INTERNATIONAL STANDARD

ISO 7121

Second edition
2006-05-15

Steel ball valves for general-purpose industrial applications

Robinets en acier à tournant sphérique pour les applications industrielles générales

Reference number
ISO 7121:2006(E)

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

Published in Switzerland

Contents

Page

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 7121 was prepared by Technical Committee ISO/TC 153, *Valves*, Subcommittee SC 1, *Design, manufacture, marking and testing*.

This second edition cancels and replaces the first edition (ISO 7121:1986), which has been technically revised.

Introduction

The purpose of this International Standard is the establishment, in ISO format, of basic requirements and practices for flanged, butt-welding, socket welding and threaded-end steel ball valves having flow passageways identified as full bore, reduced bore and double reduced bore, suitable for general purpose applications. Flanged end Class designated valves have flanges in accordance with ASME B16.5. Flanged end PN designated valves have flanges in accordance with EN 1092-1. Valves with ends that are threaded can have threads to either ISO 7-1 or ASME B1.20.1.

Steel ball valves for general-purpose industrial applications

1 Scope

This International Standard specifies the requirements for a series of steel ball valves suitable for general-purpose industrial applications.

It covers valves of the nominal sizes (see ISO 6708 and ASME B16.34)

— DN 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, 300, 350, 400, 450, 500 (NPS 1/4, 3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 4, 6, 8, 10, 12, 14, 16, 18 and 20),

and is applicable to the following pressure designations (see ISO 7268 or EN 1333, and ASME B16.34):

— Class 150; 300; 600; 900 and PN 10; 16; 25; 40; 63; 100.

It includes provisions for valve characteristics as follows [1)]:

— flanged and butt-welded ends in sizes 15 $\leqslant$ DN $\leqslant$ 500 (1/2 $\leqslant$ NPS $\leqslant$ 20);

— socket welding ends in sizes 8 $\leqslant$ DN $\leqslant$ 100 (1/4 $\leqslant$ NPS $\leqslant$ 4);

— threaded ends in sizes 8 $\leqslant$ DN $\leqslant$ 50 (1/4 $\leqslant$ NPS $\leqslant$ 2);

— body seat openings designated as full bore, reduced bore, and double reduced bore;

— materials;

— testing and inspection.

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

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

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

1) Valve characteristics are not necessarily available in all nominal sizes for all pressure designations, e.g. Class 900 applies only for reduced bore body seat openings.

ISO 228-2, *Pipe threads where pressure-tight joints are not made on the threads — Part 2: Verification by means of limit gauges*

ISO 261, *ISO general purpose metric screw threads — General plan*

ISO 965-2:1998, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 4032, *Hexagon nuts, style 1 — Product grades A and B*

ISO 4033, *Hexagon nuts, style 2 — Product grades A and B*

ISO 4034, *Hexagon nuts — Product grade C*

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

ISO 5209, *General purpose industrial valves — Marking*

ISO 5752:1982, *Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions*

ISO 10497, *Testing of valves — Fire type-testing requirements*

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

EN 12982, *Industrial valves — End-to-end and centre-to-end dimensions for butt welding end valves*

EN 1515-1:1999, *Flanges and their joints — Bolting — Part 1: Selection of bolting*

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

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

ASME B16.5, *Pipe Flanges and Flanged Fittings*

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

ASME B16.34:2004, *Valves Flanged, Threaded and Welding End*

ASME B18.2.2, *Square and Hex Nuts*

MSS-SP-55, *Quality Standard for Steel Castings for Valves, Flanges and Fittings and Other Piping Components — Visual Method for Evaluation of Surface Irregularities* [2)]

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
service pressure/temperature rating
lesser of the shell or seat pressure/temperature rating

2) Manufacturers Standradization Society standard.