



SLOVENSKI STANDARD
SIST EN 1155:2000
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Building hardware - Electrically powered hold-open devices for swing doors -
Requirements and test methods

Schlösser und Baubeschläge - Elektrisch betriebene Feststellvorrichtungen für
Drehflügeltüren - Anforderungen und Prüfverfahren

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Quincaillerie pour le bâtiment - (Dispositifs de retenue électromagnétique pour portes
battantes - Prescriptions et méthodes d'essai)

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English version

Building hardware - Electrically powered hold-open devices for swing doors - Requirements and test methods

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This European Standard was approved by CEN on 1997-04-06. 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.

The European Standards exist 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
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Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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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 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 C.

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 European Standard, those conformity assessment criteria related to electrically powered hold-open devices will be published separately. They will be incorporated in this European Standard when next revised.

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 1997, and conflicting national standards shall be withdrawn at the latest by November 1997.

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

1 Scope

This European Standard specifies requirements for separate hold-open devices and also for hold-open mechanisms incorporated in a door closer. Electrically powered hold-open devices for swing doors manufactured according to this European Standard can hold a swing door at a fixed position or can allow the door to swing freely. In each case interruption of the electrical supply will cause the controlled door to close positively.

Electrically powered hold-open devices manufactured in accordance with this European Standard are recommended for use wherever there is a requirement for reliable hold-open and release of self closing fire/smoke door assemblies.

Whilst these devices can incorporate smoke or fire detection elements, the performance of those particular elements is outside of the scope of this European Standard.

NOTE : The series of European Standards EN 54 covers the requirements, test methods and performance criteria of resettable smoke/fire detectors.

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.

EN 1154	Building hardware - Controlled door closing devices - Requirements and test methods
prEN 1634-1	Fire testing of door and shutter assemblies - Part 1 : Method of test for fire resistance of fire doors and shutters
prEN 1670	Building hardware - Corrosion resistance of hardware for doors, windows, shutters and curtain walling - Requirements and test methods

3 Definitions

For the purposes of this European Standard, the following definitions apply :

3.1 electrically powered hold-open device

3.1.1 electrically powered separate hold-open device

Device that allows a door, fitted with a separate door closer, to remain open at either a preset or chosen angle until electrically released.

3.1.2 electrically powered hold-open door closer

Door closer that incorporates an electrically powered hold-open.

3.1.3 electrically powered free-swing door closer

Door closer that allows a door, after an initial opening to a predetermined position, to swing freely anywhere from that position to its closed position without any resistance or damping. Upon removal of the electrical supply, the door returns to the closed position under the control of the door closer.

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3.2 controlled door closing device (door closer)

See EN 1154.

3.3 floor concealed door closer - floor spring

See EN 1154.

3.4 closing moment

See EN 1154.

3.5 power size

See EN 1154.

3.6 hold-open

See EN 1154.

3.7 electrically powered hold-open

See EN 1154.

3.8 hold-open power size

Measure of the holding force exerted by the hold-open device, related to the power size of the door closing devices fitted.

3.9 manual release

Action of pulling a door held open by a device to this European Standard, from its held position without removing the electrical supply, such that it will continue to the closed position under the control of the door closer.

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3.10 release moment

Moment required to manually release a door from its held position.

3.11 rated supply voltage

Nominal voltage for which the device is intended.

3.12 test cycle

See EN 1154.

4 Classification

4.1 General

For the purpose of this European Standard, electrically powered hold-open devices shall be classified according to the following 6 digit coding system :

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4.2 Category of use (first digit)

Only one category of use is identified for electrically powered hold-open devices :

- grade 3 : For 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.

NOTE : For electrically powered hold-open and free-swing door closers, where the opening angle is limited by the device, provision of a separate door stop should be considered.

4.3 Number of test cycles (second digit)

Two test durations are identified for devices manufactured to this European Standard :

- grade 5 : 50 000 test cycles. For all electrically powered hold-open devices (see 5.2.4) ;
- grade 8 : 500 000 test cycles. For all electrically powered hold-open and free-swing door closers and devices that contain operating arms (see 7.2.8.3).

4.4 Test door mass (third digit)

Five door mass grades and related hold-open power sizes are identified according to table 1 of this European Standard. (standards.iteh.ai)

Where an electrically powered hold-open device is suitable for a range of door closer power sizes, both the minimum and maximum power sizes shall be identified.

EXAMPLE :

The following marking denotes a hold-open device suitable for a range from power size 4 to power size 6 :

3	5	6	1	1	1
		4			

4.5 Fire resistance (fourth digit)

Only one grade of fire resistance is identified for electrically powered hold-open devices manufactured to this European Standard :

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

4.6 Safety (fifth digit)

All electrically powered hold-open devices 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

Hold-open power size	Recommended door leaf width mm max.	Test door mass kg	Overload test drop weight kg	Test door friction Nm max.
3	950	60	15	0,3
4	1100	80	18	0,4
5	1250	100	21	0,5
6	1400	120	27	0,6
7	1600	160	36	0,8

5 Requirements

5.1 Requirements concerning product information and design

5.1.1 An electrically powered hold-open device manufactured to this European Standard shall be supplied with clear, detailed instructions for its electrical supply requirements, installation, adjustment and maintenance, which shall include any limitation of opening angle.

For an electrically powered hold-open device which is not incorporated in a door closer these instructions shall include the precise range of door closer power sizes for which it is intended.

5.1.2 Electrically powered hold-open devices manufactured to this European Standard shall enable manual and electrical release of the door from any angle at which it can be held.

5.1.3 The design of an electrically powered hold-open device shall be such that it is not readily possible to inhibit the release in any way.

5.1.4 Electrically powered hold-open devices manufactured to this European Standard shall be designed for a rated supply voltage of 24 V direct current, with a ripple content of no more than 30 %.

NOTE : Electrically powered hold-open devices operated on other supply voltages can be permitted subject to local regulations and approval. Attention is drawn to additional safety measures that can be necessary when higher voltages are used.

5.1.5 Terminals for external electrical connections shall be so designed that they clamp the conductor between metal surfaces with sufficient contact pressure and without undue damage to the conductor.

5.1.6 Inlet openings for external wiring shall be so designed that the cable can be introduced and secured without damage.

5.2 Performance Requirements

5.2.1 General

When tested in accordance with clauses 6 and 7, the electrically powered hold-open device shall satisfy the performance requirements of 5.2.2 to 5.2.13 and 5.2.14 as appropriate.

5.2.2 Electrical release

Upon removal of the electrical supply, and when the applied voltage is reduced to 10 % of the rated supply voltage, the device shall release and allow the door to close under the control of the door closing device. The hold-open device shall release within 3 s of the supply being disconnected.

5.2.3 Door closing device requirements

Electrically powered hold-open and free-swing door closers shall conform to the requirements of EN 1154, including those additional requirements for door closing devices intended for use on fire/smoke door assemblies.

5.2.4 Durability

The electrically powered hold-open device shall be able to release a test door conforming to 6.2, from a hold-open angle of 90°, a minimum of 25 000 times when the electrical supply is removed, and a further 25 000 times when mechanically pulled from the hold-open position.

NOTE : This second requirement is not applicable to electrically powered free-swing door closers.

5.2.5 Angle of hold-open

An electrically powered hold-open door closer shall not hold open at door opening angles of less than 65°. The difference between the angle of hold-open and the opening angle of the door necessary to achieve this angle of hold-open shall not exceed 5° when tested in accordance with 7.2.3 (settle back).

NOTE : This requirement is not applicable to electrically powered free-swing door closers.

5.2.6 Manual Release

The moment required to release the door manually from a 90° hold-open position shall not be more than 120 Nm and not less than 40 Nm, when tested in accordance with 7.2.4.

NOTE : This requirement is not applicable to electrically powered free-swing door closers.

The requirement for manual release can also be achieved by the provision of an accessible clearly identified push button either incorporated in the device or situated nearby (see 7.2.4).

5.2.7 Continuous hold-open

Electrically powered hold-open door closers shall not permit the door to move towards the closed position by more than 2° when energised over a period of 48 h (see 7.2.10).

5.2.8 Overload performance

Electrically powered hold-open devices that limit the opening angle of the door shall withstand the opening overload test of 7.2.7 without fracture of any component or loosening of fixings.

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5.2.9 Delayed release (optional)

If provided with a delayed release function the device shall be capable of adjustment to a delay time of less than 30 s.