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Alpine ski boots with improved walking soles — Interface with alpine ski-bindings – Requirements, test methods and marking

Chaussures de ski pour skis alpins dotées de semelles de marche améliorées — Zone de contact avec les fixations de ski alpin — Exigences, méthodes d'essai et marquage

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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*.

This second edition cancels and replaces the first edition (ISO 23223:2021) and the corrected version 2022-10, which have been technically revised.

The main changes are as follows:

— new Figures 22 and 23 were added for better explanation of the tests described in 4.3.5.4.3;

— a reference plane (in Figure 1 and Figure 3 and Figure C.1 and Figure C.2) was defined;

— changes in some dimensions of heel area of boot type C in Figure 3 and in Figure 19 were made;

— changes in some dimensions/tolerances in Figure 11 were made;

— 6.1 was modified, mentioning information by the manufacturer in digital version;

— former Annex C was deleted (former Annex D is now Annex C).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Alpine ski boots with improved walking soles — Interface with alpine ski-bindings – Requirements, test methods and marking

1 Scope

This document specifies requirements, test methods and marking for alpine ski-boots with improved walking soles that are used with systems of alpine ski-bindings for improved walking soles with attachment at the boot front and boot rear, the proper release function of which depends on the dimensions and design of the interfaces.

Alpine ski boots with improved walking soles are intended to a better walkability without affecting the function of the alpine ski binding designed for improved walking soles.

This document is applicable to ski-boots of sizes 15,0 and larger [Types A (Adults) and C (Children)] in the Mondopoint system (see Annex A).

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 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)*

ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density-gradient column method*

ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pycnometer method*

ISO 2039-1, *Plastics — Determination of hardness — Part 1: Ball indentation method*

3 Terms and definitions

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

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

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

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

3.1
interface
part of the ski-boot intended to be in contact with the ski-binding

3.2
front interface
part of the ski-boot intended to be in contact with the front binding

3.3
rear interface
part of the ski-boot intended to be in contact with the rear binding

3.4
free space
space intended to avoid contact between ski-boot and binding, especially during step in/step out or release

3.5
bearing surfaces
front and rear surfaces of the boot sole that are in contact with the ski binding

3.6
median plane
middle plane of the sole, longitudinal and perpendicular to the bearing surface

3.7
ski-brake
device to stop the ski after release of the binding

3.8
walking sole
sole with hard and soft materials and an optimized profile, intended to a better walkability without affecting the function of the alpine ski binding

3.9
low-friction zone
area of the bearing surfaces that has a low-friction coefficient

4 Requirements and test methods

4.1 General

If no specific test method is indicated, check the characteristics as appropriate, e.g. by measurement.

If not otherwise indicated, execute the testing under standard atmosphere 23/50 in accordance with ISO 554 with ordinary tolerances.

4.2 Dimensions and evenness

4.2.1 Dimensions

The boot toe and heel shall conform with Figure 1, Figure 2, Figure 3, Figure 4 and Figure 5.

All dimensions shall be within the indicated tolerances. However, relevance to safety varies in importance depending on the indicated dimensions.

Measurements in gauge shall be done with a preload of 100 N for Type A and 50 N for Type C, by inserting a steel cylinder into the ski-boot itself.

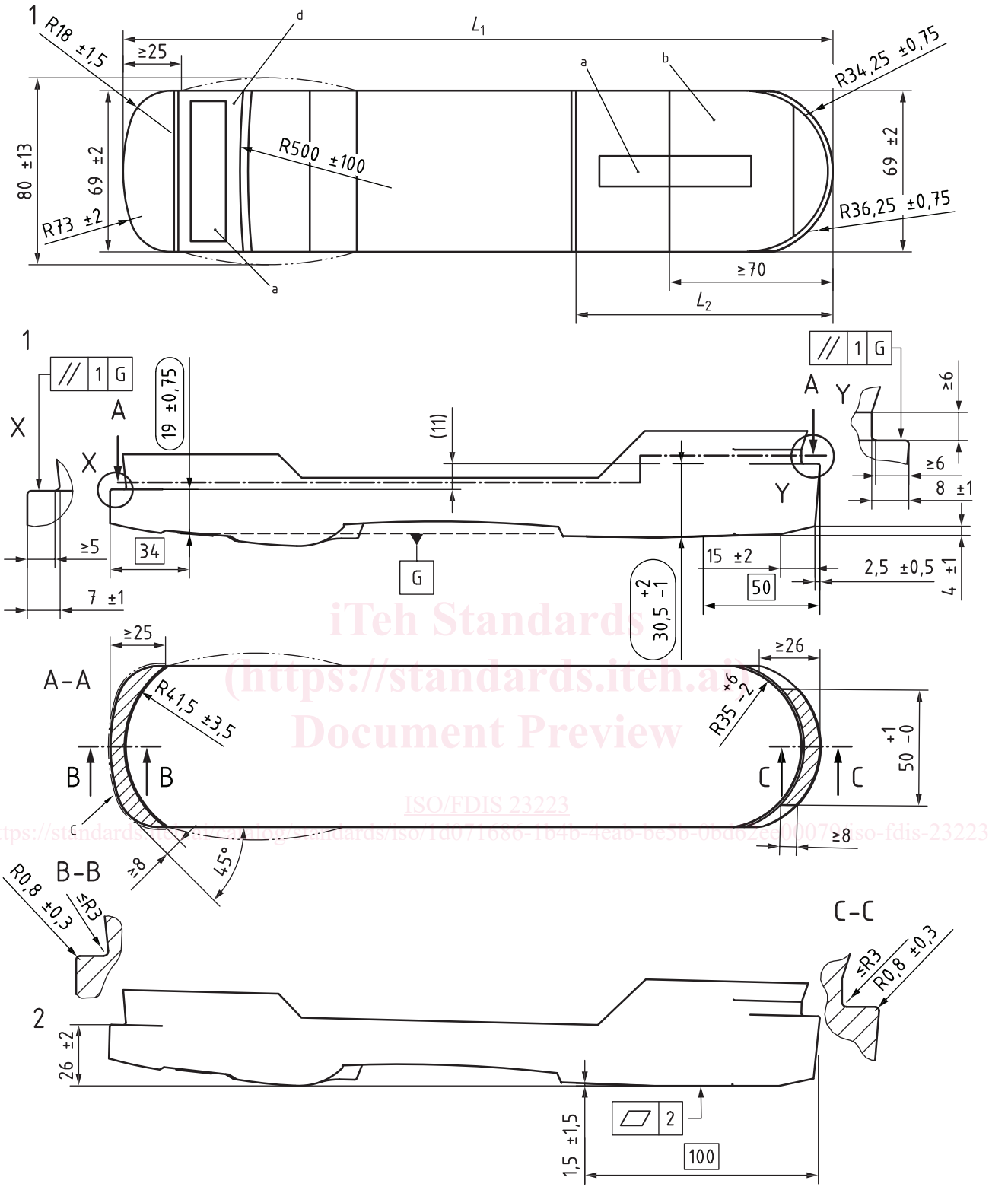
Looking at several dimensions (for dimensions of the 2nd degree, see Annex B) a deviation from the tolerances may be accepted, provided that the following requirements are respected:

a) No limitations of function shall arise with all marketable and critical bindings.

b) The tolerances shall be respected at the next possible chance (e.g. reconstruction of a tool).

Dimensions for boots with inserts working with pin bindings are given in this document.

Dimensions in millimetres



Key

1 position: in gauge

2 position: flat on table

G reference plane (see Figure C.1)

L_1 sole length

L_2 heel length

[a] Low-friction zone in accordance with 4.3.5.1.

b Bearing surface.

c Area in which the tolerance of perpendicularity is valid (see 4.3.3.1).

d Section of recessed soft component not in contact with the binding.

NOTE 1 Shaded areas, including areas with index c, are those in which the tolerances of evenness and the dimensions $19 \pm 0{,}75$ and $30{,}5^{+2}_{-1}$ are valid.

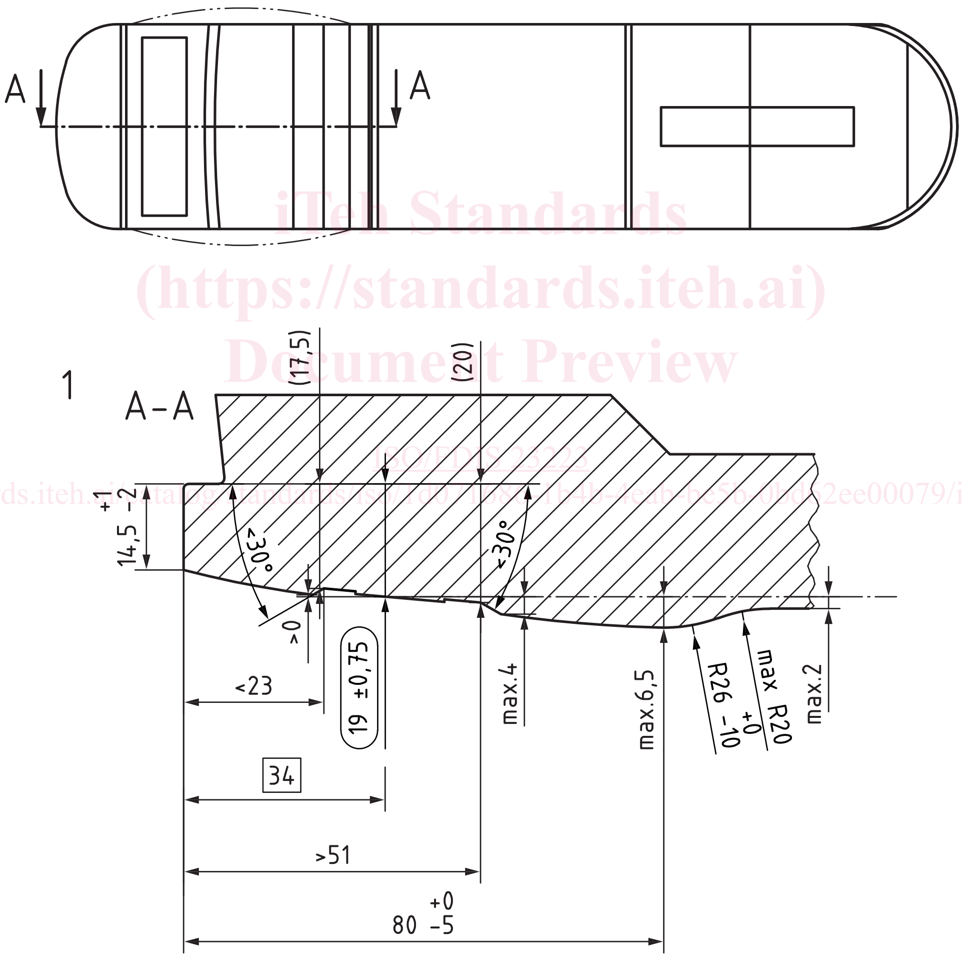
NOTE 2 (11) is the vertical distance between shaded areas for construction purposes according to ISO 5355.

L_1	< 300	≥ 300
L_2	≥ 100	≥ 110

Figure 1 — Dimensions of boot toe and heel, Type A

Figure 2 provides all the key dimensions (nominal) to build new boots. The gauge (see Annex C) can be used to check whether a boot is in conformity with this document.

Dimensions in millimetres



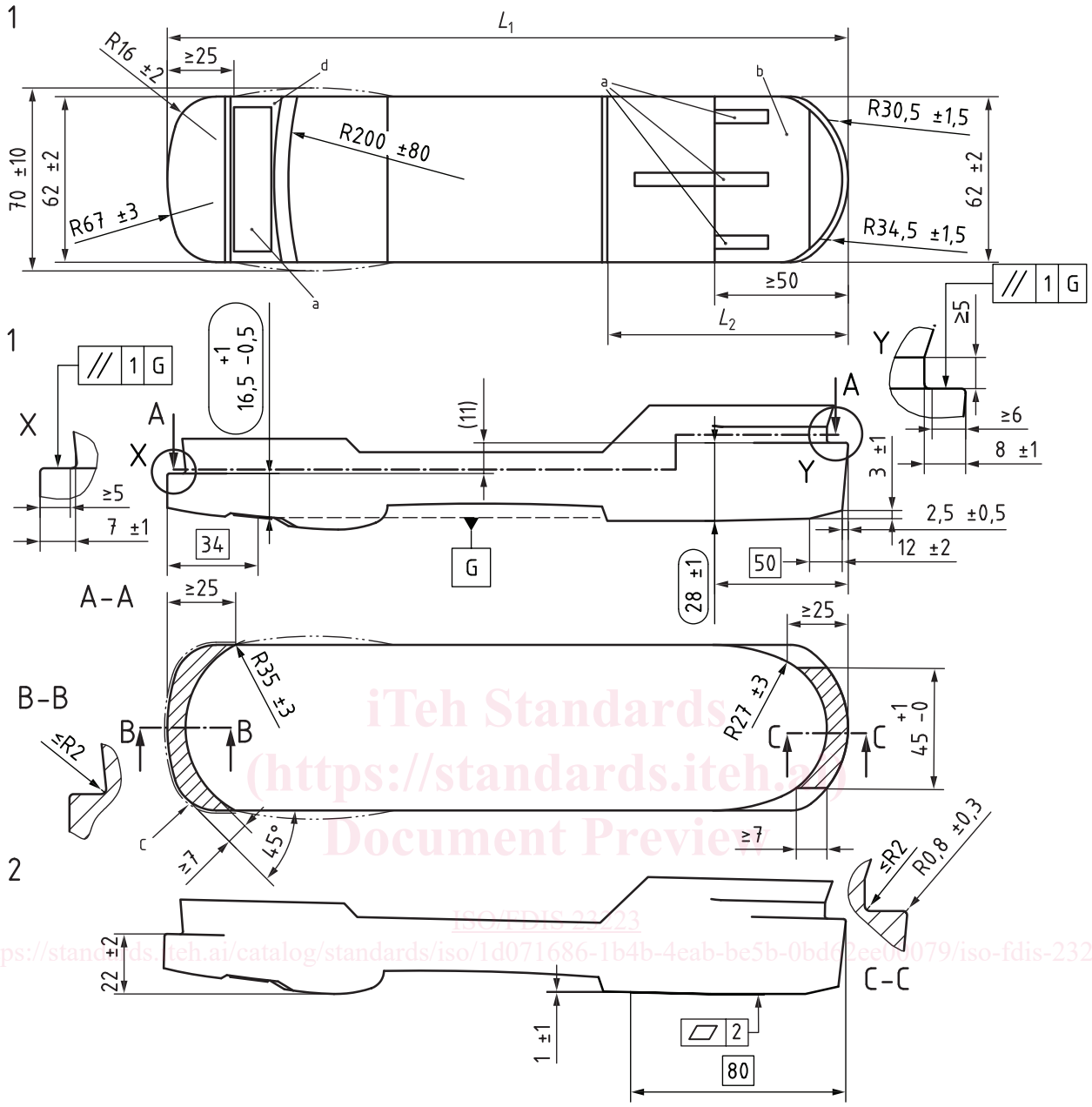
Key

1 position: in gauge

NOTE Some of these measurements are of 2nd degree, see Annex B.

Figure 2 — Detailed dimensions of boot, Type A

Dimensions in millimetres



Key

1 position: in gauge
2 position: flat on table
G reference plane (see Figure C.2)
L_1 sole length
L_2 heel length
a Low-friction zone in accordance with 4.3.5.1.
b Bearing surface.

c Area in which the tolerance of perpendicularity is valid (see 4.3.3.1).

d Section of recessed soft component not in contact to binding.

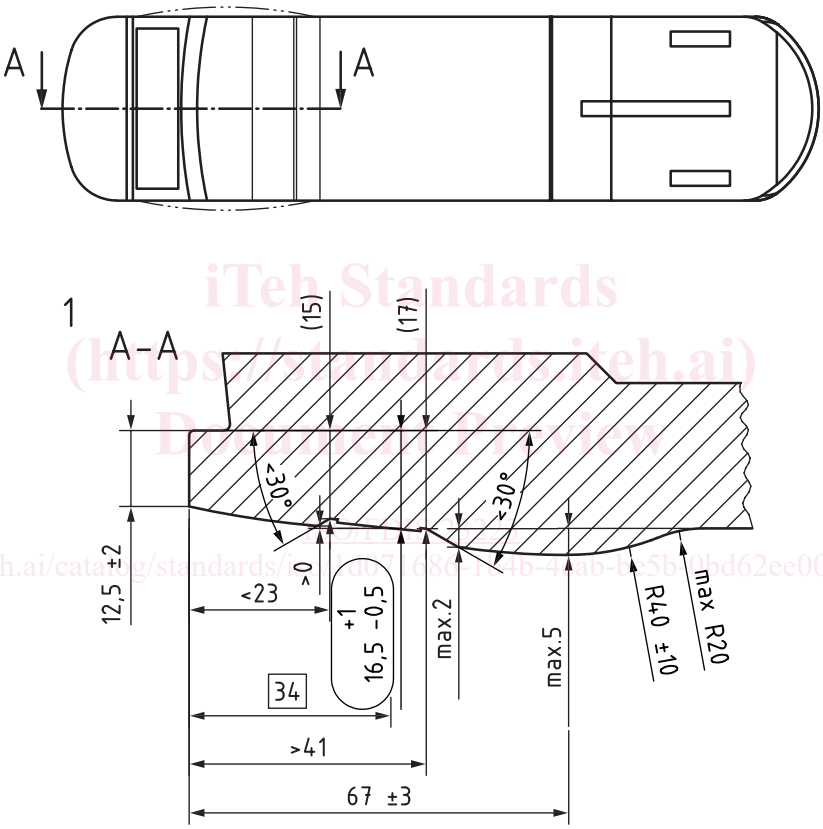
NOTE Shaded areas, including areas designated by footnote c, are those in which the tolerances of evenness and the dimensions $16{,}5^{+1}_{-0{,}5}$ and 28 ± 1 are valid.

L_1	< 240	≥ 240
L_2	≥ 80	≥ 90

Figure 3 — Dimensions of boot toe and heel, Type C

Figure 4 provides all the key dimensions (nominal) to build new boots. The gauge (see Annex C) can be used to check whether a boot is in conformity with this document.

Dimensions in millimetres



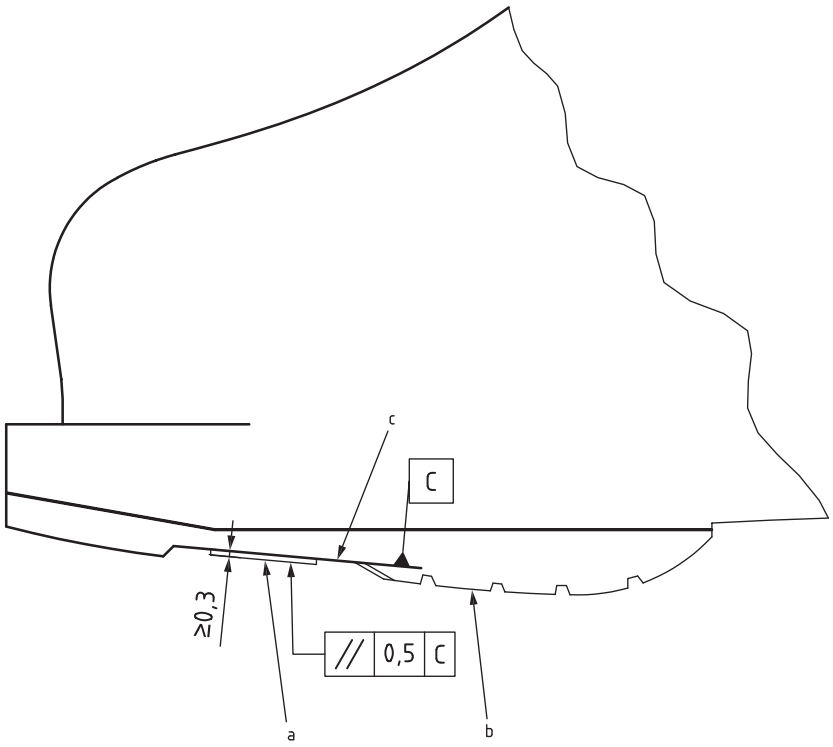
Key

1 position: in gauge

NOTE Some of these measurements are of 2nd degree, see Annex B.

Figure 4 — Detailed dimensions of boot, Type C

Dimensions in millimetres



a Low-friction zone with requirement for bearing surfaces in accordance with 4.3.5.

b Soft component.

c The soft component in the low-friction zone shall be at least 0,3 mm deeper than the low-friction zone.

Figure 5 — Toe interface and ski–walk area Type A and Type C

4.2.2 Evenness

4.2.2.1 Requirement

Measurements on each side of median plane shall not differ by more than 0,7 mm for Type A and 0,6 mm for Type C for the toe area and 1,2 mm for the heel area (Type A and Type C). The preload (F) shall be of 100 N for Type A and 50 N for Type C, at a distance (L) of 75 mm for Type A and 64 mm for Type C. Apply the preload for minimum 1 minute before the measurement is started.

4.2.2.2 Test method

The sample boot shall be placed as described in Figure 6. The X direction is along the boot length and is measured from boot tip or rear, for toe or heel area respectively. Y direction is measured from median plane along boot width. Height shall be measured with an indicator on each side of the median plane (positive and negative Y direction).

In the toe area the four measurements points are located at

— Type A: x = 32 mm and x = 42 mm with y = ±25 mm, see Figure 7, and

— Type C: x = 27 mm and x = 37 mm with y = ±22 mm.

In the heel area four measurement points shall be selected within 25 mm and 60 mm from the heel, and within

— Type A: 20 mm to 30 mm from the median plane, and