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High pressure water jet machines - Safety -
Part 2: High pressure hoses, hose lines and connectors

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High pressure water jet machines - Safety - Part 2: High pressure hoses, hose lines and connectors

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IEC 63458-2 has been prepared by subcommittee 61J: Safety of electrical motor-operated cleaning appliances for commercial use, of IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
61J/763/CDV	61J/793/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 63458 series, under the general title: *High pressure water jet machines - Safety*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

INTRODUCTION

This document is a type-C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope.

When provisions of this type-C standard are different from those which are stated in type-A or type-B standards, the provisions of this type-C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type-C standard.

1 Scope

This part of IEC 63458 applies to hoses, hose lines and connectors intended to be used with high-pressure water jet units within the scope of IEC 63458-1.

This document deals with all significant hazards, hazardous situations and events relevant to the equipment in the scope, when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

This document deals with safety requirements to minimize the significant hazards which can arise from assembling, operating and servicing of hoses, hose lines and connectors for use with high pressure water jet machines (see Clause 5).

NOTE This document does not cover leak shields since they are not part of a hose line.

The hazard due to scalding from hot liquid or from irritation / burning of any added chemicals is not covered in this document.

Compliance with IEC 63458-1, IEC 63458-2 and IEC 63458-3 provides the full requirements for high pressure water jet machines.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 63458-1, *High pressure water jet machines - Safety - Part 1: High pressure water jet units*

IEC 63458-3, *High pressure water jet machines - Safety - Part 3: High pressure spraying devices*

ISO 1402:2021, *Rubber and plastics hoses and hose assemblies - Hydrostatic testing*

ISO 6803, *Rubber or plastics hoses and hose assemblies - Hydraulic-pressure impulse test without flexing*

ISO 7010, *Graphical symbols - Safety colours and safety signs - Registered safety signs*

ISO 10619-2:2021, *Rubber and plastics hoses and tubing - Measurement of flexibility and stiffness - Part 2: Bending tests at sub-ambient temperatures*

ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100, IEC 63458-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1
burst pressure
static pressure that destroys the hose line and allows the liquid to escape

3.2
connector safety devices
parts or components to restrain movement of the hose line if the connector fails (e.g. locking collars, hose sleeves, etc.)

4 List of significant hazards

4.1 General

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.

4.2 Hazards due to bursting or leaking of hoses

Hazards can occur when a hose bursts or leaks. The escaping stream of liquid can cause physical damage and also a sudden repositioning of the hose line in a dangerous manner (whip).

4.3 Hazards due to failure of connectors

Hazards can occur when a connector fails. The escaping stream of liquid can cause physical damage and also a sudden repositioning of the hose line in a dangerous manner (whip).

4.4 Hazards due to errors by the operator

Hazards can occur if the operator uses incompatible substances or incompatible components. Hazards can also occur if the operator exceeds the limits of use specified by the manufacturer (e.g. too high pressure, too high tensile stress).

4.5 Hazards due to change in length of hose line

Hazardous situations occur when there is a sudden change of pressure in the hose line causing a change in length resulting in the operators losing their firm hold.

5 Safety requirements and/or protective measures

5.1 General

Hoses, hose lines and their connectors shall comply with the safety requirements and/or protective measures of this clause. In addition, they shall be designed according to the principles of ISO 12100 for relevant but not significant hazards, which are not dealt with by this document.