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Plastics piping systems for pressure and non-pressure drainage and sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin

AMENDMENT 1

iTeh **STANDARD PREVIEW**

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Systèmes de canalisation en matières plastiques pour les branchements et les collecteurs d'assainissement avec ou sans pression — Systèmes en plastiques thermodurcissables renforcés de verre (PRV) à base de résine de polyester non saturé (UP)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

Amendment 1 to ISO 10467:2004 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 6, *Reinforced plastics pipes and fittings for all applications*.

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Plastics piping systems for pressure and non-pressure drainage and sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin

AMENDMENT 1

Page 1, Scope

Add the following Note after the first paragraph:

NOTE 1 For the purpose of this International Standard, the term polyester resin also includes vinyl-ester resins.

Page 1, Scope

Add 2 to the Note following the second paragraph:

NOTE 2 Piping systems conforming to this International Standard can also be used for non-buried applications provided the influence of the environment and the supports are considered in the design of the pipes, fittings and joints.

Page 2, Normative references

Correct the following normative references (references from dated to undated normative references):

ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*
ISO 10467:2004/Amd 1:2012

ISO 7432, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the design of locked socket-and-spigot joints, including double-socket joints, with elastomeric seals*

ISO 7511, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the leaktightness of the wall under short-term internal pressure*

ISO 8483, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the design of bolted flange joints*

ISO 8513, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of longitudinal tensile properties*

ISO 8521, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test methods for the determination of the apparent initial circumferential tensile strength*

ISO 8533, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the design of cemented or wrapped joints*

ISO 8639, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness of flexible joints*

ISO 10928, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use*

Page 17, 4.5.1

Add the following new sentence to the end of the first paragraph:

For routine quality control testing, any measurements shall be taken at the prevailing temperature or, if the manufacturer requires, at the temperature specified in this clause.

Replace Table 4, in which some of the range of declared pipe internal diameters have been corrected, with the following:

Table 4 — Series A — Specified pipe internal diameters and tolerances

Dimensions in millimetres

Column 1	Column 2	Column 3	Column 4
Nominal size DN	Range of declared pipe internal diameters		Permissible deviations from declared internal diameter ± mm
	minimum	maximum	
100	97	103	1,5
110	107	113	1,5
125	122	128	1,5
150	147	153	1,5
200	196	204	1,5
225	221	229	1,5
250	246	255	1,5
300	296	306	1,8
350	346	357	2,1
400	396	408	2,4
450	446	459	2,7
500	496	510	3,0
600	595	612	3,6
700	695	714	4,2
800	795	816	4,2
900	895	918	4,2
1 000	995	1 020	5,0
1 200	1 195	1 220	5,0
1 400	1 395	1 420	5,0
1 600	1 595	1 620	5,0
1 800	1 795	1 820	5,0
2 000	1 995	2 020	5,0
2 200	2 195	2 220	5,0
2 400	2 395	2 420	6,0
2 600	2 595	2 620	6,0
2 800	2 795	2 820	6,0
3 000	2 995	3 020	6,0
3 200	3 195	3 220	6,0
3 400	3 395	3 420	6,0
3 600	3 595	3 620	6,0
3 800	3 795	3 820	7,0
4 000	3 995	4 020	7,0

NOTE 1 When a non-preferred size is selected from Table 3, the range of diameters and the permissible deviations shall be interpolated between the preferred size immediately above and below the non-preferred size.

NOTE 2 Where a manufacturer supplies pipes with a definable change in diameter from one end to the other then they may declare the diameters at each end and these declared values shall be subject to the tolerances given in column 4.

Page 32, Table 14

Replace Table 14 with the following:

Table 14 — Minimum initial specific longitudinal tensile strength

Nominal size (DN)	Nominal pressure (PN)						
	≤ 4	6	10	16	20	25	32
	Minimum initial specific longitudinal tensile strength N/mm of circumference						
50	50	55	60	70	80	90	105
75	60	65	70	80	90	100	115
100	70	75	80	90	100	110	125
125	75	80	90	100	110	120	135
150	80	85	100	110	120	130	145
200	85	95	110	120	135	150	155
250	90	105	125	135	155	170	190
300	95	110	140	155	175	200	220
400	105	130	165	190	215	250	285
500	115	145	190	225	255	300	345
600	130	160	220	255	295	350	415
700	140	175	250	290	335	400	475
800	155	190	280	325	380	450	545
900	165	205	310	360	420	505	620
1 000	180	225	340	395	465	555	685
1 200	205	255	380	465	540	645	790
1 400	230	290	420	530	620	745	915
1 600	255	320	460	600	700	845	1 040
1 800	280	350	500	670	785	940	1 160
2 000	305	385	540	740	865	1 040	1 285
2 200	335	415	575	810	945	1 140	1 410
2 400	360	450	620	880	1 025	1 240	1 530
2 600	385	480	665	945	1 110	1 335	1 655
2 800	410	515	710	1 015	1 190	1 435	1 780
3 000	435	545	755	1 080	1 270	1 535	1 900
3 200	460	575	805	1 150	1 35	1 630	2 025
3 400	490	610	850	1 220	1 430	1 730	2 150
3 600	520	645	895	1 290	1 515	1 830	2 250
3 800	550	680	940	1 355	1 595	1 930	2 400
4 000	580	715	985	1 425	1 675	2 025	2 520

Page 61, Table 26

Replace Table 26 with the following:

Table 26 — Summary of test requirements for wrapped or cemented joints

Test	Pressure sequence	Test pressure bar	Duration
Initial leakage (ISO 8533)	Initial pressure	1,5 × PN	15 min
External pressure differential (ISO 8533)	Negative pressure	-0,8 bar (-0,08 MPa)	1 h
Resistance to bending and pressure (ISO 8533)	Preliminary pressure	1,5 × PN	15 min
	Maintained pressure	2,0 × PN	24 h
Resistance to internal pressure (ISO 8533)	Maintained pressure	2,0 × PN	24 h
	Positive cyclic pressure	Atmospheric to 1,5 × PN and back to atmospheric	10 cycles of 1,5 min to 3,0 min each
Short-term resistance (ISO 8533)	Maintained pressure	2,5 × PN	100 h
		or 3,0 × PN	6 min

NOTE 1 Nominal pressure (PN) is an alphanumeric designation of pressure related to the resistance of a component of a piping system to internal pressure.

NOTE 2 For joints intended to resist end-thrust loads, the above tests are performed with end loads applied to the joint. For non-end-load-bearing joints, the tests are performed without the end loads and the thrust is transferred to other sections of the test rig.

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Page 62, 7.3.1.2.3

Replace the second paragraph with the following: <https://standards.iteh.ai/catalog/standards/sist/52c77241-0551-48fe-a8e2-10618609105/iso-10467-2004-amd-1-2012>

When subjected to a bending test in accordance with ISO 8533, using a test pressure equal to 2 × PN bar, for 24 h, the joint shall remain leaktight and there shall be no visible damage to the joint components.

Page 62, 7.3.1.2.4

Replace the first paragraph with the following:

When subjected to a static pressure test in accordance with ISO 8533, using a test pressure equal to 2 × PN bar, for 24 h, the joint shall remain leaktight and there shall be no visible damage to the joint components.

Replace the third paragraph with the following:

When subjected to a static pressure test in accordance with ISO 8533, using a test pressure equal to 2,5 × PN bar, for 100 h, the joint shall remain leaktight and there shall be no visible damage to the joint components. Alternatively, at the option of the manufacturer, the test may be performed with a test pressure equal to 3,0 × PN bar, for 6 min, during which the joint shall remain leaktight and there shall be no visible damage to the joint components.

Page 63, Table 27

Replace Table 27 with the following:

Table 27 — Summary of test requirements for bolted flange joints

Test	Pressure sequence	Test pressure bar	Duration
Initial leakage (ISO 8483)	Initial pressure	1,5 × PN	15 min
External pressure differential (ISO 8483)	Negative pressure	-0,8 bar (-0,08 MPa)	1 h
Resistance to bending and pressure (ISO 8483)	Preliminary pressure	1,5 × PN	15 min
	Maintained pressure	2,0 × PN	24 h
Resistance to internal pressure (ISO 8483)	Maintained pressure	2,0 × PN	24 h
	Positive cyclic pressure	Atmospheric to 1,5 × PN and back to atmospheric	10 cycles of 1,5 min to 3,0 min each
Short-term resistance (ISO 8483)	Maintained pressure	2,5 × PN	100 h
		or 3,0 × PN	6 min
Bolt-tightening torque (ISO 8483)	Visual inspection	Not applicable	Not applicable

NOTE 1 Nominal pressure (PN) is an alphanumeric designation of pressure related to the resistance of a component of a piping system to internal pressure.

NOTE 2 For joints intended to resist end-thrust loads, the above tests are performed with end loads applied to the joint. For non-end-load-bearing joints, the tests are performed without the end loads and the thrust is transferred to other sections of the test rig.

NOTE 3 For joints which are intended to be used with metallic flanges, the tests are performed in conjunction with a metallic flange. For joints which are intended to be used with GRP flanges, the tests are performed in conjunction with a GRP flange. For joints which are intended to be used with either metallic or GRP flanges, tests are performed using both combinations.

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Page 64, 7.3.2.2.3

Replace the third paragraph with the following:

When subjected to a static pressure test in accordance with ISO 8483, using a test pressure equal to 2 × PN bar, for 24 h, the joint shall remain leaktight and there shall be no visible damage to the joint components.

Page 64, 7.3.2.2.4

Replace the second paragraph with the following:

When subjected to a static bending test in accordance with ISO 8483, using a test pressure equal to 2 × PN bar, for 24 h, the joint shall remain leaktight and there shall be no visible damage to the joint components.