SLOVENSKI STANDARD
SIST EN 17372:2021

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Pogoni avtomatskih nihajnih vrat za prehod ljudi s funkcijo samozapiranja - Zahteve in preskusne metode

Power operated pedestrian swing door drives with self closing function - Requirements and test methods

Kraftbetätigte Drehflügeltürantriebe mit Selbstschließfunktion - Anforderungen und Prüfverfahren

Opérateurs motorisés de portes battantes pour piétons avec fonction de fermeture automatique - Exigences et méthodes d'essai

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This European Standard was approved by CEN on 18 January 2021.

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

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European foreword

This document (EN 17372:2021) 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of an identical text or by endorsement, at the latest by September 2021, and conflicting national standards shall be withdrawn at the latest by September 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

In addition to meeting requirements and test methods of this document, it could be essential that power-operated pedestrian swing door drives with self-closing function satisfy further technical rules (e.g. 2014/30/EU, Electromagnetic compatibility, 2006/42/EC, Machine Directive) in regard to the safety in use and the intended application in buildings.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document is applicable to power-operated pedestrian swing door drives with self closing function using mechanically stored energy for single and double leaf swing doorsets with or without fire resistance and smoke control characteristics. It defines requirements and test methods for the self-closing function.

This document does not apply to:

— electrically controlled hold-open systems according to EN 14637;

— door coordinating devices according to EN 1158;

— electrically powered hold-open devices for swing doors according to EN 1155.

Requirements and test methods for hold-open systems are not part of this document.

Additional requirements and test methods for the use of power-operated pedestrian swing door drives with self closing function on double-leaf swing doors are described in EN 1158 and are therefore not part of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1154, *Building hardware — Controlled door closing devices — Requirements and test methods*

EN 1155, *Building hardware — Electrically powered hold-open devices for swing doors — Requirements and test methods*

EN 16005, *Power operated pedestrian doorsets — Safety in use — Requirements and test methods*

EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1154, EN 1155 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
power-operated pedestrian swing door drive with self-closing function
drive that is equipped with a self-closing function for moving a swing door leaf

3.2
self-closing function
function for closing a swing door leaf by means of mechanically stored energy which is preserved even in case of power failure

3.3
adjustable closing force
in-built function that allows the closing moment of the self-closing function to be adjusted over a range of power sizes

3.4
backcheck
feature that allows a period of decelaration before the final open position of the door leaf is reached

3.5
hold-open system
combination of compatible components which has the function to hold open self-closing fire/smoke control doorsets and, in the case of fire, to release these doorsets for self-closing, at the earliest possible moment

Note 1 to entry: Hold-open systems, according to this document, are intended for the control of individual door assemblies only.

Note 2 to entry: A hold-open system consists at least of a fire detector, a hold-open device, a control unit and a power supply unit. All, or any, of these elements could be in a common enclosure.

3.6
hold-open device
devices of a hold-open system that store the energy required for the closing movement and releases the door leaf to close on request by a triggering mechanism

Note 1 to entry: Common hold-open devices are, for example, magnetic clamps, door drives with magnetic valve and magnetic couplings.

3.7
transom mounting
mounting of the power-operated pedestrian swing door drive with self-closing function to the doorset frame and/or the doorset lintel

3.8
door leaf installation
mounting of the power-operated pedestrian swing door drive with self-closing function to the door leaf

3.9
lock release
electrically activated device that keeps the door leaf closed in a deenergised state and that enables the opening of the door leaf when external power (open circuit principle) is supplied

Note 1 to entry: Common examples are electro-mechanical operated locks according to EN 14846 and striking plates.

3.10
control unit
component of the power-operated pedestrian swing door drive with self-closing function, which processes the signals of activators, external safety devices into opening, closing and stop commands suitable for the drive

Note 1 to entry: Other functions of the control unit includes the control of the lock release, the regulation of the hold-open time and the execution of release signals e.g. caused by manually moving the door leaf out of the hold open position.

3.11
external protection device
additional installed device, electrically connected to the power-operated pedestrian swing door drive with self-closing function, which monitors the swept area of the door leaf and interrupts the movement of the door leaf if a person or an object is within the swing range of the door leaf or if it sends a signal to reverse the door leaf

3.12
activator
means by which the power operation of the doorset is started

Note 1 to entry: It is possible to have “conscious activators” (e.g. switches, manual pushing the door leaf, push-buttons) which are used to consciously open the door leaf and “unconscious activators” (e.g. radar, light barriers, contact mats) where the door leaf is unconsciously open when the monitored zone is entered.

3.13
triggering device
device of a hold-open system that processes a sent signal from devices of this hold-open system and causes the switching off of the drive function when certain criteria are met whereby the self-closing function of the power-operated pedestrian swing door drive with self closing function shall be maintained

3.14
active mode
operating mode in which all actions of the power-operated pedestrian swing door drive with self closing function are controlled by the control unit

3.15
passive mode
operating mode in which the power-driven movement of the door leaf, as well as any hold-open function of the door leaf, will be switched off

3.16
power supply
device of a power-operated pedestrian swing door drive with self-closing function which is used to supply power to e.g. the control unit, motor, protection devices, lock releases, activators and, if applicable, triggering devices

3.17
installation position
position at which a power-operated pedestrian swing door drive with self-closing function is mounted to the doorset

3.18
power-operated
movement performed, at least in one direction, by an external energy supply (e.g. electrically) instead of manual or stored mechanical energy

4 Product characteristics

4.1 General

The materials and the structural design of the power-operated pedestrian swing door drive with self-closing function shall be such that for installation and adjustment according the manufacturer's specification and the intended use the requirements according to 4.2 to 4.3 are fulfilled.

An overview of tests and related requirements is given in Annex B (see Table B.1).

Power operated swing door drives with self-closing function for self-closing doorsets may be mounted only to doorsets that have been prepared for the power-driven operation, e.g. with lock release and triggering mechanism.

The installation and the adjustment of power operated swing door drives with self-closing function shall comply with the manufacturer's specifications.

The maximum door leaf width is relevant for the selection of the power size of a power-operated pedestrian swing door drive with self-closing function.

Due to their low closing torque, power size 1 and 2 power-operated pedestrian swing door drives with self-closing function shall not be used on doorsets with fire resistance and smoke control characteristics.

Table 1 — Power size of power-operated pedestrian swing door drive with self-closing function

Power size	Door leaf width	Weight of test door leaf	Closing torque				Opening torque between 4° and 60°	Efficiency between 0° and 4°
			between 0° and 4°		between 88° and 92°	For any other opening angle		
	mm	kg	Nm	Nm	Nm	Nm	Nm	%
	max.		min.	max.	min.	min.	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	50
4	1 100	80	26	37	9	6	62	50
5	1 250	100	37	54	12	8	83	50
6	1 400	120	54	87	18	11	134	50
7	1 600	160	87	140	29	18	215	50

NOTE 1 In case of unusually tall or heavy doorsets, windy environmental conditions or special installations the use of higher power sizes can be considered.

NOTE 2 The test door leaf weights are only related to power sizes for the purpose of the test procedure. These test door leaf weights are not intended to indicate max values for actual use.

4.2 Self-closing

4.2.1 Self-closing function during passive mode

During passive mode power-operated pedestrian swing door drives with self-closing function shall function as a controlled door closing device.

A failure of the power supply for the power-operated pedestrian swing door drive with self-closing function and/or functional faults of the power-operated pedestrian swing door drive with self-closing function shall not impair the self-closing function. The door shall start to close and switch into passive mode:

— within no more than 3 s after a triggering signal has been received from the triggering device of the hold-open system;

— within 15 s in case of a mains failure for the power-operated pedestrian swing door drive with self-closing function; or

in case of a functional fault of the power-operated pedestrian swing door drive with self-closing function which will impair the self-closing function, the (functional) fault shall either be detected automatically or within no more than 3 s after a triggering signal has been received from the triggering device of the hold-open system. The reactivation shall only be possible after fixing the fault.

In case the signal paths of the control unit according to 3.10 are used to realize these requirements, then the "Performance Level d" (category 2) according to EN ISO 13849-1 shall be verified for each relevant signal path.

The relevant signal paths are to be provided by the manufacturer in the form of a block diagram to support the test.

Compliance shall be verified by a test according to 5.2.1.

NOTE The mentioned requirements apply to the self-closing function. This is to ensure that a swing door is closed in case of fire. If a control unit according to 3.10 initiates the switching into the passive mode due to a functional fault (e.g. display, external protection device), this is not to be understood in terms of the previously mentioned requirements as long as a triggering signal of the triggering mechanism or a mains failure continues to switch into passive mode and the self-closing function is not impaired under these requirements.

4.2.2 Reactivation of active mode

The switching from the passive to the active mode of the power-operated pedestrian swing door drive with self-closing function shall be only possible if the triggering signal is no longer present and after a reset is carried out.

NOTE This, for example, will be a reset via a button, the program switch of the drive or the door leaf.

The compliance shall be verified by a test according to 5.2.2.

4.2.3 Opening angle

The opening angle of the door leaf shall be adjustable in the active mode as well as limitable in the passive mode. The power-operated pedestrian swing door drive with self-closing function installed according to the manufacturer's specification shall ensure an opening angle of the door leaf of at least 95° in any operating mode.

The compliance shall be verified by a test according to 5.2.3.