

Thief Resistant Lock Assemblies

Thief resistant lock assemblies - Key egress **BS 3621: 2007**

Thief resistant lock assemblies - Keyless egress **BS 8621: 2007**

Thief resistant dual mode lock assemblies **BS 10621: 2007**





dhf Best Practice Guide: Thief resistant lock assemblies

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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.

NOTE: Unless stated otherwise, references in this document to BS EN 3621, BS 8621 and BS 10621 refer to BS EN 3621:2007, BS EN 8621:2007 and BS EN 10621:2007 respectively. 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.

Introduction

The publication of revisions to the established standards BS 3621 and BS 8621 has coincided with the launch of the new BS 10621. Since these three standards are very similar, this guide addresses them together, while emphasising the important distinctions between the functions and applications of the three types of lock assembly.

The revisions to these standards were necessitated by the recognition of certain methods of attacking lock cylinders which were not specifically covered in the European standards. Additional tests have been included to ensure that locks complying with the revised standards will be resistant to such attacks. The opportunity has also been taken in the revisions to publish some additional information about master keying, keys to pass and the general vulnerability assessment for thief resistant locks.

Lock functions and applications

Since its inception, BS 3621 has always required security from both sides, meaning that, once locked, a key is always required to open the door, whether from the inside or the outside. Recognising that there are situations in which a keyless egress lock (secure only from the outside) can offer acceptable security, as well as safety benefits, BS 8621 was added in 2004. Finally, in 2007, BS 10621 specified a keyless egress lock with the additional feature that the escape function could be disabled, but only by a positive action, using a key from the outside, with the door closed.

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In summary, the functions specified by the three standards are as follows:

Table 1

Standard	Function	Comments
BS 3621	Locked by key from both sides	Provided that the key is removed, this type of lock is secure against operation by intruders reaching through a letter-plate, breaking nearby glazing etc. Best used where emergency escape is not required or where other means of escape exist.
BS 8621	Locked by key from outside only; can always be opened from the inside without a key.	This type of lock offers emergency escape without a key at all times. Best used where there is no danger of the inside handle being operated from the outside by, for instance, breaking a glazed panel, reaching through a letter plate etc.
BS 10621	Locked by key from outside only; can be opened from inside without a key EXCEPT when this function has been disabled by a positive key operation from the outside.	Combines ease of escape in emergency with an additional security feature for use ONLY when leaving the premises unoccupied. Best used where: <ul style="list-style-type: none"> - an alternative means of escape exists; - there is no danger of the inside handle being reached from the outside.

Except where necessitated by the differences in function, the requirements for all three types of lock are identical.

Table 2. Minimum performance requirements from BS EN 12209: 2003

Box 1		Box 2		Box 3		Box 4		Box 5 (Safety) no requirement		Box 6		Box 7		Box 11	
Grade	Category of use	Grade	Durability and load on latch	Grade	Door mass and closing force	Grade	Suitability for fire door use	Grade	Corrosion resistance and temperature NSS °C	Grade	Physical security (force attack) Projection (mm) Side load (kN) End load (kN)	Grade	Key security (manipulative attack) No. of detainers No. of differs		
1	2kN - 20Nm	A	50K-0	1	<100kg <50N	0	Not suitable		0	-	1	10-1-1	0	(e.g.cyl.locks)	
2	3kN - 40Nm	B	100K-0	2	<200kg <50N	1	Suitable		A	24hr -	2	12-3-2	A	3 - 100	
3	3kN - 60Nm	C	200K-0	3	<200kg <50N				B	48hr -	3	14-5-4	B	5 - 1,000	
		F	50K-10N	4	<100kg <25N				C	96hr -	4	20-7-5	C	5 - 10,000	
		G	100K-10N	5	<200kg <25N				D	240hr -	5	20-7-5*	D	6 - 20,000	
		H	200K-10N	6	<200kg <25N				E	48hr -20/80	6	20-10-6	E	6 - 20,000	
		L	100K-25N	7	<100kg <15N				F	96hr -20/80	7	20-10-6*	F	7 - 6,000	
		M	200K-25N	8	<200kg <15N				G	240hr -20/80			G	7 - 50,000	
		R	100K-50N	9	<200kg <15N								H	8 - 100,000	
		S	200K-50N												
		W	100K-120N												
		X	200K-120N												
										*= drill resistance					

NOTE: Table 2 covers only performance-related categories (represented by boxes 1 to 7 and 11 of the EN 12209 classification coding) and ignores boxes 8 to 10, which are purely for classification of lock types (see Table 4).

BS 3621/BS 8621/BS 10621 and BS EN 12209

BS 3621, BS 8621 and BS 10621 are inextricably linked to EN 12209: To help explain the relationship between BS 3621/BS 8621/BS 10621:2007 and BS EN 12209: 2003, the BS 3621/8621/10621 requirements are shown super-imposed on the BS EN 12209 requirements (shaded areas) in Table 2. This shows the minimum grade required in each EN 12209 category to ensure that locks will conform to BS 3621/8621/10621 and also shows how the BS 3621/8621/10621 grades relate to the other grades in BS EN 12209.

Requirements

As indicated above, a lock must exceed a minimum level of performance in all performance-related categories of EN 12209: 2003 (Classification boxes 1 to 7, and 11). It must also have passed a general vulnerability assessment (see below) and, where appropriate, have the right cylinder (see Table 3). The EN 12209: 2003 performance related minimum requirements are as follows:-

EN 12209: 2003

Category of use

- Grade 2: The principal requirements of this grade are an ability to resist a side load on the latch bolt of at least 3 kN, and a torque on the follower stops (representing forcing of the handle) of at least 40 Nm.

EN 12209: 2003

Durability and load on latch

- Grade H: The principal requirement of this grade is an ability to endure at least 200,000 latching cycles (with a side load on the latch bolt of 10N) and at least 50,000 key operation cycles.

EN 12209: 2003

Door mass and closing force

- Grade 4: The requirement of this grade is for the latch to engage (from a standing start) with a force not exceeding 25N, on a door of no more than 100kg mass.

EN 12209: 2003

Suitability for use on fire/smoke doors

- Grade 0: This means that there are no fire resistance requirements in BS 3621, BS 8621 or BS 10621.

EN 12209: 2003

Safety

- Grade 0: This means that there are no safety requirements in BS 3621, BS 8621 or BS 10621, but note: locks conforming to these standards can, at the same time, conform to EN 179 or EN 1125, for which there are safety requirements. Conformity to the latter standards is only possible where the products are both tested and supplied with the appropriate actuator.

EN 12209: 2003

Corrosion resistance and temperature

- Grade F: The requirements of this grade are an ability to operate after a 96 hour neutral salt spray test, and at temperature extremes of -20°C and +80°C.

EN 12209: 2003

Security and drill resistance

- Grade 7: The principal requirements of this grade are a deadbolt projection of at least 20 mm, and an ability to resist a side load on the deadbolt of at least 10 kN, and an endload on the deadbolt of at least 6 kN - both after 5 minutes of drilling. (Note: Locks with an enclosed box on the locking plate need only resist a 2 kN end load).

EN 12209: 2003

Key identification

- Grade B: The principal requirements of this grade are a minimum of 5 detaining elements, and a minimum number of 1,000 effective differs, but note: this does not apply to cylinder locks for which a Grade 0 should be shown

General Vulnerability:

In addition to the BS EN 12209 requirements, locks to BS 3621: 2007, BS 8621: 2007 or BS 10621: 2007 shall be submitted to a panel of locksmith experts for a general vulnerability assessment. This has always been a feature of BS 3621 and is still considered necessary in order to detect weaknesses which would not otherwise show up during normal testing. The assessment is now in two parts; the first covering vulnerability of the entire assembly while the second deals with security of the cylinder (if any) against manual attack. For the first time, the 2007 editions of BS 3621, 8621 and 10621 include an annex giving details of the procedures used by this panel.

These procedures are additional to the testing specified in BS EN 12209 or BS EN 1303.

Cylinder locks:

A further requirement applicable to cylinder locks is that the cylinder must conform to certain requirements of BS EN 1303. Any "loose" cylinder supplied with the lock must conform to BS EN 1303: 2005 to the minimum grades shown in Table 3.

Table 3. Cylinder minimum requirement

Category	BS EN 1303: 2005
Category of use	Grade 1
Durability Grade 6	Grade 6
Door mass	(no requirement)
Fire resistance	Grade 0
Safety	(no requirement)
Corrosion resistance	Grade C
Key related security	Grade 5
Attack resistance	Grade 2

Classification

Since all performance-related requirements in BS 3621: 2007, BS 8621: 2007 and BS 10621: 2007 are fixed, the only classification issues that are relevant to these standards are those that relate to the type of lock. Lock types are covered by boxes 8 to 10 of the BS EN 12209: 2003 classification coding. Even combined, BS 3621: 2007, BS 8621: 2007 and BS 10621: 2007 do not cover all the types covered by BS EN 12209: 2003.

The particular lock types covered by BS 3621/8621/10621 are shown in Table 4 (below). It should be noted that the principal differences between BS 3621 and BS 8621/10621 are the grades shown under "Field of door application" (Box 8). The grades shown under BS 3621 are those which require "egress control by key", whereas those under BS 8621/10621 do not.

Table 4. Classification of lock type

Grade Keyless egress (BS 8621/10621) Key egress (BS 3621)	Box 8		Box 9		Box 10
	Field of door application (relationship to door)		Type of key operation and locking		Type of spindle operation
	Fitting to door	Door movement	Type of lock mechanism	Mode of locking	Intended for use with:
A	S Mortice	Hinged or sliding	A Cylinder	Manual	0 (no follower)
B	K Mortice	Hinged	B Cylinder	Automatic	1 unsprung lever/knob
C	L Mortice	Sliding	D Lever	Manual	2 light unsprung lever
D	T Rim	Hinged or sliding	E Lever	Automatic	3 heavy unsprung lever
E	M Rim	Hinged			
F	N Rim	Sliding			
J	R Rim	Hinged (inward only)			

Marking

Minimum requirements for marking are as follows: - On the product (visible after installation):

Manufacturer's name, trade mark, or other means of identification

Number and date of British Standard e.g. BS 3621: 2007

On the packaging (visible when product stored on shelves etc):

- Manufacturer's name, trade mark, or other means of identification
- Clear product identification
11-box classification code according to BS EN 12209: 2003
- Number and year of British Standard e.g. BS 3621: 2007
- Limitations on application, e.g. suitable only for timber doors
- **On labelling or literature:**
Manufacturer's name, trade mark, or other means of identification
Clear product identification
11-box classification code according to BS EN 12209: 2003
Number and year of European standard

For cylinder locks:

- 8-box classification code according to BS EN 1303: 2005

Optionally, a 3-box classification coding could be used in any of the above locations as a "shorthand" way of describing the type of lock.

Note: There would be room to put such marking on the lock faceplate.

In addition to ensuring that products satisfy the requirements of this standard, other factors should be taken into consideration when selecting lever handles and knob furniture. 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.

Certification

A Recommendation by **dhf**

Because this standard deals with security, and because of the nature of the general vulnerability assessment, reliable evidence of compliance is regarded as essential. Third party product certification provides such evidence. This is a process involving independent third party testing, inspection and random auditing, intended to ensure that the product or service delivered complies with an agreed standard.

At the time of going to print, the only certification body offering certification to this standard is BSI Product Services. Compliant products carry the BSI Kitemark symbol on the forend of the lock.



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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.

Guild of Architectural Ironmongers

Founded in 1961, the GAI represents the majority of Architectural Ironmongers in the UK. The GAI serves to further all aspects of architectural ironmongery by promoting the interchange of information to encourage better products design and high professional standards of ironmongery scheduling and specification. GAI has also expanded its offering to include overseas clients, who are increasingly taking advantage of its comprehensive education programme.



Master Locksmiths Association

The MLA is the leading trade association for the locksmithing industry. It is recognised as the authoritative body by the police, government, insurers and other such groups. MLA licenced companies can provide customers with peace of mind regarding the security of their property. Its members undergo strict vetting and regular inspections.



This document has been produced in association with **Guild of Architectural Ironmongers (gai)** and **Master Locksmiths Association (MLA)**.





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