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Accessible design — Application of braille on signage, equipment and appliances

Conception accessible — Méthodes d’affichage des signes en braille



Reference number
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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. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 173, *Assistive products for persons with disability*, Subcommittee SC 7, *Accessible design*.

Accessible design — Application of braille on signage, equipment and appliances

1 Scope

This International Standard specifies the fundamental requirements for braille used on signage, equipment and appliances, including the dimensional parameters of braille and the characteristics of materials used, and the guidelines for practical implementation.

2 Terms and definitions

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

2.1

signage

means of conveying information about name, direction, location, usage, safety or a form of action

2.2

equipment

permanent device or machine used in daily life in a house, an office or publicly accessible places

EXAMPLE Such devices or machines include kitchen equipment, a copying or printing machine, an automatic teller machine, a ticket kiosk or a lift.

Note 1 to entry: In ISO 9999:2011, 6.3, and 18 30 03, the term “elevator” is used for lift.

2.3

appliance

movable device or machine used in daily life, such as an electric appliance for household or office use

2.4

tactile reading

recognizing braille and other tactile information by touch

2.5

tactile readability

ease of reading braille and other tactile information by touch

2.6

braille cell

space for the braille pattern, comprising up to six predefined dots set out in two columns of three

2.7

braille pattern

combination of raised dots within a braille cell

2.8

exclusion zone

area where nothing is placed around a braille cell or cells

2.9

button

operative device, such as pressure sensitive button, pressure sensitive surface, touch sensitive button, and touch sensitive surface

ISO 17049:2013(E)**2.10****dial**

control which persons physically rotate in order to operate a function

3 Specifications for braille**3.1 Braille character, word and line**

The braille character is composed of single braille patterns or a combination of braille patterns; the braille word is composed of one or more braille characters.

Braille patterns are all placed within the braille cell and they require the space of the braille cell. A braille cell requires the space of all six nominal dots. Vacant dots shall not be neglected because they are a part of the braille pattern.

Where a braille character or word appears in isolation, there shall be an exclusion zone around such a character or word.

Codes and format of braille characters, which are commonly used and recognized in each country, shall be adopted.

Braille shall be arranged to allow tactile reading to be performed consistent with the braille reading order in the language in which it is presented, e.g. left to right.

3.2 Configuration and spacing of braille dot and cell

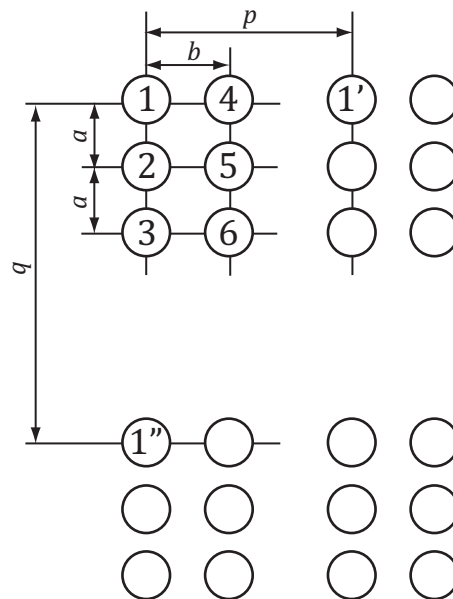
The configuration of braille dots and cells shall be in accordance with [Figure 1](#); the spacing shown as *a*, *b*, *p* and *q* shall be in the range shown in [Table 1](#).

Specifications should be in line with national or regional standards, if applicable.

Table 1 — Spacing between braille dots and cells

Dimensions in millimetres

Parameters	Description	Distance between dot centres
<i>a</i>	Vertical dot spacing (spacing between dot 1 and dot 2)	2,2 to 2,8
<i>b</i>	Horizontal dot spacing (spacing between dot 1 and dot 4)	2,0 to 2,8
<i>p</i>	Cell spacing (spacing between dot 1 and dot 1')	5,1 to 6,8
<i>q</i>	Line spacing (spacing between dot 1 and dot 1'')	10,0 to 15,0



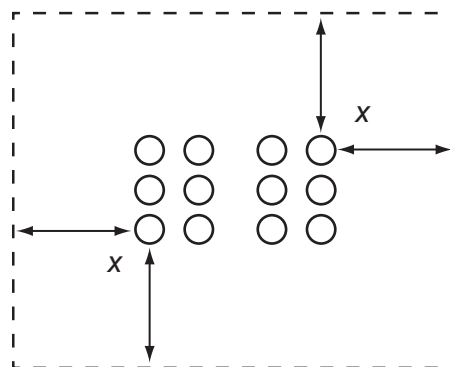
Key

- a vertical dot spacing (spacing between dot 1 and dot 2)
- b horizontal dot spacing (spacing between dot 1 and dot 4)
- p cell spacing (spacing between dot 1 and dot 1')
- q line spacing (spacing between dot 1 and dot 1'')

Figure 1 — Configuration and spacing of braille dots and cells

3.3 Exclusion zone

An exclusion zone, x , of at least 6 mm shall be placed around all sides of the isolated braille cell or cells (see [Figure 2](#)).



Key

- x exclusion zone

Figure 2 — Exclusion zone around isolated cells

The exclusion zone shall be used to prevent a protrusion from disturbing the movement of fingers in reading braille (see [Figure 3](#)).

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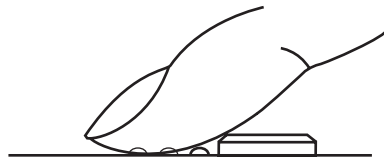
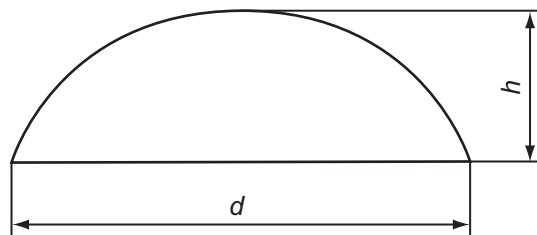


Figure 3 — Example of a protrusion hindering a finger from reading braille

3.4 Dimensions and shape of braille dot

The cross-section of the braille dot shall be in accordance with Figure 4 and Table 2.

The profile of the braille dot shall be rounded. It shall not be flat or pointed.



Key

d diameter of the base

h perpendicular height of braille dot centre

Figure 4 — Cross-section of a braille dot

Table 2 — Dimensions of cross-section of a braille dot

Dimensions in millimetres

Parameter	Size
d	1,0 to 1,7
h	0,3 to 0,7

The perpendicular height of braille dot centre, h , should be greater than 0,5 mm when used in outdoor arrangement and on or in vehicles of means of transport.

3.5 Correlation among dimensional parameters of braille

Dimensional parameters of braille shall reflect the technical correlations between the individual parameters. For example if the smallest dot diameter and dot spacing are chosen, all other dimensions shall be proportional.

4 Application of braille on signage, equipment and appliances

4.1 General

Materials used for braille shall

- attain good tactile readability,
- have a surface and edge that will not cause harm when touched,
- be durable,