



SLOVENSKI STANDARD
oSIST prEN 17931:2023

01-marec-2023

**Oprema za plamensko varjenje - Ročna oprema za varjenje, segrevanje in rezanje -
Periodična kontrola**

Gas welding equipment - Manual gas equipment for welding, heating and cutting -
Periodic Inspection

Ausrüstung zum Gasschweißen - Handbetätigte Ausrüstung zum Schweißen, Erhitzen
und Schneiden - Regelmäßige Prüfung

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ICS:

25.160.30 Varilna oprema Welding equipment

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Gas welding equipment - Manual gas equipment for welding, heating and cutting - Periodic Inspection

Ausrüstung zum Gasschweißen - Handbetätigte
Ausrüstung zum Schweißen, Erhitzen und Schneiden -
Regelmäßige Prüfung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 121.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 17931:2023) has been prepared by Technical Committee CEN/TC 121 “Welding and allied processes”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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Introduction

Manual gas equipment for welding, cutting and allied processes is formed by various components that enable the required features, including, for example, but not limited to: gas tightness, resistance to heat and mechanical stress, adjustment of the gas flow and of the mixtures, etc.

The manufacturer provides guidelines on the type of maintenance and periodic checks to perform on the equipment. However, the rate of use and the conditions to which this equipment is subjected are extremely variable.

This document is meant to help the employer and the workers define the maintenance activities that are suitable for a safe use of the equipment, in accordance with current legislation.

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1 Scope

This document provides guidelines for periodic inspections of manual gas equipment for welding, cutting and allied processes placed downstream of the gas cylinder's valve as shown in Figure 1 or, in the case of centralized distribution, downstream from the tapping point, since commissioning.

NOTE In some cases, gas cylinders can be replaced by cylinder bundles.

This document applies to gas welding equipment intended for professional use which utilizes compressed gases up to 300 bar (30 MPa): acetylene, liquefied petroleum gas (LPG), methylacetylene-propadiene mixtures (MPS) and carbon dioxide (CO₂) and related mixtures.

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.

EN 560, *Gas welding equipment - Hose connections for equipment for welding, cutting and allied processes*

EN 561, *Gas welding equipment - Quick-action coupling with shut-off valves for welding, cutting and allied processes*

EN 1256, *Gas welding equipment - Specification for hose assemblies for equipment for welding, cutting and allied processes*

EN 13018, *Non-destructive testing - Visual testing - General principles*

EN ISO 2503, *Gas welding equipment - Pressure regulators and pressure regulators with flow-metering devices for gas cylinders used in welding, cutting and allied processes up to 300 bar (30 MPa) (ISO 2503)*

EN ISO 3821, *Gas welding equipment - Rubber hoses for welding, cutting and allied processes (ISO 3821)*

EN ISO 5172, *Gas welding equipment - Blowpipes for gas welding, heating and cutting - Specifications and tests (ISO 5172)*

EN ISO 5175-1, *Gas welding equipment - Safety devices - Part 1: Devices incorporating a flame (flashback) arrestor (ISO 5175-1)*

EN ISO 7291, *Gas welding equipment - Pressure regulators for manifold systems used in welding, cutting and allied processes up to 30 MPa (300 bar) (ISO 7291)*

EN ISO 9090, *Gas tightness of equipment for gas welding and allied processes (ISO 9090)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 560, EN 561, EN 1256, EN 13018, EN ISO 2503, EN ISO 3821, EN ISO 5172, EN ISO 5175-1, EN ISO 7291 and EN ISO 9090 and the following apply.

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

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

prEN 17931:2023 (E)**3.1****gas equipment**

equipment, accessory, or device that contributes to creating an installation that uses gas (for example, for the purpose of combustion or gas protection) in welding, cutting or allied processes

3.2**commissioning**

all the operations needed to get gas equipment up and running (for example, replacing the cylinder or the connection between components)

3.3**single manual installation**

work area which has all the manual gas equipment intended for a single installation to perform welding, cutting or allied processes by using gas (for example, for the purpose of combustion or gas protection)

3.4**complete inspection**

all the operations needed to make the equipment suitable for further use until its next complete inspection or its replacement

Note 1 to entry: Such operations, if allowed by the manufacturer, generally include:

- complete or partial dismantling of the equipment;
- replacement of the components that are subject to wear and tear and deterioration through use with original spare parts;
- reassembling and commissioning.

4 Single manual installation**4.1 General**

A single manual gas installation generally consists of:

- for oxy-fuel gas processes generally two cylinders, one containing oxygen and one containing a combustible gas (such as acetylene) fitted with shut-off valves;

NOTE 1 Also, a bundle(s), instead of cylinder(s) can be considered part of manual gas installation.

- for shielding gas processes or other allied processes generally one cylinder containing appropriate gas or mixture;

NOTE 2 Also, a bundle(s), instead of cylinder(s), can be considered part of manual gas installation.

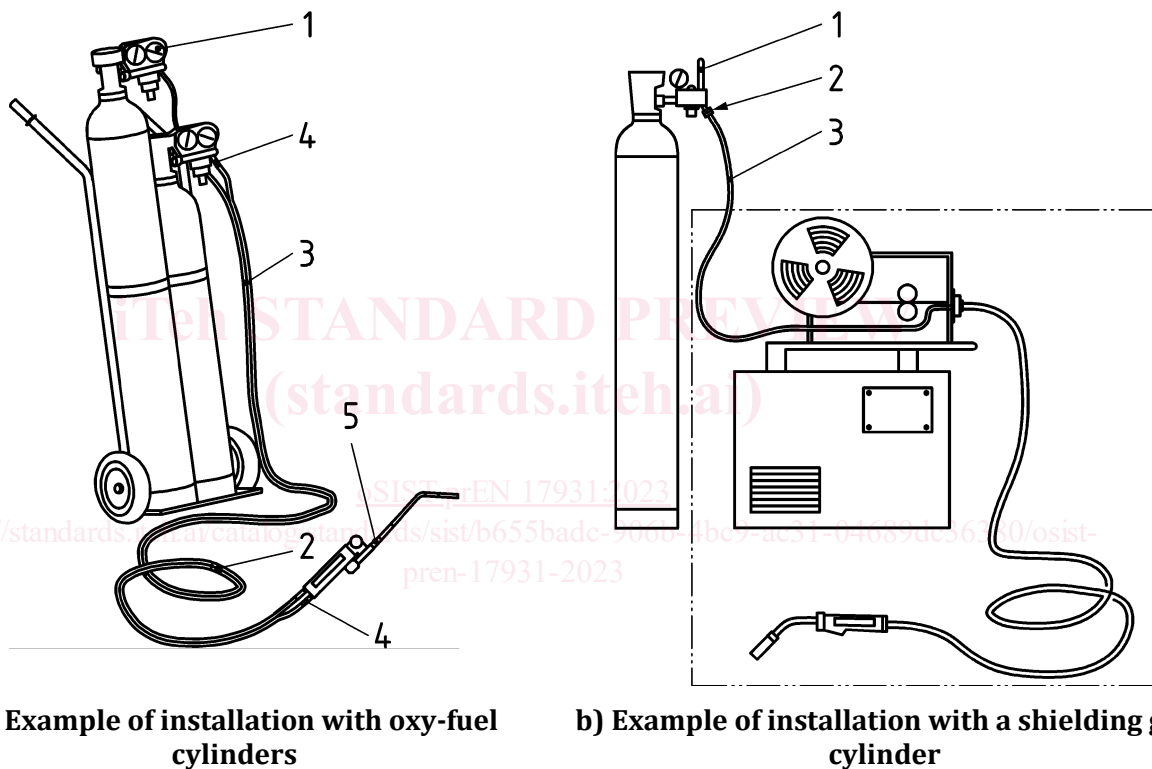
- a pressure regulator for each cylinder;
- quick-action couplings with shut-off valves;
- rubber hoses;
- connectors to join different components;

- safety devices, e.g. with flame arrestors and gas non-return valves;
- process devices, e.g. blowpipe.

Examples of single manual gas installations, such as oxy-fuel or gas protection, are shown in Figure 1.

NOTE 3 As an example, Figure 1 shows a mobile installation with cylinders on a trolley, but the guidelines apply to all configurations:

- downstream of bundles fitted with regulators integrated or not integrated;
- downstream of cylinders fitted with integrated regulators;
- downstream of tapping point in the case of a fixed installation.



NOTE The equipment inside the dotted line is not covered by this document.

Key

- 1 pressure regulators for cylinders (or cylinder bundles)
- 2 quick-action couplings with shut-off valves (optional)
- 3 rubber hoses and connectors
- 4 safety devices with flame arrestors and gas non-return valves
- 5 oxy-fuel blowpipe

Figure 1 — Examples of single manual gas installations

prEN 17931:2023 (E)**4.2 Equipment**

The equipment adopted in a gas installation shall comply with the technical standards listed below:

- cylinder/s or bundle/s with their valves. As an alternative, there can be two cylinder/s or bundle/s fitted with valves with integrated regulators, or tapping point in the case of a fixed installation powered by a distribution network.

NOTE All the devices listed above are not subject to this document and can comply with the applicable technical standards.

- a pressure regulator for each cylinder, in accordance with EN ISO 2503 or in the case of a manifold system/bundle with EN ISO 7291;
- quick-action couplings with shut-off valves, in accordance with EN 561;
- rubber hoses, in accordance with EN ISO 3821;
- connectors for rubber hoses, in accordance with EN 560;
- pre-assembled connectors between hoses and other equipment, in accordance with EN 1256;
- safety devices with flame arrestors and gas non-return valves, in accordance with EN ISO 5175-1;
- blowpipes, in accordance with EN ISO 5172.

4.3 Periodic inspection**4.3.1 General**

A periodic inspection shall be done and shall consist of either a visual testing or leakage testing or both, or complete inspection or replacement.

The working areas for these activities shall be specific and fitted with equipment and systems that guarantee cleanliness and safety considerations specific to the gas being used.

NOTE Further specific considerations can be taken for equipment using oxygen.

A list of the tools and accessories required for carrying out all operations under periodic inspection shall be made available.

4.3.2 Visual testing

Direct, unaided visual testing (naked eye vision) shall be done in accordance with EN 13018.

NOTE 1 Visual testing (VT) is a non-destructive testing method.

NOTE 2 Visual testing can be carried out by competent user.

4.3.3 Leakage testing

Leakage tests shall comply with EN ISO 9090.

NOTE 1 Leakage tests set the maximum limit for acceptable leaks in every type of equipment. The testing methods used to verify that tightness is within the limits set by EN ISO 9090 can vary. Other test methods for leakage are permitted, provided that it can be shown that these give results as accurate as those available from the method given in EN ISO 9090.