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Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries (ISO 15761:2020)

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ICS 75.180.20

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 15761

September 2020

ICS 75.180.20

Supersedes EN ISO 15761:2002

English Version

Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries (ISO 15761:2020)

Robinets-vannes, robinets à soupape et clapets de non retour en acier de dimensions DN 100 et inférieures, pour les industries du pétrole et du gaz naturel (ISO 15761:2020)

Schieber, Kugel- und Rückschlagventile aus Stahl mit Nennweiten DN 100 und kleiner für die Erdöl- und Erdgasindustrie (ISO 15761:2020)

This European Standard was approved by CEN on 22 August 2020.

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Ref. No. EN ISO 15761:2020 E

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European foreword

This document (EN ISO 15761:2020) has been prepared by Technical Committee ISO/TC 153 "Valves" in collaboration with Technical Committee CEN/TC 12 “Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries” the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by March 2021, and conflicting national standards shall be withdrawn at the latest by March 2021.

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

This document supersedes EN ISO 15761:2002.

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Endorsement notice

The text of ISO 15761:2020 has been approved by CEN as EN ISO 15761:2020 without any modification.

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Contents

Page

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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).

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This document was prepared by Technical Committee ISO/TC 153, *Valves*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 12, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 15761:2002), which has been technically revised:

— Clause 2 "Normative references" was updated;

— addition of ASME Class 2 500 designation and relevant dimensions;

— addition of higher PN Class designations, including PN 63, 250 and 400, and relevant dimensions.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The purpose of this document is to establish basic requirements and practices for steel gate, globe and check valves which can be socket welded, butt welded or flanged ended with reduced body seat openings, whose general construction parallels that described in API 602 and BS 5352.

The form of this document corresponds to ISO 6002 and ISO 10434.

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Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries

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1 Scope

This document specifies the requirements for a series of compact steel gate, globe and check valves for petroleum and natural gas industry applications.

It is applicable to valves of:

— nominal sizes DN 8, 10, 15, 20, 25, 32, 40, 50, 65, 80 and 100,

— corresponding to nominal pipe sizes NPS ¼, ⅜, ½, ¾, 1, 1¼, 1½, 2, 2½, 3 and 4,

— pressure designations PN 16, 25, 40, 63, 100, 250 and 400, and

— pressure designations Class 150, 300, 600, 800, 1 500 and 2 500.

Class 800 is not a listed class designation, but is an intermediate Class number widely used for socket welding and threaded end compact valves covered by this document. There is no equivalent PN designation.

This document includes provisions for the following valve characteristics:

— outside screw with rising stems (OS & Y): in sizes 8 ≤ DN ≤ 100;

— inside screw with rising stems (ISRS): in sizes 8 ≤ DN ≤ 65 with a pressure designation PN ≤ 100 or Class ≤ 800;

— socket welding or threaded ends: in sizes 8 ≤ DN ≤ 65;

— flanged or butt-welding ends excluding flanged end Class 800;

— bonnet joint construction that is bolted, welded or threaded with seal weld;

— bonnet joint construction that uses a union nut with a pressure designation PN ≤ 45 or Class ≤ 800;

— body seat openings;

— materials: as specified;

— testing and inspection.

This document covers valve end flanges in accordance with EN 1092-1 and ASME B16.5 and valve body ends having tapered pipe threads in accordance with ISO 7-1 or ASME B1.20.1. It is applicable to extended body construction in sizes 15 ≤ DN ≤ 50 with pressure designations Class 800 and Class 1 500 and to bellows and bellows assembly construction adaptable to gate or globe valves in sizes 8 ≤ DN ≤ 50. Also covered are requirements for bellows stem seal type testing.

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.

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

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ISO 7-2, *Pipe threads where pressure-tight joints are made on the threads — Part 2: Verification by means of limit gauges*

ISO 2902, *ISO metric trapezoidal screw threads — General plan*

ISO 2903, *ISO metric trapezoidal screw threads — Tolerances*

ISO 2904, *ISO metric trapezoidal screw threads — Basic dimensions*

ISO 5208, *Industrial valves — Pressure testing of metallic valves*

ISO 5209, *General purpose industrial valves — Marking*

ISO 5752, *Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions*

ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels*

ISO 15607, *Specification and qualification of welding procedures for metallic materials — General rules*

ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding*

ISO 15610, *Specification and qualification of welding procedures for metallic materials — Qualification based on tested welding consumables*

ISO 15614-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys*

ISO 15614-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 2: Arc welding of aluminium and its alloys*

ISO 15649, *Petroleum and natural gas industries — Piping*

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

EN 10269, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties*

EN 12516-1:2014+A1:2018, *Industrial valves — Shell design strength — Part 1: Tabulation method for steel valve shells*

ASME B1.1, *Unified Inch Screw Threads (UN and UNR Thread Form)*

ASME B1.5, *Acme Screw Threads*

ASME B1.8, *Stub Acme Screw Threads*

ASME B1.20.1, *Pipe Threads, General Purpose, Inch*

ASME B16.5, *Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard*

ASME B16.10, *Face-to Face and End-to-End Dimensions of Valves*

ASME B16.11, *Forged Fittings, Socket-Welding and Threaded*

ASME B16.34:2017, *Valves Flanged, Threaded and Welding End*

ASME BPVC-IX, *Boiler and Pressure Vessel Code — Section IX — Welding, Brazing, and fusing Qualifications*

ASTM A307, *Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength*

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