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Ski-poles for alpine and touring skiing — Requirements and test methods

Bâtons de skis alpins — Exigences et méthodes d'essai

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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 83 Sports and other recreational facilities and equipment, Subcommittee SC 4, Snowsports equipment.

This fifth edition cancels and replaces the fourth edition (ISO 7331:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

— editiorial changes

— requirements and test methods for adjustable poles were added.

Ski-poles for alpine and touring skiing — Requirements and test methods

1 Scope

International Standard defines the minimum requirements for safety in poles for alpine and touring skiing. It specifies test methods to check conformity with these requirements.

It is applicable to ski-poles for alpine and touring skiing in the following ranges of total length, l_T:

— group A, $l_T \geq 1\,050$ mm (adults' poles);

— group B, $1\,050 \text{ mm} > l_T \geq 700$ mm (junior poles);

— group C, $l_T < 700$ mm (children's poles).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

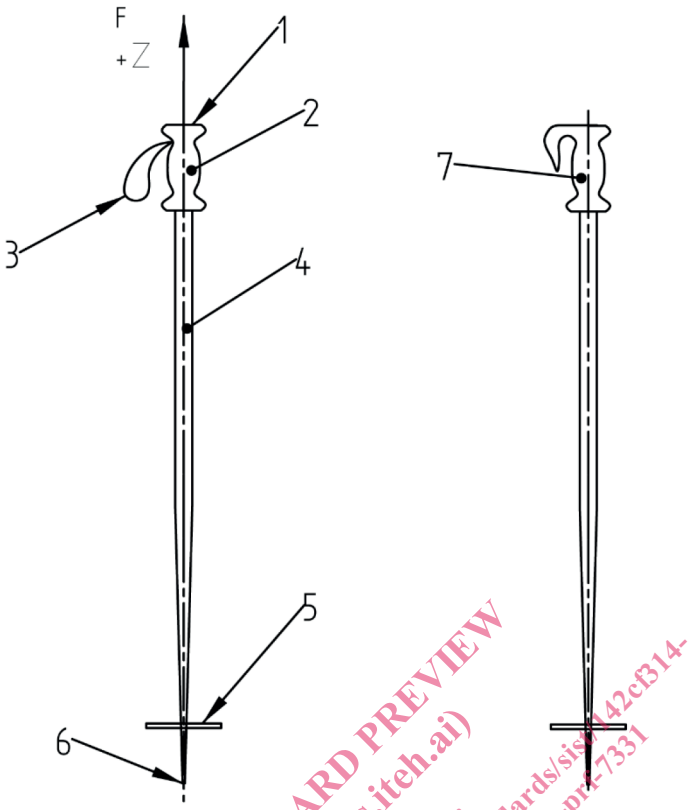
ISO 6508-2, *Metallic materials — Rockwell hardness test — Part 2: Verification and calibration of testing machines and indenters*

ISO 6508-3, *Metallic materials — Rockwell hardness test — Part 3: Calibration of reference blocks*

3 Terms and symbols

3.1 Terms

Terms used to designate the different parts of a ski-pole are given in Figure 1.



a) Ski pole featuring grip with a strap **b) Ski pole featuring a strapless grip**

Key

1 upper surface of the grip, A_G
2 grip
3 strap
4 shaft
5 basket
6 tip
7 strapless grip

Figure 1 — Terms used to designate the parts of a ski-pole

3.2 Symbols

The symbols used in Figure 1 relate to the following concepts, which shall be expressed in the units given:

A_G is the upper surface, expressed in square centimetres, of the grip (impact area);

F_{-Z} is the compressive force, expressed in newtons, in the axis of the ski-pole;

F_{+Z} is the tensile force, expressed in newtons, in the axis of the ski pole;

l_T is the total length, in millimetres;

l_H is the length, expressed in millimetres, measured from the tip to the middle of the hand;

l_B is the length, expressed in millimetres, measured from the tip to the lower surface of the basket;

d_B is the basket maximum diameter, expressed in millimetres.

4 Categories of ski-poles

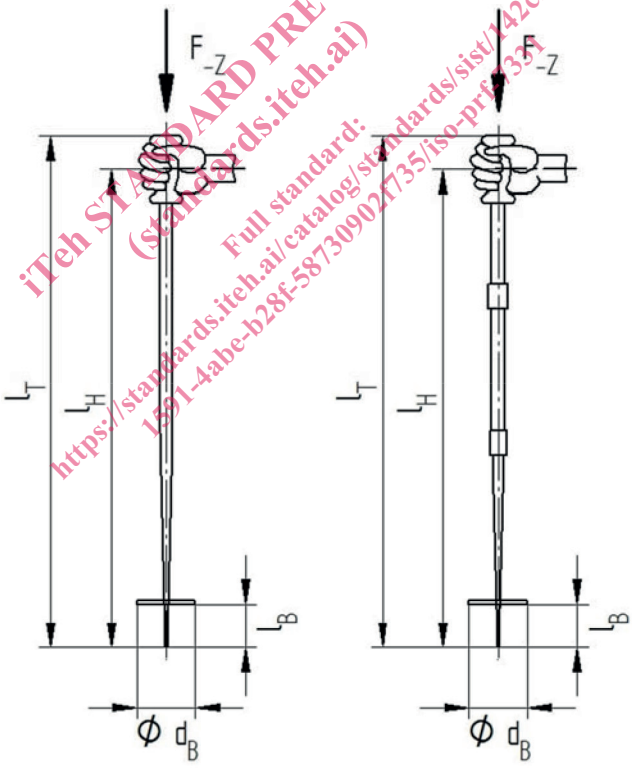
Two types of ski poles are considered in this document: the alpine skiing poles and the ski-touring poles. Their length can be either adjustable or non-adjustable (see Figure 2). The alpine ski poles are further divided in three categories depending on their total length l_T, for the non-adjustable poles: group A, group B and group C (see Clause 1).

The length, l_H, is determined by reference to the width of an average hand:

— group A: 93 mm;

— group B: 73 mm;

— group C: 57 mm.



a) non-adjustable pole **b) adjustable pole**

Figure 2 — Centre of rotation and dimensions

5 Requirements and test methods

5.1 Materials

The materials used shall meet the requirements specified in 5.4 to 5.13.

5.2 Test conditions

Unless otherwise specified, the test shall be carried out as a type test in the standard atmosphere at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %.

The reference value for the quasi-static structure of force, *F*, with respect to time, *t*, is translated to a strain rate of ≤ 2 mm/s.

The test equipment shall be such that all measurable variables such as forces, temperatures, angles, lengths, surfaces, masses and time of oscillation can be measured or determined to the following accuracies:

— Forces, masses: ± 2 %;

— Temperatures: ± 2 °C;

— Angles: ± 1°;

— Lengths of poles: ± 1 mm;

— Radii and other lengths: ± 0,2 mm.

5.3 Test sampling

The three longest and the three shortest poles from each group shall be submitted to the laboratory.

In addition, three poles of 1 200 mm length l_T from testing group A, and three poles of 1 000 mm length l_T from testing group B shall be submitted to the laboratory.

One long pole and one short pole shall be selected for the tests to be carried out in accordance with 5.4 to 5.13.

If one test sample fails these tests, the tests may be repeated with two further test poles, both of which then shall pass the repeated tests.

For adjustable touring skipoles, three samples have to be tested. Adjustment according to the testing requirements to the minimum intended length/maximum intended length. All samples have to pass the test.

5.4 Total length

5.4.1 Requirement

The total length l_T shall not vary from the given length by more than ± 10 mm. For adjustable touring skipoles: variation of total length to ± 15 mm is allowed. Furthermore, the lengths of one pair of skipoles shall not differ by more than 7 mm.

5.4.2 Testing

Determine lengths of all test samples indicated in Clause 5.3.

5.5 Outward design

5.5.1 Requirement

Sharp design (except the tip) and rough surfaces, which might cause injury, shall be avoided.

5.5.2 Testing

Check visually.

