



**SLOVENSKI STANDARD**  
**SIST ISO 9462:2011**

**01-marec-2011**

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**Varnostne vezi za alpske smuči - Zahteve in preskusne metode**

Alpine ski-bindings - Requirements and test methods

Fixations de skis alpins - Exigences et méthodes d'essai

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# INTERNATIONAL STANDARD

**ISO**  
**9462**

Third edition  
2006-02-15

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## Alpine ski-bindings — Requirements and test methods

*Fixations de skis alpins — Exigences et méthodes d'essai*

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**ISO 9462:2006(E)****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 9462 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 3, *Ski bindings*.

This third edition cancels and replaces the second edition (ISO 9462:1993), Clauses 3 and 7/subclauses 5.1, 6.3.3, 6.3.4 and 6.6.2/Tables 1 and 3/Annexes A and B of which have been technically revised/deleted/added. It also incorporates the Amendment ISO 9462:1993/Amd.1:2002 and the Technical Corrigendum ISO 9462:1993/Cor.1:1993.

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# Alpine ski-bindings — Requirements and test methods

## 1 Scope

This International Standard specifies the main characteristics of ski-bindings and describes, as an example, the test methods A and B.

This International Standard applies to ski-bindings for alpine skiing for children, juniors and adults.

## 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 5355:2005, *Alpine ski-boots — Requirements and test methods*

ISO 8061:2004, *Alpine ski-bindings — Selection of release torque values*

ISO 9465:1991, *Alpine ski-bindings — Lateral release under impact loading — Test method*

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

## 3 Terms and definitions

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

### 3.1

#### **alpine ski-binding**

system to ensure firm connection between boot and ski, fixing the heel low for downhill skiing

NOTE The system releases the boot from the ski when certain loads reach preset values.

### 3.2

#### **release**

detachment of the boot from the ski by release of the mechanism that ensures the connection between boot and ski

NOTE This release is only considered effective when all the loads due to the boot/ski connection have dropped to values which present no danger to the skier.

### 3.3

#### **release values**

maximum values of torques  $M_z$  and  $M_y$  caused at the boot/ski connection by the two movements of torsion and forward bending

See Figure 1.

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NOTE 1 These values are generally adjustable on current bindings which have a scale and an indicator displaying the setting level.

NOTE 2 In the present state of the art, bindings are designed at least to release in torsion ( $\pm M_z$ ) and in forward bending ( $\pm M_y$ )

### 3.4 reference value

value, adjusted after a series of tests, used as a basis of comparison to evaluate the behaviour of the binding during the tests (see 6.3.1)

### 3.5 combined loading

loading of the sole or ski 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.

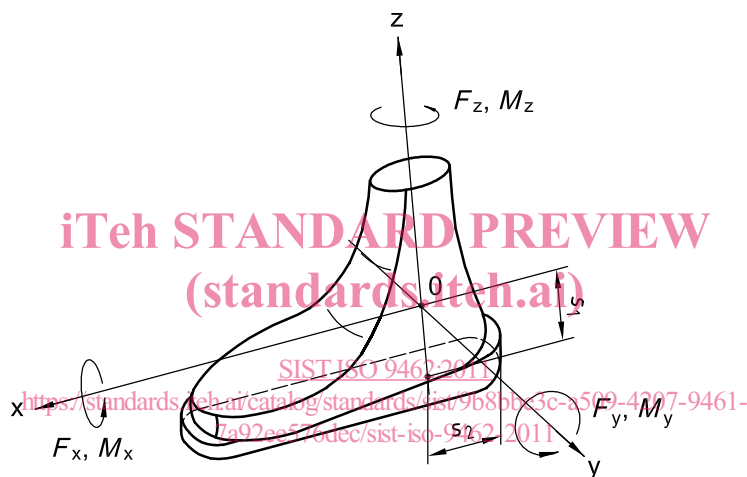


Figure 1 — Definition of the loads and torques

Table 1 — Coordinates of reference point 0

Dimensions in millimetres

	Type of binding		
	C	CA	A
$s_1$	85	100	100
$s_2$	70	80	80

NOTE 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 being 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 the ski**

deflection of the ski perpendicular to its gliding surface

NOTE 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); in test simplification, only the "geometrical" situation is simulated.

**3.8****type C bindings**

bindings suitable for boot soles complying with type C of ISO 5355:2005, which can be adjusted to at least the following release values:

a)  $M_z = 10 \text{ N}\cdot\text{m}$

b)  $M_y = 37 \text{ N}\cdot\text{m}$

**3.9****type CA bindings**

bindings suitable for boot soles complying with types C and A of ISO 5355:2005, which can be adjusted to at least the following release values:

a)  $M_z = 20 \text{ N}\cdot\text{m}$

b)  $M_y = 75 \text{ N}\cdot\text{m}$

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**3.10****type A bindings**

bindings suitable for boot soles complying with type A of ISO 5355:2005

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**3.11****limit**

$L_1$

lowest possible position of the setting indicator

**3.12****limit**

$L_2$

position of the indicator at the lowest mark on the setting scale

**3.13****limit**

$L_3$

position of the indicator at the highest mark on the setting scale

**3.14****limit**

$L_4$

highest possible position of the setting indicator

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## 4 Test conditions

### 4.1 Loading rate

The tests shall be performed quasi-statically, ensuring that the following indicative values of the torque gradient are respected:

a) torsion release:

$$\frac{dM_z}{dt} \leq 50 \cdot \text{m/s}$$

b) forward bending release:

$$\frac{dM_y}{dt} \leq 220 \text{ N}\cdot\text{m/s}$$

### 4.2 Accuracy of measurement

The measurement error of the release value in torsion shall be smaller than  $\pm 2\%$  for values  $\geq 50 \text{ N}\cdot\text{m}$  and  $\pm 1 \text{ N}\cdot\text{m}$  for values  $< 50 \text{ N}\cdot\text{m}$ .

The measurement error of the release value in forward bending shall be smaller than  $\pm 2\%$  for values  $\geq 200 \text{ N}\cdot\text{m}$  and  $\pm 4 \text{ N}\cdot\text{m}$  for values  $< 200 \text{ N}\cdot\text{m}$ .

The test equipment shall be designed to allow application of pure moments without any extraneous forces, during the entire release process.

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### 4.3 Test sole

The test sole shall be in accordance with ISO 9838.

Before testing, the sole shall be degreased, washed and dried.

### 4.4 Test ski

For the release tests in the laboratory, the bindings shall be mounted either on whole skis or on appropriate sections of skis. If the binding is pre-mounted (already mounted on the ski by the producer) use the ski with which the binding is delivered in its medium size. If not, choose a ski which represents the market.

## 5 Test methods A and B

### 5.1 Principle

The binding shall be mounted on a ski in accordance with the manufacturer's instructions. A test sole shall then be inserted in the binding.

In method A, the ski is rigidly connected to the test frame and the torque  $M_z$  or  $M_y$  is progressively applied to the sole until the binding releases. The peak value of  $M_z$  or  $M_y$  is recorded.

In method B, the sole is rigidly connected to the test frame through a sensor which measures the torques  $M_z$  and  $M_y$ . Forces are progressively applied to the ski until the binding releases. The peak value of  $M_z$  or  $M_y$  is recorded.

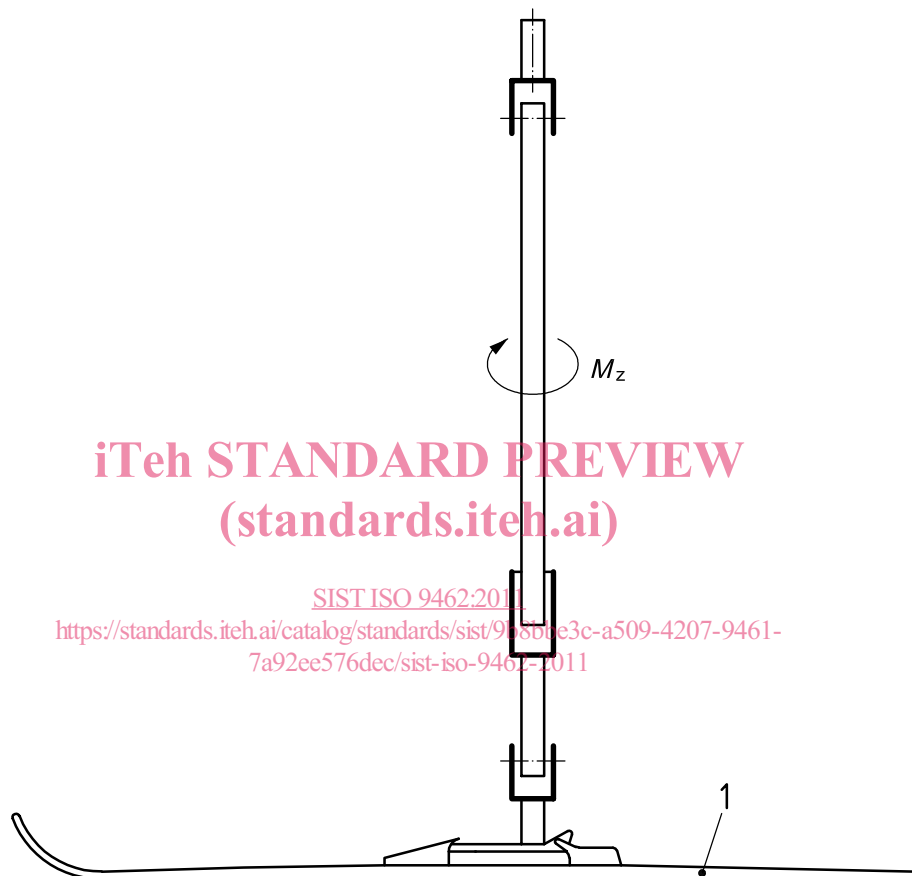
Annexes A and B give examples of how to realise method A or method B.

Passing by either method shall be deemed satisfactory.

## 5.2 Simple torsion test

### 5.2.1 Method A

See Figure 2.



#### Key

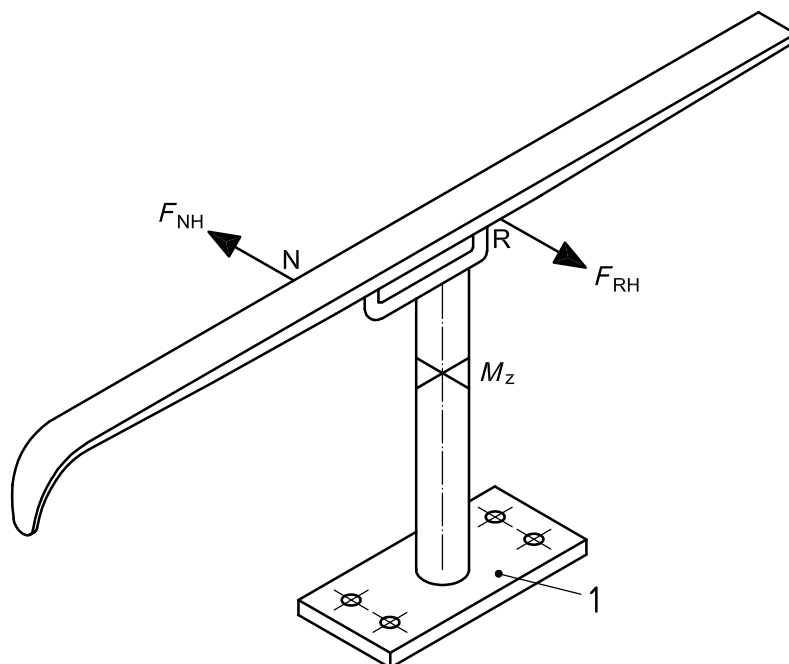
1 fixed ski

Figure 2 — Application of  $M_z$  torque and measurement of  $M_{z, \max}$

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## 5.2.2 Method B

See Figure 3.



## Key

1 fixed base

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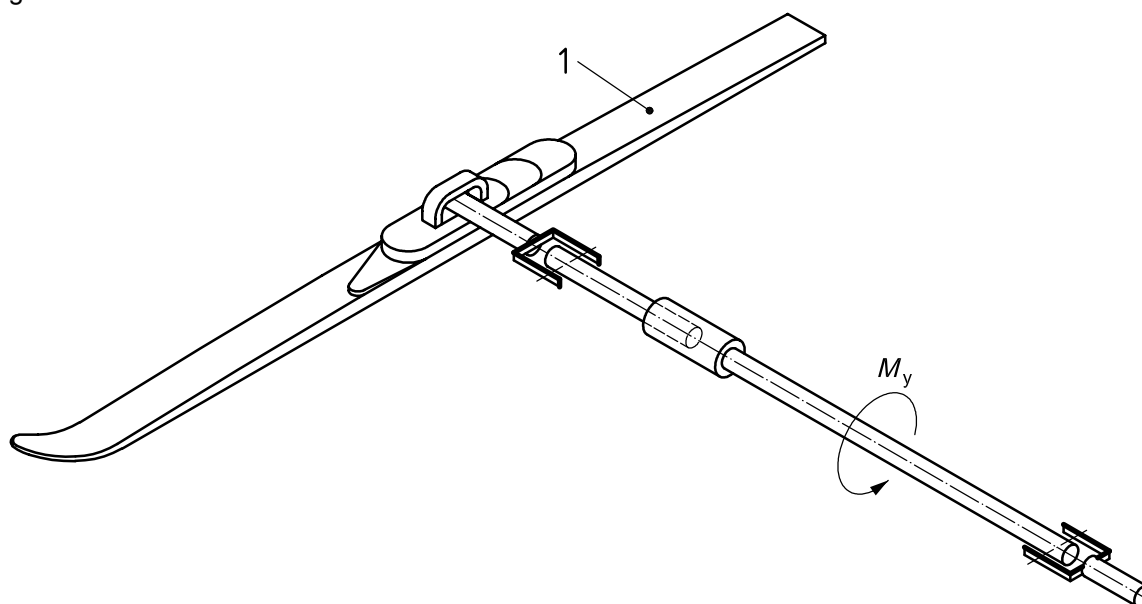
Figure 3 — Application of two equal forces  $F_{NH}$  and  $F_{RH}$  and measurement of  $M_{z, \max}$  torque

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5.3 Forward bending test  
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## 5.3.1 Method A

See Figure 4.



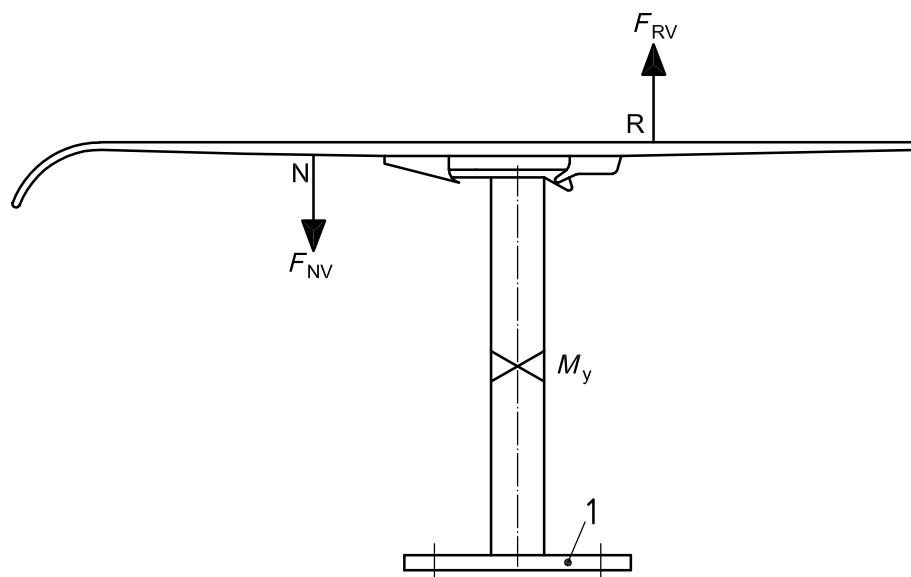
## Key

1 fixed ski

Figure 4 — Application of  $M_y$  torque and measurement of  $M_{y, \max}$

### 5.3.2 Method B

See Figure 5.



#### Key

1 fixed base

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Figure 5 — Application of two equal forces  $F_{NV}$  and  $F_{RV}$  and measurement of  $M_{y, \max}$

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## 6 Requirements and testing

### 6.1 General requirements

NOTE This subclause deals with general requirements covering topics where the evaluation is carried out visually.

#### 6.1.1 Function and form

6.1.1.1 The binding shall release at least in two cases:

- when applying a torque  $M_z$  about an axis perpendicular to the ski gliding surface;
- when applying a torque  $M_y$  about an axis parallel to the ski surface and perpendicular to the longitudinal axis of the ski.

The binding is said to release when the above mentioned torque reaches a maximum value (release value) and then drops to a value that is harmless for the skier. After release, all the loads applied by the ski and the boot on the leg shall remain below the dangerous level for all possible movements, and until all the risks associated with the coupling boot-ski are no longer apparent.

6.1.1.2 The release level shall be clearly indicated by a scale covering all of the setting range anticipated by the manufacturer. The release shall still be possible at the upper limit (maximum setting). Settings above  $Z = 10$  shall be clearly differentiated from settings below  $Z = 10$  on the indicator scale.

6.1.1.3 Each procedure of adjustment to the boot having an influence on the binding functioning shall be verifiable by the use of a clear indicator, or by any other means considered suitable by the operator for showing the correct adjustment.