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**Industrial valves — Ball valves of thermoplastics materials —**

**AMENDMENT 1**

***Robinetterie industrielle — Robinets à tournant sphérique en matériaux thermoplastiques —***

***AMENDEMENT 1***

**ICS: 23.060.20**

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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 077, *Valves and auxiliary equipment of plastics materials*.

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## Industrial valves — Ball valves of thermoplastics materials — AMENDMENT 1

Page 1, Clause 2

~~Date all the normative references.~~

Delete the reference to EN 736-1:1995 and EN 736-2:1997, to be moved to the Bibliography.

Delete the following references:

ISO 12092:2000, *Fittings, valves and other piping system components made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C), acrylonitrile-butadiene-styrene (ABS) and acrylonitrile-styrene-acrylester (ASA) for pipes under pressure — Resistance to internal pressure — Test method*

EN 558-1:1995, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — Part 1: PN-designated valves*

EN 558-2:1995, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — Part 2: Class-designated valves*

EN 736-3:1999, *Valves — Terminology — Part 3: Definition of terms*

EN 12107:1997, *Plastics piping systems — Injection-moulded thermoplastics fittings, valves and ancillary equipment — Determination of the long-term hydrostatic strength of thermoplastics materials for injection moulding of piping components*

Add the following references:

ISO 16135:2006/Amd 1:2019

ISO 7-1:1994/Cor1:2007, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation — Technical Corrigendum 1*

ISO 1167-1:2006, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method*

EN 558:2017, *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 736-3:2008, *Valves — Terminology — Part 3: Definition of terms*

ISO 10931:2005/~~Amd1:2015~~, *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) — Specifications for components and the system — ~~Amendment 1~~*

ISO 15493:2003/Amd 1:2016, *Plastics piping systems for industrial applications — Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) — Specifications for components and the system — Metric series — Amendment 1*

ISO 15493:2003/Cor 1:2004, *Plastics piping systems for industrial applications — Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) — Specifications for components and the system — Metric series — Technical Corrigendum 1*

Replace the reference to ISO 898-1:1999 by the following:

ISO 898-1:2013, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

Replace the reference to ISO 12162:1995 by the following:

ISO 12162:2009, *Thermoplastics materials for pipes and fittings for pressure applications — Classification, designation and design coefficient*

Replace the reference to ISO 15494:2004 by the following:

ISO 15494:2015, *Plastics piping systems for industrial applications — Polybutene (PB), polyethylene (PE), polyethylene of raised temperature resistance (PE-RT), crosslinked polyethylene (PE-X), polypropylene (PP) — Metric series for specifications for components and the system*

Replace the reference to ISO 5211:2001 by the following:

ISO 5211:2017, *Industrial valves — Part-turn actuator attachments*

Replace the reference to EN 10921:2001 by the following:

EN 10921:2018, *Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated. Steel flanges*

Replace the reference to EN 1267:1997 by the following:

EN 1267:2012, *Industrial valves. Test of flow resistance using water as test fluid*

Replace the reference to EN 12266-1:2003 by the following:

EN 12266-1:2012, *Industrial valves. Testing of metallic valves. Pressure tests, test procedures and acceptance criteria. Mandatory requirements*

Page 2, Clause 3

Add the following text after the first paragraph:

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 <http://www.electropedia.org/>

Convert all NOTES to "Note X to entry".

Replace 3.4 by the following:

### 3.4

#### **maximum allowable pressure**

##### **PMA**

maximum pressure occurring from time to time, including surge, that a component is capable of withstanding in service

[EN 805:2000, definition 3.1.1]

Replace the NOTE in 3.5 by the following:

Note 1 to entry: Adapted from EN 736-2.

Replace the NOTE in 3.7 by the following:

Note 1 to entry: Adapted from EN 12570.

Page 4, 4.1.2.2

Replace the subdivision c) of the list by the following:

- c) In accordance with EN 736-3, the valve shall be
  - either full bore, or
  - reduced bore, in which case the manufacturer shall specify the pressure loss factor or the minimum passage diameter in mm (see Table 2, item 9).

*Page 5, 4.2.1*

Replace the first sentence and the list by the following:

The valve body and bonnet/cover materials, selected from ISO 15493 or ISO 15494 or ISO 10931, shall be in accordance with the requirements of the relevant International Standard: ABS, PE, PP, PVC-C, PVC-U, PVDF.

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Page 6, 4.3, Table 1

Replace Table 1 with the table below.

**Table 1 — Minimum values for rating factor  $f_r$  for a lifetime up to 25 years**

Temperature °C	Minimum rating factor $f_r$ for body material					
	ABS	PE	PP	PVC-C	PVC-U	PVDF
-40	1,0	1,0	—	—	—	a
-30	1,0	1,0	—	—	—	a
-20	1,0	1,0	—	—	—	1,0
-10	1,0	1,0	—	—	—	1,0
0	1,0	1,0	a	a	a	1,0
+5	1,0	1,0	a	a	a	1,0
10	1,0	1,0	1,0	1,0	1,0	1,0
20	1,0	1,0	1,0	1,0	1,0	1,0
25	1,0	1,0	1,0	1,0	1,0	1,0
30	0,8	0,76	0,85	0,85	0,80	0,9
40	0,6	0,53	0,70	0,65	0,60	0,8
50	0,4	0,35	0,55	0,50	0,35	0,71
60	0,2	0,24	0,40	0,35	0,15	0,63
70	—	—	0,27	0,25	—	0,54
80	—	—	0,15	0,15	—	0,47
90	—	—	0,08	a	—	0,36
100	—	—	a	a	—	0,25
110	—	—	—	—	—	0,17
120	—	—	—	—	—	0,12
130	—	—	—	—	—	a
140	—	—	—	—	—	a

NOTE These values do not coincide with the relevant factors for pipes and fittings.

<sup>a</sup> A rating factor for this fluid temperature may be declared by the manufacturer.

Page 7, 4.4.1

Replace the text with the following:

**4.4.1 Face-to-face dimensions**

The face-to-face dimensions of valves for use in flanged pipe systems shall be selected from EN 558.

For all other types of end connection, the face-to-face dimensions shall be the responsibility of the manufacturer.

Page 8, 4.6.1

Replace the text with the following:

**4.6.1 Design strength**



For each valve body material, the design strength shall conform to ISO 9393-2:

- through the pressure test of the body;
- through the long-term behaviour test of the complete valve.

*Page 8, 4.6.3*

Replace the text with the following:

#### **4.6.3 Seat and packing/shell leaktightness**

The seat and packing/shell leaktightness shall be verified on all complete valves through seat and packing tests carried out in accordance with the requirements of ISO 9393-2.

The requirement for seat leaktightness is mandatory in all directions for multi-way valves.

*Page 9, 4.6.5*

Replace the text with the following:

#### **4.6.5 Permissible manual forces**

The lever and hand-wheel rim forces to open and fully close the valve shall not exceed the values given for the operating manual force  $F$  in EN 12570.

The maximum manual force  $F_s$  used to calculate the size of the operating element in EN 12570 may not be necessary.

All functional parts shall be serviceable after the application of the force  $F$ .

[ISO 16135:2006/Amd 1:2019](#)

*Page 10, 5.2.2* [standards.iteh.ai/catalog/standards/sist/fdce7ae2-c37e-4130-ab3f-e08dcff276fc/iso-](#)

Replace the text with the following:

[16135-2006-amd-1-2019](#)

The testing of the body and bonnet/cover raw materials shall be in accordance with ISO 1167-1.

*Page 11, 5.2.5*

Replace the text with the following:

#### **5.2.5 Long-term behaviour test of the complete valve**

The complete valve shall be tested in accordance with ISO 1167-1.

Replace Table 2 with the table below.

**Table 2 — Minimum required marking and valve data sheet**

Item	Subject	Marking on valve	Information on data sheet
1	DN	X	—
2	PN or Class	X	—
3	Material of the body (as listed in 4.2.1)	X	—
4	Manufacturer's identification	X	—
5	Production code or date of manufacture <sup>a</sup>	X	—
6	p/t rating	—	X
7	Number of this International Standard	—	X
8	Seat/seal material <sup>b</sup> and/or (if any) limitation of allowable pressure <sup>b</sup> and/or allowable temperature <sup>c</sup>	X	X
9	Valve bore reduction or pressure loss factor [for valves with reduced bore only, see 4.1.2.2c]]	—	X
10	If applicable: marking of the preferred tightness direction in closed position by an arrow [see 4.1.2.2a]]	X	—

<sup>a</sup> For providing traceability, the requirements of 4.7.1 shall be respected.

<sup>b</sup> A limited pressure — if applicable (see 4.3) — shall be marked on the valve. The seat/seal material shall be marked on the valve.

<sup>c</sup> Limitation of service temperature (see 4.3) shall be given in the data sheet.

**Bibliography**

Replace [4] by EU Directive 2014/68/~~ECEU~~, *Pressure Equipment Directive (PED)*.

Add the reference to EN 736-1 and EN 736-2.