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AMENDMENT 1
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Alpine ski-bindings — Safety requirements and test methods

AMENDMENT 1

Fixations de skis alpins — Prescriptions de sécurité et méthodes d'essai — AMENDEMENT 1

Reference number
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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 3.

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

Amendment 1 to International Standard ISO 9462:1993 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 3, *Ski bindings*.

Introduction

This Amendment to ISO 9462:1993 specifies the following characteristics of ski-bindings:

— behaviour under combined loading;

— behaviour with ski deflection.

ISO 9462:1993 is limited to the so-called first category tests, for which the use of methods A and B lead, in principle, to equivalent results. This concerns tests in simple torsion and in simple forward bending.

Two important characteristics of a ski-binding, i.e. its behaviour under combined loading and its behaviour with ski deflection, remain unchecked in ISO 9462:1993.

Several attempts were made to find test procedures leading to equivalent results using methods A and B. Each of these attempts was followed by comparative test series involving most of the existing laboratories working in this field.

The poor reproducibility observed between the laboratories has lead to the opinion that when combined loading are involved with or without deflection of the ski, the equivalence of the results using methods A and B was extremely difficult to achieve at a reasonable cost.

Therefore it was decided to define the tests and requirements with combined loading and deflection of the ski separately for both methods. For method A, the tests and requirements described in this Amendment are identical to those described in DIN 7881-1:1982 and BfU-requirements (Swiss office of accident prevention) of 1984-06.

Alpine ski-bindings — Safety requirements and test methods

AMENDMENT 1

Page 1: replace Figure 1 and its title by the following new Figure 1 and title.

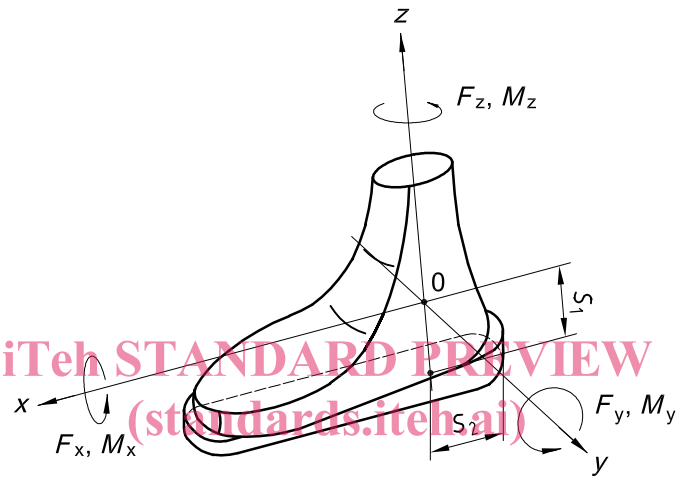


Figure 1 — Definition of loads and torques

Pages 3 and 7: renumber the previous Tables 1 and 2 as 2 and 3 respectively.

Page 2: renumber the previous subclauses 3.5 to 3.11 as 3.8 to 3.14 in succession.

Page 2: add the following new elements.

3.5 Combined loading

Loading of the sole in several directions at the same time, where one of the loads is the torque M_Z progressively applied to the sole until the binding releases, see Figure 1 and Table 1.

Table 1 — Coordinates of reference point O

Dimensions in millimetres

	Type of binding		
	C	CA	A
S_1	85	100	100
S_2	70	80	80

Each of the load combinations simulates a given situation, chosen within an infinite field of possibilities and simplified for the purpose of the tests. The main simplification is that the loads applied additionally to the release torque M_z are held constant in value and direction during all the release process.

3.6 Additional loads

Loads applied additionally to the release torque M_z.

3.7 Deflection of ski

Deflection of the ski perpendicular to its gliding surface. In practice, the deflection of the ski depends at the same time on the loading situation and the profile of the snow-surface (“geometrical situation”). To simplify the test, only the “geometrical” situation is simulated.

Page 8

Renumber the previous subclauses 6.3.2 to 6.3.5 as 6.3.4 to 6.3.7 in succession.

As a result, renumber subclauses in the previous subclauses 6.3.2 to 6.3.5.

Add the following new text.

6.3.2 Release with ski deflection

6.3.2.1 Requirements

The mean value of the deviations between each of the release values and the corresponding reference value shall not exceed 20 % for the torsion release (M_z) and 15 % for the forward bending release (M_y).

None of the five values for the torsion release shall exceed ± 10 % of their mean value.

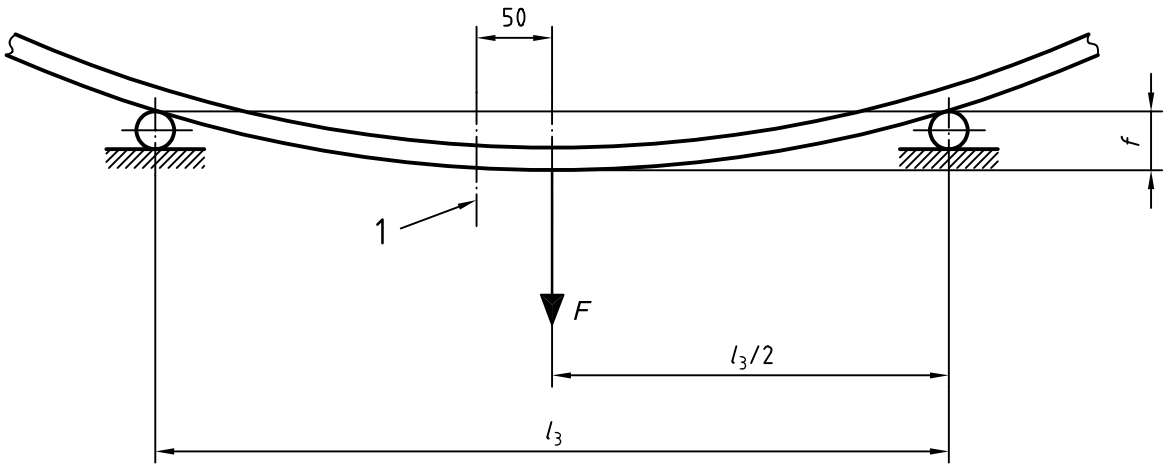
None of the five release values for the forward bending release shall exceed ± 7,5 % of their mean value.

6.3.2.2 Testing

Subject only one binding to the test. Release the binding five times in torsion to the right and five times in forward bending. Carry out the tests at ambient temperature (23 °C ± 5 °C) with wet sole and binding.

Position and deflect the test ski with the sole inserted in the binding in accordance with Figure 6 and Table 4, and force the ski to deflect to given values by a strap or clamp, which does not interfere with the binding. If the distance between the supports is different, ensure that the same deflection of the ski used.

Dimensions in millimetres



Key

1 Boot toe

Figure 6 — Deflection of ski

Table 4 — Deflection of ski according to type of binding

Dimensions in millimetres

	Type of binding	
	C, CA	A
f	20 ± 1	60 ± 1
l_3	1 100	1 500

6.3.3 Release under combined loading

6.3.3.1 General requirements about scattering

For a given test, each of the five release values shall remain within ± 10 % of their mean value.

6.3.3.2 General test conditions

Subject only one binding to the following tests. Carry out these tests at ambient temperature (23 °C ± 5 °C), with wet sole and binding.

For each of the following configurations of combined loading, release the binding five times in torsion to the right.

The values of the additional load are proportional to the reference value M_Z measured according to 6.3.1.

Apply the combined loads to the ski-boot during all its movements, which shall remain constant in amplitude and in direction relative to the ski-boot.

6.3.3.3 Influence of forward lean of the body

6.3.3.3.1 Requirement

The mean value of the deviations between each of the release and the reference value shall not exceed 35 %.

6.3.3.3.2 Testing

Apply the following additional loads on the sole:

$$+ M_y = 2\ M_z$$

$$- F_z = \frac{40\ \text{N}}{6\ \text{N}\cdot\text{m}} M_z$$

where M_z is the reference value.

The mean value is calculated from five measurements.

6.3.3.4 Influence of "roll loading"

6.3.3.4.1 Requirement

The mean value of the deviations between each of the release values and the reference value shall not exceed 20 %.

6.3.3.4.2 Testing

Apply the following additional load on the sole:

$M_x = 0{,}2\ M_z$ (first test configuration)

$M_x = -\ 0{,}2\ M_z$ (second test configuration)

The mean value is calculated from five measurements.

6.3.3.5 Influence of backward lean of the body

6.3.3.5.1 Requirement

The mean value of the deviations between each of the release values and the reference value shall not exceed 25 %.

6.3.3.5.2 Testing

Apply the following additional loads on the sole:

$$- M_y = 1{,}25\ M_z$$

$$- F_z = \frac{40\ \text{N}}{6\ \text{N}\cdot\text{m}} M_z$$

The mean value is calculated from five measurements.

6.3.3.6 Influence of axial force

6.3.3.6.1 Requirement

The mean value of the deviations between each of the release values and the reference value shall not exceed 15 %.

6.3.3.6.2 Testing

Apply the following additional load on the sole:

$$F_x = \frac{20\ \text{N}}{6\ \text{N}\cdot\text{m}} M_z$$

The mean value is calculated from five measurements.

Page 10, add the following new text.

7 Marking

7.1 Ski-bindings in accordance with this International Standard shall be marked with the name or trade-mark of the manufacturer or importer.

7.2 The conformity of ski-bindings to this International Standard may be expressed by the manufacturer under his own responsibility by the additional reference to ISO 9462.