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Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves (ISO 23553-1:2014)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/14

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English Version

Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves (ISO 23553-1:2014)

Dispositifs de commande et de sécurité pour brûleurs à combustible liquide et pour appareils à combustible liquide - Exigences particulières - Partie 1: Robinets automatiques et semi-automatiques (ISO 23553-1:2014)

Sicherheits-, Regel- und Steuereinrichtungen für Ölbrenner und Öl verbrennende Geräte - Spezielle Anforderungen - Teil 1: Automatische und halbautomatische Ventile (ISO 23553-1:2014)

This European Standard was approved by CEN on 9 April 2014.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 23553-1:2014) has been prepared by Technical Committee ISO/TC 161 “Control and protective devices for gas and/or oil burners and appliances” in collaboration with Technical Committee CEN/TC 47 “Atomizing oil burners and their components - Function - Safety - Testing” 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of an identical text or by endorsement, at the latest by November 2014, and conflicting national standards shall be withdrawn at the latest by November 2014.

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 23553-1:2009.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 23553-1:2014 has been approved by CEN as EN ISO 23553-1:2014 without any modification.

STN EN ISO 23553-1: 2014

INTERNATIONAL STANDARD

ISO 23553-1

Second edition
2014-05-15

Safety and control devices for oil burners and oil-burning appliances — Particular requirements —

Part 1: Automatic and semi-automatic valves

Dispositifs de commande et de sécurité pour brûleurs à combustible liquide et pour appareils à combustible liquide — Exigences particulières —

Partie 1: Robinets automatiques et semi-automatiques

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 161, *Control and protective devices for gas and/or oil burners and appliances*.

This second edition cancels and replaces the first edition (ISO 23553-1:2007), which has been technically revised. It also incorporates the Technical Corrigendum ISO 23553-1:2007/Cor1:2009).

ISO 23553 consists of the following parts, under the general title *Safety and control devices for oil burners and oil-burning appliances — Particular requirements*:

— *Part 1: Automatic and semi-automatic valves.*

It should be noted that the following significant technical changes compared to the previous edition have been incorporated in this part of ISO 23553:

a) change of the title from shut-off valves to automatic and semi-automatic valves;

b) extension of the scope to automatic and semi-automatic valves;

c) introduction of further classifications for valves;

d) inclusion of references to the general electrical requirements of IEC 60730-1:2010;

e) integration of non electrical requirements from IEC 60730-2-19;

f) integration of electrical requirements from IEC 60730-2-19 which are unalterable for valves;

g) inclusion of the subclause 7.7.103 "Test of endurance of electrically operated valves";

h) change of endurance cycles for valves up to DN 15;

i) extended limits of internal leakage for valves ≤ DN 50;

j) test of closing function updated.

Introduction

This part of ISO 23553 is designed to be used in combination with ISO 23550. This part together with ISO 23550 establishes the full requirements as they apply to the product covered by this part of ISO 23553. This part of ISO 23553 adapts ISO 23550, where needed, by stating “with the following modification”, “with the following addition”, “is replaced by the following” or “is not applicable,” in the corresponding clause.

In order to identify specific requirements that are particular to this part of ISO 23553, that are not already covered by ISO 23550, this document may contain clauses or subclauses that are additional to the structure of ISO 23550. These clauses are numbered starting from 101 or, in the case of an Annex, are designated AA, BB, CC etc.

In an attempt to develop a fully International Standard, it has been necessary to take into consideration the differing requirements resulting from practical experience and installation practices in various regions of the world and to recognize the variation in basic infrastructure associated with oil controls and appliances, some of which are addressed in Annexes E, F and G. This part of ISO 23553 intends to provide a basic framework of requirements that recognizes these differences.

INTERNATIONAL STANDARD **ISO 23553-1:2014(E)**

Safety and control devices for oil burners and oil-burning appliances — Particular requirements —

Part 1: Automatic and semi-automatic valves

IMPORTANT — When reference is made in this part of — ISO 23553 to ISO 23550, the word "gas" shall be replaced by "oil" as appropriate. The current base standard, ISO 23550:2011, focuses on gas controls only. It is, however, the intention to revise the base standard in such a fashion that both, gas and oil product standards can be used in conjunction with the base standard. Attention is drawn especially to the following subclauses: 6.4, 7.4 and 7.5.

1 Scope

This part of ISO 23553 specifies safety, constructional and performance requirements and testing of automatic and semi-automatic valves for oil.

It applies to automatic and semi-automatic valves which are:

— normally closed;

— used in combustion plants to interrupt the oil flow with or without delay on closing;

— for use with oil types (e.g. middle distillate fuel oil, crude oil, heavy fuel oil or kerosene) without gasoline;

NOTE 1 For other oil types (e.g. oil emulsions), additional test methods can be agreed between the manufacturer and the test authority.

NOTE 2 Oil types from petroleum refining processes are classified ISO-F-D in ISO 8216-99 and form part of a device having other function(s), such as oil pumps. In this case the test methods apply to those parts or components of the device forming the automatic and semi-automatic valves, i.e. those parts which are necessary for the closing function;

— for use on burners or in appliances using oil;

— directly or indirectly operated, electrically or by mechanical or hydraulic means;

— fitted with or without closed-position indicator switches.

This part of ISO 23553 covers type testing only.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 272, *Fasteners — Hexagon products — Widths across flats*

ISO 1179-1, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 1: Threaded ports*

ISO 1179-2, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 2: Heavy-duty (S series) and light-duty (L series) stud ends with elastomeric sealing (type E)*

ISO 1179-3, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 3: Light-duty (L series) stud ends with sealing by O-ring with retaining ring (types G and H)*

ISO 1179-4, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 4: Stud ends for general use only with metal-to-metal sealing (type B)*

ISO 3601-5, *Fluid power systems — O-rings — Part 5: Specification of elastomeric materials for industrial applications*

ISO 6149-1, *Connections for hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing — Part 1: Ports with truncated housing for O-ring seal*

ISO 6149-3, *Connections for hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing — Part 3: Dimensions, design, test methods and requirements for light-duty (L series) stud ends*

ISO/TR 7620, *Rubber materials — Chemical resistance*

ISO 8216-99, *Petroleum products — Fuels (class F) — Classification — Part 99: General*

ISO 8434-1, *Metallic tube connections for fluid power and general use — Part 1: 24 degree cone connectors*

ISO 8434-2, *Metallic tube connections for fluid power and general use — Part 2: 37 degree flared connectors*

ISO 8434-3, *Metallic tube connections for fluid power and general use — Part 3: O-ring face seal connectors*

ISO 8434-6, *Metallic tube connections for fluid power and general use — Part 6: 60 degree cone connectors with or without O-ring*

ISO 9974-1, *Connections for general use and fluid power — Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing — Part 1: Threaded ports*

ISO 9974-3, *Connections for general use and fluid power — Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing — Part 3: Stud ends with metal-to-metal sealing (type B)*

ISO 23550:2011, *Safety and control devices for gas burners and gas-burning appliances — General requirements*

ISO 23553, *Safety and control devices for oil burners and oil-burning appliances — Particular requirements*

ISO 23936-1, *Petroleum, petrochemical and natural gas industries — Non-metallic materials in contact with media related to oil and gas production — Part 1: Thermoplastics*

ISO 23936-2, *Petroleum, petrochemical and natural gas industries — Non-metallic materials in contact with media related to oil and gas production — Part 2: Elastomers*

IEC 60534-1, *Industrial-process control valves — Part 1: Control valve terminology and general considerations*

IEC 60534-2-3, *Industrial-process control valves — Part 2-3: Flow capacity; test procedures*

IEC 60730-1:2010, *Automatic electrical controls for household and similar use — Part 1: General requirements*

EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1092-2, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 1092-3, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories PN designated — Part 3: Copper alloy flanges*

EN 1092-4, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 4: Aluminium alloy flanges*

EN 1254-1, *Copper and copper alloys — Plumbing fittings — Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes*

EN 1254-2, *Copper and copper alloys — Plumbing fittings — Part 2: Fittings with compression ends for use with copper tubes*

EN 1254-3, *Copper and copper alloys — Plumbing fittings — Part 3: Fittings with compression ends for use with plastics pipes*

EN 1254-5, *Copper and copper alloys — Plumbing fittings — Part 5: Fittings with short ends for capillary brazing to copper tubes*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads; Dimensions, tolerances and designation*

EN 10226-2, *Pipe threads where pressure tight joints are made on the threads — Part 2: Taper external threads and taper internal threads - Dimensions, tolerances and designation*

EN 10241, *Steel threaded pipe fittings*

EN 10242, *Threaded pipe fitting in malleable cast iron*

EN 10284, *Malleable cast iron fittings with compression ends for polyethylene (PE) piping systems*

EN 10305-1, *Steel tubes for precision applications — Technical delivery conditions — Part 1: Seamless cold drawn tubes*

EN 10305-2, *Steel tubes for precision applications — Technical delivery conditions — Part 2: Welded cold drawn tubes*

EN 10305-3, *Steel tubes for precision applications — Technical delivery conditions — Part 3: Welded cold sized tubes*

EN 10305-4, *Steel tubes for precision applications — Technical delivery conditions — Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems*

EN 10305-6, *Steel tubes for precision applications — Technical delivery conditions — Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems*

EN 12516 (all parts), *Industrial valves — Shell design strength*

EN 12627, *Industrial valves — Butt welding ends for steels valves*

EN 12760, *Valves — Socket welding ends for steel valves*

prEN 10344, *Malleable cast iron fittings with compression ends for steel pipes*

prEN 12514-4:2009, *Parts for supply systems for consuming units with liquid fuels — Part 4: Safety requirements and tests — Pipings and parts within pipelines*

ANSI/ASME B 1.1, *Unified inch screw threads (UN and UNR thread form)*

ANSI/ASME B1.20.1, *Pipe threads, general purpose (inch)*

ANSI/ASME B 16.1, *Cast iron pipe flanges and flanged fittings, class 25, 125, 250 and 800*

ANSI/ASME B 16.5, *Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard*

ANSI/SAE J 512, *Automotive tube fittings*

ANSI/SAE J 514, *Hydraulic tube fittings*

ASTM D 396, *Standard Specification for Fuel Oils*

NEMA 250, *Enclosures for Electrical Equipment (1 000 V Maximum)*

UL 50, *Standard for Safety Enclosures for Electrical Equipment, Non-Environmental Considerations*