

Electromagnetic Locking Devices

to **DHF TS 010:2016**





dhf Best Practice Guide: Electromagnetic Locking Devices to DHF TS 010:2016

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

NOTE: Unless stated otherwise, references in this document to DHF TS 010 refer to DHF TS 010:2016. 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 specification and authorities to confirm its veracity.

TS 010: 2016 Electromagnetic Locking Devices

The purpose of this Best Practice Guide to Technical Specification DHF TS 010:2016 is to provide a classification for Electromagnetic Locking Devices, as no current product standard is available and to give specifiers guidance of the performance of these types of products, including internal face fixed, internal mortice, internal shear magnets and external magnets.

Scope

This performance specification gives the requirements and test methods for the security, durability, fire and environmental for Electromagnetic locking devices, when used on a hinged, pivoted or sliding internal, external doors or gates.

The main purpose of the test is to prove the performance of the product when it is tested and passes to this specification.

In addition to the requirements of Technical Specification TS 010, if additional fire characteristics are needed then these shall be performed to EN 1634-1 or EN 1634-2.

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

This performance specification does not cover those locks and strikes that are covered by EN 14846 electromechanically operated locks and striking plates or products covered by EN 13637 Electromechanical exit systems.

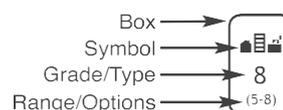
The Technical Standard does not cover the requirements for use on panic or emergency escape doors as this is covered by reference to EN 13637.

The use of Z & L brackets reduces the holding force between the armature plate and the electromagnetic lock, which will vary depending on the fixings used, the doorframe material and the size of the door. Due to the number of configurations which would affect the holding force, the standard does not include testing with brackets.

Classification

DHF TS 010:2016 classify Electromagnetic Locking Devices by using an 8-digit coding system as many European Standards use a similar coding method, 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.

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 8 in the Durability classification where TS 010:2016 stipulates a range of four possible grades.

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 chance of misuse to the door, i.e. public areas, commercial buildings etc.



Digit 2 Durability

Four categories of durability are defined and testing will be with the correct fixings and without Z and L brackets.

- Grade 5: 50,000 cycles
- Grade 6: 100,000 cycles
- Grade 7: 200,000 cycles
- Grade 8: 500,000 cycles



Digit 3 Suitable for use on fire / smoke doors

Three categories of fire door resistance are identified:

- Grade 0: not approved for use on fire/smoke door assemblies
- Grade A: suitable for use on smoke door assemblies only
- Grade B: suitable for use on smoke / fire door assemblies

The Electromagnet shall be included in a full-scale fire test to EN 1634-1 or assessment by a certified body.



Digit 4 Safety Bolts and Straps

Four categories are identified and declared by the manufacturer:

- Grade 0: not supplied
- Grade 1: safety bolts supplied
- Grade 2: straps supplied
- Grade 3: safety bolts and straps supplied

Safety bolts and straps shall be declared by the supplier of the Electromagnetic lock as these are a safety feature



Digit 5 Corrosion resistance

Four grades of corrosion resistance are identified performed to EN 1670. The Electromagnetic lock is charged to secure the armature plate for the duration of the test and the wiring is protected from the salt spray.

- Grade 1: Up to 24 hours - mild resistance
- Grade 2: Up to 48 hours - moderate resistance
- Grade 3: Up to 96 hours - high resistance
- Grade 4: Up to 240 hours - very high resistance



Digit 6 Security - Holding Force without brackets

Six grades of holding force are identified which are in line with other Codes of Practice for Access Control Systems. Each grade is a minimum figure for requirements relating to the holding force required to pull the magnet and armature plate apart.

Z&L Brackets are not tested with the Electromagnetic lock as these are known to reduce the holding force.

The Electromagnetic locks are also tested with the lowest nominal rated voltage.

- Grade 1: holding force above 1kN (225 lbf) (102 kgf)
- Grade 2: holding force above 2kN (450 lbf) (204 kgf)
- Grade 3: holding force above 3kN (675 lbf) (306 kgf)
- Grade 4: holding force above 5kN (1125 lbf) (510 kgf)
- Grade 5: holding force above 7kN (1570 lbf) (714 kgf)
- Grade 6: holding force above 10kN (2250 lbf) (1020 kgf)



Digit 7 Security - Electrical Function

Three grades are identified for signifying if the product has a means of indication that it is energised or non-energised. There is no pass or fail criteria.

- Grade 0: no status indicated
- Grade 1: audio or visual of the element
- Grade 2: audio or visual of the element with additional output signal



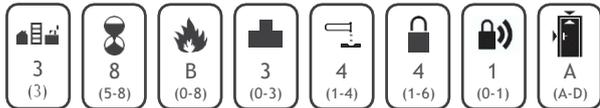
Digit 8 Type of Device

Four types of devices are identified which are defined by the manufacturer:

- Grade A: Internal face to face fixed electromagnetic locks
- Grade B: Internal mortice face to face fixed electromagnetic locks, which could be fitted in a housing or frame
- Grade C: Internal electromagnetic shear locks
- Grade D: External electromagnetic external locks

EXAMPLE

The following marking denotes an Electromagnetic Face to Face Fixed Lock having achieved to 500 000 operations, suitable for use on a fire door with a very high corrosion resistance fitted with safety bolts and straps and with an indication when energised.



Marking

- (a) Manufacturer's name or trademark or other means of positive identification
- (b) Classification as detailed
- (c) The number of the Technical Standard
- (d) The month and year of final assembly by the manufacturer

NOTE: This information can be in coded form. Items (b) and (c) should be clearly visible after installation if possible.

Support service

The correct installation of Electromagnetic Locking devices is essential to ensure that they are able to operate efficiently within the performance levels described in this Technical 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 TS 010:2016. 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 TS 010:2016 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 TS 010:2016 including the additional requirements for fire/smoke door use*. Regular audit testing is undertaken. Test reports and/or certificates.

*Add as appropriate.

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.

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 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.

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.

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.







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