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Snowboard strap bindings for soft boots — Requirements and test methods

*Fixations de surf des neiges pour chaussures souples — Exigences et
méthodes d'essai*

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14573 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 3, *Ski bindings*.

This corrected version of ISO 14573:2002 incorporates corrections to 6.3 b) and 6.3 c) ($\frac{dM_x}{dt}$ has been replaced by $\frac{dM_y}{dt}$ and $\frac{dM_y}{dt}$ has been replaced by $\frac{dM_x}{dt}$).

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.

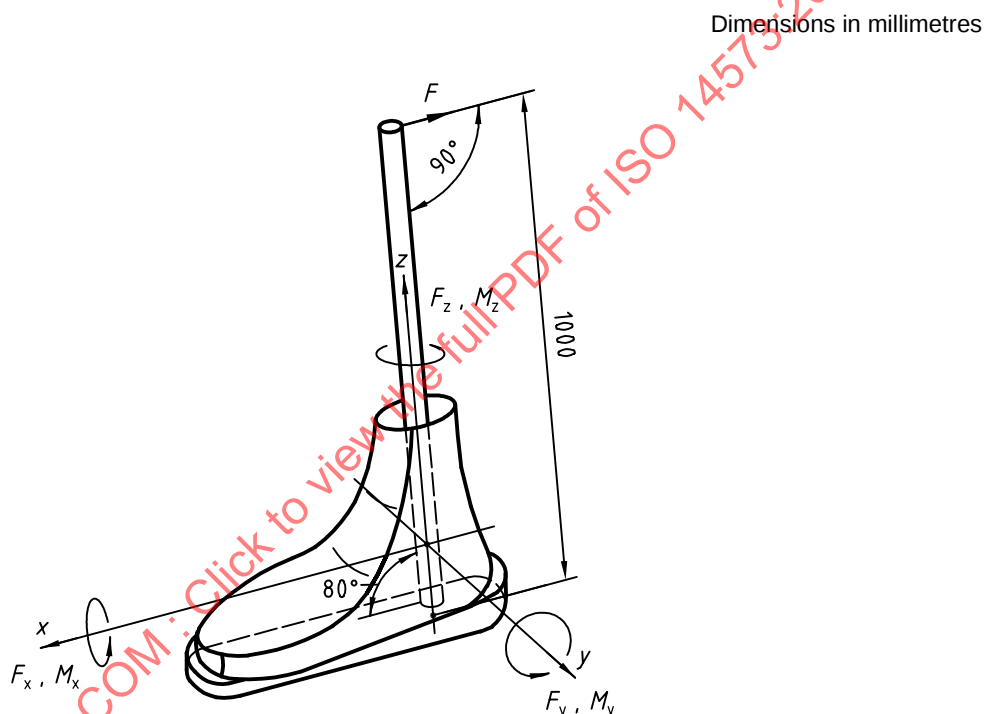


Figure 1 — Torques and forces

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,

- a) there are no fractures, cracks or other indications of permanent deformations in the binding,
- b) the binding can attach the boot in the original manner,
- c) the attached boot does not slip out of the binding,
- d) 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.

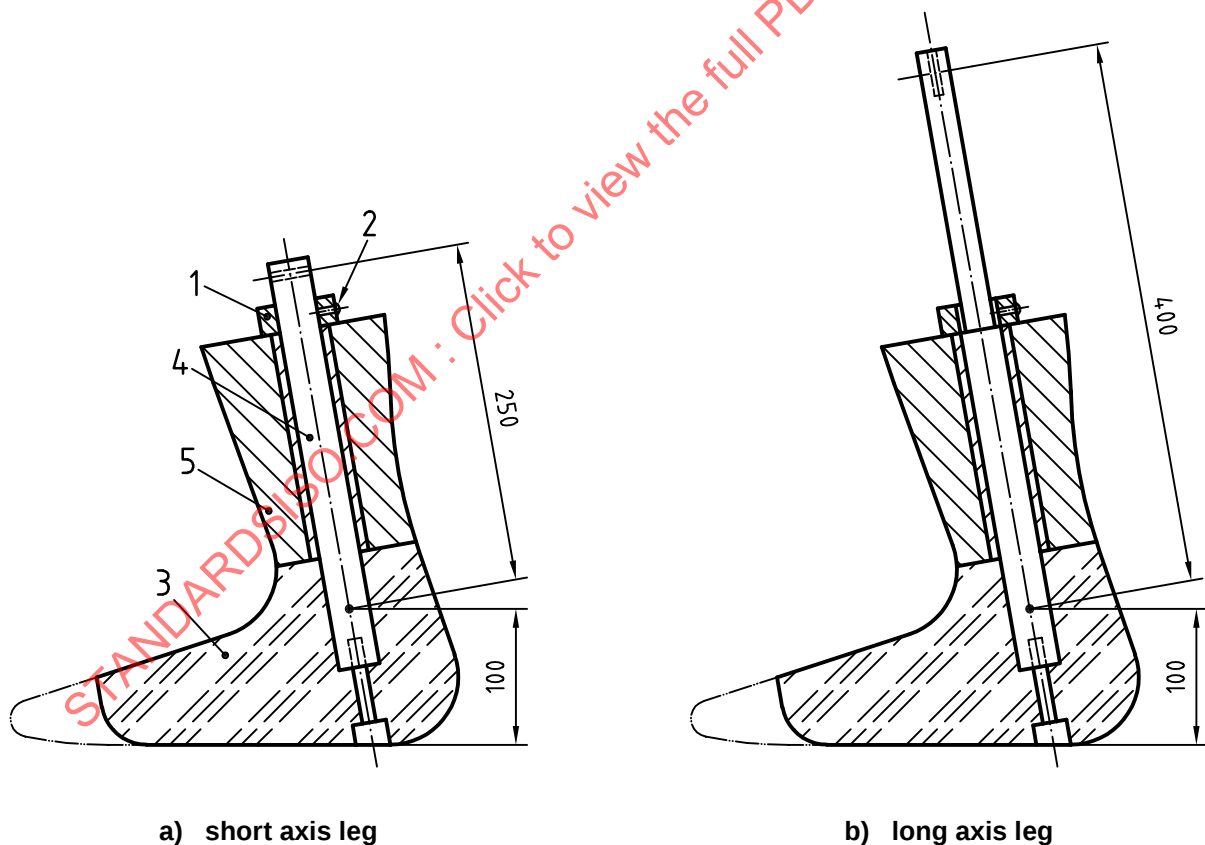
Metric screws shall be used, preferably M6 class g for snowboards with inserts (ISO 10958-2), or ski-binding screws in accordance with ISO 6004 (cross-recess type Z No. 3) for snowboards without inserts (ISO 10958-1).

6 Test methods

6.1 Apparatus

6.1.1 Artificial leg with fixed ankle joint of 80° , 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°C , apply a torque, M , in accordance with Table 1 in both directions with a boot and artificial leg at maximum 23°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 M N·m	Binding type C torque M N·m
$\pm x$	100	66
$\pm y^a$	250	165
$\pm z$	150	100

^a 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°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°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.