

# Electrically Controlled Exit Systems

For use on escape routes **BS EN 13637:2015**





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# dhf Best Practice Guide: Electrically Controlled Exit Systems

## For use on escape routes **BS EN 13637:2015**

### 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 standards. The reader will then be in a position to seek further specialist advice where necessary and recognise GENUINE conformity to the new standards.

**NOTE:** Unless stated otherwise, references in this document to BS EN 13637 refer to BS EN 13637:2015. Information in this guide is correct at time of publication and intended for guidance only. Information may since have changed and readers should consult the appropriate standards and authorities to confirm its veracity.

## BS EN 13637

### Building Hardware – Electrically controlled exit systems for use on escape routes

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 long term durability, fire / smoke resistance, corrosion, temperature and humidity resistance and security from both inside and outside.

Extracts from BS EN 1125 and BS EN 179 are reproduced with the permission of the British Standards Institution. BSI publications can be obtained from BSI Customer Services:

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## Scope

The standard covers electrically controlled exit systems that are either manufactured and placed on the market in their entirety by one manufacturer or assembled from sub-assemblies produced by more than one manufacturer and subsequently placed on the market as a kit in a single transaction.

These electrically controlled exit systems consist of at least the following elements either separately or combined:-

- **Initiating element** for requesting the release of the electrical locking element.
- **Electrical locking element** for securing the door.
- **Electrical controlling element** for supplying, connecting and controlling the electrical locking element and initiating element.
- Additionally these electrically controlled exit systems can include a **time delay and /or denied exit mode**.

The standard allows systems with immediate egress giving a safe and effective escape through a doorway, a time delay with a maximum of two operations to release the electrically controlled exit system or a shutdown of the system for security. Thus the standard offers in addition to safety an increase in security to avoid unsafe means of locking the door for example by additional padlocks and chains.

Within the scope of the standard is allowed time delayed exit and denied exit mode as a means of increasing the security of the building against unauthorised exit and the concept of central management control (CMC).

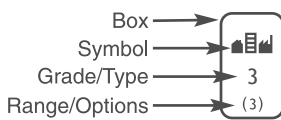
In addition to the requirements of this European standard, if additional fire characteristics are needed then these shall be performed to BS EN 1634-1 or BS EN 1634-2.

It is expected that the product to be tested have been EMC tested for low voltage devices to BS EN 61000.

## Classification

This standard has an eleven digit classification coding. The first five digital align broadly with those on WG4 building hardware standards to enable meaningful comparisons to be made with related products. Digitals six to eleven relate to security grade of the product and the last digit give reference to the type of configuration.

**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 BS EN13637 stipulates only grade 3

Full details on the **dhf** graphic icons system is available upon request.

### Digit 1 Category of use

Only one category is identified.

- Grade 3: high frequency of use by public and others with little incentive to exercise care and with a high chance of misuse, i.e. public areas, commercial buildings etc.

### Digit 2 Durability (no. of test cycles)

Four grades are identified, however if the initiating element is not incorporated in the operating element then the initiating element is tested by additional 6,000 cycles. The grades below are for an operating element only or for an operating element incorporating an initiating element.

- Grade 6: 100,000 cycles
- Grade 7: 200,000 cycles
- Grade 8: 500,000 cycles
- Grade 9: 1,000,000 cycles

Grade	No. Cycles incorporating initiating element	No. Cycles not incorporating initiating element	No. Cycles of an individual initiating element	No. Cycles when a deadbolt is thrown by key
6	100,000	100,000	6,000	25,000
7	200,000	200,000	6,000	50,000
8	500,000	500,000	6,000	125,000
9	1,000,000	1,000,000	6,000	250,000

### Digit 3 Door mass and closing force

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

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

### Digit 4 Suitable for use on fire / smoke doors

Three categories of fire door resistance are identified

- Grade 0: not verified for use on fire/smoke door assemblies.
- Grade A: suitable for use on smoke door assemblies based on test evidence with BS EN 1634-3
- Grade B: suitable for use on smoke / fire door assemblies based on test evidence with BS EN 1634-1 or BS EN 1634-2

### Digit 5 Safety in Use

Only one grade of safety is identified

- Grade 1: all exit systems have a critical safety function, therefore only the top grade is identified

### Digit 6 Corrosion, temperature and humidity

Three grades of corrosion resistance are identified with neutral salt-spray to BS EN 1670 and with temperature and humidity resistance requirements as shown.

**NOTE:** Humidity requirements (level 1 or 2) are shown in brackets.

Grade	EN1670 Salt Spray	Damp heat cyclic resistance	IP Rating
Grade 0 - Indoor Zone	0 hours	No	IP30
Grade 1 - Indoor Zone	24 hours	Yes	IP32
Grade 2 - Outdoor Zone	96 hours	Yes	IP44

### Digit 7 Security / Holding Force - Outside

Five grades of security are identified for the outside whereby the respective load is applied against the door and either the electrical locking element or electrically lockable operating elements must hold the door secure.

- Grade 2: 1,000 N
- Grade 3: 2,000 N

- Grade 4: 3,000 N
- Grade 5 : 5,000 N
- Grade 6 : above 5,000 N



**Digit 8**  
Security / Holding Force - Inside

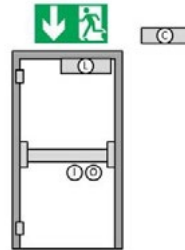
Six grades of security are identified for the outside whereby the respective load is applied against the door and either the electrical locking element or electrically lockable operating elements must hold the door secure.

- Grade 1 : 500 N
- Grade 2 : 1,000 N
- Grade 3 : 2,000 N
- Grade 4 : 3,000 N
- Grade 5 : 5,000 N
- Grade 6 : above 5,000 N

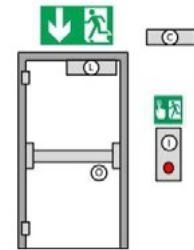
**NOTE:** recordings for digit 7 may be used to fulfil this requirement due the fact that the electrical locking element locks the door to the frame and therefore there will be no difference.

as part of an exit system which is functionally not linked to an exit device.

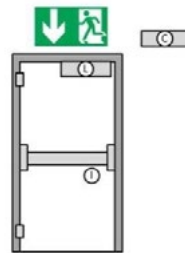
- Category C - Initiating element being integrated in and activated by a dummy bar or a dummy handle that is not an operating element.
- Category D - Other exit system not included in any of the above mentioned categories.



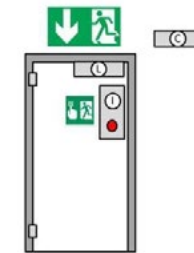
Category A



Category B



Category C



Category D

I – Initiating  
O – Operating  
L – Locking  
C – Controller



**Digit 9**  
Time delay

Three grades are identified for the time delay

- Grade 0 - no time delay
- Grade 1 - single time delay up to 15 seconds
- Grade 2 - double time delay up to 15 seconds or up to 180 seconds



**Digit 10**  
Denied exit mode

Two exit modes are identified:

- Grade 0 - no denied exit
- Grade 1 - denied exit available

**NOTE:** Grade 1 is only available when associated to a Central Management Control (CMC)



**Digit 11**  
Configuration

Four categories are identified:

- Category A - Initiating element being integrated in and activated by a horizontal bar in accordance with EN1125.
- Category B - Initiating element being installed outside the door leaf

## Example

The following marking denotes hardware suitable for use where high frequency of use by the public with little incentive to exercise care with a chance of misuse; that will withstand a durability of 200,000 cycles of the initiating element which is also the operating element; up to 200kg in mass with a closing force of less than 25N; that is suitable for use on a fire / smoke resisting doors; that has 96 hours salt spray corrosion resistance ; that can withstand 3,000N load on the inside and outside of the door; has no time delay; that has no denied access; that has the initiating element integrated in and activate by a horizontal bar in accordance with EN 1125.



## Marking

This standard requires that the classification relevant to the product shall be quoted in literature, accompanying documentation, on its labelling or packaging and/or by marking the product itself.

The marking/labelling shall include:-

- (a) Manufacturer's name, trade mark or other means of positive identification
- (b) Dated reference to the standard i.e BS EN 13673:2015
- (c) Month and year of manufacture

Only (a) shall need to be accessible after installation, item (c) may be in a coded form

### On the packaging

- (a) Manufacturer's name, trade mark or other means of positive identification
- (b) Manufacturer's product reference

## 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 13637:2015. 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 13637:2015 including the additional requirements for fire/smoke door use\*. Test reports and/or certificates are available upon request.
- c) This product has been successfully type-tested for conformity to all of the requirements of BS EN 13637:2015 including the additional requirements for fire/smoke door use\*. Regular audit testing is undertaken. Test reports and/or certificates.

\*Add as appropriate.

## Related Standards

Other European standards related to BS EN 13637 are:

**BS EN 179 Building Hardware** - Emergency exit devices operated by a lever or push pad for use on escape routes

**BS EN 1125 Building Hardware** - Panic exit devices operated by a horizontal bar for use on escape routes

**BS EN 1634-1 Fire resistance tests for door and shutter assemblies** – Part 1: Fire doors and shutters

**BS EN 1634-2 Fire resistance tests for door and shutter assemblies** – Part 2: Fire resistance characterisation test for elements of building hardware

**BS EN 1634-3 Fire resistance tests for door and shutter assemblies** – Part 3 Smoke control test characterisation test for door and shutter assemblies

**BS EN 1670 Building hardware** – Corrosion resistance – Requirements and test methods

**BS EN 55022 - Information technology equipment** - Radio disturbance characteristics

**BS EN 60529** - Degrees of protection provided by enclosures (IP Code)

**BS EN 61000-3-2 Electromagnetic compatibility (EMC)** - Part 3-2: Limits for harmonic current emissions

**BS EN 61000-3-3 Electromagnetic compatibility (EMC)** - Part 3-2: Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply system, for systems with rated current.

**BS EN 61000-4-2 Electromagnetic compatibility (EMC)** – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test

**BS EN 61000-4-11 Electromagnetic compatibility (EMC)** – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity test

**BS EN 61000-6-2 Electromagnetic compatibility (EMC)** – Part 6-2: Generic standards - Immunity for industrial environments

**BS EN 61000-6-3 Electromagnetic compatibility (EMC)** – Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

**BS EN 60068-2-1:2007 Environmental testing** - Part 2-1 Test A Cold

**BS EN 60068-2-2:2007 Environmental testing** - Part 2-2 Test B Dry Heat

**BS EN 60068-2-30:2005 Environmental testing** - Part 2-30 Test Db Damp heat

**BS EN 60947-5-5 Low-voltage switchgear and control gear** - Part 5-5 Control circuit devices and switching elements

**BS EN 61508-1 Functional safety of electrical / electronic / programmable electronic safety-related system**

**BS EN ISO 7010:2012 Graphical symbols** - Safety colours and safety signs

**IEC 60050-845 International Electro-technical Vocabulary** - Lighting

## CE Marking

The standard has an Annex ZA, but the ratification by the commission to allow entry into the official journal for CE marking to start is currently under review and is hoped to be completed to CE mark by the end of 2017.

Product can claim full compliance with EN13637 today as a voluntary standard but not CE marked.

## 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 specification and installation of panic and emergency exit 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 **dhf** members in support of their products from specification stages through supply to effective operation on site.

## dhf

**dhf** (Door and Hardware Federation) was created by a merger between the Association of Building Hardware Manufacturers (ABHM) and the Door and Shutter Manufacturers Association (DSMA), both of which had 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.

**dhf** has built 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.

**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.

**dhf** now represents all the key players in the following sectors: locks and building hardware, doorsets, industrial doors and shutters, domestic garage doors and automated gates/traffic barriers.

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.





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