



Door & Hardware
Federation

raising standards

best practice guide

Controlled Door Closing Devices to

BS EN 1154

in association with



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• DHF BEST PRACTICE GUIDES

This publication is one in a series of guides addressing the major issues that should be considered when specifying, ordering or using the products it describes. It aims to provide the reader with a concise document which includes a summary of relevant sections from the new European Product Standard. The reader will then be in a position to seek further specialist advice where necessary and recognise genuine conformity to the new standards.

• BS EN 1154: Controlled Door Closing Devices

The standard provides details on product types, classification by use, test cycles, door mass, corrosion resistance, as well as definitions, product performance requirements, test apparatus, test methods and marking of products. In addition, the published standards include annexes illustrating the various points made through diagrams and supplementary text.

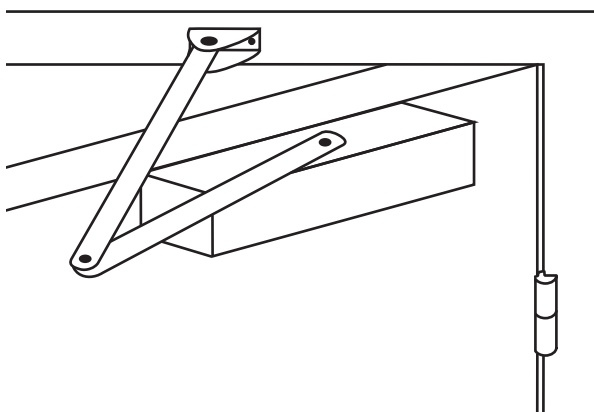
Extracts from BS EN 1154 are reproduced with the permission of the British Standards Institution. BSI publications can be obtained from BSI Customer Services, 389 Chiswick High Road, London W4 4AL Tel +44 (0)20 8996 9001 Email: cservices@bsi-global.com.

The above European standard replaced existing national product performance standards in 1997. In the UK this meant the withdrawal of BS6459: Part 1: 1984: 'Door Closers - Specification for mechanical performance of crank and rack and pinion overhead closers'.

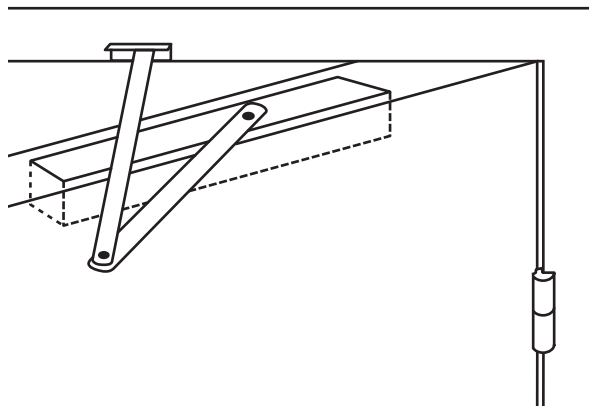
Amendment A1 to BS EN 1154 was published early in 2003 and this amendment provides for CE marking of conforming products in accordance with the EU Construction Products Directive.

• SCOPE

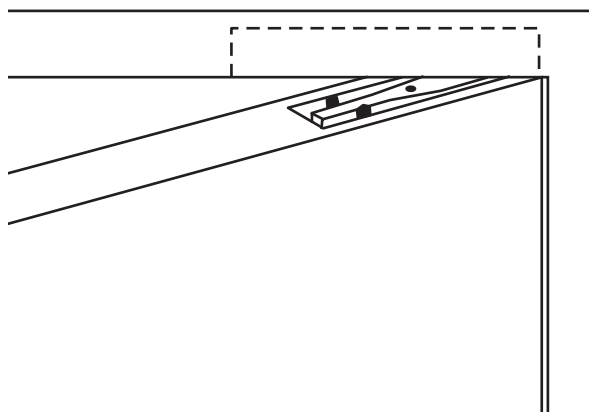
Products included within the standard are illustrated below and include a wider range than covered by BS6459.



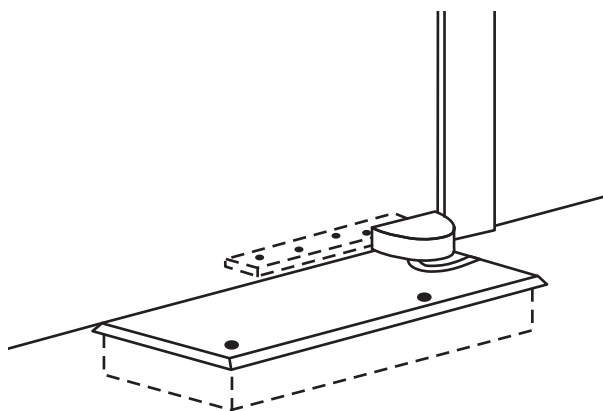
Overhead door closer surface mounted



Overhead concealed door closer door mounted



Overhead concealed door closer transom mounted

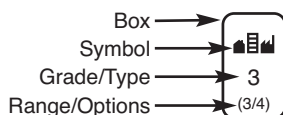


Floor concealed door closer - Floor spring

• CLASSIFICATION

BS EN 1154 classifies door furniture by using an 6 digit coding system. A similar classification applies to all building hardware product standards so that complementary items of hardware can be specified to, for instance, a common level of corrosion resistance, category of use, etc. Each digit refers to a particular feature of the product measured against the standard's performance requirements.

The DHF recommends the use of graphic icons to enhance clarity of information and has devised a system to facilitate assimilation of the various product classifications. Each feature within the product classification is represented by an icon comprising four elements; Symbol, Grade/Type, Range/Options and Box:-



The icon above is for a product which meets Grade 3 in the Category of Use classification, where EN 1154 stipulates two possible grades; 3 or 4.
Full details on the ABHM graphic icons system can be found at www.dhfonline.org.uk

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 a 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 door closers manufactured to this standard:

- grade 8: 500 000 test cycles

Digit 3 Test door mass/size

Seven test door mass grades and related door closer power sizes are identified according to table 1 of this standard.

Where a door closer provides a range of power sizes both the minimum and the maximum sizes shall be identified.

Table 1

Door closer power size	Recommended door leaf width max. mm	Test 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

Note 1: The door widths given are for standard installations. In the case of unusually high or heavy doors, windy or draughty conditions, or special installations, a larger power size of door closer should be used.

Note 2: The test door masses shown are only related to door closer power sizes for the purpose of the test procedure. These test door masses are not intended to indicate maximum values for actual use.

Digit 4 Fire behaviour

Two grades of fire behaviour are identified for door closing devices manufactured to this standard:

- 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 door closer to the fire resistance of specified

fire/smoke assemblies. Such assessment is outside the scope of this European Standard (See EN 1634-1).

Digit 5 Safety

All door closers are required to satisfy the Essential Requirement of safety in use. Therefore only grade 1 is identified.

Digit 6 Corrosion resistance

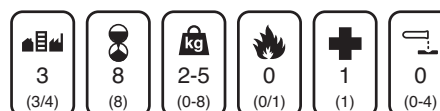
Five grades of corrosion resistance are identified according to EN 1670:

- grade 0: No defined corrosion resistance
- grade 1: Mild resistance
- grade 2: Moderate resistance
- grade 3: High resistance
- grade 4: Very high resistance

• EXAMPLE:

The following marking denotes a closer capable of opening to at least 105°, and with ranging power size 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.



• MARKING

The standard requires that each door closer and separately supplied accessory manufactured to the standard shall be marked with the following:

- The manufacturer's name or trade mark or other means of identification
- Product model identification
- The six digit classification listed above
- The number of the European Standard (BS EN 1154)
- The year and week of manufacture (may be coded)

• CE marking

Door closers intended for use on fire resisting doors and smoke control doors are covered by a Construction Products Directive mandate issued by the European Commission. Consequently, this standard is regarded as a "harmonised" standard and compliance with it, supported by suitable evidence, allows the application of the CE mark.

As closers for fire/smoke doors have a critical safety function, application of the CE mark will require the involvement of a notified certification body to provide verification of the compliance claims. This will involve initial type-testing of the product to EN 1154, initial inspection of the manufacturer's factory production control and continuing surveillance and approval of the factory production control. On satisfactory fulfilment of these tasks, the notified body issues an EC Certificate of Conformity which then permits the manufacturer to declare compliance and affix the CE marking to his product.

The standard requires the following additional information to accompany the CE marking:-

- the identification number of the notified certification body
- the name or identifying mark of the manufacturer
- the registered address of the manufacturer
- the last two digits of the year in which the marking was applied
- the number of the EC certificate of conformity
- reference to EN 1154:1997 + A1: 2003
- the classification code of the product

Note that, although the notified body has to be involved to verify the manufacturer's claims, the manufacturer remains responsible for designing and producing the product, for affixing the CE marking, and for ensuring that the product meets the requirements of the Directive.

• FIRE DOORS

We referred above to fire door assemblies which will require self closing devices. BS EN 1154 makes recommendations as to the closing forces considered necessary for such devices fitted to fire doors.

- a) The door closer when installed in accordance with the manufacturer's installation instructions 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 size 1 and 2 are not considered suitable for use on fire/smoke 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 an electrically powered device in accordance with EN 1155.
Note: See further details below under 'Related Standards'.
- 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 angles 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 sized assembly in accordance with EN 1634-1.

h) Where the door closer is intended for use with other, significantly different arm assemblies (for example slide tracks) which may be supplied separately, that combination shall also be tested according to the requirements of EN 1154.

• RELATED STANDARDS

As companion to BS EN 1154, two further amended and harmonised product standards have been published. The first, BS EN 1155 covers electrically powered hold-open devices and replaces BS 5839:Pt3. The second, BS EN 1158 covers door coordinator devices (or selectors, to use UK terminology), and has no BS equivalent. Both these amended standards were published early in 2003.

British standards can be obtained from
BSI Customer Services,
389 Chiswick High Road, London W4 4AL
Tel: +44 (0)20 8996 9001
E-mail: cservices@bsi-global.com

In addition to ensuring that products satisfy the requirements of this standard, other factors should be taken into consideration when selecting controlled door closing devices. These not only include sourcing products from a reputable manufacturer, but also quality assurance, support services and unequivocal conformity to the standard as detailed below:

• QUALITY ASSURANCE

The internationally recognised standard for quality assurance, BS EN ISO 9000 provides confidence that the products are being manufactured to a consistent quality level. All ABHM members operate recognised BS EN ISO 9000 Quality Assurance Schemes.



Companies displaying this symbol are registered under the BSI Registered Firm Scheme.

• SUPPORT SERVICE

The correct installation of door closing devices is essential to ensure that they are able to operate efficiently within the performance levels described in this standard. Specialist advice is available from ABHM members in support of their products from specification stages through supply to effective operation on site.

• CONFORMITY TO BS EN 1154

Conformity to the standard must be clearly and unequivocally stated. Such phrases as “tested to ...”, “designed to conform to ...”, “approved to ...”, are not sufficient. To avoid misleading or confusing claims it is recommended that one of the following phrases is used when stating conformity:

- This product has been successfully type-tested for conformity to all of the requirements of BS EN 1154. Test reports and/or certificates are available upon request.
- This product has been successfully type-tested for conformity to all of the requirements of BS EN 1154 including the additional requirements for latch action*/backcheck*/delayed closing*/adjustable closing force*/fire/smoke door use*. Test reports and/or certificates are available upon request. **Add as appropriate.*
- This product has been successfully type-tested for conformity to all of the requirements of BS EN 1154 including the additional requirements for latch action*/backcheck*/delayed closing*/adjustable closing force*/fire/smoke door use*. Regular audit testing is undertaken. Test reports and/or certificates are available upon request. **Add as appropriate.*

It is recommended that an ARGE Declaration of Compliance is also completed, as this gives a clear and unambiguous method of demonstrating test evidence and compliance.

DHF PROFILE

The Door and Hardware Federation (DHF) was created by a merger between the Association of Building Hardware Manufacturers (ABHM) and the Door and Shutter Manufacturers Association (DSMA), both of which have established excellent reputations in their respective industries, particularly in the area of technical expertise and the development of performance standards in national and international arenas.

The DHF aims to build on these reputations by exploiting the synergies that exist between the two associations and combining their technical and financial resources to provide a unified, authoritative voice for the entire industry.

The DHF and its members have consistently risen to the challenges posed by an ever-changing market, creating products which meet the needs of a changing world and developing performance standards alongside national and international organisations, such as BSI and CEN, which enable the industry to select and compare products with confidence.

The federation now represents the interests of manufacturers and installers of industrial, pedestrian and garage doors as well as manufacturers of locks and building hardware. It provides professionals in all sectors of the building industry with a single source for technical expertise and creates a more powerful and representative lobbying force, with the ultimate aim of assuring progress and maintaining standards throughout the industry.

British Hardware Federation

BHF represents some 3,500 ironmongery, hardware and DIY shops in the United Kingdom. In addition, it embraces the Independent Builders Merchants Service, a specialist division of the Federation.

Builders Merchants' Federation

The Builders Merchants' Federation represents the majority of bona fide merchants in the UK. Its members have a combined turnover of £6 billion a year. Members range from large nationals to small independents.

Guild of Architectural Ironmongers

Founded in 1961, the Guild represents 95% of bona fide distributors within the UK and the majority of manufacturers of architectural ironmongery. The Guild serves to further all aspects of architectural ironmongery by promoting the interchange of information to encourage better product design and high professional standards of ironmongery scheduling and specification.

Master Locksmiths Association

The MLA is recognised by the Home Office, Police and The British Standards Institution as being the authoritative body for locksmithing. It was formed to promote the membership to Central and Local Governments, Industry, Commerce and the Public.



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raising standards

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