INTERNATIONAL STANDARD

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Snowboard plate-bindings without a release mechanism — Requirements and test methods

Fixations de surf des neiges de type à plaque sans mécanisme de déclenchement — Exigences et méthodes d'essai

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Foreword

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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 14790 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 3, *Ski bindings*.

This second edition cancels and replaces the first edition (ISO 14790:1997), Clauses 5 and 6 of which have been technically revised.

Snowboard plate-bindings without a release mechanism — Requirements and test methods

1 Scope

This International Standard specifies the essential requirements (including certain quality aspects) of snowboard plate bindings without release mechanism.

This International Standard is applicable to non-releasable snowboard plate bindings for adults and children.

This International Standard does not apply to snowboard plate bindings with a release mechanism or to snowboard soft bindings.

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

ISO 9838:1991, *Alpine ski-bindings — Test soles for ski-binding tests*

ISO 11087:2004, *Alpine ski-bindings — Retention devices — Requirements and test methods*

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

3 Terms and definitions

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

3.1
snowboard plate binding
connecting element between a snowboard boot (boot with hard sole in accordance with ISO 11634) and a snowboard

NOTE An antiskid pad is not a component part of a plate binding.

3.2
snowboard binding type C
binding suitable exclusively for a body mass up to 45 kg (children)

3.3
snowboard 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, on each, x, y, z of a system of coordinates. The point of origin of the coordinates is fixed as in the centre of the ankle joint (defined by s_1 and s_2 in Figure 1).

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

Dimensions in millimetres

s_1	100
s_2	80

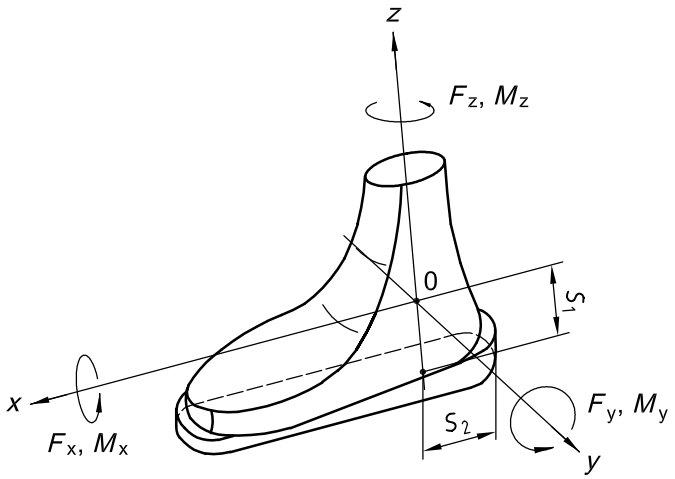


Figure 1 — Torques and forces

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 all testing in accordance with 6.6, 6.7 and 6.8:

a) there are no fractures, cracks or other indications of permanent deformation in the binding;

b) the binding can attach the boot in the normal 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.

5.2 Retaining leash for 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 retaining leash shall be at least 500 N.

5.3 Snow pack

Each snowboard binding shall latch with a minimum of 2 mm snow pack between the boot sole and the binding.

5.4 Mounting screws

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

Metric screws shall be used, preferably M 6 class g, or ski binding screws in accordance with ISO 6004.

6 Test methods

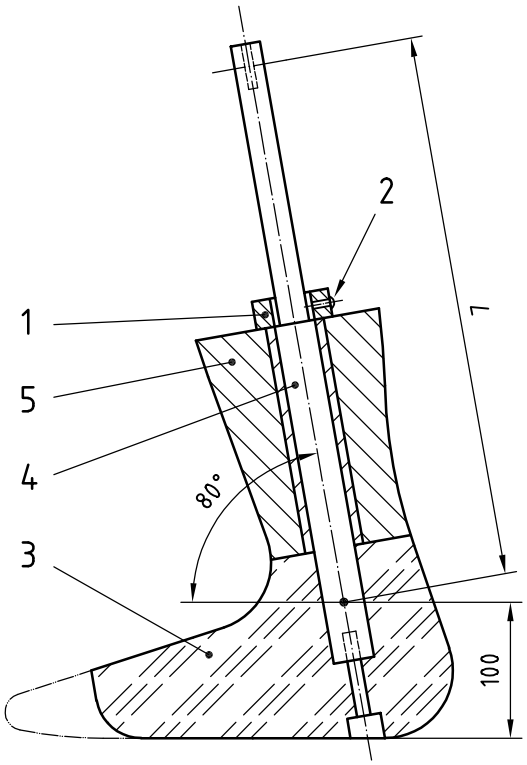
6.1 Apparatus

6.1.1 Artificial leg, with fixed ankle joint of 80°, medium size (see Figure 2).

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

6.1.3 Test sole, in accordance with ISO 9838.

Dimensions in millimetres



Key

1	socket	4	steel axis
2	screw	5	resin calf
3	aluminium foot	L	1 000 mm

Figure 2 — Artificial leg

6.2 Sampling

Three pairs of snowboard bindings are needed.

All tests shall be passed.

6.3 Loading rate

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

a) torsion values: $\frac{\mathrm{d}M_z}{\mathrm{d}t} \leqslant 50\ \mathrm{N \cdot m/s}$ (1)

b) forward bending value: $\frac{\mathrm{d}M_y}{\mathrm{d}t} \leqslant 220\ \mathrm{N \cdot m/s}$ (2)

c) lateral bending: $\frac{\mathrm{d}M_x}{\mathrm{d}t} \leqslant 50\ \mathrm{N \cdot m/s}$ (3)

where

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

t is the time of load application in seconds.

6.4 Accuracy of measurement

The measurement error of the value in torsion and in forward bending shall be no more than ± 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).

Table 1 — Direction and torque

Direction	Type A	Type C
$\pm M_z$	150 N·m	100 N·m
$\pm M_y$	550 N·m	300 N·m
$\pm M_x$	300 N·m	150 N·m

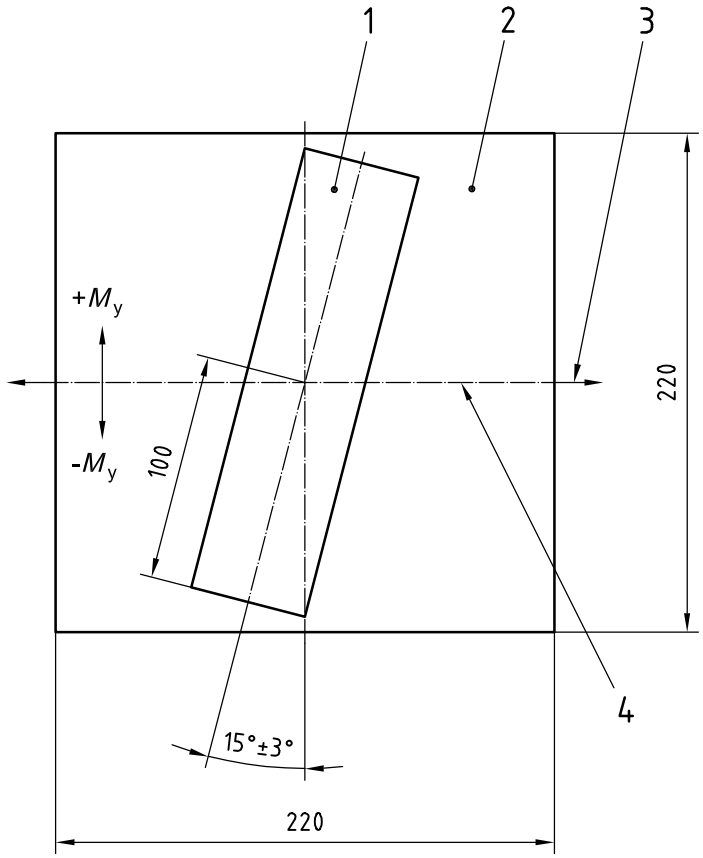
6.5 Fatigue test

Test one snowboard binding with 50 000 sinusoidal load cycles at a frequency of 1 Hz (maximum) in the $\pm M_y$ direction, see Figure 3.

The test torque is ± 100 N·m for adults and ± (66 ± 3,3 N·m) for children.

Mount the binding on a steel plate of at least 10 mm thickness. Apply the torque through a test sole in accordance with ISO 9838.

Dimensions in millimetres



Key

1 test sample
2 steel plate, thickness ⩾ 10mm
3 test torque $\pm M_y$
4 torque axis

Figure 3 — Fatigue test

6.6 Mechanical testing

6.6.1 Binding

Carry out the test with the same snowboard binding that had been used for the fatigue test (6.5).

Mount the snowboard binding on a steel plate of 10 mm thickness.

After the binding and mounting plate have been preconditioned [0,5 h (1,5 h when using the artificial leg)] at − 20 °C, apply a torque in accordance with Table 1 in both directions, with a cold test sole at − 20 °C.

After the test the binding shall meet the requirements given in 5.1.

6.6.2 Retaining leash

Test the retaining leash (binding strap) in accordance with ISO 11087:2004 Annex A.

6.7 Testing of the function with snow pack

Carry out this test within the framework of functional tests by placing a PTFE plate of 2 mm thickness under the sole.

6.8 Testing of fitness for use

The binding shall meet the requirements of 5.1 as determined independently by two persons.

7 Marking

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

a) maximum mass of user (45 kg) for bindings for children (visible after mounting);

b) name and/or trademark of the manufacturer or importer.

8 Mounting instructions

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

a) reference to the range of application (children/adults);

b) information tthat enables the correct mounting of the snowboard binding, e.g. mounting point, drill diameter, drilling stencil and drill length;

c) information on the manner of adjustment for length and height of the boot soles to be carried out;

d) information on the boot requirements;

e) a note that the mounting instructions shall be given to the customer;

f) indication that a retaining leash or a braking device shall be applied for the safe use of snowboards and that an appropriate antiskid pad has to be fitted for safe riding on T-bar lifts.

9 Instructions for use

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

a) indication of the scope of application (children/adults);

b) indication how to step in and out of the binding and how the snowboard binding can be opened in straits after a fall;

c) indication that the snowboard binding functions only with a boot sole which is cleaned of snow, ice and dirt;

d) indications for maintenance and care, in particular the regular inspection of all screw connections and adjustment to the boot;

e) indication how and where to attach the retaining leash, that the leash shall be used at all times while riding or carrying the board, and how to use the antiskid pad;

f) a note that the mounting instructions shall be given to the customer.

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