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Tekaške smuči - Določevanje upogibnih lastnosti

Cross-country skis -- Determination of elastic properties

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Skis de fond -- Détermination des caractéristiques élastiques

Ta slovenski standard je istoveten z: **ISO 7139:2017**

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

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Cross-country skis — Determination of elastic properties

1 Scope

This document specifies laboratory measurement methods to determine the elastic properties of cross-country skis. Its purpose is to calculate the resistance of defined parts of the ski to bending.

This document applies to cross-country skis with a nominal length greater than or equal to 150 cm.

The standard measurement procedures can be used to ensure comparability between laboratory measurement data, determined and published by ski manufacturers, institutions or others.

In this document, no attempt is made to relate the measurement data to the quality of the ski.

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 5902:2013, *Alpine skis — Determination of elastic properties*

ISO 6289, *Skis — Vocabulary*

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3 Terms and definitions

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For the purpose of this document, the terms and definitions given in ISO 6289 apply.

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ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 Apparatus

4.1 The apparatus for measuring the spring constant of the central section shall consist of:

a) two supports, which are placed at a distance that is adjustable between 750 mm and 1 050 mm, with low-friction rollers of 20 mm diameter and wide enough to ensure that the test ski can be supported on its whole width. One of the supports with low-friction rollers has a device for clamping the end of the ski;

b) a load application device with an accuracy of ±5 N for application of the test force, F_M, mid-way between the supports by means of a contact ram with a radius of 10 mm and a width touching the whole width of the test ski;

c) a linear measuring device for measuring the deflection, f, with an accuracy of ±0,5 mm.

4.2 The apparatus for measuring the shovel and rear spring constants shall consist of:

a) a clamping device, consisting of a flat jaw and three clamps, ensuring that the whole width of the ski can be clamped in accordance with ISO 5902:2013, Figure 2;

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b) a load application device with an accuracy of ±2 N for application of the test forces, F_S, and F_R, at an adjustable distance from the edge of the flat jaw of the clamping device by means of a low-friction roller of 20 mm diameter and wide enough to touch the whole width of the test ski;

c) a linear measuring device as specified in 4.1 c).

5 Sampling and conditioning

In order to ensure comparability, it is recommended to use for publication only data of the following ski sizes:

— 150 cm, 180 cm or 200 cm.

From these three sizes, the one which is most representative for the intended application shall be selected for the ski model concerned.

All measurements shall be taken from a finished ski without any ancillary equipment.

Before testing, the test ski shall be conditioned for at least 2 h at a temperature of (20 ± 2) °C and a relative humidity of (65 ± 1) %.

6 Procedure

6.1 Determination of spring constant of the central section, c_M

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Place the ski on two supports set at a distance of 0,5 l_N, with the binding mounting point MP mid-way between the supports using the apparatus specified in 4.1 and shown in Figure 1.

Apply a pre-load of 10 N. Load the ski quasi-statically with a test load of F_M = 250 N. Read the deflection, f_M, in millimetres, caused by the test load, F_M, within 2 s to 5 s after the test load has been applied.

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NOTE "quasi-statically" means that the rate of deflection is less than 20 mm/min.

6.2 Determination of shovel spring constant, c_S

Clamp the ski in the apparatus specified in 4.2 at a projected distance x_{MP} + 0,25 l_N from the tail as shown in Figure 2.

Apply a pre-load of 10 N. Load the ski quasi-statically with a test load of F_S = 40 N. Read the deflection, f_S, in millimetres, caused by the test load, F_S, within 2 s to 5 s after the test load has been applied.

NOTE "quasi-statically" means that the rate of deflection is less than 20 mm/min.

6.3 Determination of rear spring constant, c_R

Clamp the ski in the apparatus specified in 4.2 at a projected distance x_{MP} − 0,25 l_N, from the tail as shown in Figure 3.

Apply a pre-load of 10 N. Load the ski quasi-statically with a test load of F_R = 40 N. Read the deflection, f_R, in millimetres, caused by the test load, F_R, within 2 s to 5 s after the test load has been applied.

NOTE "quasi-statically" means that the rate of deflection is less than 20 mm/min.

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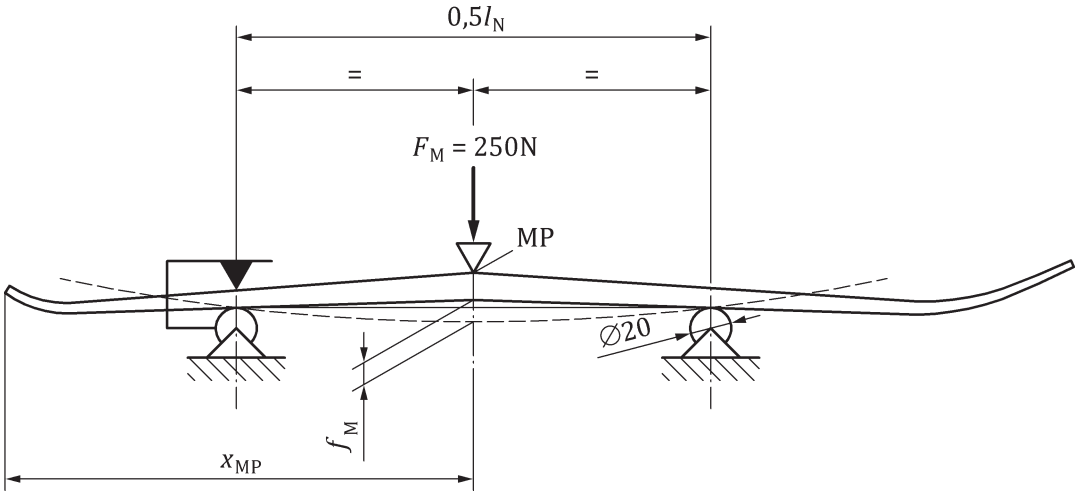

Key

l_N nominal length
f_M deflection mounting point
X_{MP} projected distance mounting point
MP mounting point
F_M test load mounting point

Figure 1 — Determination of spring constant of the central section, c_M

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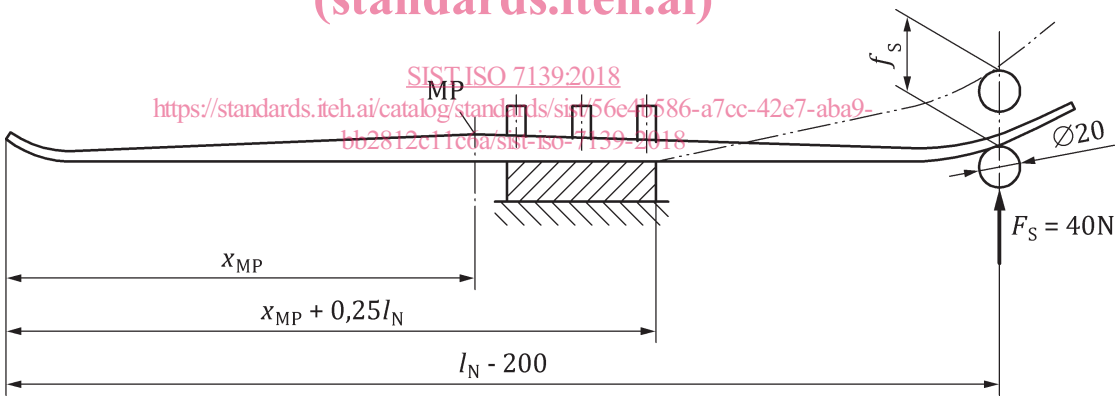

Key

l_N nominal length
f_S deflection shovel
X_{MP} projected distance mounting point
MP mounting point
F_S test load shovel

Figure 2 — Determination of shovel spring constant, c_S

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