

TECHNICAL SPECIFICATION

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Footwear — Sizing — Conversion of sizing systems

Chaussures — Pointures — Conversion des systèmes de pointures



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Foreword

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The committee responsible for this document is ISO/TC 137, *Footwear sizing designations and marking systems*.

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Footwear — Sizing — Conversion of sizing systems

1 Scope

This Technical Specification comprises three shoe size conversion tables covering the major shoe sizing systems (Mondopoint, European and United Kingdom, as well as China, Japan and United States). The tables are based on measurement of foot length, this being the logical starting point for any shoe size marking system. The tables contain the following information:

Table 1 — Adults' technical shoe size conversion;

Table 2 — Adults' recommended shoe size marking (simplified);

Table 3 — Children's size conversion.

Explanatory notes are given in [Clause 3](#).

NOTE It is acknowledged that, due to the different ways in which each system has been developed and interpreted over many years without being formalized into any national or International Standards (other than ISO 9407), there is no exact solution to the problem of accurate shoe size conversions. Tables 1 and 2 offer a good compromise solution which will, if adopted, benefit the consumer.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9407, *Shoe sizes — Mondopoint system of sizing and marking*

ISO/TS 19408, *Footwear — Sizing — Vocabulary and terminology*

3 Explanatory notes

3.1 General

There are three main sizing systems (Mondopoint, European and UK). As there are fundamental differences between them, they have been aligned to a common denominator: foot length. Foot length is deemed to be the key reference point when fitting footwear. Customers' foot length can be readily measured and shoes marked with a designation that indicates the appropriate shoe size that will accommodate their foot length. Customers expect to buy the same size of footwear irrespective of the footwear type or style.

NOTE To check that size marking is correct requires a practical fit assessment of footwear whereby subjects having appropriate foot lengths for the marked size don the footwear and the available toe allowance is assessed for satisfactory fit. Some allowance for foot width may also have to be made. This Technical Specification, however, does not attempt to assess the overall fitting properties of footwear i.e. it does not cover width, volume, toe depth, etc.

3.2 Table 1 — Adults' technical shoe size conversion

- a) The Mondopoint system is defined in ISO 9407 and is based on foot length. The size grading intervals used with Mondopoint are given in DIN 66074-2:1975 as 5 mm (Range 1) or 7,5 mm (Range 2), both starting at zero. In practice, 10 mm intervals are commonly referred to as whole sizes and 5 mm intervals as half sizes. Intervals of 7,5 mm are used mainly for specialized footwear. China and Japan

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use the Mondopoint system for length designation; Japan sometimes expresses size in centimetres rather than millimetres.

NOTE 1 Some footwear is marked with a 'CM' or 'CMS' size marking; this usually indicates a Mondopoint size in centimetres rather than millimetres though sometimes appears to indicate last length.

- b) The European system (EUR) (previously known as Paris Points, French or Continental) is based on a size grading interval of 6,67 mm, starting at zero. This system may be interpreted as being based on last length or foot length depending on the country of origin, resulting in differences in shoe size markings (see Note 2).
- c) The United Kingdom system (UK) is based on a size grading interval of 8,47 mm, starting at 101,6 mm (4 inches or equivalent to 12 size grading intervals). The first 13 sizes are referred to as children's sizes; the scale then re-starts at size 1 for larger sizes. This system was originally developed with regard to shoe or last length but subsequently redefined in terms of foot length.
- d) The United States system (US) is based on a size grading interval of 8,47 mm, starting at 99,5 mm ($3\frac{11}{12}$ inches). The first 13 sizes are referred to as children's sizes; the scale then re-starts at size 1 for larger sizes. In practice, however, the US system corresponds directly to the UK system but with the addition of an arbitrary off-set of one size difference for men's footwear and usually two sizes difference for women's footwear.

Table 1 gives precise conversion data utilizing mathematical relationships between the different scales based on an understanding of how the systems are generally implemented in practice.

A UK adult size is calculated from the foot length as:

$$\frac{l_f + (2 \times 8,47)}{8,47} - 25$$

where

l_f is foot length.

25 \equiv 12 sizes plus 13 children sizes, and 12 sizes \equiv 101,6 mm or 4 inches.

An EUR size is calculated from foot length as:

$$\frac{l_f + (2 \times 6,67)}{6,67}$$

In both cases the difference between foot length and shoe or last length is taken as being empirically equivalent to two sizes (two UK sizes or two EUR sizes respectively).

NOTE 2 An alternative approach to the European system, which is in use but not adopted here, is based on a 5 % difference between foot length and last length as opposed to a two grade interval difference. The two approaches give very similar size conversions to the Mondopoint and UK systems for sizes 38 to 46, but differ by approximately half a European size at the smallest and largest sizes.

Column 1 gives the exact foot length values for EUR and UK whole and half sizes, plus Mondopoint standard values (Ranges 1 and 2) where no EUR or UK foot length value lies within $\pm 0,5$ mm. Columns 6 and 7 are for information only and indicate the approximate range of effective last lengths that might be associated with each foot length. The actual last length will usually be greater than the effective last length due to toe shape/fashion design (see ISO/TS 19408).

NOTE 3 Some customers might be surprised to see the EUR/UK size conversions given here and believe that the EUR size markings should be increased by half a size against the UK scale. For example, Table 2 shows 4 UK \equiv 36,5 EUR and 8 UK \equiv 41,5 EUR, while footwear is often labelled 4 UK/37 EUR and 8 UK/42 EUR. However, Tables 1 and 2 are considered more technically correct.