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AMENDMENT 1
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**Industrial valves — Diaphragm valves
of thermoplastics materials**

AMENDMENT 1

*Robinetterie industrielle — Robinets à membrane en matériaux
thermoplastiques*

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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*.

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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Industrial valves — Diaphragm valves of thermoplastics materials

AMENDMENT 1

Page 1, Clause 1

Add the following NOTE at the end of Clause 1:

NOTE 3 Different DN and/or PN can be declared by the manufacturer.

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 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 fluid — 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/Amd 1:2015, *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) — Specifications for components and the system — Amendment 1*

ISO 16138:2006/Amd.1:2019(E)

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 5210:1991 by the following:

ISO 5210:2017, *Industrial valves — Multi-turn valve actuator attachments*

Replace the reference to EN 1092-1:2001 by the following:

EN 1092-1:2018, *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*

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*

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

[SOURCE: 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 5, 4.2.1

Replace the first sentence and the list by the following:

The valve body 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.

Page 5, 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 |

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

^a A rating factor for this fluid temperature may be declared by the manufacturer.

Table 1 (continued)

| Temperature °C | Minimum rating factor f_r for body material | | | | | |
|-------------------|---|----|----|-------|-------|------|
| | ABS | PE | PP | PVC-C | PVC-U | PVDF |
| 110 | — | — | — | — | — | 0,17 |
| 120 | — | — | — | — | — | 0,12 |
| 130 | — | — | — | — | — | a |
| 140 | — | — | — | — | — | a |

NOTE These values do not coincide with the relevant factors for pipes and fittings.
^a A rating factor for this fluid temperature may be declared by the manufacturer.

Page 6, 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 7, 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 7, 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.

Page 8, 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.