

BS ISO 10966:2011



BSI Standards Publication

Sports and recreational equipment — Fabrics for awnings — Specification

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of ISO 10966:2011. Together with BS EN ISO 5912, it supersedes BS ISO 10966:2005 which will be withdrawn on publication of BS EN ISO 5912.

The UK participation in its preparation was entrusted to Technical Committee TCI/74, Camping tents.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© BSI 2011

ISBN 978 0 580 69707 4

ICS 59.080.30; 97.200.30

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2011.

Amendments issued since publication

Date	Text affected
------	---------------

INTERNATIONAL
STANDARD

BS ISO 10966:2011

ISO
10966

Third edition
2011-10-01

**Sports and recreational equipment —
Fabrics for awnings — Specification**

*Matériel de sports et d'activités de plein air — Tissus pour auvents —
Spécifications*



Reference number
ISO 10966:2011(E)

© ISO 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.

ISO 10966 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 2, *Camping tents*.

This third edition, together with ISO 5912:2011, cancels and replaces the second edition (ISO 10966:2005), which has been technically revised to incorporate the following changes:

- requirements for camping tents have been deleted and are now incorporated in ISO 5912:2011 with revised values;
- an introduction has been added.

Introduction

This International Standard previously included requirements for fabrics for awnings and camping tents. With the revision of the second edition of this International Standard, the requirements for fabrics for camping tents have been deleted from this International Standard and are now incorporated in ISO 5912:2011 with revised values.

The requirements for textile fabrics for awnings as given in this International Standard will be reviewed in line with market needs. The intention is to incorporate the reviewed requirements in the next edition of ISO 8936. This International Standard will then be withdrawn as all its requirements will then have been incorporated in ISO 5912 (for camping tents) and ISO 8936 (for awnings).

Sports and recreational equipment — Fabrics for awnings — Specification

1 Scope

This International Standard specifies the most important material characteristics for woven fabrics for awnings. It can also be applied to other types of fabrics.

To meet the needs arising from different climatic conditions, different national habits in tent usage or different durability expectations of the customer, the material requirements are split into two levels: A and B.

Level A requirements apply to awning fabrics intended for use where severe strain is caused by wind, weather or long-term use.

Level B requirements are lower than level A and apply to awning fabrics intended for less severe use.

NOTE This International Standard follows the awning classification given in ISO 8936:

- type W: winter awning;
- type R: residential awning;
- type T: touring awning.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 105-B04, *Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test*

ISO 105-E01, *Textiles — Tests for colour fastness — Part E01: Colour fastness to water*

ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

ISO 811, *Textile fabrics — Determination of resistance to water penetration — Hydrostatic pressure test*

ISO 1420, *Rubber- or plastics-coated fabrics — Determination of resistance to penetration by water*

ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

ISO 4675:1990, *Rubber- or plastics-coated fabrics — Low-temperature bend test*

ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 6940, *Textile fabrics — Burning behaviour — Determination of ease of ignition of vertically oriented specimens*

ISO 7152, *Camping tents and caravan awnings — Vocabulary and list of equivalent terms*

ISO 7771, *Textiles — Determination of dimensional changes of fabrics induced by cold-water immersion*

ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13937-1, *Textiles — Tear properties of fabrics — Part 1: Determination of tear force using ballistic pendulum method (Elmendorf)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7152 and the following apply.

- 3.1
outer fabric**
fabric for awnings which is directly exposed to weather influences in practical use
- 3.2
inner fabric**
fabric for awnings which is not directly exposed to weather influences in practical use
- 3.3
coated fabric**
material treated with film-generating substances in order to permanently close the gaps between yarns or fibres, thereby increasing the resistance to penetration by water

4 Minimum requirements and test methods

4.1 General

The minimum requirements and test methods are specified in 4.2 to 4.8.

Manufacturers of products complying with this International Standard should consider the health and protection of the user, the environment and the supply chain. Materials used should not, during foreseeable conditions of normal use, release or degrade to release substances generally known to be hazardous and shall comply with national legislation for such substances.

4.2 Coated fabric roofs for awning types R and T

Table 1 — Minimum requirements for coated roofs

Property	Level A Type ^a		Level B Type ^a		Direction	Test method
	R	T	R	T		
Breaking strength (N)	1 200	1 000	1 000	850	warp and weft	ISO 1421
Tear resistance (N)	15	15	12	12	warp and weft	ISO 13937-1
Resistance to penetration by water (Pa)	15 000	15 000	8 000	8 000	—	ISO 1420
^a For type W see 4.6.						

4.3 Uncoated fabric roofs for awning types R and T

Table 2 — Minimum requirements for uncoated roofs

Property	Level A Type ^a		Level B Type ^a		Direction	Test method
	R	T	R	T		
Breaking strength (N)	— ^b	850	700	700	warp and weft	ISO 13934-1
Tear resistance (N)	— ^b	15	15	15	warp and weft	ISO 13937-1
Resistance to penetration by water (Pa)	— ^b	5 000	4 000	3 000	—	ISO 811
^a For type W see 4.6.						
^b Uncoated fabrics for roofs of awnings type R are not suitable for this application.						

4.4 Coated fabric walls for awning types R and T

Table 3 — Minimum requirements for coated walls

Property	Level A Type ^a		Level B Type ^a		Direction	Test method
	R	T	R	T		
Breaking strength (N)	1 000	1 000	850	800	warp and weft	ISO 1421
Tear resistance (N)	12	12	10	10	warp and weft	ISO 13937-1
Resistance to penetration by water (Pa)	10 000	15 000	4 000	4 000	—	ISO 1420
^a For type W see 4.6.						

4.5 Uncoated fabric walls for awning types R and T

Table 4 — Minimum requirements for uncoated walls

Property	Level A Type ^a		Level B Type ^a		Direction	Test method
	R	T	R	T		
Breaking strength (N)	650	600	600	500	warp and weft	ISO 13934-1
Tear resistance (N)	18	18	16	16	warp and weft	ISO 13937-1
Resistance to penetration by water (Pa)	2 500	2 500	2 500	2 000	—	ISO 811
^a For type W see 4.6.						

4.6 Roofs and walls for awning type W

Table 5 — Minimum requirements for roofs and walls

Property	Roofs		Walls		Direction	Test method
	Level A	Level B	Level A	Level B		
Breaking strength (N)	1 200	1 000	1 000	850	warp and weft	ISO 1421 (coated fabrics) ISO 13934-1 (uncoated fabrics)
Tear resistance (N)	40	30	30	20	warp and weft	ISO 13937-1
Resistance to penetration by water (Pa)	15 000	8 000	15 000	4 000	—	ISO 1420 (coated fabrics) ISO 811 (uncoated fabrics)

4.7 Resistance against cold crack

When tested in accordance with ISO 4675 for all coated fabrics, only cracks of grade A as specified in ISO 4675:1990, 9.1 are allowed. The test temperature shall be -20 °C for snow awning (type W) and -10 °C for materials of all other types of awnings.

4.8 Dimensional stability

When tested in accordance with ISO 7771 using a cycle of 2 h, the dimensional change shall not exceed $\pm 3\%$.

4.9 Colour fastness

The fabrics shall exhibit the following minimum colour fastness ratings.

a) Outer fabrics for all types of awnings:

- fastness to light 5 (when tested in accordance with ISO 105-B02);
- fastness to weathering 4 to 5 (when tested in accordance with ISO 105-B04);
- fastness to water 4 (when tested in accordance with ISO 105-E01);
- fastness to wet rubbing 3 (when tested in accordance with ISO 105-X12).

b) Inner fabrics:

- fastness to water 4 (when tested in accordance with ISO 105-E01);
- fastness to wet rubbing 3 (when tested in accordance with ISO 105-X12).

4.10 Breaking strength of inner fabrics

Inner fabrics for all types of awnings shall have a minimum breaking strength of 300 N for warp and weft when tested in accordance with ISO 13934-1 or ISO 1421.

4.11 Weatherability

All outer fabrics (roof, wall, etc.) shall provide a minimum resistance to natural sunlight regardless of the type of awning to which they belong. This requirement is deemed to be met if, after artificial weathering in accordance with ISO 4892-2 and applying the test parameters specified in Table 6, the breaking strength and the resistance

to penetration by rain are not more than 30 % below the minimum value applicable to the type and part of the awning specified in Tables 1 to 5.

Table 6 — Test parameters for ISO 4892-2

Parameter	Requirement
Time of exposure	180 h
Light source	Xenon arc lamp (global radiation)
Black panel temperature	(55 ± 3) °C
Relative humidity	(65 ± 5) %
Spraying/drying cycle	18 min/102 min
Dimension of specimen	Compatible with the apparatus and the test specimens for breaking strength and resistance to penetration by water
Number of specimens	At least three
Expression of results	Mean value of three trials

4.12 Flammability

This International Standard does not specify a general minimum requirement concerning flame retardation of fabrics for awnings. If the fabric of an awning is claimed to have flame retardant properties, there shall be no sustained combustion when tested in accordance with ISO 6940 and exposed to a test flame for 10 s (tests shall be carried out on the fabric when new and after artificial weathering according to ISO 4892-2).

5 Marking

All fabrics which are claimed to comply with the requirements of this International Standard shall be marked with the number and date of this International Standard, i.e. ISO 10966:2011, and may be labelled as having flame retardant properties in accordance with the requirements of 4.12 of ISO 10966:2011.

Bibliography

- [1] ISO 5912, *Camping tents*
- [2] ISO 8936, *Awnings for leisure accommodation vehicles — Requirements and test methods*

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com



...making excellence a habit.™