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नरम बूटों के लिए स्नोबोर्ड पट्टक  
बाइंडिंग — अपेक्षाएँ तथा परीक्षण पद्धतियाँ

*Indian Standard*

SNOWBOARD STRAP BINDINGS FOR SOFT  
BOOTS — REQUIREMENTS AND TEST METHODS

ICS 97.220.20

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**BUREAU OF INDIAN STANDARDS**  
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## *Indian Standard*

# SNOWBOARD STRAP BINDINGS FOR SOFT BOOTS — REQUIREMENTS AND TEST METHODS

## 1 Scope

This International Standard specifies the essential requirements of snowboard strap bindings for soft boots, hereafter referred to as snowboard bindings.

It applies to snowboard strap bindings for adults and children, but covers also strap bindings for soft boots, which may have step-in function.

It does not apply to antiskid pads.

NOTE 1 For snowboard plate bindings without a release mechanism, see ISO 14790.

NOTE 2 For the binding mounting area of snowboards without inserts see ISO 10958-1, and with inserts see ISO 10958-2.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 6004:1991, *Alpine skis — Ski binding screws — Requirements*

ISO 10958-1, *Snowboards — Binding mounting area — Part 1: Requirements and test methods for snowboards without inserts*

ISO 10958-2, *Snowboards — Binding mounting area — Part 2: Requirements and test methods for snowboards with inserts*

ISO 11634:1996, *Snowboard-boots — Interface with ski-binding*

## 3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

### 3.1

#### **snowboard strap binding for soft boots**

connecting system between a soft snowboard boot, other than those with hard soles according to ISO 11634, and a snowboard

### 3.2

#### **snowboard strap binding type C**

binding suitable exclusively for a body mass up to 45 kg (children)

### 3.3

#### snowboard strap binding type A

binding suitable for over 45 kg body mass (adults)

## 4 Parameters

All possible strains on the boot can be attributed to one torque  $M$  and one force  $F$  each on every axis  $x$ ,  $y$  and  $z$  of a system of coordinates. The point of origin of the coordinates is agreed to be in the centre of the ankle joint.

The torques and forces illustrated in the drawing in Figure 1 are positive. The corresponding parameters acting in the opposite direction are given negative signs. The arrow heads indicate the sense of rotation of the snowboard boot movement.

Dimensions in millimetres

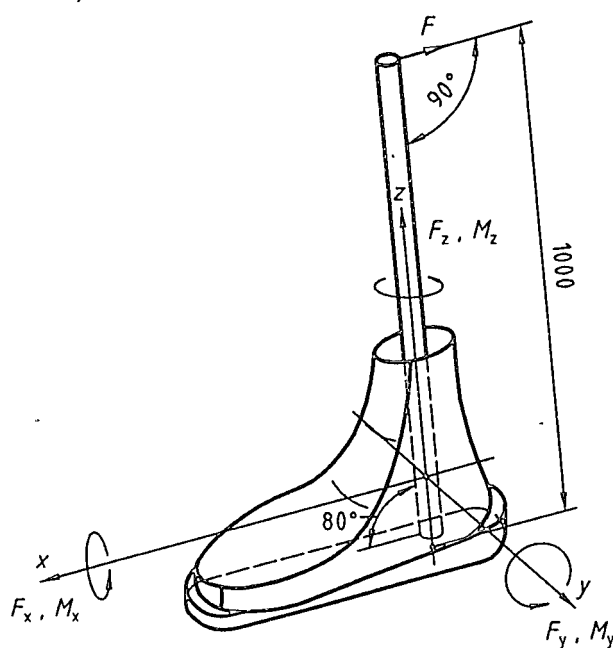


Figure 1 — Torques and forces

## 5 Requirements

### 5.1 Function

The snowboard binding shall be such that in practical use the boot remains connected to the snowboard under all loads occurring in winter terrain. This requirement is met if, after testing in accordance with 6.5 to 6.7,

- there are no fractures, cracks or other indications of permanent deformations in the binding,
- the binding can attach the boot in the original manner,
- the attached boot does not slip out of the binding,
- the boot can be moved from the binding in the original manner.

The snowboard binding shall be able to function also under icy, cold and dirty conditions when tested in accordance with 6.7.

## 5.2 Retaining leash and mounting point for retaining leash

The mounting points for the retaining leash shall be indicated by the manufacturer.

The minimum breaking force of the mounting point and of the leash shall be 500 N.

## 5.3 Mounting screws

The snowboard binding shall be supplied with all parts necessary for mounting.

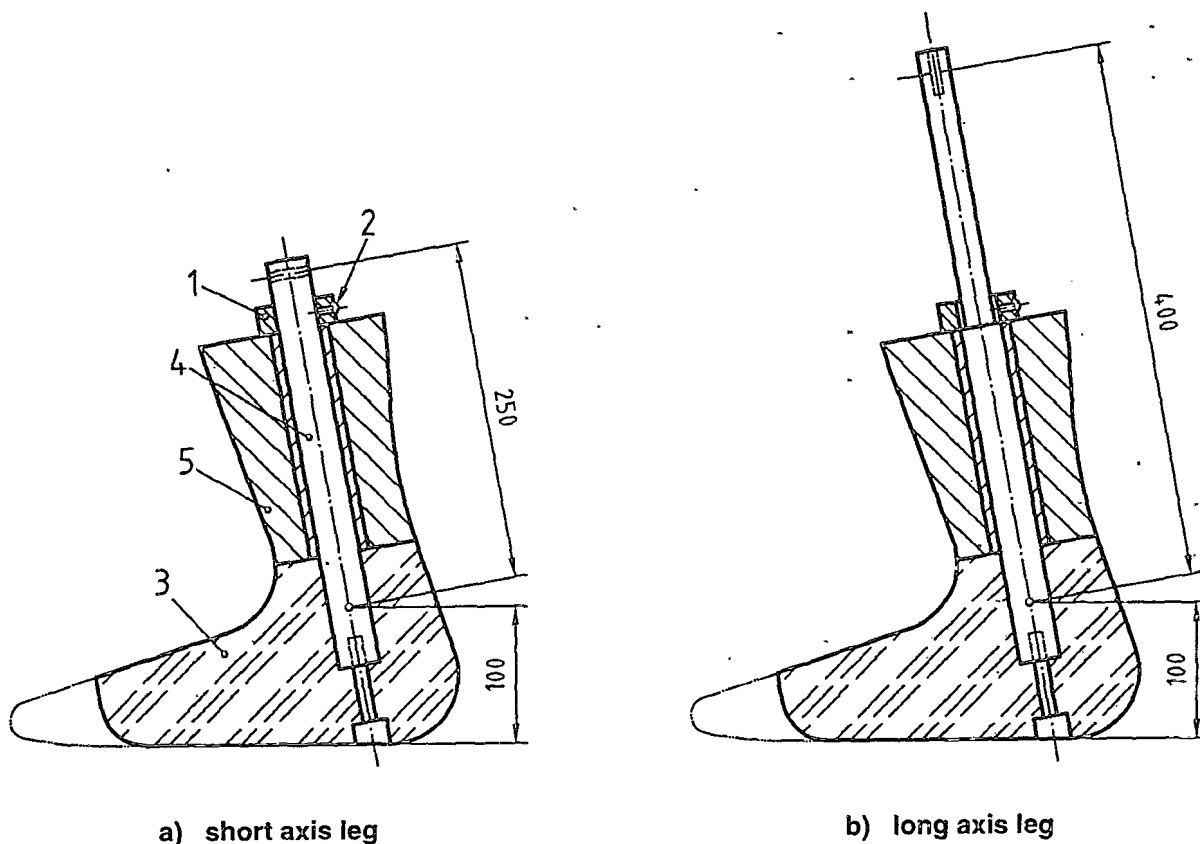
Metric screws shall be used, preferably M6 class g for snowboards with inserts (ISO 10958-2), or ski-binding screws in accordance with ISO 6004 (cross-recess type Z No. 3) for snowboards without inserts (ISO 10958-1).

## 6 Test methods

### 6.1 Apparatus

6.1.1 Artificial leg with fixed ankle joint of  $80^\circ$ , medium size (see Figure 2).

Dimensions in millimetres



#### Key

- 1 Socket
- 2 Screw
- 3 Aluminium foot
- 4 Steel axis
- 5 Resin calf

Figure 2 — Artificial leg

6.1.2 **Rigid plate**, e.g. steel plate of at least 10 mm thickness.

6.1.3 **One snowboard for adults** for type A bindings.

6.1.4 **One snowboard for children** for type C bindings.

6.1.5 **One soft snowboard boot** as described in the instructions for use, provided by the manufacturer.

## 6.2 Sampling

Three pairs of snowboard bindings, two pairs for lab testing and one pair for field testing.

## 6.3 Loading rate

Perform the test quasi-statically, ensuring that the following indicative values of the torque gradient are respected.

a) Torsion values:

$$\frac{dM_z}{dt} \leq 50 \text{ N}\cdot\text{m/s} \quad (1)$$

b) Forward bending value:

$$\frac{dM_y}{dt} \leq 220 \text{ N}\cdot\text{m/s} \quad (2)$$

c) Lateral bending:

$$\frac{dM_x}{dt} \leq 50 \text{ N}\cdot\text{m/s} \quad (3)$$

where

$M$  is the torque in the  $x$ ,  $y$  or  $z$  direction;

$t$  is the time of load application.

## 6.4 Accuracy of measurement

The measurement error of the value in torsion shall be no more than  $\pm 2\%$ .

The measurement error of the value on forward bending shall be smaller than  $\pm 2\%$ .

The test equipment shall be designed to allow application of a torque (see Table 1) with a force applied at the upper part of the 1 m shaft connected to the artificial leg (see Figure 2).

## 6.5 Mechanical testing

Mount the snowboard binding on the rigid plate by means of the original connecting means.

After the snowboard binding, mounting plate, boot and artificial leg have been preconditioned for 1,5 h at  $-20^\circ\text{C}$ , apply a torque,  $M$ , in accordance with Table 1 in both directions with a boot and artificial leg at maximum  $23^\circ\text{C}$  (room temperature). The test shall be done within 5 min.

Check whether the boot remains connected to the snowboard binding.

All tests shall be passed.



Table 1 — Direction and torque

Direction	Binding type A torque <i>M</i> N·m	Binding type C torque <i>M</i> N·m
$\pm x$	100	66
$\pm y^a$	250	165
$\pm z$	150	100

<sup>a</sup> One time with open toe strap and one time with closed toe strap.

## 6.6 Testing under icy conditions

### 6.6.1 Testing of the closing function and boot retaining function

Shower the snowboard with mounted snowboard binding, ready to be stepped into, without boot, in horizontal position at  $(23 \pm 5) ^\circ\text{C}$  for 2 min with water at  $(40 \pm 5) ^\circ\text{C}$ , then position vertically for about 1 min and finally freeze horizontally to  $-20 ^\circ\text{C}$  and store for at least 30 min.

Test the function by step-in with recommended boot and artificial leg, close the straps and load the snowboard binding with 80 % of the mechanical strength load in the *y* direction.

Carry out the test within 5 min.

### 6.6.2 Testing of opening

Shower the snowboard with mounted snowboard binding and with stepped-in boot horizontally at a temperature of  $(23 \pm 5) ^\circ\text{C}$  for 2 min with water at  $(40 \pm 5) ^\circ\text{C}$ , then position for about 1 min vertically and finally freeze horizontally to  $-20 ^\circ\text{C}$  and store for at least 30 min.

Test the function by opening the straps with recommended boot and artificial leg.

Carry out the test within 2 min.

### 6.6.3 Test result

The snowboard binding passes the test if the “closing” and “opening” function in the original manner.

## 6.7 Testing of fitness for use

### 6.7.1 Object of the test

Field tests are an important complement to laboratory tests. Since evaluation of the following procedure is, to a degree, subjective, results should not form the basis for acceptance or rejection of a given binding. However, comments from this test procedure should be attached to laboratory test results, and should be considered by the manufacturer.

### 6.7.2 Performance of the test and grading

Carry out the tests on new snowboard bindings. Follow the user's manual provided by the manufacturer.

The snowboards used shall have the following lengths:

- 900 mm to 1 300 mm for type C snowboard bindings;
- more than 1 300 mm for type A snowboard bindings.

Use your own boots (they shall be dimensionally and, if feasible, functionally compatible with the tested snowboard bindings). Adjust the snowboard bindings on the snowboard (spacing and angle), as well as the fitting of the straps, to your riding.

Snow conditions: at least one third of the course shall consist of moderately to highly unfavourable conditions (hard to icy).

Mode of snowboarding: free style, i.e. no requirements concerning the mode of snowboarding.

The snowboard bindings are tested by four riders, on several difficult runs with a total vertical drop of at least 5 000 m. Check if the requirements of 5.1 a) to d) are fulfilled.

## 7 Marking

Snowboard bindings in accordance with this International Standard shall be marked with the following data:

- a) for children's snowboard bindings, the maximum mass of the rider (45 kg) shall be clearly visible after mounting;
- b) the name and/or trademark of the manufacturer, supplier or importer shall be clearly marked.

## 8 Mounting instructions

Each snowboard binding shall be provided with mounting instructions, preferably with illustrations, which shall comprise the following items:

- a) reference to this International Standard;
- b) reference to the range of application (children/adults);
- c) information which enables the correct mounting of the snowboard binding;
- d) information for adjustment of the binding to the boot and the position on the board;
- e) a note that the mounting instructions shall be given to the customer;
- f) indication that a retaining leash or a braking device has to be applied for the safe use of snowboards and that an appropriate antiskid pad has to be fitted for safe riding on lifts.

## 9 Instructions for use

Each snowboard binding shall be supplied with instructions for use, if possible with illustrations, which shall include the following items:

- a) reference to this International Standard;
- b) indication of the range of application (children/adults);
- c) indication how to close and open the binding;
- d) indication that for proper function the boot sole and binding shall be cleaned of snow, ice and dirt;
- e) recommendations for maintenance and care, in particular the regular inspection of all screw connections and adjustment to the boot;
- f) indication how and where to attach the retaining leash, that the leash should always be used, and how to use the antiskid pad;
- g) information on the boot requirements;
- h) a note that the mounting instructions shall be given to the customer.

## NATIONAL FOREWORD

This Indian Standard which is identical with ISO 14573 : 2002 'Snowboard strap bindings for soft boots — Requirements and test methods' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Mountaineering Equipment Sectional Committee and approval of the Production and General Engineering Division Council.

The text of ISO has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 6004 : 1991 Alpine skis — Ski binding screws — Requirements	IS 11042 (Part 1) : 1984 Specification for binding screws for alpine skis: Part 1 General requirements	Technically Equivalent
ISO 10958-1 : 1998 Snowboards — Binding mounting area — Part 1: Requirements and test methods for snowboards without inserts	IS 15843 (Part 1) : 2008 Snowboards binding mounting area: Part 1 Requirements and test methods for snowboards without inserts	Identical
ISO 11634 : 1996 Snowboard-boots — Interface with ski-binding	IS 15841 : 2008 Snowboard-boots — Interface with ski-binding	do

The technical committee has reviewed the provisions of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

<i>International Standard</i>	<i>Title</i>
ISO 10958-2 : 2004	Snowboards — Binding mounting area — Part 2: Requirements and test methods for snowboards with inserts

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc No.: PG 27 (1057).

### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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