



**SLOVENSKI STANDARD**  
**SIST EN 13120:2004**

**01-september-2004**

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Internal blinds - Performance requirements including safety

Abschlüsse innen - Leistungs- und Sicherheitsanforderungen

Stores intérieurs - Exigences de performance, y compris la sécurité

**Ta slovenski standard je istoveten z: EN 13120:2004**

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**ICS:**

91.060.50      Vrata in okna      Doors and windows

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ICS 91.060.50

English version

## Internal blinds - Performance requirements including safety

Stores intérieurs - Exigences de performance y compris la  
sécurité

Abschlüsse innen - Leistungs- und  
Sicherheitsanforderungen

This European Standard was approved by CEN on 6 February 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of 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.

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## Foreword

This document (EN 13120:2004) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by November 2004, and conflicting national standards shall be withdrawn at the latest by November 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

This European Standard is a part of a series of standards dealing with blinds and shutters for buildings as defined in EN 12216.

This European Standard specifies the requirements for internal blinds, the levels of performance and where applicable, the associated classes.

It is completed by test standards as well as by the standards referring to specific performance requirements.

No existing European Standard is superseded.

Annex A is informative. Annex B is normative.

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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.

## Introduction

The performances given in this European Standard which illustrate suitability for use, are required for every type of internal blind (intrinsic performances).

Other performances are only required as a complement (specific performances) and result in specific products. Some of them are described in European Standards (e.g. EN 1522, EN 1523). Others are described in prEN 14500 and prEN 14501 in the process of preparation and deal with the important subject such as thermal comfort, i.e.:

- solar factor;
- shading factor;
- secondary heat transfer factor;
- direct solar transmittance;
- solar radiation reduction factor;

and visual comfort, i.e.:

- light control;
- night privacy;
- visual contact with the outside;
- glare control;
- rendering of colours.

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NOTE Health and Safety regulations require that the workplace receives as much natural light as is reasonably practical (see EU Directive 89/654/EEC) and protection of operators working with VDV screens against glare and reflected light (see EU Directive 87/391/EEC).

The list of these documents is given in the Bibliography.

With the aim of clarifying the intentions of the standard and avoiding doubts when reading it, following assumptions was made related to power operated product while producing it:

— Negotiations occur between the manufacturer and the purchaser concerning particular conditions for use and places for use such as for nursery schools or for buildings for disabled people which need specific risk analysis;

— The risk analysis carried out in this European Standard and the significant hazards listed in annex B suppose a normal use or normally predictable use e.g. which excludes deliberate and conscious risks taken by the user (see Interpretative Document “Safety in use” of EU Construction Products Directive).

## 1 Scope

This European Standard specifies the requirements which internal blinds shall fulfil when fitted to a building. It deals also with the significant machinery hazards for construction, transport, installation, operation and maintenance of the blinds (see list of significant hazards in annex B).

It applies to all internal blinds as well as similar products whatever their design and nature of the materials used as follows:

- Venetian blind: free hanging, guided, non-retractable;
- Roller blind: free hanging, side guided, with tensioned fabric;
- Vertical blind: free hanging, with top and bottom track, and sloping headrail;
- Pleated blind: free hanging and guided.

These products may be operated manually, with or without compensating springs, or by means of electric motors (power operated products).

This standard does not apply to Roman Shades, Austrian, Festoon, Pinoleum, Side Drawn pleated blinds, Insect screens or blinds in sealed glazed units.

**This document is not applicable to internal blinds which are manufactured before the date of publication of this document.**

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## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1050:1996, *Safety of machinery — Principles of risk assessment*.

EN 1070:1998, *Safety of machinery — Terminology*.

EN 1670, *Building hardware — Corrosion resistance — Requirements and test methods*.

EN 12045, *Shutters and blinds power operated — Safety in use — Measurement of the transmitted force*.

EN 12194, *Shutters, external and internal blinds — Misuse — Test methods*.

EN 12216:2002, *Shutters, external blinds, internal blinds — Terminology, glossary and definitions*.

EN 13125, *Shutters and blinds — Additional thermal resistance — Allocation of a class of air permeability to a product*.

EN 13527, *Shutters and blinds — Measurement of the operating forces — Test methods*.

EN 14201, *Blinds and shutters — Resistance to repeated operations (mechanical endurance) — Methods of testing*.

EN 20105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour (ISO 105-A02:1993)*.

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*.

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EN 60335-2-97, *Household and similar electrical appliances – Safety – Part 2-97: Particular requirements for drives for rolling shutters, awnings, blinds and similar equipment.*

EN 61310-1, *Safety of machinery – Indication, marking and actuation – Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995).*

EN ISO 105-B04, *Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test (ISO 105-B04:1994).*

EN ISO 10077-1, *Thermal performance of windows, doors and shutters – Calculation of the thermal transmittance – Part 1: Simplified method (ISO 10077-1:2000).*

EN ISO 12100-2:2003, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003).*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests.*

### 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1070:1998 and EN 12216:2002 and the following apply.

#### 3.1

##### **internal blind**

blind fitted in front of or on a window or in between glazing or anywhere within the internal surface of the building

#### 3.2

##### **intrinsic performance**

overall performances of the blind regardless of its application as opposed to specific performance

#### 3.3

##### **specific performance**

performance which may be additional and complementary to the intrinsic performances and refers to a specific product

#### 3.4

##### **curtain**

part of the product which is set in motion by the operating mechanism and ensures its function

#### 3.5

##### **extension/retraction**

movement of the curtain resulting in an increase/decrease in the surface area covered

#### 3.6

##### **opening/closing**

terms used to describe the increase in light (opening) or reduction of light (closing) in an extended position for products with slats or louvres which can be tilted or adjusted

#### 3.7

##### **rough operation**

sharp action on the operating mechanism or directly on the curtain, resulting in excessive speed at the beginning and a sudden stop at the end

NOTE Rough operation is only possible if the moving part has significant inertia (mass and speed).

#### 3.8

##### **forced operation**

excessive force exerted on the operating mechanism or directly on the curtain with the aim of causing movement in spite of resistance to the travel of the curtain



**3.9****reversed operation**

extension or retraction of the curtain occurring in the opposite direction to that intended without use of abnormal force

**3.10****winch handle**

operating mechanism consisting of a reel rotated by an operation handle which allows accumulation of a cord, cable or chain

**3.11****gear with crank handle**

operating mechanism consisting of a gear attached to an axle, a drive shaft, an universal joint, a rotating rod and a crank handle

**3.12****one direction movement of the operating mechanism**

operating mechanism operated by a single cord, tape, etc., extension / retraction being effected by relying on gravity or the potential energy stored up during retraction / extension (respectively)

**3.13****endless movement of the operating mechanism**

operating mechanism operated by a loop, movement in one direction extends the curtain (or tilts the laths), and in the reverse retracts the curtain (or tilts the laths) in the opposite direction

**3.14****monocommand**

same operating mechanism which achieves both opening / closing and extension / retraction

**3.15****determination of performance**

means of verification of the performance relating to the corresponding requirement

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**4 Operating effort****4.1 General**

Does not apply for power operated products.

The operating effort  $F_M$  necessary to extend, retract, open or close the blind is a function of the type of operation.

**4.2 Determination**

Shall be in accordance with the test methods specified in EN 13527.

**4.3 Performance requirement**

The operating effort  $F_M$  shall not exceed the values in Table 1.

Table 1 — Maximum values  $F_M$  for operating force

TYPES OF OPERATION		$F_M$	
		N	
		Class 1	Class 2
crank or winch handle <sup>a, c</sup> , wand		30	15
tape, cord or chain <sup>a, b, c</sup>		90	50
Rod, hand	vertical plane	90	50
	horizontal or sloping plane	50	30
<p>For spring loaded systems, <math>1,5 F_M</math> may be reached for locking in the fully extended or retracted position.</p> <p>A blind belongs to class 2 if both the operations of moving the curtain and tilting the laths belong to class 2. Otherwise the blind is class 1.</p> <p><sup>a</sup> Operation mechanism shall also fulfil the requirements in clause 5.</p> <p><sup>b</sup> One direction movement and endless movement of the operating mechanism.</p> <p><sup>c</sup> Monocommand.</p>			

**5 Design of the operating mechanism – Diagrams HPV ("human pull value")**

**5.1 General**

Geometrical characteristics of operating mechanisms taking into account the comfort of the operation.

**5.2 Performance requirement**

**Gear operation:**

Gear with crank or winch handle shall have:

- a handle R of length less or equal to 0,20 m ( $R \leq 0,20$  m);
- a reduction ratio r of the gear less than 1 : 10 (average or mean reduction ratio when, for the same gear, several reductions exist).

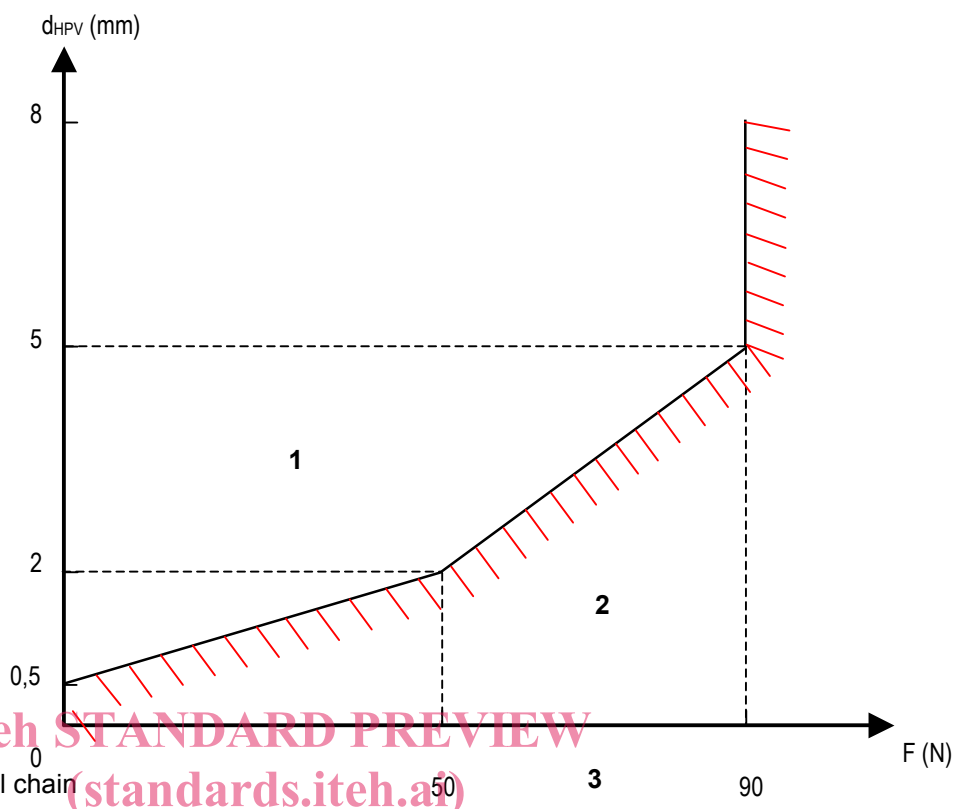
NOTE A reduction ratio of 1:10 means it is necessary to make ten turns of the crank to achieve one rotation of the roller tube or axle.

**Tape, cord or chain operation:**

Operating mechanisms shall have minimal dimensions as given in the HPV diagrams (see Figures 1 and 2).

Apparent cord diameter for HPV  
for n cords with diameter d

	n	$d_{HPV}$
●	1	1d
●●	2	1,5 d
● ●●	3	2 d
●● ●●	4	2,4 d
●● ●●●	5	2,7 d
● ●● ●●●	6	3 d



d is the diameter of a single cord  
or the diameter of the ball of a ball chain

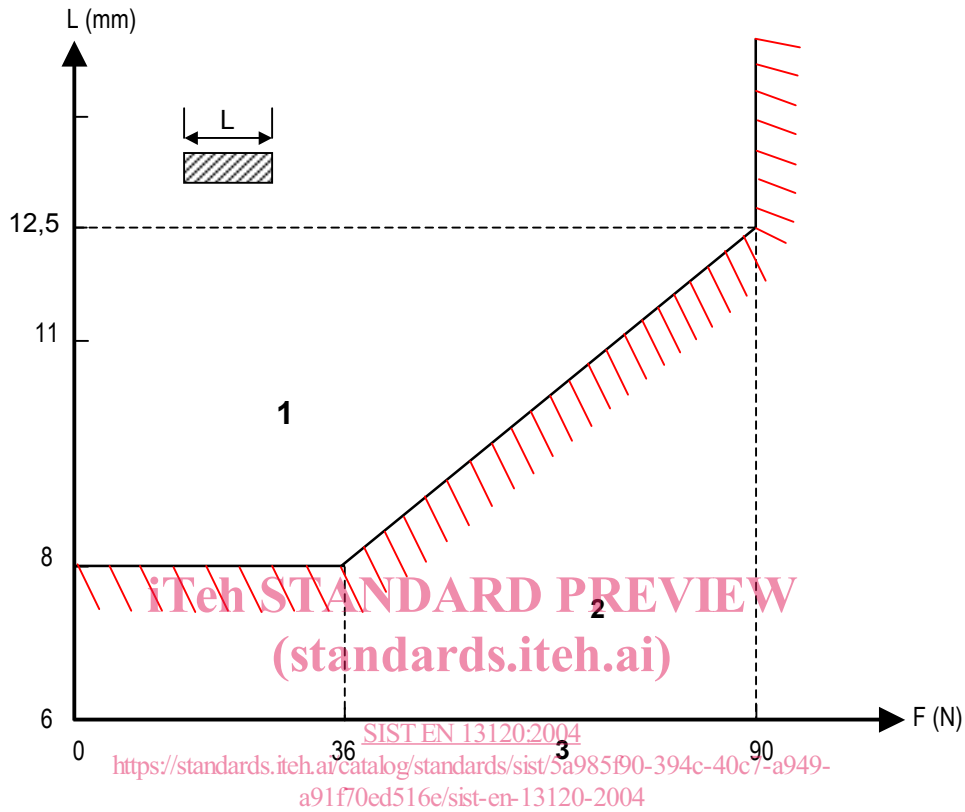
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**Key**

- 1 Acceptable
- 2 Non acceptable
- 3 Operating effort

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**Figure 1 — Diagram HPV for a cord or chain operation**



- Key**
- 1 Acceptable
  - 2 Non acceptable
  - 3 Operating effort

**Figure 2 — Diagram HPV for a tape operation**

## 6 Misuse

### 6.1 Curtain and slats - General

#### 6.1.1 General requirement

Under the action of abnormal but foreseeable use (misuse), the internal blind shall not become misshapen or damaged to the extent that:

- a) The damage impairs its correct operation;
- b) The damage which leads to a deterioration in appearance as defined in clause 11.

Misuse operations are related to the displacement of the curtain and to the tilting of the laths.

#### 6.1.2 Displacement of the curtain

##### – Rough operation

As the conditions of a rough operation are not likely to occur (excessive speed, inertia of curtain), rough operation is not possible.