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**Zařízení hracích ploch – Branky pro házenou –  
Funkční a bezpečnostní požadavky, zkušební metody**





English version

## Playing field equipment - Handball goals - Functional and safety requirements, test methods

Equipements de jeux - Buts de handball - Exigences fonctionnelles et de sécurité, méthodes d'essai

Spielfeldgeräte - Handballtore - Funktionelle und sicherheitstechnische Anforderungen, Prüfverfahren

This European Standard was approved by CEN on 24 June 2004.

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## Foreword

This document (EN 749:2004) has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational equipment", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

This document supersedes EN 749:1995 + A1:1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This document specifies the functional requirements for 2 types (see Clause 3) and the safety requirements (see Clause 4) for handball and indoor hockey goals.

It is applicable to handball goals for training and competition.

NOTE Goals according to this document can also be used for indoor football.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

EN ISO 1806, *Fishing nets — Determination of mesh breaking force of netting (ISO 1806:2002)*

prEN ISO 2307, *Fibre ropes — Determination of certain physical and mechanical properties (ISO/DIS 2307:2003)*

## 3 Requirements

### 3.1 Classification

Handball goals shall be classified by design (types) as shown in Table 1.

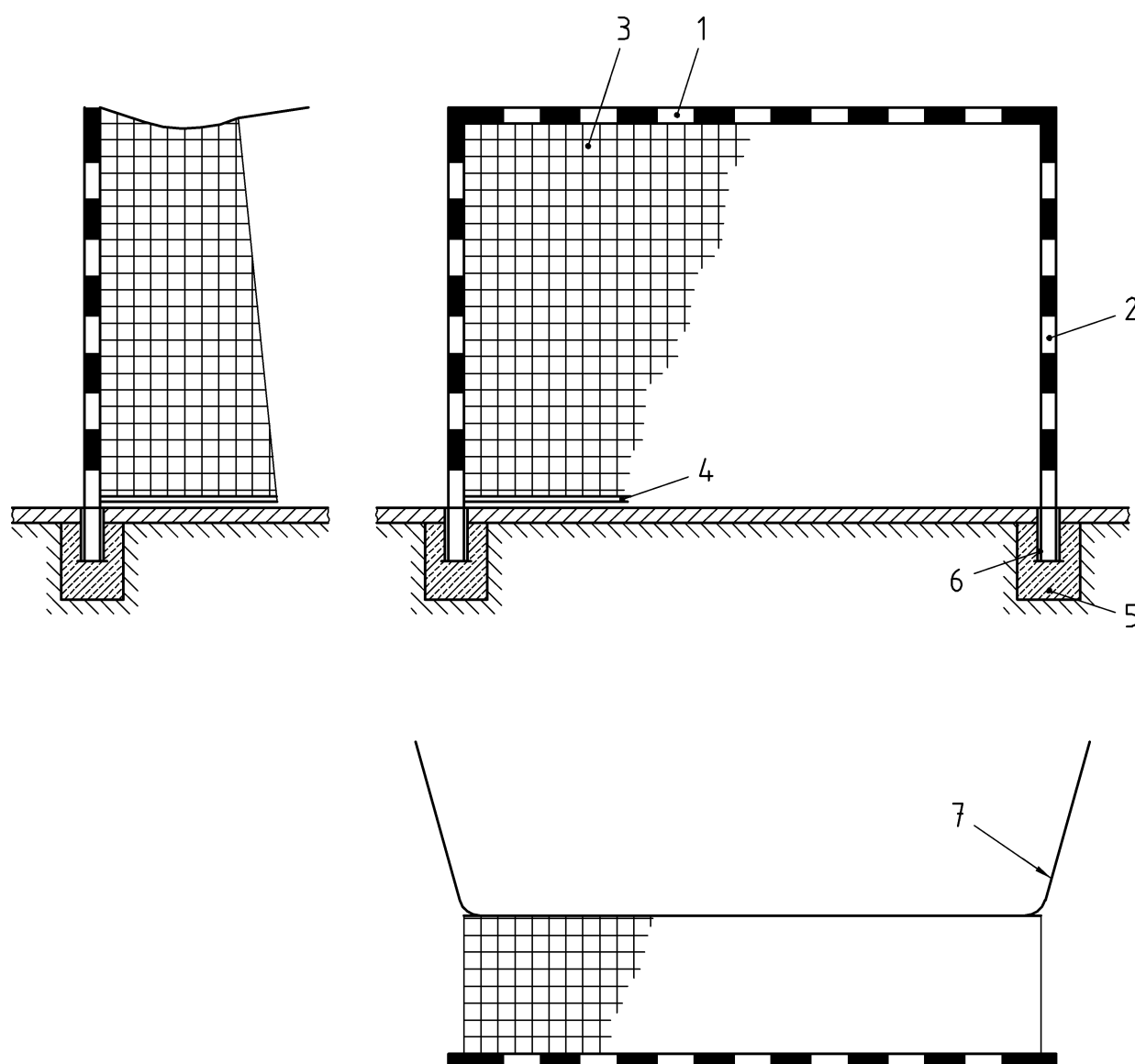
**Table 1 — Types**

Type	Description
1	Handball goal with ground sockets, see Figure 1
2	Freestanding handball goal, see Figure 2

### 3.2 Dimensions

Handball goals shall comply with the dimensions shown in Figure 2.

Dimensions in millimetres

**Key**

- |   |               |   |                |
|---|---------------|---|----------------|
| 1 | Crossbar      | 5 | Ground socket  |
| 2 | Upright       | 6 | Concrete block |
| 3 | Net           | 7 | Net headline   |
| 4 | Net weighting |   |                |

**Figure 1 — Handball goal type 1**

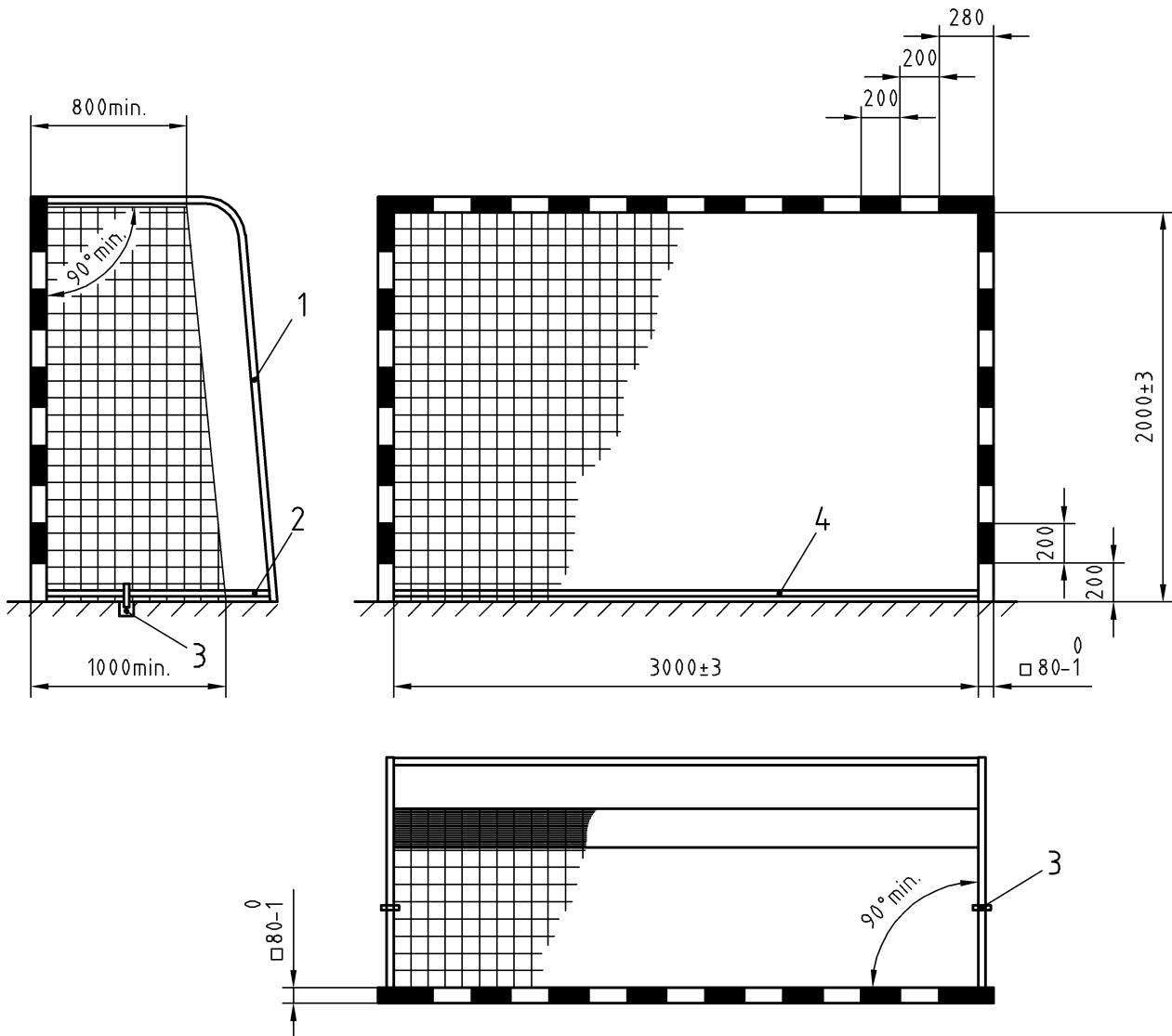
Example for foundation see Annex A.

A handball goal Type 1 consists of:

- the goal frame (2 uprights and 1 crossbar) including net fixings and ground sockets;
- 1 net with net headline and net weighting.

Handball goals Type 1 may also be made with net supporting brackets and bottom back bar like Type 2; other goals can be supplied as a folding up type with a supporting frame or wall fixing.

Dimensions in millimetres



**Key**

- |   |                         |   |                                |
|---|-------------------------|---|--------------------------------|
| 1 | Net supporting brackets | 3 | Example of anti-tilting device |
| 2 | Bottom side bar         | 4 | Bottom back bar                |

**Figure 2 — Handball goal type 2**

A handball goal Type 2 consists of:

- the goal frame (2 uprights and 1 crossbar) including net fixings;
- 2 net supporting brackets;
- 2 bottom side bars;
- anti-tilting devices (at least one at each side);
- 1 bottom back bar (or a weighted line);
- 1 net.



### 3.3 Material

The goal frame may be made of timber, steel, light metal or plastics.

Net supporting brackets and bottom side and back bars shall be made of light metal and/or steel protected against corrosion (e.g. hot galvanized, powder coated or painted).

The net fixings to the goal shall be made of non-corrosive metal or of plastic material.

For the net, net yarns may be used made of synthetic or natural fibres.

For the net headline synthetic ropes shall be used.

### 3.4 Design

#### 3.4.1 Goal frame

The construction shall be sufficiently secure to withstand the stresses occurring during a game and during transport. The latter requirement is fulfilled when the corner section of the goal frame is not deformed or damaged after testing according to 5.2.

The uprights and the crossbar should be marked in accordance with the current regulations of the sports associations.

#### 3.4.2 Nets

##### 3.4.2.1 Dimensions

The net dimensions shall comply with Table 2.

**Table 2 — Net dimensions**

Dimensions in millimetres

length	height	depth		width of mesh	diameter of yarn
		top	ground		
min.	min.	min.	min.	max.	min. <sup>a</sup>
3 100	2 100	800	1 000	100 45 <sup>b</sup>	2
<sup>a</sup> The diameter is minimum to minimize the risk of cutting. <sup>b</sup> for indoor hockey					

##### 3.4.2.2 Physical properties

Nets shall comply with Tables 3 and 4, as appropriate.

**Table 3 — Mesh breaking strength**

Class	N min.	Test method
A	1 800 (1 500) <sup>a</sup>	EN ISO 1806
B	1 080 (900) <sup>a</sup>	
C	792 (660) <sup>a</sup>	
<sup>a</sup> This corresponds to the breaking strength of the net yarn, tested in accordance with ISO 2062.		

**Table 4 — Rope breaking forces of net headline**

Class	N min.	Test method
Z	7 000	prEN ISO 2307
Y	3 000	

### 3.4.2.3 Net fixing

A net headline of a length suitable for the installation shall be drawn in at the top of the net and fixed so that no displacement will be possible (see Figure 1). The breaking force of the net headline shall be at least 7 000 N, see Table 4.

The net shall be suspended loosely so that a ball thrown into the goal cannot rebound from the constructional parts. The fixing devices shall therefore be outside the net.

The net shall be retained on the wall by means of the net headline or by means of the net supporting brackets.

The net shall be so fixed that the ball will not pass between the goal frame and the net.

If an additional net curtain is used, it shall have the same mesh and width as the main net and shall be fixed ( $700^{+0}_{-100}$ ) mm from the front.

### 3.4.3 Ground sockets

When using ground sockets out of doors, they shall have a drainage hole.

## 4 Safety requirements

### 4.1 General requirements

Corners and edges, which may cause injuries, shall be rounded with a radius of at least 3 mm.

### 4.2 Goal frame

The edges of the goal frame shall be rounded to a radius of  $(4 \pm 1)$  mm.

### 4.3 Strength

When tested in accordance with 5.2, the crossbar shall not fracture or collapse or show permanent deformation greater than 10 mm.

#### 4.4 Stability

When tested in accordance with 5.3, the goal shall not fall over nor slide.

#### 4.5 Net supporting brackets

If net supporting brackets are used, the connection shall not protrude outside the goal frame.

#### 4.6 Net fixings

The net shall be loosely attached to the uprights and the crossbar.

Net fixings shall be designed in such a way that the player cannot be hurt.

This requirement is fulfilled if e.g. external openings (i.e. on the circumference of the cross section of the uprights and the cross bar) are  $\leq 8$  mm or  $\geq 25$  mm.

Metal cup hooks shall not be used. If spring hooks are used as means of fixation or for the end of a rope, they shall have screw caps.

#### 4.7 Frame entrapment

Any possible entrapment in the frame above 1200 mm above the ground, e.g. net supports, shall have no downwards angle of less than  $60^\circ$  and no openings of less than 230 mm diameter.

### 5 Test methods

#### 5.1 General

If not otherwise specified in the following the requirements of Clauses 3 and 4 are tested by measuring, visible inspection or practical test.

Execute the test after conditioning the goal for a minimum of 1 h at a test temperature of  $(20 \pm 5)^\circ\text{C}$ .

#### 5.2 Determination of strength

Apply a vertical force of 1 800 N at the centre of the crossbar for  $1 \text{ min}^{+10}_0 \text{ s}$ .

Note any fracture or other damage to the goal.

Remove the force and measure any permanent deformation  $30 \text{ min}^{+30}_0 \text{ s}$  after removal of the force.

#### 5.3 Determination of stability

Install the goal in its normal position of use. Apply a horizontal force ( $F$ ) of 1 100 N at the top of the centre of the crossbar for  $1 \text{ min}^{+10}_0 \text{ s}$  by means of a rope of 3 000 mm length (see figure 3). Note any falling over or sliding.

### 6 Assembly, installation and maintenance instruction

The manufacturer shall provide written instructions for assembly, installation and maintenance.

It shall be pointed out in the assembly instructions that any goals that are not being used at the moment should be secured against overturning.

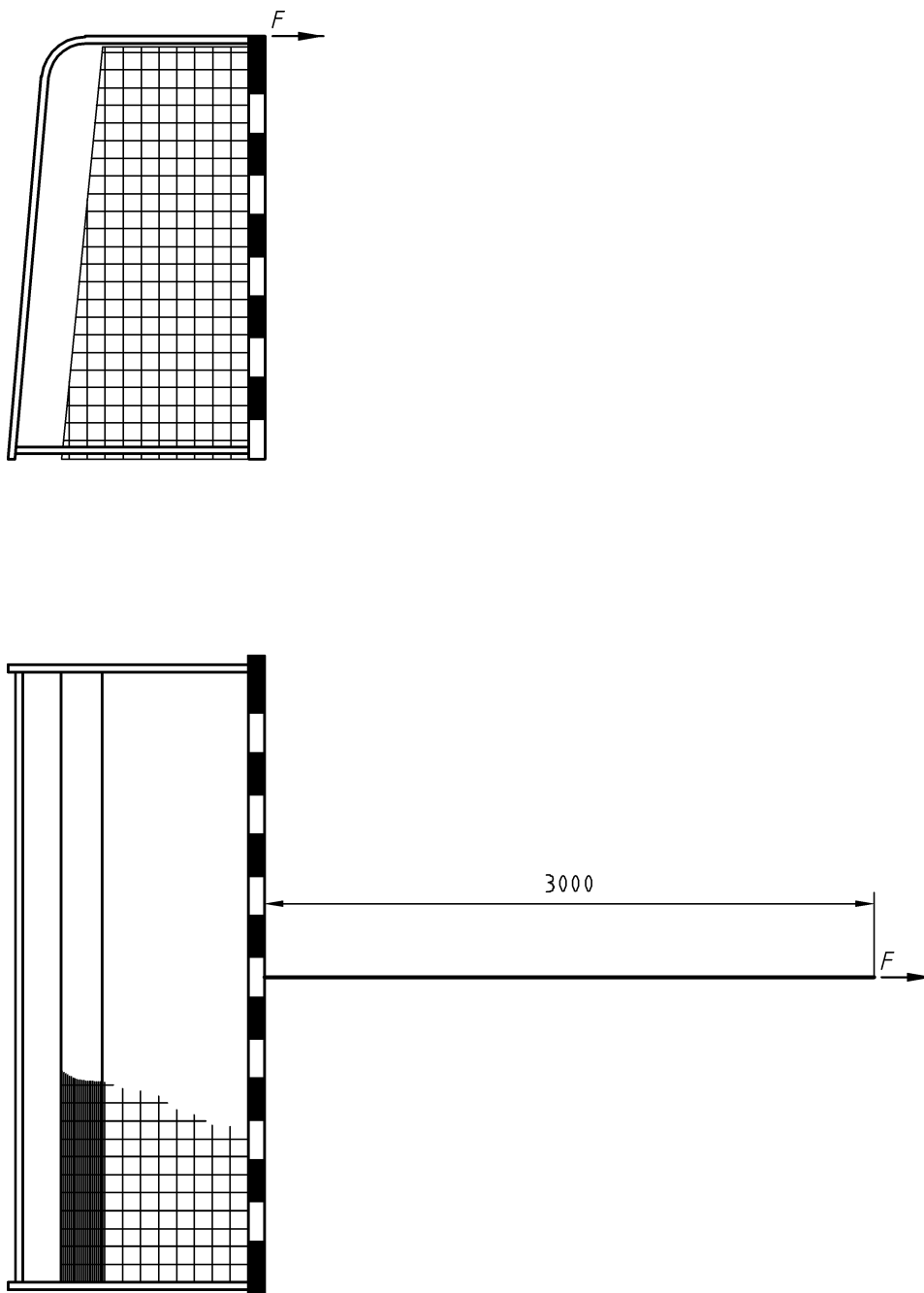


Figure 3 — Stability test

## 7 Warning label

A permanent warning label shall be fixed to the goal with the following wording:

- This handball goal is designed to be used for handball, indoor football or indoor hockey only and no other purpose;
- Check all fastenings are fully tightened before using this product and check periodically afterwards;
- At all times the goal shall be secured against tilting;
- Do not climb on the net or goal framework.

NOTE Also an appropriate graphical symbol may be used.

## 8 Marking

Goals shall be marked with the following information:

- a) the number of this document EN 749<sup>1)</sup>;
- b) the name or trademark of the manufacturer, retailer or importer and the year of manufacturing of the frame;
- c) a warning label giving details of use that the goal is designed for and type of net in accordance with Clause 7.

In the case of goals Type 2 there shall be an indication at the sides of the uprights concerning the required fastening of the goal.

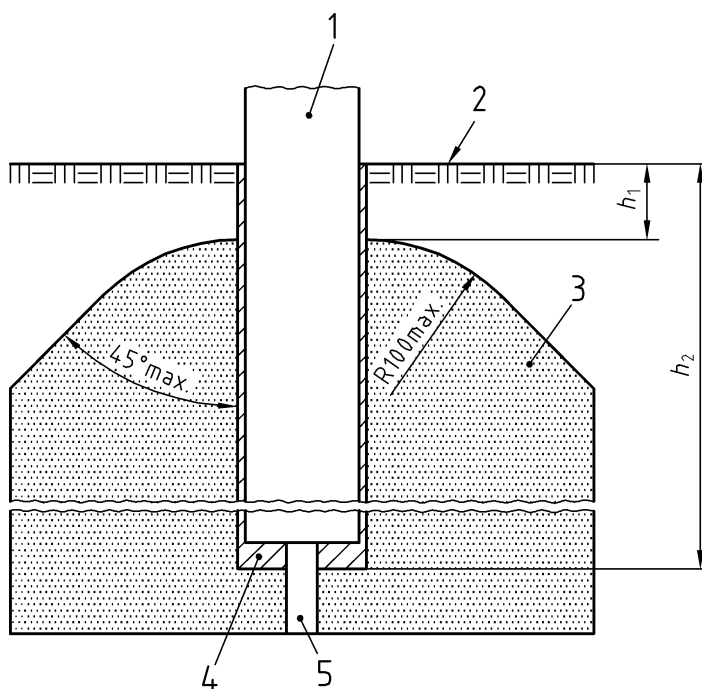
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<sup>1)</sup> Marking EN 749 on or in relation to a product represents the manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration should not be confused with third party certification of conformity, which may also be desirable.

**Annex A**  
(informative)

**Examples of foundations**

Dimensions in millimetres



**Key**

- 1 Upright/pole
- 2 Sport surface
- 3 Concrete block
- 4 Ground socket
- 5 Drainage hole

**Figure A.1 — Foundation**

**Table A.1 — Heights**

Dimensions in millimetres

Height	Upright min.
$h_1$	40
$h_2$	350

## Bibliography

EN ISO 2062, *Textiles — Yarns from packages — Determination of single-end breaking force and elongation at break*(ISO 2062:1993)

U p o z o r n ě n í : Změny a doplňky, jakož i zprávy o nově vydaných normách jsou uveřejňovány ve Věstníku Úřadu pro technickou normalizaci, metrologii a státní zkušebnictví.

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