



CONTROLLED DOOR CLOSING DEVICES
UNDER BS EN 1154:1997 + A1:2002/6

A handy reference guide to EN 1154 compliant closers

CONTROLLED DOOR CLOSING DEVICES



Under BS EN 1154:1997 + A1:2003

This handbook is intended to be read alongside BS EN 1154 Standard published by BSI, 389 Chiswick High Road, London W4 4AL. It is the aim of this handbook to familiarise buyers and downstream users with key points of the BS EN 1154 Standard for controlled door-closing devices (door closers).

It is intended to assist duty-holders identify compliant door closers, as well as devices that do not comply with EN 1154. As door closers on fire doors are life-safety devices, you should consult a professionally competent person or relevant authority to confirm compliance with up to date legislation for your region.



CONTROLLED DOOR CLOSING DEVICES

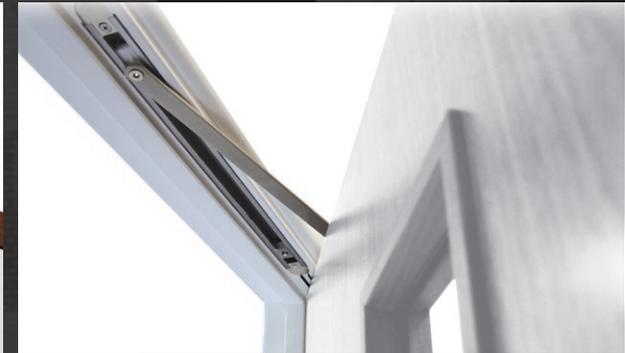
Popular Door Closer Types:



Scissor Arm



Slide Arm



Concealed Slide Arm



Heel Closer



Floor Spring

Building Regulations



The Building Regulations Approved Document B (or Technical Booklet E in Ireland) specifies where fire doors should be fitted, and where fire doors should have a controlled self-closing device. BS EN 1154 is the designated technical standard used to approve and classify such door closer devices.

The specification, fitment, and maintenance of door closers on fire-resisting and/or smoke-resisting doors comes into several pieces of legislation, including the:

- + Fire Safety Act 2021
- + Regulatory Reform (Fire Safety) Order (FSO)
- + Fire Safety (England) Regulations 2022
- + Construction Products Regulations (CPR)

EN 1154: The GB & EU Standard for Door Closers

All door closers certified suitable for fire doors are EN 1154 rated - but not all rated closers are suitable for standard fire doors (see "4th digit" on the next page).

EN1154 controlled door closers are deemed suitable for public use on external and internal fire doors, where there is little incentive to care, ie there is some chance of misuse. Where there is risk of abusive, or particular heavy use, a closer with back-check function, or a door stop should be considered.

EN 1154 is the harmonised standard across EU countries and adopted by the UK (BS EN 1154) for all "Controlled Door Closing Devices". It lays out testing procedures for six essential characteristics, and results in a 6-digit code as explained on the next page.

EN 1154 Coding

The **1st digit** is called “category of use”, however “opening angle” might be an alternative descriptor. There are two grades - grade 3 is for closing doors from 105 degree opening angle, such as where the corridor wall or a door-stop physically prevents it opening wider than this. Grade 4 on the 1st digit is suitable for doors opening up to 180 degrees.

2nd digit; for a door closer to pass EN 1154, it must perform 500,000 cycles and stay within acceptable performance levels. Once achieved, a closer can be given the (only) grade of 8.

3rd digit; This measures power size. Important for specifiers and installers to be aware of, the correct power size depends on the size and weight of the door. The EN 1154 notes make clear this is for guidance only, as non-standard installations might require a different power size. Tall doors and buildings affected by local air-pressure differentials or draughty conditions can often require more power to function properly. It is safe practice to specify an adjustable-powered closer that goes a size up from your door weight.

Some door closers are rated at a fixed power, some can be adjusted at installation and others can be tuned after fixing. For this reason, you will see either one digit, or two that indicates the range adjustment.

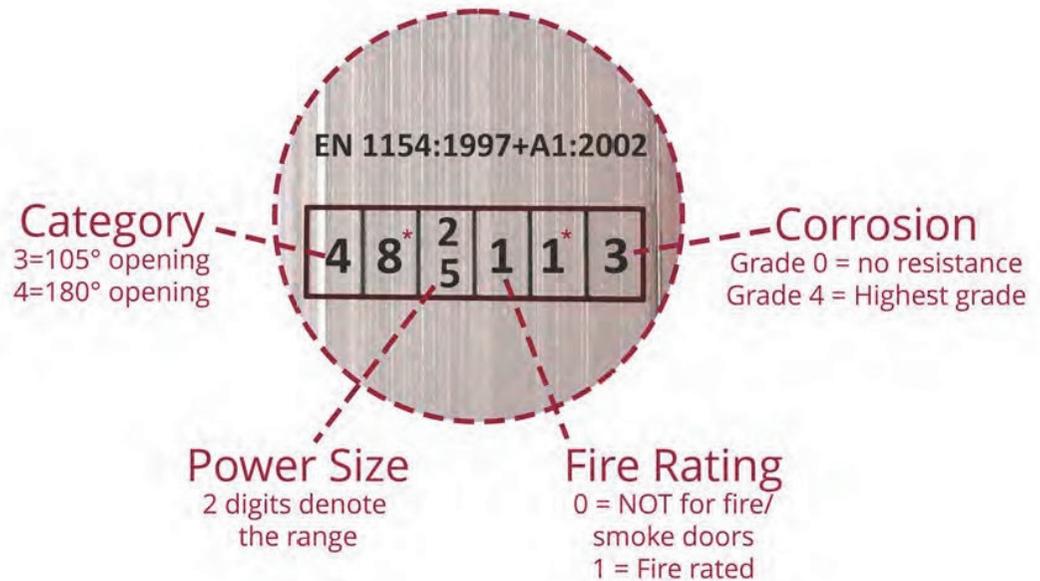
See page 7 for more on door closers and door size/weight.

Door closers and accessories that meet EN 1154 have this marked on them, along with the manufacture’s name and address, production batch or date, Certification body ID code, the year of CE marking, and the model reference. These details might be hidden behind a cover plate.

4th digit; Importantly, the fourth digit in these assessments is for fire resistance. This 4th digit separates closing devices into two classifications; class 0 closers are non-fire rated, so are not appropriate for fire-doors. Class 1 are suitable for fire doors (subject to the whole doorset meeting the BS EN 1634 standard).

5th digit; safety of use. Any door-closing device must meet the “Essential Requirement of Safety in Use” – there is only the option of fail or pass; a pass is indicated by a grade of 1.

6th digit; the final digit classifies the closer according to it’s resistance to corrosion. For high humidity rooms or external mounting, the highest grades (3 or 4) are recommended, with grades 0 – 3 only recommended for indoor installation, or mounting on external doors on the inside face.



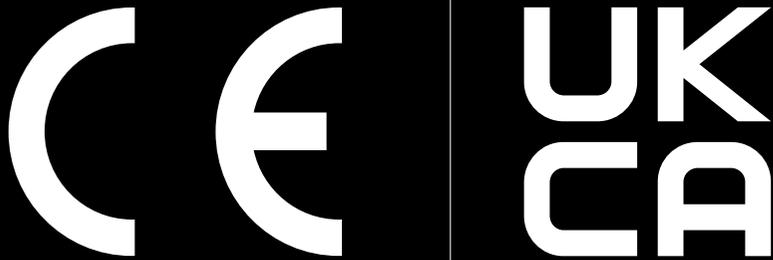
*NB: All EN 1154 closers have '8' in the 2nd box (duty cycles) and 1 in the 5th (Safety)

CE and UKCA Marks



Alongside the CE and UKCA marks, look out for:

- + The manufacturer's name/address/logo
- + The Certificate of Constancy of Performance (Cocops) number
- + An unambiguous reference to EN 1154
- + The 6-digit classification code under EN 1154



The CE and the UKCA marks on are a basic declaration by the manufacturer that the product has been assessed as compliant with it's relevant Construction Products legislation. Such products have an accompanying DoP (Declaration of Performance) from the manufacturer which details the essential performance characteristics, supported by suitable evidence. Fire doors and their closing devices fall under AVCP System 1, meaning that a 3rd-party Notified Body has to perform the assessment, sample testing and ongoing surveillance. A key piece of evidence supporting the manufacturer's application of the CE/UKCA marks will be the Certificate of Conformity (Cocops), issued by the Approved/Notified Body.

From 30th June 2025, the UKCA mark will be mandatory for any construction products placed on the GB market.

Door Closer Fitting & Adjustments

It is important that door closers are fitted in line with the manufacturer's instructions, as this will be how they have been designed, tested and assessed for compliance with EN 1154. This is especially important for fire doors opening past 105 degrees (Grade 4 category of use - 1st digit of EN 1154 code).

Most overhead door closers can be fitted on the push side or the pull side of the door. However, the mounting side can affect their performance rating, so check the device's technical documentation (Fitting instructions and Declaration of Performance).

They should be fitted by a competent person, who should test once installed and adjust the closer's controls to meet the closing and opening force, and speed requirements.

Adjustments

Controlled closing devices can have up to five operational adjustments; closing time, latching speed and power (closing force/ease of opening), back-check and delayed action closure. For a door closer to operate effectively and safely it must have these tuned to achieve their purpose in the actual fitted scenario.

Adjustments should be done by a competent person, following the manufacturer's instructions. Control valves should be concealed, or only operable with a tool.

Residents should be informed not to tamper with door closer devices.



Door Closer Fitting & Adjustments

CLOSING SPEED

The closing sweep, or swing speed determines how quickly the door will close from open to the last 12-15% of its closing cycle.

General guidance is that a fire door should close from 90 degree open within 5 - 25 seconds. The optimum closing speed is determined by a site risk assessment, taking into account user needs and safety including those with disabilities. Closing speed is controlled by the valve marked "1" or "S" - clockwise for increasing speed, anti-clockwise for decreasing. Adjust by 1/4 of a turn at a time, test and adjust again if necessary.

LATCHING SPEED

The final closure of the door should be no more powerful than it needs to be and is usually set to slow the door down to avoid entrapment accidents. The closer needs to overcome the (sometimes varying) air pressure differential from room to room, fully shutting the door without banging. Slamming doors present a finger entrapment hazard, and a door that's not tight shut is not a fire door!

OPENING & CLOSING FORCE

The force of the closer is determined by the closer device's power setting. The UK Equality Act 2010 states that access by people with disabilities should not be physically restricted. Building Regulations specify a maximum opening force of 30N between 0 and 30 degrees open, and maximum of 22.5 N for the rest of it's cycle.

| EN 1154 Power Size | Door Width (mm) | Door Mass (Kg) |
|--------------------|-----------------|----------------|
| 1 | <750 | 20 |
| 2 | 850 | 40 |
| 3 | 950 | 60 |
| 4 | 1,100 | 80 |
| 5 | 1,250 | 100 |
| 6 | 1,400 | 120 |
| 7 | 1,600 | 160 |

Guidance is that fire-doors will need power 3 or above. The crucial point is that they always return the door from it's widest opening angle to it's fully closed position, without restricting the opening ability (giving due consideration to the less physically able).

Optional Functions on Door Closers

Some models of door closer come with an additional control called back-check. This buffers the opening speed as it nears 90 degree, to prevent damage to the door, hinges, wall etc when a door is thrown open with excessive force. This is strongly recommended for installations where heavy use and abuse is to be expected.

DELAYED ACTION closing is a popular option on closers. This allows the closing speed to be adjusted independently from the opening action, and slows the closure to 20 seconds or more between 90 to 65 degrees open. The force required to physically override this delay must not exceed 150Nm.

LATCH CONTROL is another common feature. This enables adjustment of the speed during the last 15 degrees of closure. Increase its speed to overcome resistance from latch, smoke/draft seals and air pressure differences from room to room. Decrease to prevent slamming.

HOLD OPEN ARMS

Hold-open arms or devices are available for use on non-fire door closers, but should never be fitted to fire or smoke doors.



Who tests and certifies door closers for EN 1154 compliance?

Door Closers are classified under AVCP System 1 under the Construction Products regulations. As such they need extensive involvement of a UK Notified Body for testing, assessing, on-going surveillance and certification.

For a list of UK officially recognised third-party certification and assessment bodies see www.find-a-conformity-assessmentbody.

service.gov.uk. Door Closers are under the legislative area of Construction products. Primary testing of door closers for EN 1154 is conducted by testing laboratories accredited by the UKAS (United Kingdom Accreditation Service). See www.ukas.com for more info and links to approved test houses.

Initial type-testing, production control and ongoing surveillance of door closer manufacturers is an essential part of maintaining EN 1154 product certification.

ADDITIONAL QUALITY ASSURANCE

BS EN ISO 9000 is an internationally recognised standard for quality management, administered in the UK by the BSI (British Standards Institution). Validated companies and certificates can be checked at www.bsigroup.com/en-GB/validate-bsi-issuedcertificates.

RELATED STANDARDS

Other standards closely related to door closers, that are not covered in this guidance leaflet, are EN 1155, EN1158 and EN 1634.

BS EN 1155 covers Electro-magnetic Hold Open Devices - these are designed to release the door in the event of a power cut or fire alarm activation, allowing the door closer to perform it's action.

BS EN 1158 covers Door Coordinator (or Selector) devices -these are designed to ensure that double doors close in the correct order for proper closure.

BS EN 1634 covers the complete fire doorset. Although worded for timber fire doors, it is generally accepted as the highest standard for metal and composite fire doorsets too.