SLOVENSKI STANDARD
SIST EN ISO 2503:2010

01-junij-2010

Nadomešča:
SIST EN 13918:2003
SIST EN ISO 2503:1999
SIST EN ISO 2503:1999/AC:1999

Naprave za plamensko varjenje - Regulatorji tlaka in regulatorji tlaka z merilniki pretoka za jeklenke za varjenje, rezanje in sorodne postopke do 300 bar (30 MPa) (ISO 2503:2009)

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 2503:2009)

Gasschweißgeräte - Druckregler und Druckregler mit Durchflussmessgeräten für Gasflaschen für Schweißen, Schneiden und verwandte Prozesse bis 300 bar (30 MPa) (ISO 2503:2009)

Matériel de soudage aux gaz - Détendeurs et détendeurs débitmètres intégrés pour bouteilles de gaz utilisés pour le soudage, le coupage et les techniques connexes jusqu'à 300 bar (30 MPa) (ISO 2503:2009)

Ta slovenski standard je istoveten z: **EN ISO 2503:2009**

ICS:

23.020.30	Tlačne posode, plinske jeklenke	Pressure vessels, gas cylinders
23.060.40	Tlačni regulatorji	Pressure regulators
25.160.30	Varilna oprema	Welding equipment

SIST EN ISO 2503:2010 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 2503

July 2009

ICS 25.160.30

Supersedes EN 13918:2003, EN ISO 2503:1998

English Version

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 2503:2009)

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This European Standard was approved by CEN on 17 June 2009.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO 2503:2009: E

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Foreword

This document (EN ISO 2503:2009) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 “Welding” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 2503:1998, EN 13918:2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 2503:2009 has been approved by CEN as a EN ISO 2503:2009 without any modification.

INTERNATIONAL STANDARD

ISO 2503

Third edition
2009-07-15

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)

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Reference number
ISO 2503:2009(E)

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 2503 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

This third edition cancels and replaces the second edition (ISO 2503:1998), and also ISO 7292:1997, which have been technically revised.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 8 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

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)

1 Scope

This International Standard specifies requirements for single or two-stage pressure regulators without flow-metering devices for connection to gas cylinders used for

— compressed gases up to 300 bar [1] (30 MPa),

— dissolved acetylene,

— liquefied petroleum gases (LPG),

— methylacetylene-propadiene mixtures (MPS), and

— carbon dioxide (CO_2),

for use in welding, cutting and allied processes. It does not cover pressure regulators having a nominal outlet pressure $p_2 > 20$ bar.

This International Standard also specifies requirements for single or two-stage pressure regulators with flow-metering devices for connection to gas cylinders used for

— compressed gases or mixtures up to 300 bar (30 MPa), and

— carbon dioxide (CO_2),

for use in welding, cutting and allied processes. Typical processes using this equipment are: tungsten inert-gas arc welding (TIG), metal-arc inert-gas welding (MIG), metal-arc active-gas welding (MAG), plasma arc welding, tubular-cored-wiretubular-cored-wire welding and plasma cutting. Annex B gives examples of flow-control systems and their flow-measuring devices.

This International Standard does not cover pressure regulators intended for direct use on cylinder bundles. Such regulators comply with the safety requirements of ISO 7291, in particular with the adiabatic compression test for oxygen regulators.

NOTE In addition to terms used in English and French, two of the three official ISO languages (English, French and Russian), this document gives the equivalent terms in German; these are published under the responsibility of the member body for Germany (DIN), and are given for information only. Only the terms and definitions given in the official languages can be considered as ISO terms and definitions.

1) 300 bar relates to the maximum cylinder filling pressure at 15 °C.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 5145, *Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning*

ISO 5171, *Gas welding equipment — Pressure gauges used in welding, cutting and allied processes*

ISO/TR 7470, *Valve outlets for gas cylinders — List of provisions which are either standardized or in use*

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

ISO 9539, *Materials for equipment used in gas welding, cutting and allied processes*

ISO 15296, *Gas welding equipment — Vocabulary — Terms used for gas welding equipment*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15296 and the following apply.

3.1
accuracy of a flow-metering device
classification based on the permissible error of the flow indication of the device

3.2
adjustable pressure regulators
pressure regulator that is provided with a means of operator adjustment at the outlet pressure

NOTE See A.1.

3.3
fixed orifice
device, which delivers but does not indicate, a known flow when supplied with a constant upstream pressure and facing no significant back pressure

3.4
flow gauge
device which measures pressure and which is calibrated in units of flow

NOTE The flow gauge does not measure flow. It indicates flow by measuring the pressure upstream of a fixed orifice.

3.5
flow meter
device that measures and indicates the flow of a specific gas or gas mixture

3.6
indicated flow(s)
flow(s) indicated on the measuring device of a pressure regulator with a flow-metering device

3.7
maximum intermediate pressure
p_{2m}
for pressure regulators with flow-metering devices, maximum pressure specified by the manufacturer and measured in the intermediate pressure chamber, downstream of the pressure-regulator valve and upstream of the flow-adjusting and measuring device

NOTE This maximum pressure is defined for the pressure-regulator tests, and is above the normal operating pressure of the flow meter.

3.8
nominal discharge
Q_n
for pressure regulators with flow-metering devices, discharge specified by the manufacturer (measured downstream of the flow-adjusting and measuring devices)

3.9
permissible error of the flow indication
difference between the indicated flow and the true flow, as a percentage of the indicated flow

3.10
preset pressure regulator
pressure regulator that is not provided with a means of operator adjustment at the outlet pressure

NOTE See A.2.

3.11
pressure gauge
device that measures and indicates pressure

3.12
pressure regulator
device for regulating a generally variable inlet pressure to an outlet pressure that is as constant as possible

NOTE See A.1.

3.13
pressure regulator with flow-metering devices
device for regulating a generally variable inlet gas pressure to an outlet pressure that is as constant as possible, ensuring in addition a selected gas flow

NOTE 1 See A.2.

NOTE 2 It is generally a pressure regulator equipped with flow-adjusting and measuring devices which are not intended to be separated from the regulating device by the operator.

3.14
stability of the flow-metering device
ability of a flow-metering device, when at a given flow setting, to deliver flows at any inlet pressure close to the true value of the flow delivered at the nominal pressure p_1

3.15
true flow
flow measured with a calibrated measuring device