BRITISH STANDARD

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14202:2004

Blinds and shutters — Suitability for use of tubular and square motorizations — Requirements and test methods

The European Standard EN 14202:2004 has the status of a British Standard

ICS 91.060.50

National foreword

This British Standard is the official English language version of EN 14202:2004.

The UK participation in its preparation was entrusted by Technical Committee B/538, Doors, windows, shutters, hardware and curtain walling, to Subcommittee B/538/3, Domestic shutters and blinds, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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EN 14202

July 2004

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English version

Blinds and shutters - Suitability for use of tubular and square motorizations - Requirements and test methods

Stores extérieurs et fermetures pour baies équipées de fenêtres - Aptitude à l'emploi des actionneurs électriques tubulaires ou carrés - Exigences et méthodes d'essais

Abschlüsse - Eignung von Einsteckantrieben und Jalousieantrieben - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 13 May 2004.

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Ref. No. EN 14202:2004: E

Contents

Foreword

This document (EN 14202:2004) 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of an identical text or by endorsement, at the latest by January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

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

The requirements and method of testing are linked to the performance requirements for internal blinds, external blinds and shutters, as specified in EN 13120, EN 13561 and EN 13659.

NOTE Noise of the motorization: as far as presently known, there is no simple and economically acceptable way of characterising and measuring the solid-borne power level of motorization, which would allow the assessment of the global acoustic performances for the fully assembled and installed end-product.

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.

1 Scope

This document specifies the requirements and tests to be performed for electric tubular or square drives without driven part, to be applied to power operated blinds and shutters, in addition to their conformity to the electrical safety requirements specified in EN 60335-1 and EN 60335-2-97.

It does not apply to drives with driven part.

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

EN 60335-1:2002, *Household and similar electrical appliances – Safety – Part 1: General requirements (IEC 60335-1:2001, modified).*

EN 60335-2-97:1998, *Safety of household and similar electrical appliances – Part 2-97: Particular requirements for drives for rolling shutters, awnings, blinds and similar equipment (IEC 60335-2-97:1998, modified).*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12216:2002, EN 60335-1:2002, EN 60335-2-97:1998 and the following apply.

3.1
drive
motor and other components which control the movement of the driven part

NOTE Examples of components are gears, controls and brakes.

3.2
tubular motorization, square motorization
it is made up of:

— the drive itself

— the various parts used as an interface between the drive and the different roller tubes (tubular motorization), and between the drive and the various headrails (square motorization), specified by the manufacturer in his technical documentation

3.3
driven part
part such as rolling shutter, awning or blind that is operated by the drive

3.4
drive without driven part (stand alone drive)
drive for which the electrical safety requirements according to EN 60335-2-97 are achieved by the drive itself

3.5
drive with driven part (built-in drive)
drive for which the electrical safety requirements according to EN 60335-2-97 are achieved only when the drive is integrated in the complete product

NOTE This type of drive can only be supplied as a component.

3.6
operation cycle
time to achieve a full raising and lowering including rest times specified by the manufacturer

4 Endurance test

4.1 Test rig

Consists of a frame more or equal to 0,9 m wide and of sufficient height to enable the test load to hang freely during the whole test.

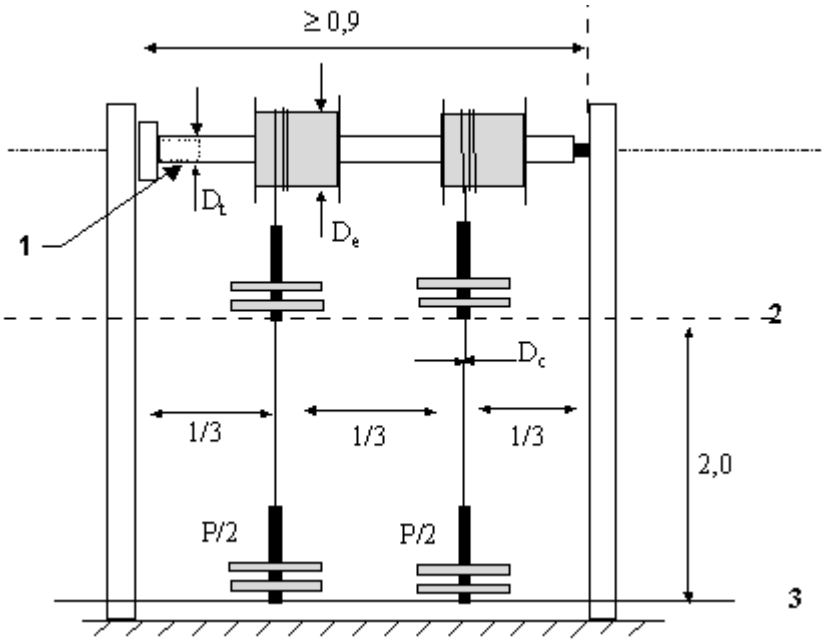
The transverse beam and its fixings shall be rigid enough to withstand the forces without any deformation that could affect the results consisting of:

a) Case of tubular motorizations (see Figure 1)

A roller tube with the diameter D_t. The motorization to be tested is located at one end of the tube. On that roller tube are fitted two drums of diameter D_e.

D_t and D_e are specified in 4.2.

Dimensions in metres



Key
1 Motorization to be tested
2 Upper limit position
3 Lower limit position

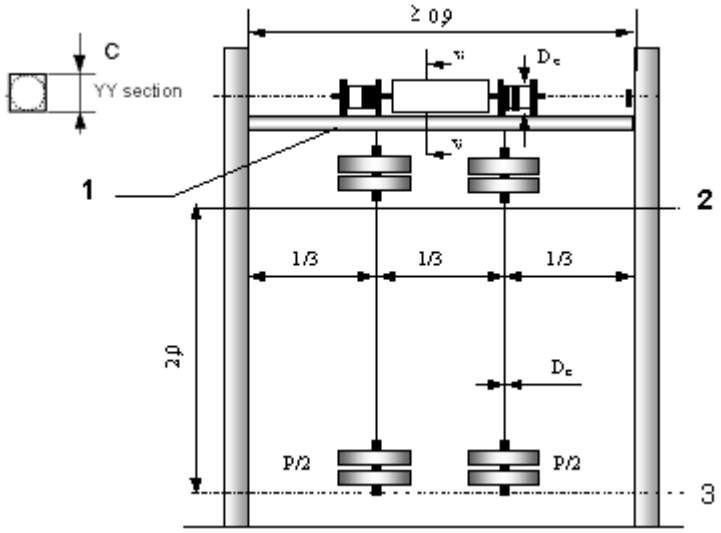
Figure 1 — Test rig for tubular motorization

b) Case of square motorization (see Figure 2)

A profile able to support the motorization and the test load. The motorization is firmly coupled-up to the cable rollers consisting of two drums of diameter D_e, so that the central shaft(s) are only subjected to rotation. It is situated either at the centre of the frame (double output motor), or at the end of the beam (single output motor).

D_e is specified in 4.2.

Dimensions in metres



Key
1 Motorization to be tested
2 Upper limit position
3 Lower limit position

Figure 2 — Test rig for square motorization with a double output

4.2 Test load

The test load P is distributed equally (P/2) on the two drums, producing three equal parts of the frame. The travelling distance of the test load is 2 m.

P is determined by the following equation:

$$P = 2 \times M / (D_e + D_c) \quad [N] \qquad (1)$$

where

— **M** is the nominal torque of the motorization, in Nm;

— **D** is the diameter of the drums, in m:

- For the tubular motorization,
  - D_e = 0,080 m if $D_t \geq 0{,}040$ m
  - $D_e = 1{,}1\ D_t$ if $D_t < 0{,}040$ m

  With D_t the smallest roller tube diameter specified by the drive manufacturer.

- For the square motorizations,
  - $D_e = D_t$

  With D_t the diameter of the circle inscribed in the external contour C of the drive to be tested, multiplied by factor 0,6 (see Figure 2, cross-section YY).

— **D_c** is the diameter of the roller cable measured when loaded, in m.

4.3 Testing

The endurance test is carried out under the following conditions:

- ambient temperature: 23°C ± 5°C;
- the motorization operates at nominal voltage and nominal torque M;
- carrying out of the number of operation cycles specified in Table 1;
- cooling is allowed during the test.

Table 1 — Endurance test — Number of cycles

	Tubular motorization	Square motorisation
Number of cycles	7000	10000

5 Performance requirements

5.1 General

After carrying out the endurance cycles, the following performances shall be checked.

5.2 Variation of the speed under load

The ratio $\frac{|T_1 - T_2|}{T_1} \times 100$ shall be less or equal to 20 %.

where

T_1, is the time taken to raise the load at the beginning of the endurance test, after the first minute of operation, in seconds;

T_2, is the time taken to raise the load at the end of the endurance test, in seconds.

5.3 Accuracy of the limit stops positions

The variation in the upper and lower positions, measured for both directions of rotation and expressed as an angle in relation to the initial value recorded after one complete operating cycle, shall remain in the ranges specified in Table 2:

Table 2 — Accuracy of the limit stops

Motorization type	**Limit stop drift**	
	Class 1	**Class 2**
Tubular motorization	± 15°	± 5°
Square motorization	± 10°	± 3°

5.4 Characteristics of the brake

5.4.1 Dynamic test

Only concerns square motorizations for the tilting function of the external venetian blinds.

On stopping the downward movement of load P, the angular displacement θ shall not exceed 20°.

The test is carried out as follows:

— the load moves downwards;

— stop the motor;

— record the angular position θ_0 of the shaft;

— record the angular position θ_1 of the shaft after the movement of the load has stopped;

— record the angular displacement $\theta = \theta_1 - \theta_0$.

5.4.2 Static test

Once load 1,15 x P is stopped in an intermediate position, its displacement d, measured after at least 12 h, shall not exceed 5 mm.

The test is carried out as follows:

— the load operates upwards and is stopped at the mid-travel position of its trip;

— wait 1 min until the load stabilises and possible mechanical plays are self-balanced;

— record the said to be "initial" position of the load;

— after at least 12 h, record the new position said to be "final" position of the load;

— record displacement d = final position – initial position.

5.5 Grease or oil leakage

There shall be no visible grease or oil leakage.

6 Test report

The test report shall include the following:

a) the name and address of testing laboratory and address of the location where the test was carried out when different from the address of the testing laboratory;

b) the number, title and date of issue of this standard;

c) unique identification of the test report and of each page, and total number of pages of the report;

d) name and address of client;

e) date of receipt of test item and date of test;

f) the reference of the motorization tested and all necessary details for identification of the product;

g) the conditions of test (values of the load P, the torque M, the diameters D_t and D_c, the operation cycle);

h) results obtained according to clause 5.

Bibliography

[1] EN 13120:2004, Internal blinds – Performance requirements including safety.

[2] EN 13561:2004, External blinds – Performance requirements including safety.

[3] EN 13659:2004, Shutters – Performance requirements including safety.

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