SLOVENSKI STANDARD
SIST EN 1154:2000

01-maj-2000

Stavbno okovje - Naprave za samodejno zapiranje vrat - Zahteve in preskusne metode

Building hardware - Controlled door closing devices - Requirements and test methods

Schlösser und Baubeschläge - Türschließmittel mit kontrolliertem Schließablauf - Anforderungen und Prüfverfahren

Quincaillerie pour le bâtiment - Dispositifs de fermeture de porte avec amortissement - Prescriptions et méthodes d'essai

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English version

Building hardware - Controlled door closing devices - Requirements and test methods

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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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Contents

Foreword

This European Standard 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of an identical text or by endorsement, at the latest by May 1997, and conflicting national standards shall be withdrawn at the latest by May 1997.

This European Standard is part of a package of European Standards dedicated to building hardware products, and derives from performance requirements contained in various texts cited in annex E.

Work is in progress in order to support the implementation of the European standards by evidence which demonstrates the conformity of products to the technical requirements set out in those standards.

In order not to delay the publication of the present standard, those conformity assessment criteria related to controlled door closing devices will be published separately. They will be incorporated in this standard when next revised.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies requirements for controlled door closing devices for swing doors, such devices being mounted on or in the frame, on or in the door, or in the floor.

The scope is limited to manually operated door closing devices where the energy for closing is generated by the user upon opening the door, such that when the door is released, it returns to a closed position, in a controlled manner.

Devices such as spring hinges, which do not exert a checking control during door closing, are outside the scope of this standard.

Door closing devices (door closers) manufactured in accordance with this standard are recommended for use wherever there is a requirement for reliable closing control of a door.

Door closers for use on fire/smoke doors need additional attributes in order to contribute actively to meeting the essential safety requirements in case of fire, either independently or as part of a complete door assembly.

These additional requirements for door closers for use on a fire/smoke door assembly are specified in normative annex A.

Door closers incorporating electrically powered hold-open mechanisms, for use on fire/smoke door assemblies, are covered by prEN 1155.

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.

prEN 1155		Building hardware - Electrically powered hold-open devices for swing doors - Requirements and test methods
prEN 1670	1994	Building hardware - Corrosion resistance of hardware for doors, windows, shutters and curtain walling - Requirements and test methods
prEN 1634		Fire testing of door and shutter assemblies

3 Definitions

For the purposes of this standard, the following definitions apply :

3.1 controlled door closing device (door closer)

Any manually operated door closing mechanism where the energy for closing is generated by the user upon opening the door, and when released, returns the door to the closed position, in a controlled manner. The term includes all arms, brackets, shoes, top centres, floor pivots and other parts supplied with the device and necessary for its installation and operation.

3.2 overhead door closer surface mounted

A door closer mounted, at or near the door head, on the surface of the door or its transom (see annex C, figure C.1.1).

3.3 overhead concealed door closer door mounted

A door closer, mounted within the thickness of the door (see annex C, figure C.1.2).

3.4 overhead concealed door closer transom mounted

A door closer mounted within the thickness of the transom (see annex C, figure C.1.3).

3.5 floor concealed door closer - floor spring

A door closer mounted within the floor (see annex C, figure C.1.4).

3.6 double action door close

A door closer which allows operation of a door in both directions (see annex C, figure C.2.1).

3.7 single action door closer

A door closer for use on doors which can open in one direction only and which close against a fixed stop (see annex C, figure C.2.2).

3.8 door width

The width of the door leaf including any rebated door edges (see annex C, figure C.2.3).

3.9 closing moment

The torque in Nm generated by the door closing device which acts upon the door leaf during the closing operation.

3.10 opening moment

The torque in Nm generated by the user which acts upon the door leaf during the opening operation.

3.11 backcheck

An inbuilt buffer which helps to prevent a door leaf being flung wide open.

3.12 delayed closing

An inbuilt function that allows the door closing action to be delayed for an adjustable period of time before resuming controlled closing.

3.13 door closer power size

A measure of the closing moment exerted by a door closer.

3.14 hold-open

An inbuilt function that allows a door fitted with a door closer to remain open at either a preset or chosen angle until manually released.

3.15 electrically powered hold-open

An inbuilt function that allows a door fitted with a door closer to remain open at either a preset or chosen angle until electrically released (see prEN 1155).

3.16 adjustable closing force

An inbuilt function that allows the closing moment of a door closer to be adjusted over a range of power sizes.

3.17 efficiency

A ratio of the opening force applied to the door by the user, and the force available for closing the door, expressed as a percentage (see 7.3.4.2).

3.18 speed control

The adjustability of the closing speed of the door (see 5.2.6).

3.19 latch control

A speed control operable only during the last few degrees of door closing (see 5.2.12).

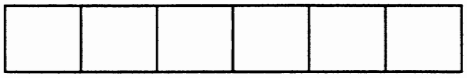
3.20 test cycle

A test cycle includes all operations of the test door, from the closed position, to opening to the required position and to closing back to the closed position.

4 Classification

4.1 General

For the purposes of this standard, door closers shall be classified according to the following 6 digit coding system :



4.2 Category of use (first digit)

For all internal and external doors for use by the public, and others, with little incentive to take care, i.e. where there is some chance of misuse of the door.

- grade 3 : For closing doors from at least 105° open ;

- grade 4 : For closing doors from 180° open.

NOTE 1 : Grade 4 classification assumes standard installation according to the manufacturer's instructions.

NOTE 2 : For applications subject to extremes of abuse, or for particular limitations of opening angle, door closers incorporating a backcheck function or provision of a separate door stop should be considered (see 5.2.13).

4.3 Number of test cycles (second digit)

Only one test duration is identified for door closers manufactured to this standard :

- grade 8 : 500 000 test cycles (see 5.2.2).

4.4 Test door mass (third digit)

Seven test door mass grades and related door closer power sizes are identified according to table 1 of this standard.

Where a door closer provides a range of power sizes both the minimum and the maximum sizes shall be identified.

EXAMPLE :

The following marking denotes a door closer with a range of power sizes from size 2 to size 5 :

3	8	5 2	0	1	0

4.5 Fire behaviour (fourth digit)

Two grades of fire behaviour are identified for door closing devices manufactured to this standard :

- grade 0 : Not suitable for use on fire/smoke door assemblies ;

- grade 1 : Suitable for use on fire/smoke door assemblies, subject to satisfactory assessment of the contribution of the door closer to the fire resistance of specified fire/smoke door assemblies. Such assessment is outside the scope of this European Standard (see prEN 1634-1).

Annex A indicates additional requirements for door closers manufactured to this grade.

4.6 Safety (fifth digit)

All door closers are required to satisfy the Essential Requirement of safety in use. Therefore only grade 1 is identified.

4.7 Corrosion resistance (sixth digit)

Five grades of corrosion resistance are identified according to prEN 1670 :

- grade 0 : No defined corrosion resistance ;

- grade 1 : Mild resistance ;

- grade 2 : Moderate resistance ;

- grade 3 : High resistance ;

- grade 4 : Very high resistance.

Table 1

Door closer power size	Recommended door leaf width	Test door mass	Closing moment				Opening moment between 0° and 60°	Door closer efficiency between 0° und 4°
			between 0° und 4°		between 88° und 92°	any other angle of opening		
	mm max.	kg	Nm min.	Nm max.	Nm min.	Nm min.	Nm max.	% min.
1	< 750	20	9	< 13	3	2	26	50
2	850	40	13	< 18	4	3	36	50
3	950	60	18	< 26	6	4	47	55
4	1100	80	26	< 37	9	6	62	60
5	1250	100	37	< 54	12	8	83	65
6	1400	120	54	< 87	18	11	134	65
7	1600	160	87	< 140	29	18	215	65

NOTE 1 : Where the actual size and mass of door to which the door closer is to be fitted relates to two sizes of door closers, the larger power size of door closer should be used.

NOTE 2 : The door widths given are for standard installations. in the case of unusually high or heavy doors, windy of draughty conditions, or special installations, a larger power size of door closer should be used.

5 Requirements

5.1 Requirements concerning product information

5.1.1 A door closer manufactured to this standard shall be supplied with clear, detailed instructions for its installation, regulation and maintenance, which shall include any limitations of opening angle.

5.1.2 Where a door closer is recommended for fitting in other than standard application, these instructions shall clearly define the door closer power size for each application of fitting position stated.

5.2 Performance requirements

5.2.1 General

When tested in accordance with clauses 6 and 7, the door closer shall satisfy the performance requirements of 5.2.2 to 5.2.11, and 5.2.12 to 5.2.18 as appropriate.

5.2.2 Durability

The door closer shall be able to close a test door conforming to 6.1.1 and 6.2 from an opening angle of 90°, for a minimum of 500 000 test cycles.