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DHF
Door & Hardware Federation
raising standards

best practice guide

Mechanically operated locks, latches and locking plates to

BS EN 12209: 2003

in association with

guild of architectural ironmongers
advancing architectural ironmongery

MASTER LOCKSMITHS ASSOCIATION
MLA

• 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 12209 Building Hardware - Mechanically operated locks, latches and locking plates

Fundamental to 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 and temperature resistance and security, both manipulative and physical. In addition, it contains information on marking, including CE marking because BS EN 12209 is a harmonised standard.

Extracts from BS EN 12209 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.

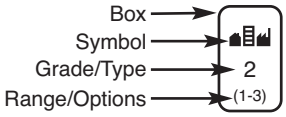
• SCOPE

This standard covers requirements and test methods for all types of mechanical lock or latch (including associated or separately supplied locking plates), intended for use on pedestrian doors in buildings but excludes electro-mechanically operated locks and striking plates, multi-point locks and their locking plates, locks for windows, padlocks, locks for safes, furniture locks and prison locks

• CLASSIFICATION

BS EN 12209 classifies mechanically operated locks, latches and locking plates using an 11 digit coding system. This has proved necessary in order to provide a proper assessment of all the varied features of products for specific markets within Europe. It should be noted that to avoid a greater proliferation of boxes, certain features have been “doubled up”: e.g. durability and durability with side load; door mass and closing force; corrosion resistance and temperature resistance. The system is comprehensive but it has led to the use of letters (rather than numbers) in certain boxes, since there can only be one digit in each classification box. A similar classification system applies to all building hardware product standards (at least for the first 7 boxes) to aid meaningful comparisons with related products.

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 2 in the Category of Use classification, where EN 12209 stipulates a range of three possible grades from 1 to 3.

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

Digit 1
Category of use

Three categories of use are identified:

- 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. public doors

Digit 2
Durability

Twelve grades are identified with minimum figures for deadbolt and snib operation, and latch bolt operation with and without side load, as shown. The side load is applied to the latch bolt when it is being withdrawn

Increasing side load →					
↑ No of operations	Grade C Grade B Grade A	Grade H Grade G Grade F	Grade M Grade L	Grade S Grade R	Grade X Grade W

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 100kg	up to 200kg	above 200kg
15N	Grade 7	Grade 8	Grade 9
25N	Grade 4	Grade 5	Grade 6
50N	Grade 1	Grade 2	Grade 3

Digit 4
Fire resistance

Two grades are identified: -

– grade 0: not approved for use on fire/smoke door assemblies
- grade 1: suitable for use on fire/smoke door assemblies tested to EN 1634-1 etc.

Note 1. A grade 1 classification means only that the lock has been designed for use on fire/smoke control doors; the actual fire performance achieved (e.g. fire integrity of 30 minutes on a partially glazed timber door etc.) will be contained in a separate fire test report.

Note 2. Where a product is intended for fire/smoke door use (i.e. a “1” in box 4), it must be possible to demonstrate compliance with the Essential Requirements of the Construction Products (Amendments) Regulations. It is recommended that the product should bear the CE mark (see section on CE marking).

Digit 5
Safety

No requirement, but note: a lock or latch conforming to this standard can, at the same time, also be part of an exit device conforming to EN 179 or EN 1125.

Digit 6
Corrosion resistance

Eight grades are identified with neutral salt-spray (NSS) corrosion resistance grades from EN 1670:1998, with and without temperature resistance as shown: -

Corrosion resistance (NSS)	Temperature resistance	
	No requirement	-20°C to +80°C
240 hours	grade D	grade G
96 hours	grade C	grade F
48 hours	grade B	grade E
24 hours	grade A	
No requirement	grade 0	

Digit 7
Security and drill resistance

Seven grades are identified with minimum figures for requirements relating to physical attack, with or without drilling of the lockcase, as shown: -

	No drilling requirement	Drilling requirement
Increasing resistance to attack ↑	grade 6	grade 7
	grade 4	grade 5
	grade 3	
	grade 2	
	grade 1	

Digit 8
Field of door application

Fifteen grades are identified for differing applications – hinged or sliding doors with rim or mortice locks with either keyless egress from inside or key locking from both sides. The grading determines which application is appropriate. In addition, there is a requirement that lock/latch should not be removable from outside or, for grades K to R, from inside using “standard” tools. Grades H and P require support for the lockcase when installed.

Digit 9
Type of key operation and locking

Nine grades are identified for differing types of key operation. The grading determines how the lock is assessed for deadlocking requirement as shown. In addition, there is a maximum key torque operating requirement of 1.5 Nm and a minimum key strength requirement of 2.5 Nm:-

- grade 0: not applicable;
- grade A: cylinder lock or latch; manually locking;
- grade B: cylinder lock or latch; automatically locking;
- grade C: cylinder lock or latch; manually locking with intermediate locking;
- grade D: lever lock or latch; manually locking;
- grade E: lever lock or latch; automatically locking;
- grade F: lever lock or latch; manually locking with intermediate locking;
- grade G: lock or latch without key operation; manually locking;
- grade H: lock without key operation; automatically locking.

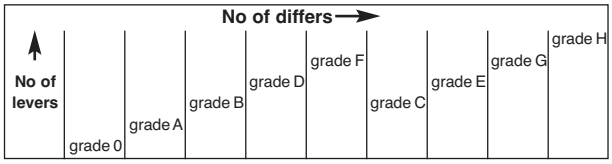
Digit 10
Type of spindle operation

Five grades are identified:-

- grade 0: lock without follower
- grade 1: lock with sprung lever or knob
- grade 2: lock with light unsprung lever
- grade 3: lock with heavy unsprung lever
- grade 4: lock with manufacturer's own specification furniture

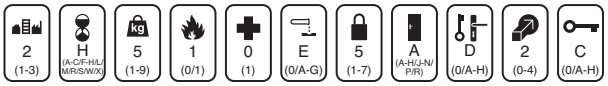
Digit 11
Key identification

Nine grades are identified relating to the number of differs and levers. Grade 0 relates to a latch with no locking action: -



Note: This applies only to lever locks: cylinders are assessed to BS EN 1303:1998

• Example



This indicates a mechanically operated lock and locking plate intended for use in situations where there is an incentive to excercise 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; that has no safety requirement; that has moderate corrosion resistance over a temperature range of -20°C to +80°C; that has high security and drill resistance; that is a lever mortice lock with manual locking; that is suitable for unsprung furniture; and that has five detaining elements with a minimum of 10,000 differs.

• 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 11-box classification coding
d) Number and year of this European standard (i.e. BS EN 12209:2003)

• Related standards

Other European standards related to BS EN 12209 are:

BS EN 1303:1998
Cylinders for locks
(ABHM Best Practice Guide available)

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

prEN 14846
Electromechanical locks and latches
(still in draft form)

WI 33/250
Multipoint locks and latches
(still in draft form)

• CE marking

Mechanically operated locks and latches 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, locks and latches 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 12209 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 mark 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 the producer
iii) Registered address of the producer
iv) The last 2 digits of year in which the marking was applied
v) The number of the EC Certificate of Conformity
vi) Reference to this European Standard (EN 12209)
vii) The designation and performance of the lock or latch according to the 11-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 lock/latch 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.

British standards can be obtained from
BSI Customer Services,
389 Chiswick High Road, London W4 4AL
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E-mail: cservices@bsi-global.com

Additional important considerations

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 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 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 ABHM 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 12209. 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 12209 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 12209 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 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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