



BS EN 1154: A reference guide for compliant door closers

Covering controlled door closing devices under
BS EN 1154:1997 + A1:2002/6



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.

The standard BS EN 1154 was introduced in 1997 and replaced the then existing standard BS 6459-1:1984. This was the 'Specification for mechanical performance of crank and rack and pinion closers'.



Popular door closer types:



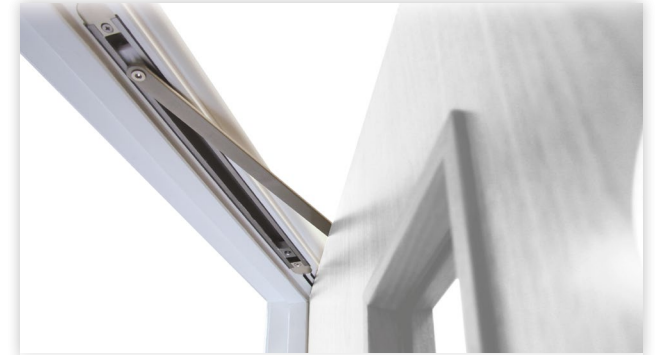
Scissor arm

Surface mounted, pull side (Figure 1)



Slide arm

Surface mounted, pull side (Figure 1)



Overhead Concealed slide arm

Door mounted



Heel closer



Floor spring

Double action



Building regulations

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

The specification, installation, 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 page 5 and 6).

EN 1154 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.

From amendment 2002 to corrigendum 2006 there have been no subsequent amendments. The "corrigendum" issued in 2006 was to correct a minor error. There are thus no significant technical differences between the version 2002 (after the amendment) and corr.2006 version.



EN 1154 coding overview

EN 1154 requires a 6 digit code which is applied to compliant products.

Here is a breakdown of the ratings that each digit represents.

See overleaf for further details.

EN 1154:1997+A1:2002

4	8	2 5	1	1	3
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1ST DIGIT – CATEGORY OF USE

Grade 3 = 105° opening

Grade 4 = 180° opening

2ND DIGIT – DUTY CYCLES

All EN 1154 closers have Grade 8

3RD DIGIT – POWER SIZE

1 digit = fixed power

2 digits = range adjustment

4TH DIGIT – FIRE RATING

Class 0 = NOT for fire/smoke doors

Class 1 = Fire rated

5TH DIGIT – SAFETY OF USE

All EN 1154 closers have grade 1

6TH DIGIT – CORROSION

Grade 0 = no resistance

Grade 4 = highest grade

EN 1154 coding explained

1ST DIGIT – CATEGORY OF USE

Category of use, or alternatively referred to as 'opening angle', has two grades – 3 and 4. Grade 3 is for closing doors from a 105 degree opening angle, such as where the corridor wall or a door-stop physically prevents it opening wider than this. Grade 4 is suitable for doors opening up to 180 degrees.

2ND DIGIT – DUTY CYCLES

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 – 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 pages 8-11 for more on door closers and door size/weight.)

Door closers and accessories that meet EN 1154 have power size 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 – FIRE RATING

Fire resistance rating – this 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).

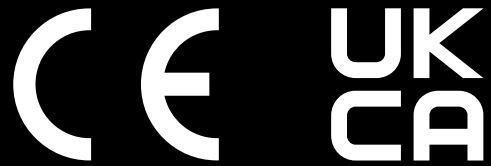
5TH DIGIT – SAFETY OF USE

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 – CORROSION

The final digit classifies the closer according to its 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.

CE and UKCA marks



Alongside the CE and UKCA marks, look out for:

- A** The manufacturer's name/address/logo
- B** The Certificate of Constancy of Performance (Cocops) number
- C** An unambiguous reference to EN 1154
- D** 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 its 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 and adjustment

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 and adjustment

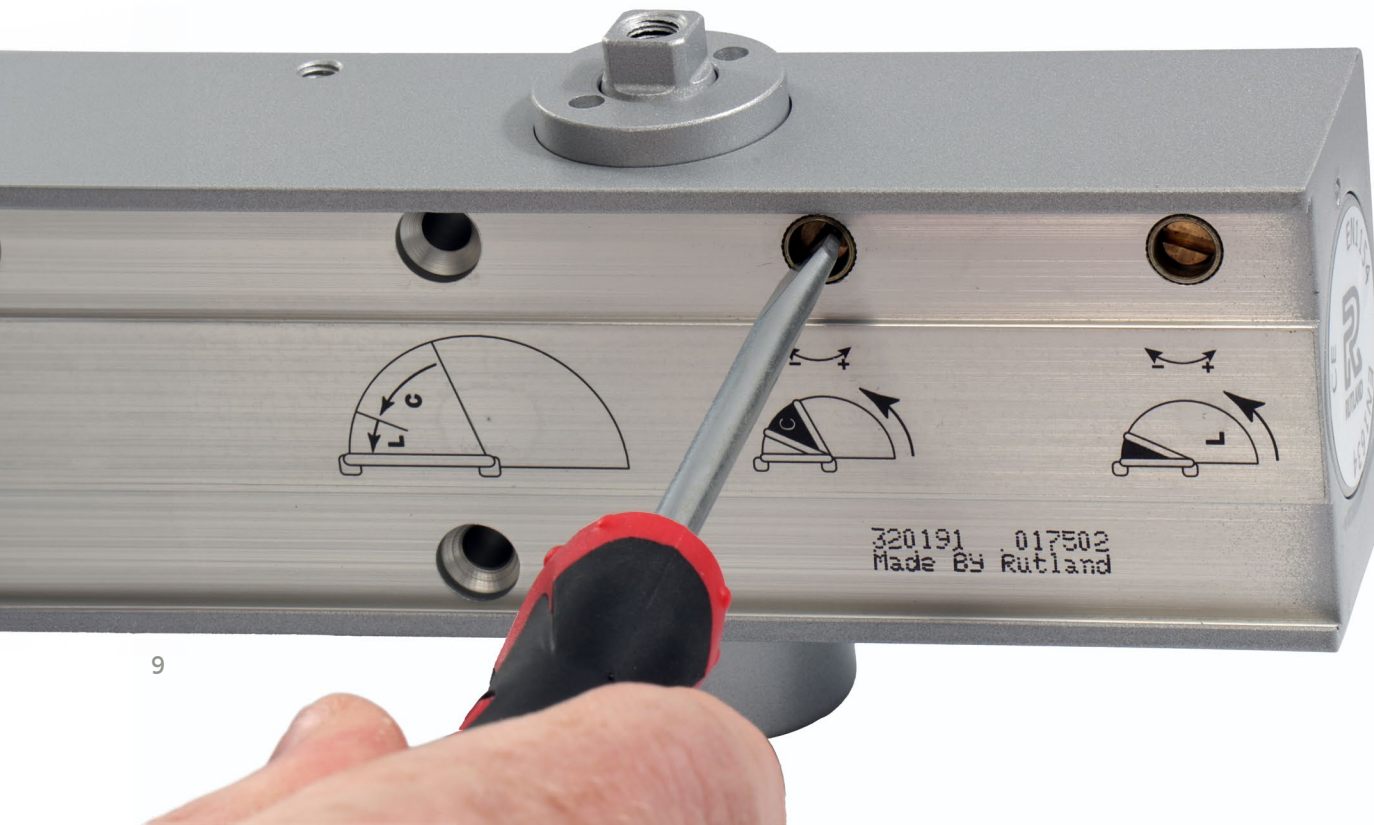
CLOSING SPEED

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.

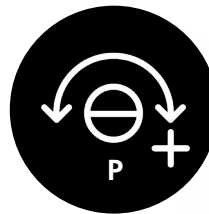


Door closer fitting and adjustment

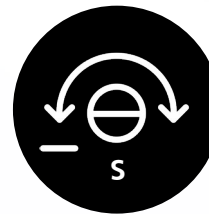
OPENING & CLOSING FORCE

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. The force can be measured by a pressure gauge, or calculated from manufacturer's data.

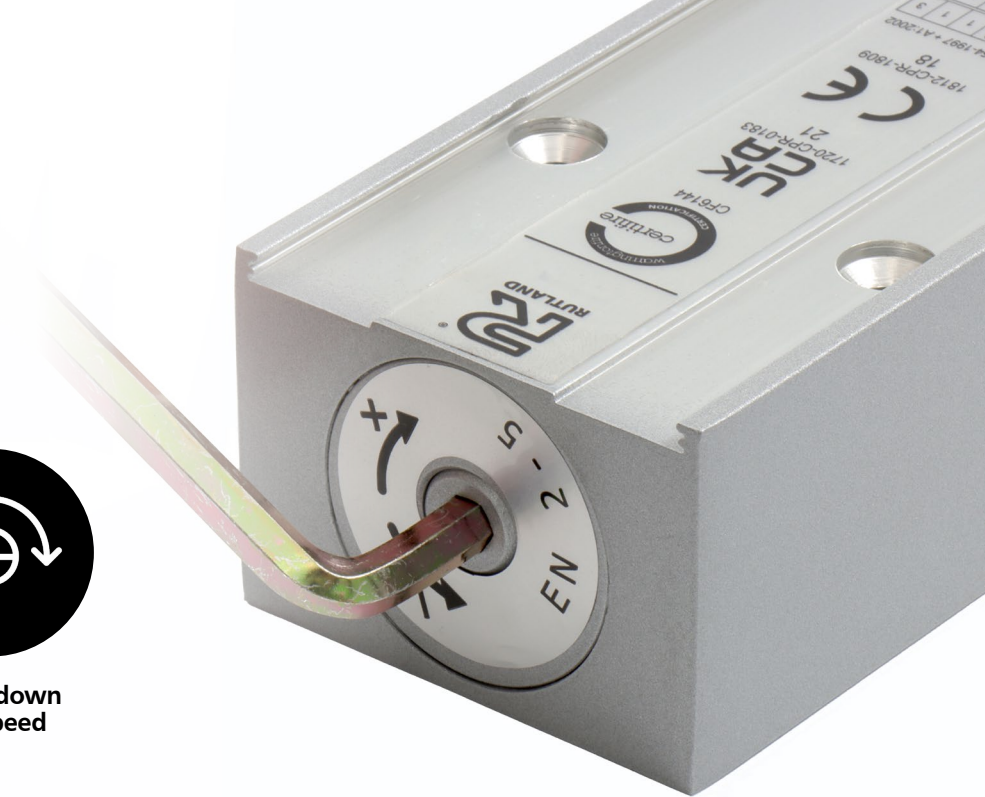
Guidance is that fire-doors will need power 3 (18Nm) or above. The crucial point is that they always return the door from it's widest opening angle to it's fully closed position, without restricting the opening ability (giving due consideration to the less physically able).



+ Turn up the power



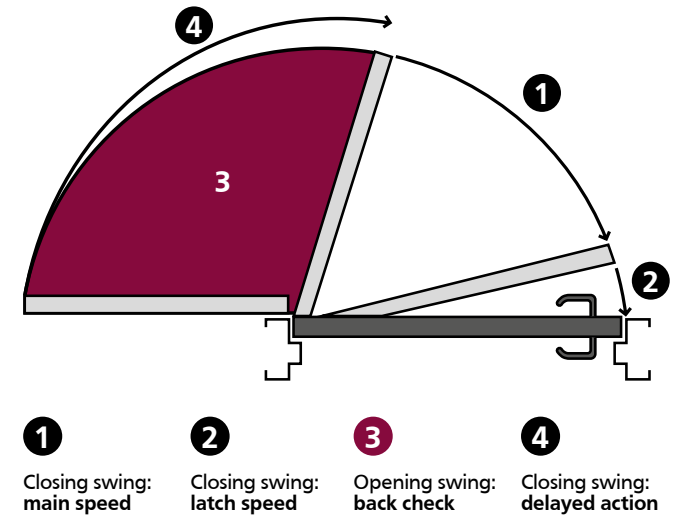
- Slow down the speed



EN 1154 Power Size	Closing moment between 0° and 4° Nm min.	Door Width (mm)	Door Mass (Kg)
1	9	<750	20
2	13	850	40
3	18	950	60
4	26	1,100	80
5	37	1,250	100
6	54	1,400	120
7	87	1,600	160

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 degrees, 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

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

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, ongoing surveillance and certification.

For a list of UK officially recognised third-party certification and assessment bodies see <https://find-a-conformity-assessment-body.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 9001 is an internationally recognised standard for quality management, administered in the UK by the BSI (British Standards Institution).

RELATED STANDARDS

Other standards closely related to door closers, that are not covered in this guidance leaflet, are EN 1155, EN 1158 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.



Enhancing life safety at every fire door

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