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

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

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# Contents

Page

<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
<b>4 Requirements and test methods</b>	<b>2</b>
4.1 General	2
4.2 Dimensions and evenness	2
4.2.1 Dimensions	2
4.2.2 Evenness	8
4.3 Design	10
4.3.1 Sole length	10
4.3.2 Symmetry	10
4.3.3 Side walls	10
4.3.4 Free spaces	14
4.3.5 Bearing surfaces	21
4.3.6 Interfaces	27
4.3.7 Style of boot shell	31
4.3.8 Mounting point	31
4.3.9 Sole length	32
<b>5 Marking</b>	<b>32</b>
<b>6 Information supplied by the manufacturer</b>	<b>32</b>
6.1 General	32
6.2 User manual	32
<b>Annex A (informative) Mondopoint system ski-boot sizing and marking</b>	<b>34</b>
<b>Annex B (informative) Dimensions and requirements of “2<sup>nd</sup> degree”</b>	<b>35</b>
<b>Annex C (informative) Test body for dimensional test of free space to binding</b>	<b>37</b>
<b>Annex D (normative) Test gauge for dimensional check</b>	<b>40</b>
<b>Bibliography</b>	<b>42</b>

## 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.

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](http://www.iso.org/directives)).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 [www.iso.org/iso/foreword.html](http://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*.

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](http://www.iso.org/members.html).

This corrected version of ISO 23223:2021 incorporates the following corrections:

- [Figures 1, 2, 3, 4, 13, 19, C.1](#) and [C.2](#) have been corrected.

## Introduction

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents.

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The holders of these patent rights have assured ISO that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holders of these patent rights are registered with ISO. Information may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents).

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

## 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 Mondo point 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 (all parts), *Plastics — Methods for determining the density and relative density of non-cellular plastics*

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

ISO 11088, *Alpine ski/binding/boot (S-B-B) system — Assembly, adjustment and inspection*

ISO 13993, *Rental ski shop practice — Sampling and inspection of complete and incomplete alpine ski-binding-boot systems in rental applications*

## 3 Terms and definitions

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

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

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

— IEC Electropedia: available at <http://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 have 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.

A test body for dimensional test of free space to binding is defined in [Annex C](#).

### **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 and 50 N for Type A and Type C respectively, by inserting into the ski-boot itself a steel cylinder.



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

- a) The deviations shall remain exceptional.
- b) The deviations shall be small.
- c) No limitations of function shall arise with all marketable and critical bindings.
- d) The tolerances shall be respected at the next possible chance (e.g. reconstruction of a tool).

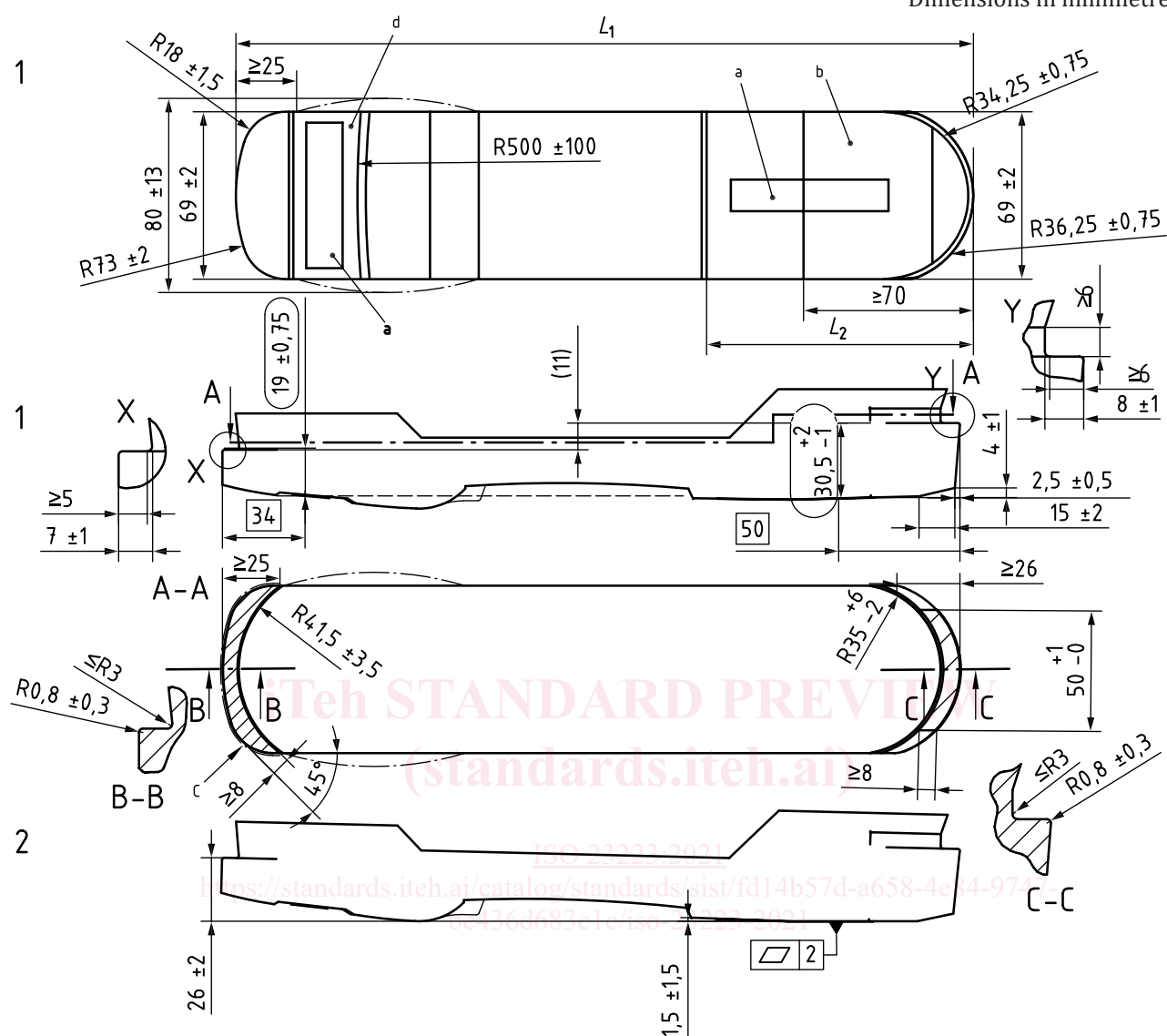
Dimensions for boots with inserts working with pin bindings are given in this document.

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Dimensions in millimetres



### Key

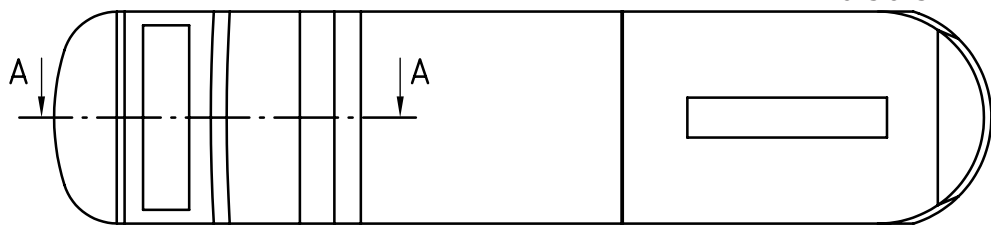
- 1 position: in gauge
- 2 position: flat on table
- $L_1$  sole length
- $L_2$  heel length
- <sup>a</sup> Low-friction zone in accordance with [4.3.5.1](#).
- <sup>b</sup> Bearing surface.
- <sup>c</sup> Area in which the tolerance of perpendicularity is valid (see [4.3.3.1](#)).
- <sup>d</sup> Section of recessed soft component not in contact with the binding.

$L_1$	<300	$\geq 300$
$L_2$	$\geq 100$	$\geq 110$

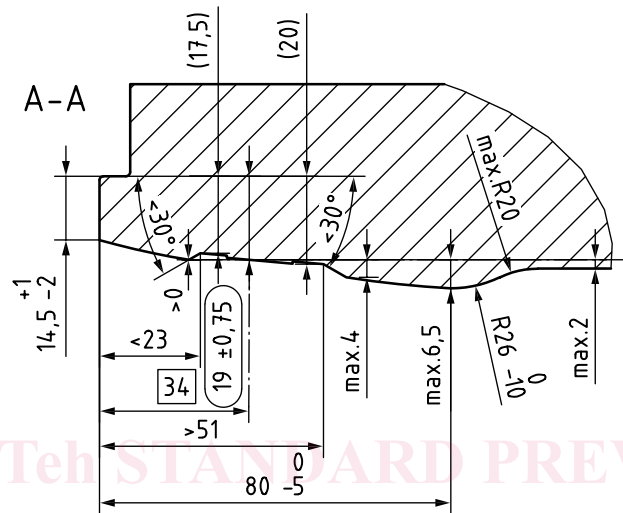
NOTE Shaded areas including areas with index c are those in which the tolerances of evenness and the dimensions  $19 \pm 0,75$  and  $30,5 \pm 2/-1$  are valid.

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

Dimensions in millimetres



1



**Key**

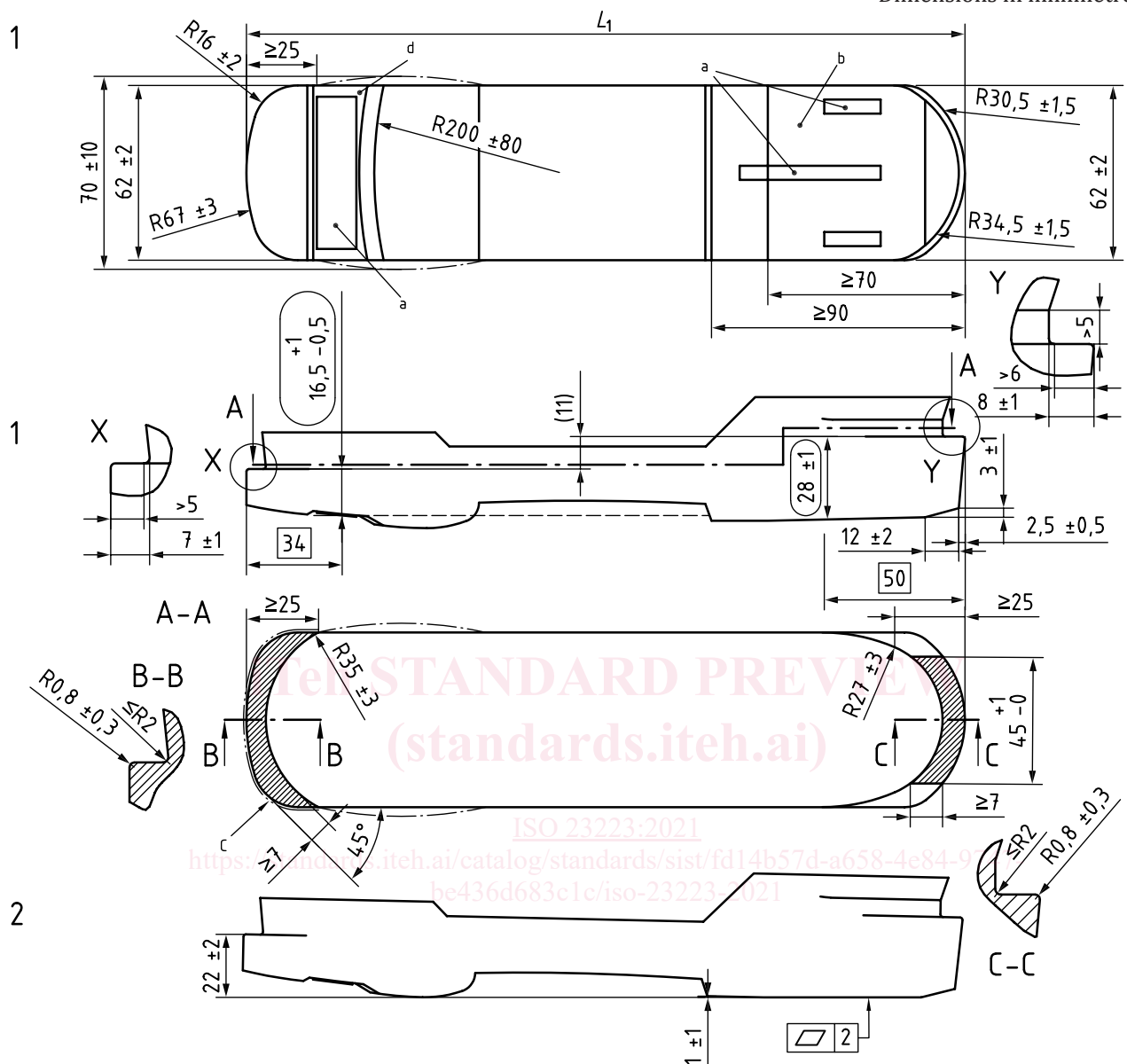
1 position: in gauge

NOTE Some of these measurements are of 2<sup>nd</sup> degree, see [Annex B](#).

**Figure 2 — Detailed dimensions of boot, 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

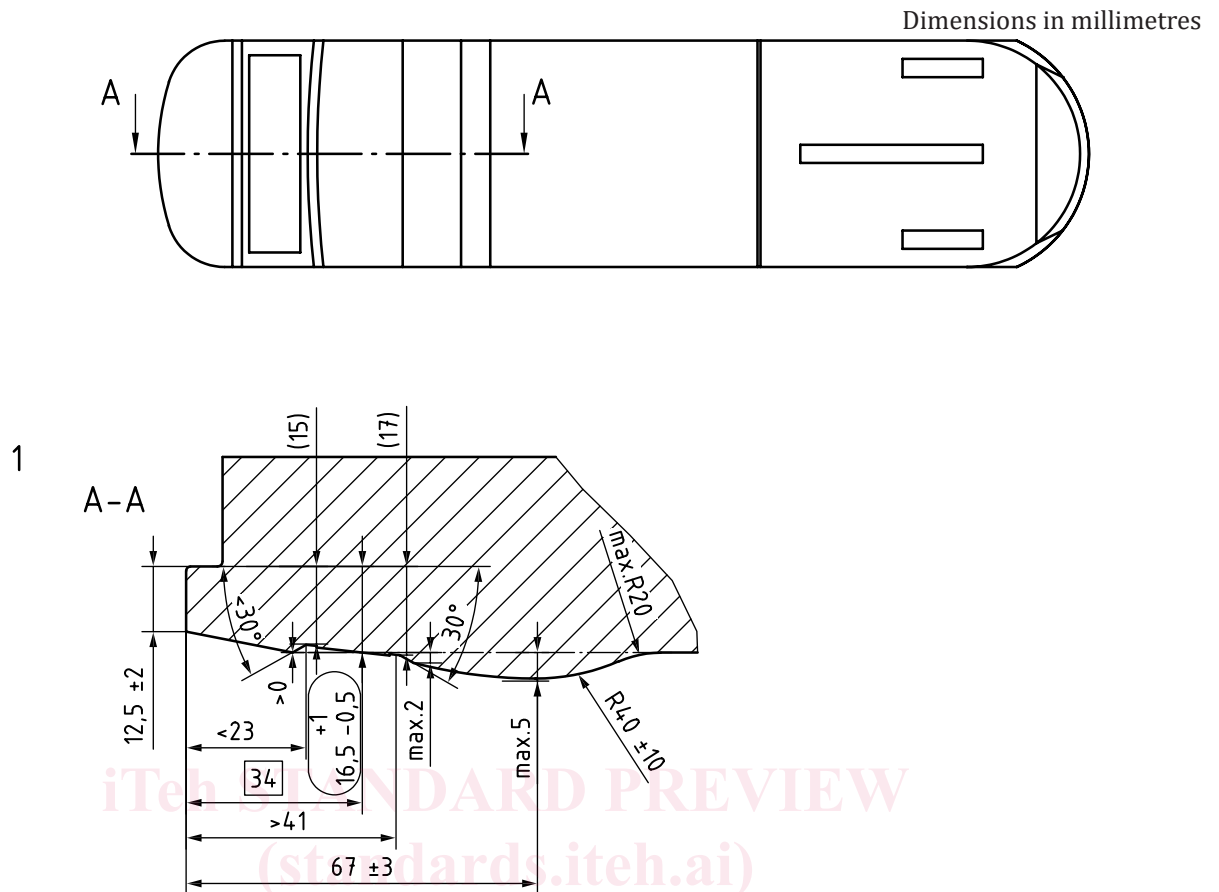


**Key**

- 1 position: in gauge
- 2 position: flat on table
- $L_1$  sole 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  $28 \pm 1$  are valid.

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



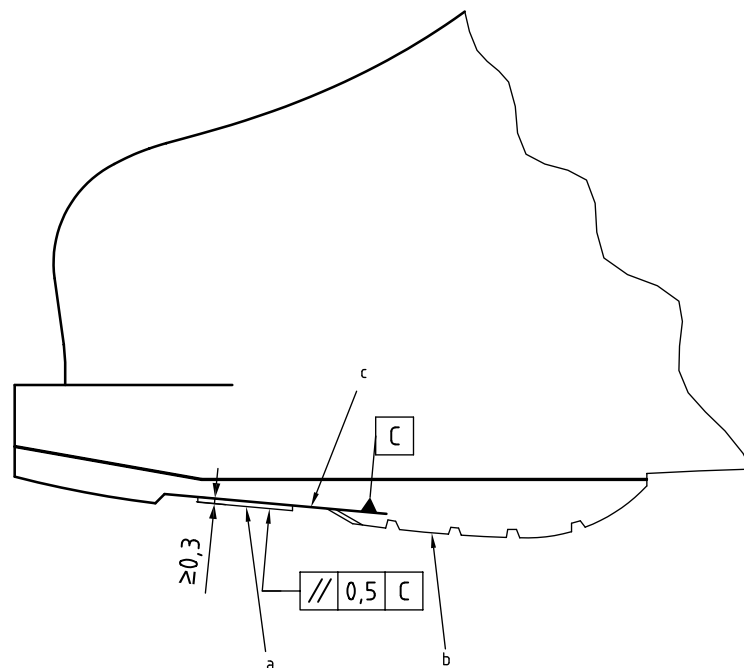
**Key**

1 position: in gauge

NOTE Some of these measurements are of 2<sup>nd</sup> degree, see [Annex B](#).

**Figure 4 — Detailed dimensions of boot, 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.



#### Key

- 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. The preload ( $F$ ) shall be of 100 N and 50 N for Type A and Type C respectively, 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

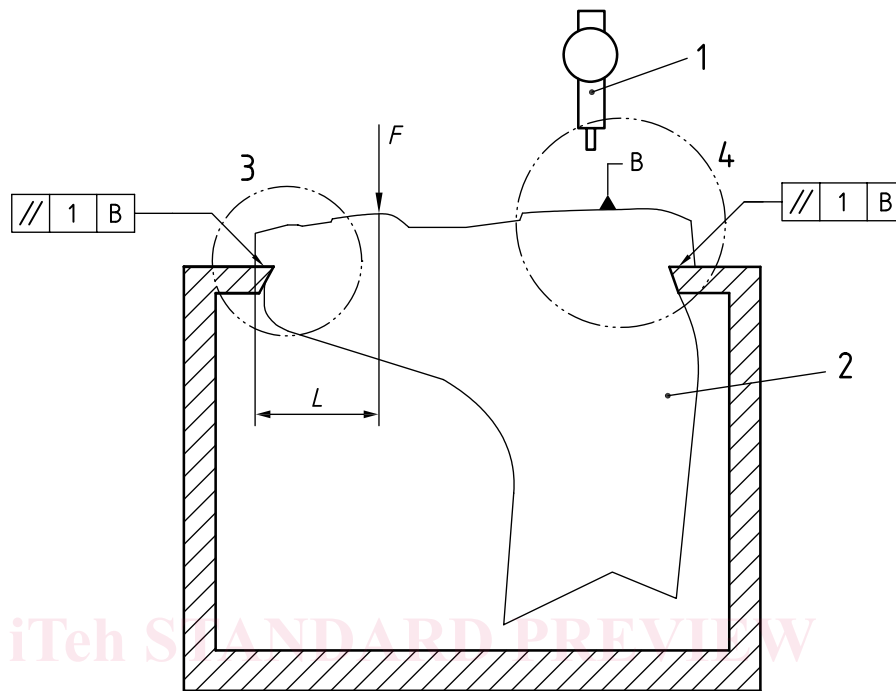
- Type A:  $x = 32$  mm and  $x = 42$  mm with  $y = \pm 25$  mm, see Figure 7, and
- Type C:  $x = 27$  mm and  $x = 37$  mm with  $y = \pm 22$  mm

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
- Type C: 18 mm to 28 mm from the median plane

as shown in the hatched area in [Figure 7](#) (for Type A). The points shall be symmetrical 2 by 2 with respect to the median plane. The points shall be in a zone, which is at the surface of the sole (i.e. not in a notch).

Dimensions in millimetres



**Key**

1 indicator – evenness measurement apparatus

2 sample boot

3 toe area

4 heel area

$F$  preload

$L$  distance of preload point

**Figure 6 — Evenness test set up**