



SLOVENSKI STANDARD
SIST EN 14203:2004

01-oktober-2004

Fc`YhY]b`dc`_bUË'I dcfUVbcgha Y\ Ub]na cj `g`dc[cbg_c`fc]WË`Ë`NUA Hÿj Y]b
dfYg_i gbY'a YfcXY

Blinds and shutters - Capability for use of gears with crank handle - Requirements and test methods

Abschlüsse und Läden - Gebrauchstauglichkeit von Getrieben mit Kurbel - Anforderungen und Prüfverfahren

Fermetures pour baies équipées de fenêtres, stores intérieurs et stores extérieurs - Aptitude a l'emploi des treuils avec manivelle a tige oscillante - Exigences et méthodes d'essai

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Ta slovenski standard je istoveten z: EN 14203:2004

ICS:

91.060.50 Vrata in okna Doors and windows

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EUROPEAN STANDARD

EN 14203

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2004

ICS 91.060.50

English version

Blinds and shutters - Capability for use of gears with crank handle - Requirements and test methods

Fermetures pour baies équipées de fenêtres, stores intérieurs et extérieurs - Aptitude à l'emploi des treuils avec manivelle à tige oscillante - Exigences et méthodes d'essai

Abschlüsse und Läden - Gebrauchstauglichkeit von Getrieben mit Kurbel - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 11 December 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 14203:2004) 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 August 2004, and conflicting national standards shall be withdrawn at the latest by August 2004.

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

The methods of testing are linked to the performances requirements for internal blinds, external blinds and shutters, as specified in prEN 13120, prEN 13561 and prEN 13659.

No existing European Standard is superseded.

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.

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EN 14203:2004 (E)**1 Scope**

This European Standard specifies the functional performances of mechanical drive systems with crank handle for shutters, external blinds and internal blinds and the supply conditions of these systems between blinds and shutters manufacturers on one hand, and operating systems manufacturers on the other, for the following four families of use :

- roller shutters
- venetian blinds
- folding arm awnings
- other awnings and blinds

Excluded from this standard are gears with crank handle fitted to power operated products and used as manual override actuators.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the 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 12216:2002, *Shutters, external blinds, internal blinds - Terminology, glossary and definitions.*

prEN 13120, *Internal blinds — Performance requirements.*

EN 13527, *Shutters and blinds - Measurement of operating force - Test methods.*

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prEN 13561, *External blinds — Performance requirements including safety.*

prEN 13659, *Shutters – Performance requirements including safety.*

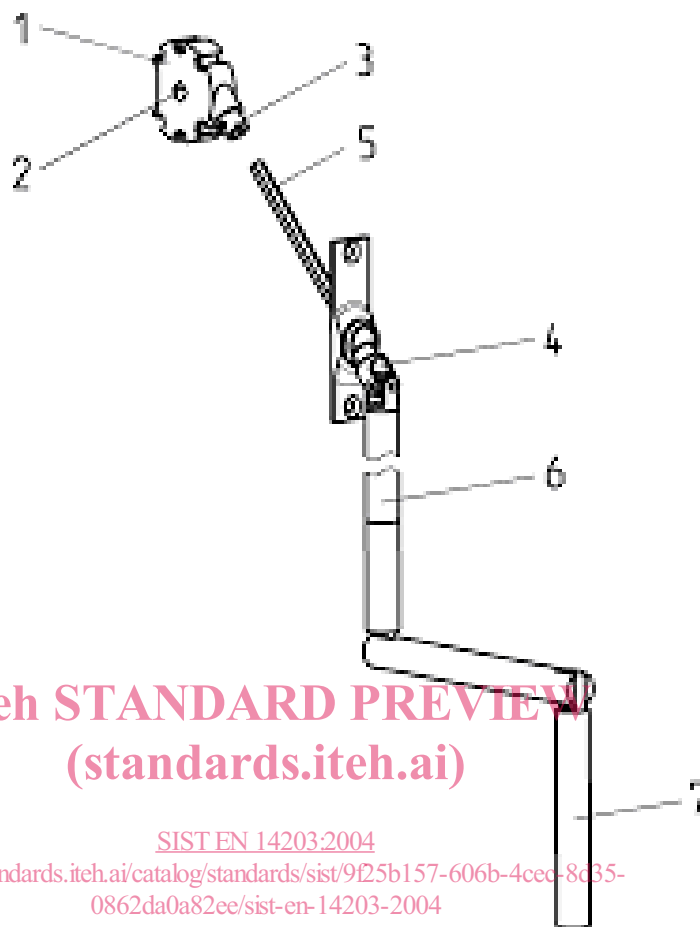
3 Terms and definitions

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

drive system with a crank handle — Main components (see Figure 1)

they are made up of the :

- gear ;
- joint, single or double ;
- drive-shaft ;
- crank, extendable, detachable or not, with or without torque limitation, etc. ;
- operating handle, detachable or not, without curved lower part, articulated, etc. ;
- limit stop systems if they exist, incorporated or not in the gear ;
- crank handle clip.

**Key**

1	Gear	5	Crank (rotation rod)
2	Output	6	Crank handle/operating
3	Input	7	Handle
4	Joint		

Figure 1 — Description of a gear with crank handle**4 Characteristic parameters of gear with a crank handle**

They are as follows :

a) Nominal torque on the output shaft of the gear, M_s . This feature, expressed in Nm, is guaranteed by the gear manufacturer through the tests specified in this standard, and for one of the four following families of products:

- roller shutter ;
- folding arm awning : M_s is then specified by 2 values ;
- venetian blind ;
- other types of awnings and blinds.

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b) Reduction ratio r of the gear:

$$r = \frac{N_1}{N_2} \text{ and } r < 1 \quad (1)$$

where

- N_1 , is the number of revolutions on the gear output
- N_2 , is the number of revolutions on the gear input

c) Different efficiencies η_1, \dots, η_k of the components of the gear,

d) Force F to be applied to the crank handle for generating the output torque M_s .
 F , expressed in N, shall be lower than the maximum values of the operating efforts specified in prEN 13120, prEN 13561 and prEN 13659.

e) The arm of the crank handle R , expressed in m, with $R \leq 0,20$ m.

These characteristics are linked by the formula :

$$M_s = \frac{F \times R \times \eta_1 \times \dots \times \eta_k}{r} = \frac{F \times R \times \eta}{r} \quad (2)$$

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5 Principle of the tests

Checking the functional properties of the different components after a forced operation test and an endurance test consisting of cycles, raising and lowering movements, of a nominal load P that corresponds to the nominal torque M_s given by the gear manufacturer, under the conditions in clause 6.

6 Test rig

6.1 Test rig characteristics

The test rig consists of a cross beam (frame) with width over or equal to 0,9 m and sufficient height to enable the test load to hang freely during the whole test. The transverse beam and its fixings shall be sufficiently rigid to withstand the forces and without deformations that could affect the results.

6.2 Gear with crank handle for roller shutter

6.2.1 Test equipment

The transverse beam is made of the roller tube of the smallest diameter D_t from the roller tubes specified by the gear manufacturer in his technical instructions for the tested gear with crank handle.

On that roller tube two drums are fitted with diameter $D_e = 2,5 \times D_t$ respectively located at the 1/3 and at the 2/3 of the cross-beam width (see Figure 2).

The drums shall be wide enough to allow the cords or cables supporting the load to coil round the constant diameter D_e .

6.2.2 Nominal test load

The nominal test load P is determined by the following formula :

$$P = \frac{2 \times M_s}{D_e + D_c} \quad [\text{N}] \quad (3)$$

where

- M_s , in Nm, is the output torque given by the gear manufacturer
- D_e , in m, is the diameter defined in 6.2.1
- D_c , in m, is the diameter of the coiling cord or cable measured when loaded

The test load P is applied equally ($\frac{P}{2}$) to each third of the test rig frame.

The travel of the testing load is 2 m minimum.

Dimensions in m

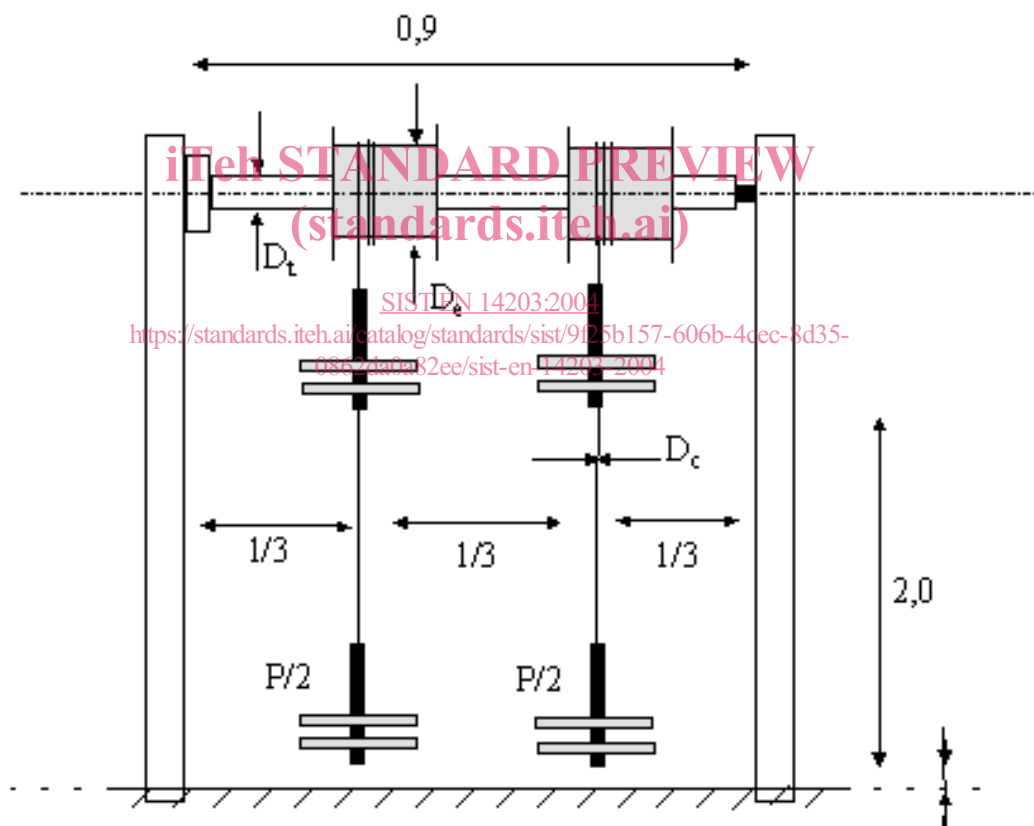


Figure 2 — Test rig for gear with crank handle for roller shutter

6.3 Gear with crank handle for venetian blinds

6.3.1 Test equipment

The transverse beam is made of a U profile in which the gear to be tested and its bracket can be inserted. The profile is designed to resist torsions and lateral pressures created during the test (see Figure 3).

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Cords and cables supporting the load coil during the test round a roller tube of diameter D_t .

Diameter D_t is equal to the diameter of the circle inscribed in a square, the side of which being equal to the largest size of the smallest of the brackets specified by the gear manufacturer fit for use with the gear fitted in the test gear with crank handle, multiplied by the factor 0,6.

6.3.2 Nominal test load

The nominal test load P is applied by means of two elastic devices placed respectively at the 1/3 and 2/3 of the frame (see Figures 3, 4 and 5).

These devices allow the reaching of a load with a linear variation from 0 to the value P with :

$$P = \frac{2 \times M_s}{D_t + D_c} \quad [\text{N}] \quad (4)$$

where

- M_s , in Nm, is the output torque given by the gear manufacturer
- D_t , in m, is the diameter as defined in 6.3.1
- D_c , in m, is the diameter of the coiling cord or cable measured when loaded

The travel of the pulleys is 1 m minimum.

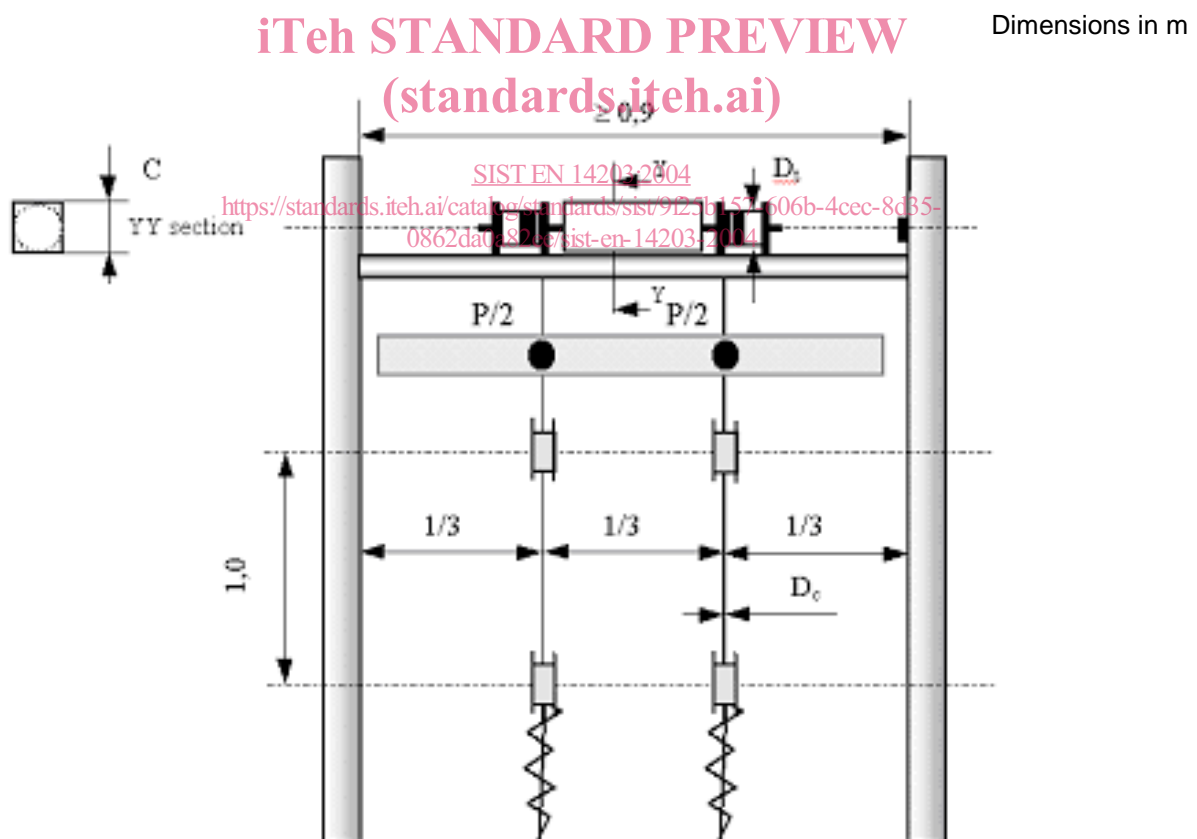
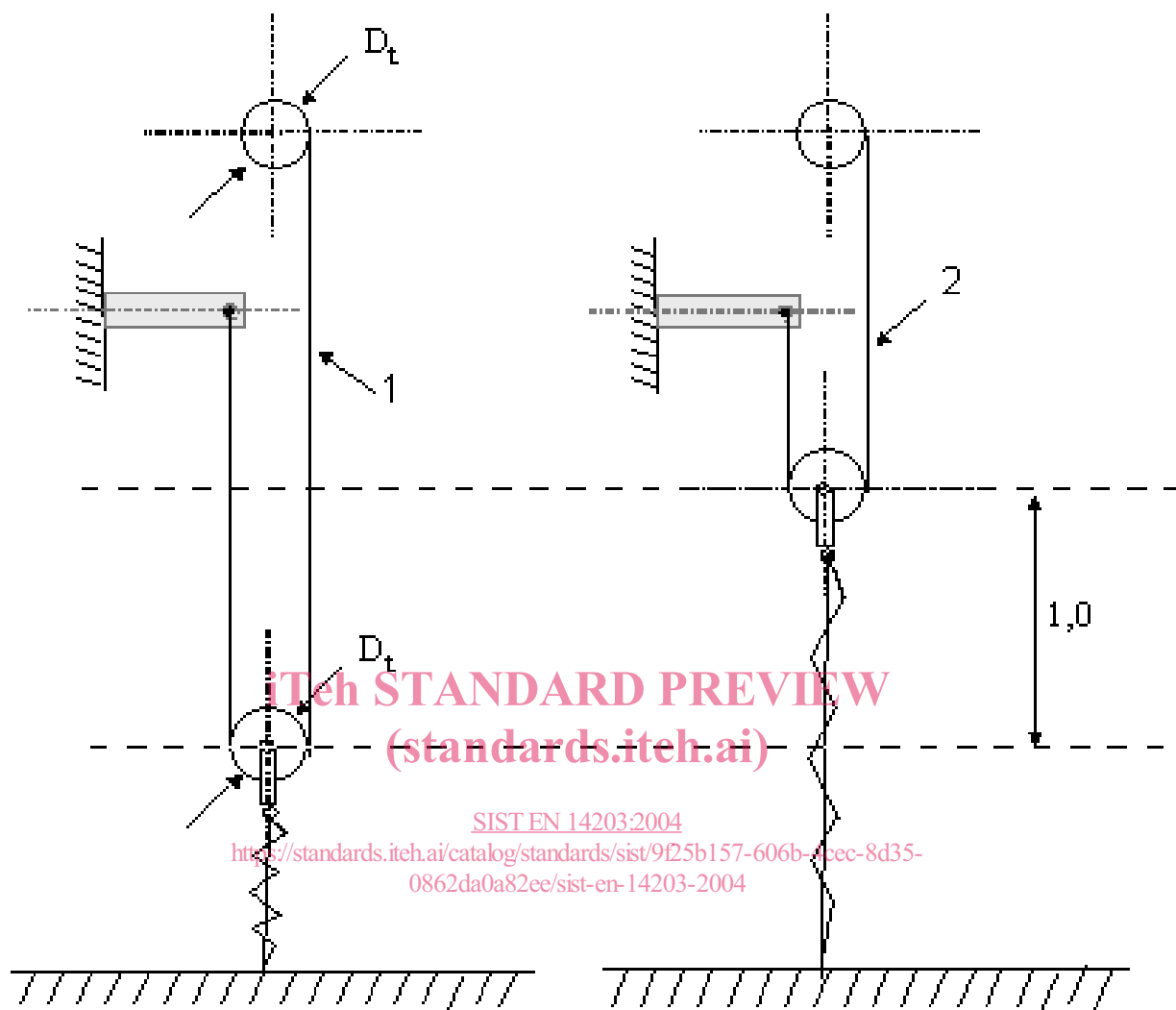


Figure 3 — Test rig of gear with crank handle for venetian blind

Dimensions in m

**Key**

- 1 Load = 0 N
- 2 Load = $P/2$ N on each cable

Figure 4 — Half test rig of gear with crank handle for venetian blind