 2.9                      | Recommissioning     | No additional Safety requirement compared to GSI-M-2. |
| 2.10                     | Decommissioning/dismantling | No additional Safety requirement compared to GSI-M-2. |

3 FINAL PROVISIONS

3.1 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.