

---

---

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

**AMENDMENT 1**

*Systèmes de canalisation en matières plastiques pour l'alimentation en eau avec ou sans pression — Systèmes en plastiques thermodurcissables renforcés de verre (PRV) à base de résine de polyester non saturé (UP)*

AMENDEMENT 1



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 10639:2004/Amd 1:2011



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## 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 10639:2004 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*.

STANDARDSISO.COM : Click to view the full PDF of ISO 10639:2004/Amd.1:2011

STANDARDSISO.COM : Click to view the full PDF of ISO 10639:2004/Amd 1:2011

# Plastics piping systems for pressure and non-pressure water supply — 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 and renumber other note as Note 2:

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

### Pages 2 and 3, Normative references

Correct the following dated Normative references into undated references:

ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

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 method 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 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 joint*

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 16, 4.5.1

Add the following paragraph after 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 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 58, Table 25

Replace Table 25 with the following:

**Table 25 — Summary of test requirements for wrapped or cemented joints**

Test	Pressure sequence	Test pressure bar	Duration
Initial leakage (ISO 8533:2003, 7.3)	Initial pressure	$1,5 \times PN$	15 min
External pressure differential (ISO 8533:2003, 7.2)	Negative pressure	-0,8 bar (-0,08 MPa)	1 h
Resistance to bending and pressure (ISO 8533:2003, 7.4)	Preliminary pressure	$1,5 \times PN$	15 min
	Maintained pressure	$2,0 \times PN$	24 h
Resistance to internal pressure (ISO 8533:2003, 7.5.1 to 7.5.6)	Maintained pressure	$2,0 \times PN$	24 h
	Positive cyclic pressure	Atmospheric to $1,5 \times PN$ and back to atmospheric	10 cycles of 1,5 min to 3,0 min each
Short-term resistance (ISO 8533:2003, 7.5.7 to 7.5.9)	Maintained pressure	$3,0 \times PN$	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.

Page 59, 7.3.1.2.3

Correct the second paragraph to read as follows:

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

Page 59, 7.3.1.2.4

Correct the first paragraph to read as follows:

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

Replace Table 26 with the following:

**Table 26 — Summary of test requirements for bolted flange joints**

Test	Pressure sequence	Test pressure bar	Duration
Initial leakage (ISO 8483:2003, 7.3)	Initial pressure	1,5 × PN	15 min
External pressure differential (ISO 8483:2003, 7.2)	Negative pressure	−0,8 bar (−0,08 MPa)	1 h
Resistance to bending and pressure (ISO 8483:2003, 7.5)	Preliminary pressure	1,5 × PN	15 min
	Maintained pressure	2,0 × PN	24 h
Resistance to internal pressure (ISO 8483:2003, 7.4)	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 8483:2003, 7.6)	Maintained pressure	2,5 × PN for	100 h
		or 3,0 × PN for	6 min
Bolt-tightening torque (ISO 8483:2003, 7.7)	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 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, then tests are performed using both combinations.

Correct the third paragraph to read as follows:

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.

Correct the second paragraph to read as follows:

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.