
Personal flotation devices —

Part 9:
Test methods

AMENDMENT 1

iTeh STANDARD PREVIEW
Équipements individuels de flottabilité —
(Partie 9: Méthodes d'essai)
(standards.iteh.ai)
AMENDEMENT 1

[ISO 12402-9:2006/Amd 1:2011](https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011>



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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 12402-9:2006/Amd 1:2011](https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-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
Web 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 12402-9:2006 was prepared by Technical Committee ISO/TC 188, *Small craft*, Subcommittee SC 1, *Personal safety equipment*, in collaboration with Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets*.

TECHNICAL STANDARD PREVIEW

(standards.iteh.ai)

[ISO 12402-9:2006/Amd 1:2011](https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 12402-9:2006/Amd 1:2011](https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011>

Personal flotation devices —

Part 9: Test methods

AMENDMENT 1

Page 1, Normative references

In the last reference, replace “ISO 12402-7:—1)” with “ISO 12402-7:2006” and delete footnote 1).

Page 2, Normative references

Replace “2)” at the end of the last reference with “1)” and change the footnote number from “2)” to “1)”.

Page 4, 5.1

iTeh STANDARD PREVIEW

(standards.iteh.ai)

Delete the second paragraph:

“When material and components of PFDs specified in ISO 12402-7 are conditioned as specified therein and successfully tested according to this part of ISO 12402, they can be assumed to meet the requirements of ISO 12402-7 for the PFD design test.”

Page 4, 5.1

Delete the last paragraph:

“All tests according to 5.5 shall be carried out after submitting the samples to the temperature cycling test (see 5.5.3) and the rotating shock bin test (see 5.5.2).”

Page 4, 5.2.1

Replace the complete clause with the following:

“At least one sample of each size of the device to be tested shall be provided, if not specified otherwise in this part of ISO 12402.”

Add the following new subclause, and renumber the current 5.5.1, subsequent subclauses and existing tables accordingly:

5.5.1 General

The material properties tests shall be conducted in accordance with Table 1 or Table 2 on device(s) of the size that has been determined to represent the weakest construction. When different device sizes have substantially the same construction, any representative size may be tested.

Table 1 — Mechanical properties tests for inherently buoyant PFDs

Applicable tests	Applicable samples					
	A ^a	B ^b	C ^c	D ^d	E ^d	F ^d
5.5.3 Rotating shock bin test method	X	X	X	X	X	X
5.5.4 Temperature cycling test	X	X	X	X	X	X
5.5.2.3.2 Horizontal load test		X ^e				
5.5.2.3.3 Vertical load test		X ^e				
5.5.2.4 Lifting loop test		X ^e				
5.5.2.5 Buddy line test		X ^e				
5.5.7 Over-pressure test						
5.5.9 Measurement of buoyancy of the whole device	X					
5.5.10 Inflation test						
5.5.11 Test of the resistance to inadvertent inflation						
5.5.12 Test of the resistance to burning	X					
<p>^a For each size.</p> <p>^b For adult devices, this sample may be the smallest size. For child devices, the sample may be the smallest size.</p> <p>^c For adult devices, this sample may be the largest size. For child devices, the sample may be the largest size.</p> <p>^d When substantially the same construction is used in adult and child devices, any size may be tested.</p> <p>^e An alternative sample subjected to 5.5.4 of the smallest size may be substituted for this test.</p>						

Table 2 — Mechanical properties tests for inflatable PFDs

Applicable tests	Applicable samples			
	A ^a	B ^b	C ^c	D ^d
5.5.3 Rotating shock bin test method	X	X	X	X
5.5.4 Temperature cycling test	X	X	X	X
5.5.2.3.2 Horizontal load test		X ^e		
5.5.2.3.3 Vertical load test		X ^e		
5.5.2.4 Lifting loop test		X ^e		
5.5.2.5 Buddy line test		X ^e		
5.5.7 Over-pressure test			X	
5.5.9 Measurement of buoyancy of the whole device	X			
5.5.10 Inflation test		X		
5.5.11 Test of the resistance to inadvertent inflation	X			
5.5.12 Test of the resistance to burning			X	
<p>^a For each size.</p> <p>^b For adult devices, this sample may be the smallest size. For child devices, the sample may be the smallest size.</p> <p>^c For adult devices, this sample may be the largest size. For child devices, the sample may be the largest size.</p> <p>^d When substantially the same construction is used in adult and child devices, any size may be tested.</p> <p>^e An alternative sample subjected to 5.5.4 of the smallest size may be substituted for this test.</p>				

Page 5, 5.5.1.2

Replace the last paragraph with the following:

“For all load tests, any load from the test fixtures applied to the device shall be included in the test load.”

Page 6, 5.5.1.3.1

At the end of the subclause, add the following paragraph:

“A different sample is acceptable to test each configuration. Except for hardware closures on buoyancy aids, the tests shall be repeated on each closure independently. For buoyancy aids, all closures shall be fastened and adjusted to the mid-range to approximate even loading.”

Page 6, 5.5.1.3.2

In the third paragraph, replace the second sentence with the following:

“The load shall be maintained for 30 min, if not specified otherwise.”

In the third paragraph, add a new last sentence:

“For buoyancy aids (level 50), the load is maintained for 5 min only, see ISO 12402-5:2006, 5.3.3.2.”

Page 6, 5.5.1.4

In the second paragraph, replace the first sentence with the following:

“Then apply the loads F_1 or F_2 (see Figure 1) to the lifting loop using the lower attachment point of the dummy (in accordance with ISO 12401:2004, 5.2.2.1).”

Page 7, Figure 1

In the key, add “, mass of the dummy included” before the final parenthesis in lines 1 and 2.

Page 11, 5.5.3.1

In the first paragraph, first sentence, replace “(+ 65 ± 2) °C” with “(60 ± 2) °C”.

In the second paragraph, first sentence, replace “(+ 65 ± 2) °C” with “(60 ± 2) °C”.

Page 11, 5.5.3.2

In list item a), first sentence, replace “(+ 65 ± 2) °C” with “(60 ± 2) °C”.

Page 12, 5.5.6

In the first paragraph, replace the fifth sentence with the following:

“The pressure shall be measured and then that pressure shall be increased by 20 % in all chambers through the oral inflation tube.”

ITeH STANDARD PREVIEW
(standards.iteh.ai)

Page 13, 5.5.7

Delete the complete subclause. <https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011>

Page 13, 5.5.8

Replace “ISO 12402-7:—³” with “ISO 12402-7:2006” and delete footnote 3).

Page 13, 5.5.9.1

Replace the third paragraph with the following:

“For inherently buoyant PFDs, the buoyancy of the PFD shall be measured upon initial stabilisation (buoyancy without entrapped air) and after 24 h complete submersion.”

Page 13, 5.5.9.2

Replace the first two paragraphs with the following:

“The standard equipment required consists of a weighted cage, whose submerged weight is greater than 1,1 times the expected buoyancy value.

Weighing takes place in a tank of water, deep enough to accommodate the device horizontally with its upper surface at a depth of 100 mm to 150 mm below the water surface without contacting the sides of the tank or the bottom, and with a calibrated load cell or balance supporting it.”

Page 14, 5.5.9.3

In the second paragraph, replace the first sentence with the following:

“The cage shall be suspended in fresh water at a temperature of (20 ± 5) °C from the load cell so that the upper surface of the horizontally positioned PFD is submerged at 100 mm to 150 mm below the surface.”

Page 14, 5.5.10.2.3

Replace the third sentence with the following:

“The head shall not fire below 13 N and shall fire between 13 N and 67 N.”

Page 14, 5.5.10.2.4

Delete the complete subclause and renumber the subsequent subclause accordingly.

Page 14, 5.5.10.2.5

Delete the second paragraph:

“The time from immersion until initiation of inflation in automatic mode shall be reported. It shall not exceed 5 s.”

Page 17, 5.5.12.3

In the first paragraph, replace “petrol” with “petrol or n-heptane”.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Page 18, 5.6.1.1

Insert the following new last paragraph:

[ISO 12402-9:2006/Amd 1:2011](https://standards.iteh.ai/catalog/standards/sist/dec8e759-16aa-4893-9e62-a89a6146de53/iso-12402-9-2006-amd-1-2011)

“The tests shall be carried out in the order 5.6.4, 5.6.7, 5.6.5, 5.6.6, 5.6.8, 5.6.2, 5.6.3 and 5.6.9.”

Page 18, 5.6.1.2

In the first paragraph, replace the first sentence with the following:

“PFDs shall be tested using at least eight subjects if the device is sized to accommodate a range of chest sizes in excess of 400 mm or a body mass range greater than 30 kg.”

Page 18, 5.6.1.2

In the first paragraph, second sentence, delete the words “at least”.

Page 18, 5.6.1.2

In the second paragraph, second sentence, replace “weight” with “mass”.

Page 19, Table 1

Replace Notes 1 to 5 with the following:

“The following applies:

- a) Between one third and one half of test subjects shall be females, including at least one per height category but excluding the highest height.