Best Practice ✓
Guide

dhf
Raising Standards
Advancing Safety

Mechanically Operated Push-button Locksets

dhf Best Practice Guide to BS 8607:2014 + A1:2016

dhf Best Practice Guide: Mechanically Operated Push-button Locksets to BS 8607:2014 + A1:2016

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 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.

Scope

This British Standard specifies requirements and test methods for durability, strength and function of mechanically operated push-button locksets and their locking plates for use on doors, window doors and entrance doors in buildings.

This British Standard includes requirements for locksets intended for use on fire-resisting and smoke control doors. It does not specify requirements for locksets intended for use on final exit doors on escape routes, which are covered in BS EN 179:2008.

Although it is possible for lock manufacturers to test their own products to this specification, users are recommended to consider the benefits of third party certification against this specification.

BS 8607:2014+A1:2016 – Mechanically Operated Push-button Locksets

The purpose of this British Standard is to provide a classification for Mechanically Operated Push-button Locksets. These products are generally used as a means of convenience, but they are now also used on fire doors and perimeter doors and the standard is available to give specifiers guidance of the performance of these types of product.

The standard will test the performance of the lever/knobs as well as the durability of the keypad. It is anticipated that the keypad will be used to enter the building but not when vacating. Therefore the keypad is cycle tested to 50% of the lever/knobs. The push buttons of the keypad are tested using at least 30% of the buttons available.

Both Grades 1 and 2 are for internal applications only as no security testing is subjected at these levels, with the intention that products in these groups are used as a means of convenience.

Mechanically Operated Push-button Locksets to Grade 3 will have a minimum level security as they are intended for internal doors or external doors if additional security locking is used.

Grades 4 Mechanically Operated Push-button Locksets are required to pass the General Vulnerability Assessment (GVA) which includes tools being used such as HSS drill bits, vice grips, cordless drill, picking tools, chisels and wedges etc. To meet Grade 4 they will require an additional locking unit with key operation on the inside of the door for egress. Products to this grade can therefore be considered for perimeter doors .

Products tested to Grades 4 will have a security level equivalent to BS 3621:2017 for thief resistant lock assemblies.

Grade 5 Mechanically Operated Push-button Locksets must demonstrate that they have a high level of security against attack and have successfully passed a General Vulnerability Assessment (GVA) as described above. To meet Grade 5 the product must feature automatic locking with keyless egress using a built-in locking unit. Products to this grade can therefore be considered for perimeter doors around a building.

Products successfully tested to Grade 5 will have a security level equivalent to BS 3621:2017 for thief resistant lock assemblies and might display a British Standard Kitemark* with the relevant standard code.

BS 8607:2014 + A1:2016

Classification

Classification of the mechanically operated push button locksets is in five grades.

Products tested to BS 8607 incorporate specific performance grades from BS EN 12209 for mechanically operated locks, latches and locking plates and also requirements of BS EN 1906, BS 3621, PAS 24 and for the overriding cylinder where applicable BS EN 1303.The lockset shall meet the minimum requirements for the

appropriate application grade.

Fire/smoke resistant product

Locksets should have acceptable documentary evidence to show that they are suitable for use on any smoke and/or fire-resisting doors for which they are intended.

Acceptable test reports should be to BS476-22, BS EN 1634-1, BS EN 1634-2, BS EN 1634-3 or an assessment report by an accredited testing institute.

Normative references

BS 3621:2017	-	Thief resistant lock assembly - Key egress
BS 7398:1991	-	Specification for hand hacksaw frames
BS EN 1303:2015	-	Cylinders for locks
BS EN 1906:2012	-	Lever handles and knob furniture
BS EN 12209:2016	-	Locks and latches
PAS 24:2016 for	-	Enhanced security performance doorsets and windows in the UK

BS 8607:2014 + A1:2016

Application grade

The Mechanical Push-button Lockset shall be designated Grades 1, 2, 3, 4 or 5 according to the following intended applications:

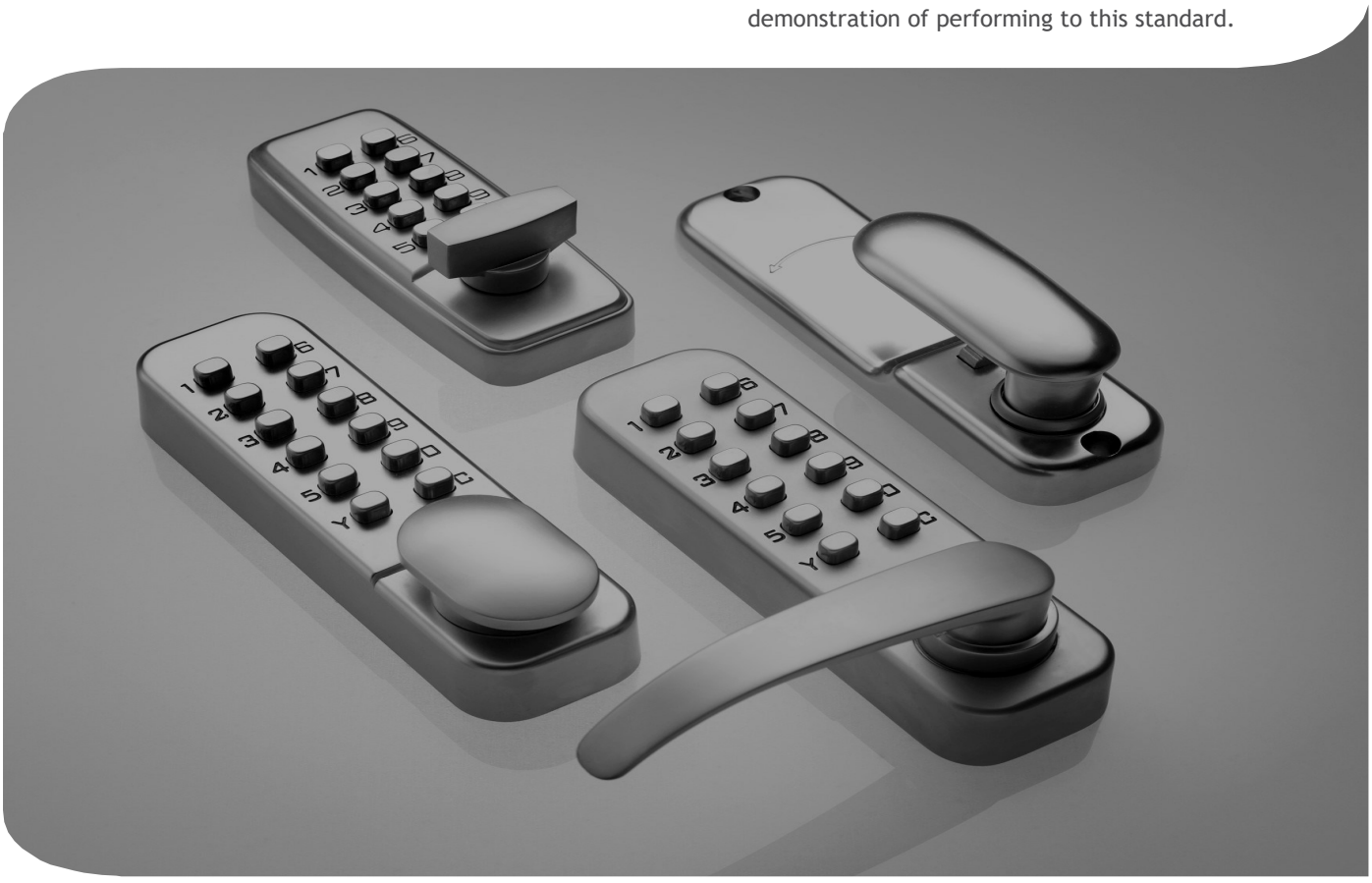
Grade 1: internal applications where users have a high incentive to exercise care and where the expected usage is low;

Grade 2: internal applications where users have little incentive to exercise care and where the expected usage is high;

Grade 3: applications where abuse and usage levels are expected to be high and there is an element of security;

Grade 4: applications where security, abuse and usage levels are expected to be equivalent to BS 3621:2017, but which can only be achieved with the help of an integral additional locking unit (additional security bolt). The optional locking arrangement cannot be separated from the mechanical operated push-button lock without dismantling.

Grade 5: applications where security, abuse and usage levels are expected to be equivalent to BS 3621:2017 and locking is automatic via an integrated lock with keyless egress, might display a British Standards Kitemark* as demonstration of performing to this standard.



Lockset requirements

Parameter	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Durability of keypad—no of cycles	50,000	100,000	100,000	100,000	100,000
Return force of latch bolt	>2.5N	>2.5N	>2.5N	>2.5N	>2.5N
Side load on latch	1kN	2kN	3kN	3kN	3kN
Max. handle/knob operating torque (integral)	0.03 x handle radius (in mm) = Torque (in Nm)				
Max. handle/knob operating torque (separate)	3Nm	3Nm	3Nm	3Nm	3Nm
Strength of latch action stop	10Nm	10Nm	40Nm	40Nm	40Nm
Torque on locked handle/knob (still working)	0.4 x handle radius (in mm) = Torque (in Nm)				
Durability/side load on latch bolt	100k (no load)	200k/25N	200k/25N	200k/25N	200k/25N
Durability of security bolt (if separate)	25,000	100,000	100,000	100,000	100,000
Durability of snib mechanism	10,000	10,000	10,000	10,000	10,000
Door mass and closing force	100kg/25N	100kg/25N	100kg/25N	100kg/25N	100kg/25N
Corrosion/temperature resistance (internal)	96h/No requirement	96h/ -20 + 80°C	96h/ -20 + 80°C	96h/ -20 + 80°C	96h/ -20 + 80°C
Corrosion/temperature resistance (external)	240h/No requirement	240h/ -20 + 80°C	240h/ -20 + 80°C	240h/ -20 + 80°C	240h/ -20 + 80°C
Torque on locked handle/knob (still secure)	1.0 x handle radius (in mm) = Torque (in Nm)				
Side load on security bolt	1kN	2kN	3kN	10kN	10kN
Projection of security bolt	10mm	10mm	10mm	20mm	20mm
End load on security bolt/resulting projection (not for latches)	0.5kN/8mm	0.5kN/8mm	1.5kN/8mm	6kN/17mm	6kN/17mm
End/side load on locking plate	Same loads as for lock (see above)				
Resistance to remove form inside (key egress locks only)	N/A	N/A	Only with special tool	Only with special tool	Only with special tool
Number of effective differs	200	500	500	N/A	500
Next closest combination	Yes	Yes	Yes	N/A	Yes
Durability of handle/knob (internal & external)	50,000	100,000	100,000	100,000	100,000
Axil strength of handle/knob (internal & external)	300N	500N	500N	300N	500N

Lockset requirements cont'd

Additional requirements for Grades 4 and 5				Grade 4	Grade 5
Strength of key—Additional Locking Unit (ALU)				>2.5N	N/A
Type of key operation and locking (ALU)				As appropriate	N/A
Minimum no. of detaining elements (ALU)				5	N/A
Minimum no. of effective differs for key override (ALU)				1000	N/A
Minimum no. of differing key steps (ALU)				3	N/A
Non-interpassing of keys (ALU)				Yes	N/A
Coding protection				Yes	N/A
Durability of handle/knob (internal & external)				100,000	100,000
Axil strength of handle/knob (internal & external)				300N	500N
Resistance to remove from door				Yes	Yes

Grade 4 lockset with cylinder operated additional locking unit	Grade 4	
Strength of key	>2.5N	
Minimum no. of effective differs on cylinder	30000	
Minimum no. of moveable detainers	6	
Maximum no. of identical steps	60% (no more than 2 adjacent)	
Direct coding on key	No	
Non-interpassing (with 1.5Nm on key)	Yes	
Torque resistance of plug/cylinder BS EN 1303:2015 Clause 4.8.6	15Nm	
Resistance to drilling	5 min of actual drilling	
Resistance to attack by chisel	40 blows	
Resistance to attack by twisting	30 twists	
Resistance to attack by plug/cylinder extraction	15kN (5 min attack time)	
Torque resistance of plug/cylinder BS EN 1303:2015 Clause 4.9.6	30Nm	

Key override requirements (clauses BS EN 1303:2015)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Key strength	N/A	2.5Nm	2.5Nm	2.5Nm	2.5Nm
Key related security grade	N/A	D	D	5	5
Plug/cylinder resistance to extraction grade	N/A	N/A	N/A	2	2
Plug/cylinder torque to extraction grade	N/A	N/A	N/A	2	2

General vulnerability assessment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Standard GVA including cordless drill, hammers etc	No	No	No	Yes	Yes
Special GVA excluding cordless drill and hammers but including specialist tools	No	No	Yes	Yes	Yes

Marking requirements

	Visible on product	Visible on packaging	Manufacturer's information supplied with the product
Number and publication date of standard	•	•	•
Manufacturer's name, trade mark or other means of identification	•	•	-
Product identification	-	•	-
Application grade	•	•	•
Application limitations i.e. "Suitable for timber door only"	-	•	-
Intended for use on fire resistant doors	-	-	•
Intended for use on hinged or pivoted doors (mortice or rim fitted)	-	-	•
Manual or automatic deadlocking	-	-	•
Keyless egress (what tools are required to remove from the inside)	-	-	•
External use i.e. security tested	-	-	•
Additional advisory notes	-	-	•
Use of BS Kitemark* logo and details	Possible at Grade 5 only	Possible at Grade 5 only	Possible at Grade 5 only

Packaging

The packaging for the lockset shall include (in a form that is easily visible when the product is stored on shelves):

(a) The number and publication date of this British Standard, i.e. BS 8607:2014 + A1:2016;

(b) The manufacturer's name, trademark or other means of identification;

(c) Clear product identification;

(d) The application grade;

(e) Application limitations, e.g. suitable for timber doors only.

Product

The lockset shall be marked, in a position where it is clearly visible after the product has been installed, with:

(a) The number and publication date of this British Standard, i.e. BS 8607:2014+A1:2016

(b) The manufacturer's name, trademark or other means of identification;

(c) The application grade.

Information supplied by the manufacturer

The manufacturer shall supply the following information with the lockset:-

(a) The number and publication date of this British Standard, i.e. BS 8607:2014 + A1:2016;

(b) The application grade;

(c) Whether or not the lockset is intended for use in fire/smoke-resisting doors;

(d) Whether the lockset is intended for use on hinged or pivoted doors (rim or mortice fitting);

(e) Whether the lockset is intended for manual or automatic deadlocking;

(f) Whether or not the lockset is intended to provide keyless egress at all times, and if it is not, what tools are needed to remove, from the inside, parts which contribute to the burglary resistance of the lock;

(g) Whether or not the lockset is intended for external use;

(h) An advisory note as per standard.

Support service

The correct installation of mechanically operated push-button locksets 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 the supply chain, and to effective operation on site.

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.

*BSI Kitemark

Third party certification, inspection and testing of products conforming to security standards is recommended. BSI Certification offers such a scheme specifically for products conforming to **grade 5** of BS 8607:2014+A1:2016 under their Kitemark™ brand. Accordingly, products conforming with the requirements of this certification scheme carry the Kitemark™ symbol:

BS 8607:2014 + A1:2016

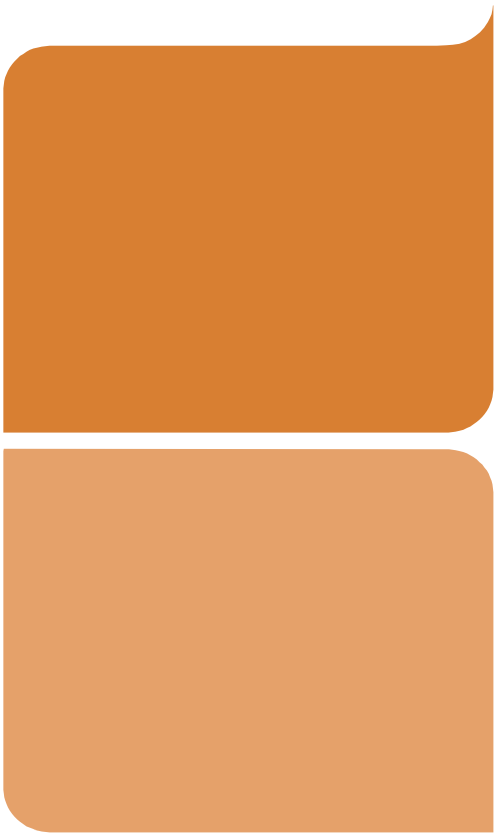
dhf

This Best Practice guide has been produced by **dhf** (Door & Hardware Federation).

dhf represents all the key players in industrial, commercial and garage doors and gates, as well as the leading UK manufacturers and suppliers of building hardware, 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.

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



Contact us for more information

Email: info@**dhf**online.org.uk

Telephone: 01827 52337

Address: The Barn, Shuttington Fields Farm, Main Road, Shuttington, Tamworth B79 0HA