International Standard

ISO 18984

First edition
2025-07

Ball valves for thermoplastics piping systems for hot and cold water installations under pressure — Types, dimensions and requirements

Robinets à tournant sphérique pour systèmes de canalisations en matières thermoplastiques pour installations d'eau chaude et froide sous pression — Types, dimensions et exigences

Reference number
ISO 18984:2025(en)

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Published in Switzerland

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Foreword

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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 document 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 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 7, *Valves and auxiliary equipment of plastics materials,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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

Ball valves made by thermoplastic materials such as mineral-filled thermoplastic polymer, fibre-reinforced thermoplastics, plasticized thermoplastics, blends and alloys can have specific considerations with regards to prediction of long term strength. These considerations have to be taken into account in the corresponding product standards.

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Ball valves for thermoplastics piping systems for hot and cold water installations under pressure — Types, dimensions and requirements

1 Scope

This document is applicable to two-way or multi-way ball valves manufactured with all types of polypropylene (PP) and chlorinated polyvinylchloride (PVC-C) thermoplastic materials to be used for the transport of pressurized water whether or not intended for human consumption (domestic systems) for applications in buildings and utility branches.

NOTE 1 The two-way valve is generally used for sectioning and control of flows, and the multi-way valve is used to divert or mix the flows. For information on their functionality, see ISO 16135:2006, Annex B.

NOTE 2 The reader of this document is informed that the water intended for human consumption is subjected to national, regional or local regulatory provisions as applicable.

The application classes are indicated in ISO 15874 and ISO 15877 series.

This document specifies valve characteristics as follows:

— dimensions for assembly in the relevant pipelines,

— physical and mechanical requirements.

Other materials can fit the scope of this document if the application classes are specified in a material related specific standard.

Ball valves specified in this document are not intended to be used in conjunction with pipes made by metallic material and copper alloys.

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 5211, *Industrial valves — Part-turn actuator attachments*

ISO 8233, *Thermoplastics valves — Torque — Test method*

ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation*

ISO 9393-2:2005, *Thermoplastics valves for industrial applications — Pressure test methods and requirements — Part 2: Test conditions and basic requirements*

ISO 9624, *Thermoplastics piping systems for fluids under pressure — Flange adapters and loose backing flanges — Mating dimensions*

ISO 15874-1, *Plastics piping systems for hot and cold water installations — Polypropylene (PP) — Part 1: General*

ISO 15874-2, *Plastics piping systems for hot and cold water installations — Polypropylene (PP) — Part 2: Pipes*

ISO 15874-3, *Plastics piping systems for hot and cold water installations — Polypropylene (PP) — Part 3: Fittings*

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ISO 15874-5, *Plastics piping systems for hot and cold water installations — Polypropylene (PP) — Part 5: Fitness for purpose of the system*

ISO 15874-5:2013/Amd 1:2018, *Plastics piping systems for hot and cold water installations — Polypropylene (PP) — Part 5: Fitness for purpose of the system*

ISO 15877-2, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 2: Pipes*

ISO 15877-3, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 3: Fittings*

ISO 15877-3/Amd 1:2010, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 3: Fittings*

ISO 15877-3/Amd 2:2021, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 3: Fittings*

ISO 15877-5, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 5: Fitness for purpose of the system*

ISO 15877-5/Amd 1:2010, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 5: Fitness for purpose of the system*

ISO 15877-5/Amd 2:2020, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 5: Fitness for purpose of the system*

ISO 16135:2006, *Industrial valves — Ball valves of thermoplastics materials*

EN 558, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — PN and Class designated valves*

EN 681-1, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber*

EN 681-2, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications - Part 2: Thermoplastic elastomers*

EN 736-1, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-2, *Valves — Terminology — Part 2: Definition of components of valves*

EN 736-3, *Valves — Terminology — Part 3: Definition of terms*

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

EN 1267, *Industrial valves —Test of flow resistance using water as test fluid*

EN 12570:2000, *Industrial valves — Method for sizing the operating element*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 736-1, EN 736-2, EN 736-3 and the following apply.

ISO and IEC maintain terminological 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/

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