INTERNATIONAL STANDARD

ISO 15877-3

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AMENDMENT 2

2021-09

Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) —

Part 3: **Fittings**

AMENDMENT 2

Systèmes de canalisations en plastique pour les installations d'eau chaude et froide — Poly(chlorure de vinyle) chloré (PVC-C) —

Partie 3: Raccords

AMENDEMENT 2

Reference number
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Foreword

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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 2, *Plastics pipes and fittings for water supplies,* 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).

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Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) —

Part 3: Fittings

AMENDMENT 2

Normative references

Add the following normative references:

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6509-1, *Corrosion of metals and alloys — Determination of dezincification resistance of copper alloys with zinc — Part 1: Test method*

ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

ISO 22081, *Geometrical product specifications (GPS) — Geometrical tolerancing — General geometrical specifications and general size specifications*

Delete the following normative reference:

EN 1254-3, *Copper and copper alloys — Plumbing fittings — Part 3: Fittings with compression ends for use with plastics pipes*

3.1.2.1

Replace the existing definition 3.1.2.1 with the following:

3.1.2.1
compression fitting
fitting with internal support in which the joint is made by screwing a union nut along a thread to compress a ring on the outside wall of the pipe and finally to cause a clamping of the pipe between the ring and the inner support of the fitting

Note 1 to entry: The fitting may be with or without sealing element.

4.2

Replace the existing title of subclause 4.2 with the following:

4.2 Plastics fitting material

4.4, Table 1

Insert the following table footnote [d] to Vicat softening temperature (VST):

[d] Test samples may be annealed prior to testing at conditions recommended by the manufacturer.

4.4, Table 2

Insert the following table footnote [d] to Vicat softening temperature (VST):

[d] Test samples may be annealed prior to testing at conditions recommended by the manufacturer.

4.5

Replace the existing subclause 4.5 with the following:

4.5 Metallic fitting material

Metallic materials for fittings intended to be used with components conforming to ISO 15877 shall be either copper alloys or stainless steel alloys. The alloys shall be defined according to a standard or regulatory document.

NOTE Examples for such standards and regulatory documents are listed in the Bibliography.

For copper alloys, the fittings made thereof shall conform with the corrosion resistance requirements according to 7.4.

5.1

Replace the existing subclause 5.1 with the following:

5.1 Appearance

5.1.1 Appearance of plastic fittings

When viewed without magnification, the internal and external surfaces of fittings shall be smooth, clean and free from scoring, cavities and other surface defects to an extent that would prevent conformance with this document. The material shall not contain visible impurities. Slight variations in appearance of the colour shall be permitted. Each end of a fitting shall be perpendicular to its longitudinal axis.

5.1.2 Appearance of metal fittings

When viewed without magnification, the internal and external surfaces of fittings shall be clean, free from any residues from the production (e.g. free from cast sand, grease or release agent) and shall have no sharp edges or cracks.

5.2

Replace the existing title of subclause 5.2 with the following:

5.2 Opacity of plastic fittings

6.1, first sentence

Replace the existing first sentence of subclause 6.1 with the following two sentences:

Dimensions of plastic fittings shall be measured in accordance with ISO 3126.

Dimensions of metal fittings shall be measured in accordance with ISO 2768-1 and/or ISO 22081.

6.2

Replace the existing title of subclause 6.2 with the following:

6.2 Dimensions of plastic fittings

6.2.2, Table 3

Replace the existing Table 3 with the following new Table 3. Larger dimensions (180 mm to 250 mm) have been added. The dimensions of 12 mm to 160 mm remain unchanged from the ISO 15877-3:2009 version.

Table 3 — Wall thicknesses of fitting bodies

Nominal diameter	Pipe series		
	S 6,3	S 5	S 4
	Minimum wall thickness [a]		
d_n	e_{min}		
12	1,9	1,9	1,9
14	1,9	1,9	2,2
16	1,9	2,1	2,5
20	2,1	2,6	3,2
25	2,6	3,2	3,8
32	3,3	4,0	4,9
40	4,1	5,0	6,1
50	5,0	6,3	7,6
63	6,4	7,9	9,6
75	7,6	9,2	11,4
90	9,1	11,1	13,7
110	11,0	13,5	16,7
125	12,5	15,4	18,9
140	14,0	17,2	21,2
160	16,0	19,8	24,2
180	18,0	22,2	27,2
200	19,9	24,6	30,3
225	22,5	27,7	34,1
250	24,9	30,7	37,7

[a] The values are rounded up to the first place of the decimals (i.e. the nearest higher 0,1 mm).

6.2.5, Table 4

Replace the existing Table 4 with the following new Table 4. Larger dimensions (180 mm to 250 mm) have been added. The dimensions of 12 mm to 160 mm remain unchanged from the ISO 15877-3:2009 version.

Table 4 — Calculated laying lengths (*Z*-lengths) and related tolerances of elbows, tees and couplers (double-sockets)

Dimensions in millimetres

Nominal diameter	**Type of fitting**					
	90° elbow	45° elbow	90° tee	45° tee		Double-socket
	Calculated *Z*-length and recommended deviations					
d_n	Z	Z	Z	Z	Z_1	Z
12	7 ± 1	3,5 ± 1	7 ± 1	––	––	3 ± 1
14	8 ± 1	4 ± 1	8 ± 1	––	––	3 ± 1
16	9 ± 1	4,5 ± 1	9 ± 1	––	––	3 ± 1
20	11 ± 1	5 ± 1	11 ± 1	27 ± 3	6^{+2}_{-1}	3 ± 1
25	$13,5^{+1,2}_{-1}$	$6^{+1,2}_{-1}$	$13,5^{+1,2}_{-1}$	33 ± 3	7^{+2}_{-1}	$3^{+1,2}_{-1}$
32	$17^{+1,6}_{-1}$	$7,5^{+1,6}_{-1}$	$17^{+1,6}_{-1}$	42^{+4}_{-3}	8^{+2}_{-1}	$3^{+1,6}_{-1}$
40	21^{+2}_{-1}	$9,5^{+2}_{-1}$	21^{+2}_{-1}	51^{+5}_{-3}	10^{+2}_{-1}	3^{+2}_{-1}
50	$26^{+2,5}_{-1}$	$11,5^{+2,5}_{-1}$	$26^{+2,5}_{-1}$	63^{+6}_{-3}	12^{+2}_{-1}	3^{+2}_{-1}
63	$32,5^{+3,2}_{-1}$	$14^{+3,2}_{-1}$	$32,5^{+3,2}_{-1}$	79^{+7}_{-3}	14^{+2}_{-1}	3^{+2}_{-1}
75	$38,5^{+4}_{-1}$	$16,5^{+4}_{-1}$	$38,5^{+4}_{-1}$	94^{+9}_{-3}	17^{+2}_{-1}	4^{+2}_{-1}
90	46^{+5}_{-1}	$19,5^{+5}_{-1}$	46^{+5}_{-1}	112^{+11}_{-3}	20^{+3}_{-1}	5^{+2}_{-1}
110	56^{+6}_{-1}	24^{+6}_{-1}	56^{+6}_{-1}	137^{+13}_{-4}	24^{+3}_{-1}	6^{+3}_{-1}
125	$63,5^{+6}_{-1}$	27^{+6}_{-1}	$63,5^{+6}_{-1}$	157^{+15}_{-4}	27^{+3}_{-1}	6^{+3}_{-1}
140	71^{+7}_{-1}	30^{+7}_{-1}	71^{+7}_{-1}	175^{+17}_{-5}	30^{+4}_{-1}	8^{+3}_{-1}
160	81^{+8}_{-1}	34^{+8}_{-1}	81^{+8}_{-1}	200^{+20}_{-6}	35^{+4}_{-1}	8^{+4}_{-1}
180	91^{+8}_{-1}	39^{+8}_{-1}	91^{+8}_{-1}	224^{+24}_{-8}	39^{+8}_{-1}	8^{+4}_{-1}
200	101^{+9}_{-1}	43^{+9}_{-1}	101^{+9}_{-1}	249^{+25}_{-8}	43^{+9}_{-1}	8^{+5}_{-1}
225	114^{+10}_{-1}	48^{+10}_{-1}	114^{+10}_{-1}	280^{+28}_{-9}	48^{+10}_{-1}	10^{+5}_{-1}
250	126^{+10}_{-1}	53^{+10}_{-1}	126^{+10}_{-1}	310^{+31}_{-10}	53^{+10}_{-1}	12^{+5}_{-2}

6.2.5, Table 7

Replace the existing Table 7 with the following new Table 7. Larger dimensions (180 mm to 250 mm) have been added. The dimensions of 14 mm to 160 mm remain unchanged from the ISO 15877-3:2009 version.

Table 7 — Calculated laying lengths (*Z*-lengths) and related tolerances of reducing bushes, long type, with cylindrical sockets

Dimensions in millimetres

Nominal diameter of the socket	**Nominal diameter of the spigot, d_2**															
	20	25	32	40	50	63	75	90	110	125	140	160	180	200	225	250
	Calculated laying length, *Z*, and related tolerances															
d_1	±1			±1,5				±2								
14	21	25	30	–	–	–	–	–	–	–	–	–	–	–	–	–
16	21	25	30	36	–	–	–	–	–	–	–	–	–	–	–	–
20	–	25	30	36	44	–	–	–	–	–	–	–	–	–	–	–
25	–	–	30	36	44	54	–	–	–	–	–	–	–	–	–	–
32	–	–	–	36	44	54	62	–	–	–	–	–	–	–	–	–
40	–	–	–	–	44	54	62	74	–	–	–	–	–	–	–	–
50	–	–	–	–	–	54	62	74	88	–	–	–	–	–	–	–
63	–	–	–	–	–	–	62	74	88	100	–	–	–	–	–	–
75	–	–	–	–	–	–	–	74	88	100	111	–	–	–	–	–
90	–	–	–	–	–	–	–	–	88	100	111	126	–	–	–	–
110	–	–	–	–	–	–	–	–	–	100	111	126	141	–	–	–
125	–	–	–	–	–	–	–	–	–	–	111	126	141	156	–	–
140	–	–	–	–	–	–	–	–	–	–	–	126	141	156	175	–
160	–	–	–	–	–	–	–	–	–	–	–	–	141	156	175	194
180	–	–	–	–	–	–	–	–	–	–	–	–	–	156	175	194
200	–	–	–	–	–	–	–	–	–	–	–	–	–	–	175	194
225	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	194