Standards relevant to the architectural hardware industry

Standards

There are two standards currently in existence for door closing devices:
EN1154:1997 - Mechanical closers
EN1155:1997 - Electronically controlled closers
EN1154:1997 - Controlled door closing devices - requirements and test methods.

Scope

The standard covers all controlled surface mounted, concealed, or transom mounted closers as well as both single and double action floor springs.

These standards are shown in summary below in detail at the back of this catalogue. Attention should be paid to Digit 3, which deals with the power size and door width. Where applicable we have shown the relevant classification code using DHF graphic icons in this section.

Classification

Digit 1 - Category of use

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 backcheck function or provision of a separate door stop should be considered.

Digit 2 - Number of test cycles

Only one test duration is identified for the door closing device manufactured to this standard: Grade 8: 500,000 cycles

Digit 3 - Test door mass/size

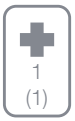
Seven test door mass grades and related door closer power sizes are identified according to below table of this standard. Where a door closer provides a range of power sizes both the minimum and maximum sizes shall be identified.

TEST DOOR MASS AND RECOMMENDED DOOR WIDTHS		
Power size of closer	**Max. mass of leaf**	**Width of test door leaf**
1	20 kg	<750mm
2	40 kg	850mm
3	60 kg	950mm
4	80 kg	1,100mm
5	100 kg	1,250mm
6	120 kg	1,400mm
7	160 kg	1,600mm

Digit 4 - Fire behaviour

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 emergency device to the fire resistance of specified fire/smoke door assemblies



Digit 5 - Safety

All door closers are required to satisfy the Essential Requirement of safety in use contained in the Construction Products Directive by the EU. Therefore only **Grade 1** is identified.

Digit 6 - Corrosion resistance

Five grades are identified according to EN1670:

Grade 0: No defined corrosion resistance

Grade 1: Low resistance

Grade 2: Moderate resistance

Grade 3: High resistance

Grade 4: Very high resistance

Classification Code

:3:8:2/5:0:1:0

EXAMPLE:

The following marking denotes a closer capable of opening to at least 105°, and with a range of power sizes from size 2 to size 5. Note that as the 4th digit is zero, such a closer would not be suitable for fire door use.

Fire resisting doors

EN1154 makes the following recommendations as to the feature considered necessary for such devices when they are fitted to fire and smoke resisting doors.

a) The door closer when installed in accordance with the manufacturer's installation instruction shall be capable of closing the test door from any angle to which it may be opened.

b) Due to their low closing moments, door closers sizes 1 and 2 are not considered suitable for use on fire/smoke resisting door assemblies. Door closers with adjustable closing force shall be capable of adjustment to at least power size 3.

c) The door closer shall not include a hold open device unless it is electrically powered device in accordance with **EN1155**.

d) Control regulators shall be either concealed or operable only by means of a tool.

e) The design of a door closer shall be such that it is not possible to inhibit its closing action in any way without the use of a tool.

f) Any incorporated delayed action function shall be capable of adjustment to less than 25 seconds between the door closing angle of 120° and the end of the delay zone.

g) The door closer representative of its model shall have been incorporated in a door assembly that has satisfied the appropriate criteria of a fire test. The test shall have been on a full size assembly in accordance with **EN1634-1**.

EN1155: 1997 - Electrically powered hold open devices for swing doors - requirements and test methods

Scope

The standard specifies requirements for separate electrically powered hold-open devices and also for hold-open mechanisms incorporated in a door closer. Whilst these devices may incorporate smoke or fire detection elements, the performance of these particular elements is outside the scope of EN1155.

CE conformity

Where a door closing device has a CE certificate of conformity, this will be shown. Hence, it is stated in 8300 that all fire doors must have closing devices that are CE marked.

Fire resistance and smoke control

Tested for fire resistant and smoke control doors.

The use of a hold-open device on fire resistant and smoke control doors are not permitted or they are not tested for resistance and smoke control.

We give below a guide to the terminology used in connection with door closing devices.

Backcheck

A device built into the closer that checks the outward swing of the door. The backcheck damping is inversely proportional to the speed of the outward swing of the door. It should not be regarded as a door stop.

Closing speed

The speed with which the door is closed. Normally adjustable.

Closing force

The power that the closer exerts to close the door. Measured in the ENstandard from 1-6. See table below.

Latching action

The door movement becomes accelerated in the last few degrees of closing, in order to be able to overcome any resistance, such as seals, latch bolts, etc.

Delayed action

The closing speed of the door is reduced to minimal or the door stops, for a preset period, to allow passers-by sufficient time to pass through the door opening. i.e. Elderly persons, Hospital staff with beds, etc.

Hold open

This is a device to enable the closer to be held in the open position, usually at 90º, but some are variable in the opening degree. These closers must not be used on fire doors. (except where they are electronically controlled to close when the fire alarm is sounded).

Door stops

Always use a door stop, where practicable, whether a closer has a backcheck or not. This may take the form of a floor mounted version, wall/skirting mounted version or built-in as found with guide rail closers. The positioning of the stop is also important, and must be at least 66% (2/3rds) the door width away from the hinge, otherwise the stop acts as a fulcrum and could damage the door, the frame and the hinges. Where there is a maximum angle of opening stated the stop must be positioned at that point, otherwise damage to the closer will occur.

Note

Please ensure that the correct closing device is the appropriate one for the job it is intended to do and that it is the correct size. Too many closers are under specified, purely in an effort to reduce costs.

Size	Max. door width mm	Min. closing moments N.m
1	750	9
2	850	13
3	950	18
4	1100	26
5	1250	37
6	1400	54

It should be noted that size 3 is the minimum requirement for fire doors.