



Door & Hardware
Federation

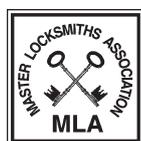
raising standards

best practice guide

Electromechanically operated locks & striking plates to

BS EN 14846: 2008

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 European product standard. The reader will then be in a position to seek further specialist advice where necessary and recognise **GENUINE** conformity to the standards.

• BS EN 14846 Building hardware - Electromechanically operated locks and striking plates

Contained within this standard is a comprehensive classification system for assessing the wide range of products needed to satisfy the diverse requirements of the European market. Features assessed include normal use (and abuse) forces, long-term durability, fire/smoke resistance, corrosion, temperature and humidity resistance, and security from both physical attack and electromechanical manipulation. In addition, it contains information on marking, including CE marking, because BS EN 14846 is a harmonised standard.

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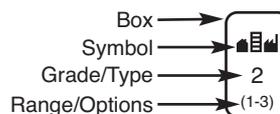
• SCOPE

This standard details only those requirements and test methods that are relevant to the electrical/electronic components of electromechanically operated pedestrian door locks and/or their associated striking plates (but not permanent magnet or electromagnetic devices). Requirements and test methods for assessing purely mechanical features (e.g. resistance to side load on bolt) are covered by reference to BS EN 12209.

• CLASSIFICATION

This standard has a nine digit classification coding. The first seven digits align broadly with those on other WG4 building hardware standards to enable meaningful comparisons to be made with related products. The last two are specifically related to electromechanical devices.

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 category within the product classification is represented by an icon comprising three elements in a box as shown below:



The icon above is for a product which meets Grade 2 in the Category of Use classification, where EN 14846 stipulates a range of three possible grades from 1 to 3.

Full details of the DHF graphic icons system can be found at www.dhfonline.org.uk

Digit 1



Category of use

Three categories of use are identified (see below) and the forces/torques specified, reflect this:

- Grade 1: low frequency of use by people with a high incentive to exercise care and a small chance of misuse, e.g. internal residential doors
- Grade 2: medium frequency of use by people with some incentive to exercise care but where there is some chance of misuse, e.g. internal office doors
- Grade 3: high frequency of use by public or others with little incentive to exercise care and with a high chance of misuse, e.g. doors in public buildings



Digit 2 Durability

Thirteen grades are identified with minimum figures for deadbolt operation (manual, automatic and electrical) and latch bolt operation (with and without side load) as shown.

Deadbolt operations (manual)		10,000	25,000	50,000
Latch bolt operations and Deadbolt operations (automatic and electrical)		50,000	100,000	200,000
Side load on latch bolt	(no load)	Grade A	Grade B	Grade C
	10 N	Grade F	Grade G	Grade H
	25 N	-	Grade L	Grade M
	50 N	-	Grade R	Grade S
	120 N	-	Grade W	Grade X
	250 N	-	-	Grade Y

Note: The side load is applied to the latch bolt as it is withdrawn.



Digit 3 Door mass and closing force

Nine grades are identified with maximum figures for closing force at various door masses as shown.

Note: closing force is from a standing start: i.e. fully extended latch bolt in contact with striking plate at start of test.

Maximum closing force	Door mass		
	Up to 100 kg	Up to 200 kg	Above 200 kg
50 N	Grade 1	Grade 2	Grade 3
25 N	Grade 4	Grade 5	Grade 6
15 N	Grade 7	Grade 8	Grade 9



Digit 4 Suitability for use on fire/smoke doors

Seven grades are identified in ascending order of smoke/fire resistance as shown:

Grade	Fire/smoke resistance requirement
0	No requirement (not intended for use on fire/smoke doors)
A	Suitable for use on smoke door assemblies only
B	Suitable for use on smoke/fire door assemblies (> 15 minutes)
C	Suitable for use on smoke/fire door assemblies (> 30 minutes)
D	Suitable for use on smoke/fire door assemblies (> 60 minutes)
E	Suitable for use on smoke/fire door assemblies (> 90 minutes)
F	Suitable for use on smoke/fire door assemblies (> 120 minutes)

Note 1: Grades A-F (above) signify only that the lock has been designed for use on smoke/fire control doors for the time specified. For information on the type of door to which it was fitted, it is necessary to refer to the fire test report

Note 2: Where a product is intended for fire/smoke door use (i.e. A, B, C, D, E or F in box 4), it must be possible to demonstrate compliance with the Essential Requirements of the Construction Products Directive (soon to be superseded by the Construction Products Regulation). It is recommended that the product should bear the CE mark (see section on CE marking)



Digit 5 Safety

No requirement, but note: an electromechanically operated lock or striking plate conforming to this standard can, at the same time, also be part of an exit device conforming to EN 179 or EN 1125, or part of an exit system conforming to prEN 13633 or prEN 13637.



Digit 6 Corrosion resistance

Fifteen grades are identified with neutral salt-spray (NSS) corrosion resistance grades from EN 1670:1998, and with temperature and humidity resistance requirements as shown.

Corrosion resistance	Temperature resistance range			
	No reqt.	+5 to +55°C	-10 to +55°C	-25 to +70°C
No defined resistance	Grade 0 Grade A (1) Grade B (2)	-	-	Grade N (1) Grade P (2)
24 hours	-	Grade C (1)	-	-
48 hours	-	Grade D (1)	Grade G (1)	Grade K (2)
96 hours	-	Grade E (1)	Grade H (1)	Grade L (2)
240 hours	-	Grade F (1)	Grade J (1)	Grade M (2)

Note: Humidity requirements (Level 1 or 2) are shown in brackets.

 **Digit 7 Security**

Seven grades are identified with minimum figures for requirements relating to physical attack. Principal requirements are shown below.

Grade	Drilling time	Side load	Deadbolt projection	End load
0	-	-	-	-
1	-	1 kN	10 mm	1 kN
2	-	3 kN	12 mm	2 kN
3	-	5 kN	14 mm	4 kN
4	-	7 kN	20 mm	5 kN
5	3 minutes	7 kN	20 mm	5 kN
6	-	10 kN	20 mm	6 kN
7	5 minutes	10 kN	20 mm	6 kN

 **Digit 8 Security – electrical function**

Two grades are identified according to whether or not there is status indication as follows:

Grade 0 No status indication

Grade 1 Audio or visual signal from lock to indicate that deadbolt is fully thrown and deadlocked

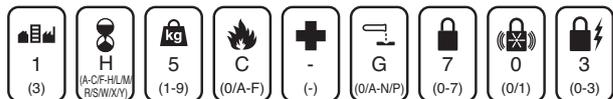
 **Digit 9 Security – electrical manipulation**

Four grades are identified indicating required levels of resistance to various forms of manipulation and interference as shown:

Requirement	Grade 0	Grade 1	Grade 2	Grade 3
Voltage drop protection	-	-	Yes	Yes
Protection against cutting of cables	-	-	Yes	Yes
Protection against wire manipulation	-	-	-	Yes
Resistance to electromagnetic manipulation	-	-	Yes	Yes
Resistance to electrostatic discharge	-	Level 2	Level 4	Level 4
Resistance to electrostatic manipulation	-	-	Level 4	Level 4

• **Example**

The following marking denotes hardware suitable for use where there is an incentive to exercise care; that will withstand a durability of 200,000 cycles with a 10N side load on the latch bolt on a door of up to 200 kg in mass; that will close with a maximum force of 25N; that is suitable for use on a fire/smoke resisting door with up to 30 minutes resistance; that has no safety requirement; that has 48 hours corrosion resistance over a temperature range of -10°C to +55°C; that has high security and drill resistance; that has no status indication; that has high resistance to various forms of manipulation and interference.



• **MARKING**

The labelling, packaging or accompanying literature shall show the following: -

- a) Manufacturer's name, trademark or other means of positive identification
- b) Clear product identification
- c) Classification according to the 9?box classification coding
- d) Number and year of this European standard (i.e. BS EN 14846:2008)

• **Related standards**

Other European standards related to BS EN 14846 are:

BS EN 12209:2003
Mechanically operated locks, latches and locking plates
(DHF Best Practice Guide available)

BS EN 1303:2005
Cylinders for locks
(DHF Best Practice Guide available)

BS EN 1906:2002
Lever handle and knob furniture
(DHF Best Practice Guide available)

prEN 15685
Multipoint locks and their locking plates
(still in draft form)

• CE marking

Electromechanically operated locks and striking plates intended for use on fire/smoke control doors within the EEA* are covered by a Construction Products Directive mandate issued by the European Commission. Consequently, this standard is regarded as “harmonised” and compliance with it, supported by suitable evidence, allows for the application of the CE mark.

As such, electromechanically operated locks and striking plates have a critical safety function. Application of the CE mark will require the involvement of a notified body to provide verification of the compliance claims. This involves initial type testing of the product to EN 14846 and EN 1634-1, 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.

* EEA = European Economic Area including the EU and EFTA (except Switzerland)

The CE conformity marking symbol, in letters at least 5 mm high, and items i) to vii) below, shall accompany the product, and shall be included in installation instructions:-

- i) Identification number of the certification body
- ii) The name or identifying mark of producer
- iii) Registered address of the producer
- iv) Last 2 digits of year in which marking was applied
- v) The number of the EC Certificate of Conformity
- vi) Reference to this European Standard (EN 14846)
- vii) The designation and performance of the product according to the 9-box classification coding where incorporated in the Scope and clauses of the Standard applying to the essential characteristics

Additionally, at least the CE marking symbol and the identification number of the certification body shall be affixed to the product and optionally on its packaging

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.

In addition to ensuring that products satisfy the requirements of this standard, other factors should be taken into consideration when selecting locks, latches and locking plates. These not only include sourcing products from a reputable manufacturer, but also quality assurance, support services and unequivocal conformity.

• 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.



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

• SUPPORT SERVICE

The correct installation of locks, latches and locking plates is essential to ensure that they are able to operate efficiently within the performance levels described in this standard.

Specialist advice is available from DHF members in support of their products from specification stages through supply to effective operation on site.

• CONFORMITY

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:

a) This product has been successfully type-tested for conformity to all of the requirements of BS EN 14846. Test reports and/or certificates are available upon request.

b) This product has been successfully type-tested for conformity to all of the requirements of BS EN 14846 including the additional requirements for fire/smoke door use*. Test reports and/or certificates are available upon request.

*Add as appropriate.

c) This product has been successfully type-tested for conformity to all of the requirements of BS EN 14846 including the additional requirements for fire/smoke door use*. Regular audit testing is undertaken. Test reports and/or certificates are available upon request.

*Add as appropriate.

DHF PROFILE

The Door & Hardware Federation (DHF) represents all the key players in the following sectors:

- industrial /commercial doors
- shutters
- garage doors
- powered gates
- metal and timber doorsets
- locks and architectural ironmongery

With the ultimate aim of maintaining and raising quality standards throughout the industry, all DHF members must meet minimum standards of competence and customer service. They all operate within a Code of Conduct governing standards of workmanship, quality assurance, training, safety, business integrity and CE marking compliance.

The DHF provides a single source of technical expertise for professionals in all sectors of the building industry.

Guild of Architectural Ironmongers

Founded in 1961, the GAI represents 95% of bona fide distributors within the UK and the majority of manufacturers of architectural ironmongery. The GAI 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 Master Locksmiths Association (MLA) is the leading trade association for the locksmithing industry. Established over 50 years ago as a not-for-profit organisation promoting the skill and integrity of its 1,400 members, it helps promote standards of conduct, practice and materials within the industry, and is recognised as the authoritative body by the police, government, BSI, Insurers, RISC Authority (formerly IPCRes) and other such groups.

MLA licensed companies, who undergo strict vetting and regular inspections, can provide customers with peace of mind regarding the security of their property. Visit the MLA website (www.locksmiths.co.uk) for details on your nearest MLA licensed company.



Door & Hardware Federation

raising standards

DHF
42 Heath Street
Tamworth
Staffs B79 7JH
Tel: Tamworth (01827) 52337
Fax: Tamworth (01827) 310827
DHF e-mail: info@dhfonline.org.uk
Web site: www.dhfonline.org.uk

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