

ISO/TC 138/SC 7 N797 N797

ISO 16138:2006/~~FDAM~~AMD 1:2019(E)

ISO TC 138/SC 07

Secretariat: UNI

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

**AMENDMENT 1**

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

*AMENDEMENT 1*

ICS: 23.060.20

FDIS stage

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 16138:2006/Amd 1:2019

<https://standards.iteh.ai/catalog/standards/sist/95fbd65b-af4d-486c-b1a5-8edddea763b7/iso-16138-2006-amd-1-2019>

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office

CP 401 • Ch. de Blandonnet 8

CH-1214 Vernier, Geneva

Phone: +41 22 749 01 11

Fax: +41 22 749 09 47

Email: [copyright@iso.org](mailto:copyright@iso.org)

Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

ISO 16138:2006/Amd 1:2019

<https://standards.iteh.ai/catalog/standards/sist/95fbd65b-af4d-486c-b1a5-8edddea763b7/iso-16138-2006-amd-1-2019>

## 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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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*.

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](http://www.iso.org/members.html).



## 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 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 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

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

[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
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 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.

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

WARNING — Forces  $F_s$  exceeding those given in EN 12570 could adversely influence the diaphragm.

*Page 9, 5.2.2*

Replace the text with the following:

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

*Page 10, 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.

#### Bibliography



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

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

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 16138:2006/Amd 1:2019

<https://standards.iteh.ai/catalog/standards/sist/95fbd65b-af4d-486c-b1a5-8edddea763b7/iso-16138-2006-amd-1-2019>

## Annex ZA (informative)

### Relationship between this European Standard and the essential requirements of Directive 2014/68/EU (Pressure Equipment Directive) aimed to be covered

NOTE Annex ZA is not included in the final ISO publication.

This European Standard has been prepared under a Commission's standardization request M/071 to provide one voluntary means of conforming to essential requirements of Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

**Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2014/68/EU**

Essential Requirements of Directive 2014/68/EU	Clause(s)/subclause(s) of this EN	Remarks/Notes
2.2.1	4.3	Design loading factors
2.2.2	4.6.1; 5.2.1; 5.2.2; 5.2.3; 5.2.5	Design for adequate strength
2.7	4.8.1	Wear
3.1.5	4.7.1	Traceability
3.2.2	4.6.1; 4.6.3	Strength proof test
3.4	4.8.3	Operating instructions
4.1, 4.2 a)	4.2; 4.3	Materials for pressurised parts

**WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.**

**WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.**