BS 8607:2014+A1:2016

BSI Standards Publication

Mechanically operated push-button locksets – Requirements and test methods

bsi.

Publishing and copyright information

Published by BSI Standards Limited 2016

ISBN 978 0 580 93199 4

ICS 19.060; 91.190

The following BSI references relate to the work on this document:
Committee reference B/538/4
Drafts for comment 13/30277228 DC, 16/30337044 DC

Publication history

First published April 2014

Amendments issued since publication

Date	Text affected
July 2016	A1 - See Foreword

Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 16, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 April 2014. It was prepared by Subcommittee B/538/4, *Building hardware*, under the authority of Technical Committee B/538/1, *Windows and doors*. A list of organizations represented on these committees can be obtained on request to their secretary.

Supersession

This British Standard supersedes BS 8607:2014, which is withdrawn.

Relationship with other publications

This British Standard incorporates the requirements of BS EN 12209 for mechanically operated locks, latches and locking plates. It uses specific performance grades from BS EN 12209 to specify the appropriate levels of performance. It also includes the requirements of BS EN 1906, BS 3621, PAS 24, and, for the override cylinder (where applicable), BS EN 1303.

Use of this document

It is important that doors and their frames, to which mechanically operated push-button locksets are attached, are of adequate strength to suit the lock assembly and are designed to prevent access other than by attacking the lock assembly.

In order to offer a robust and reliable set of criteria for locksets offering high levels of resistance to potential burglars and thieves, it is likely that this British Standard will be subject to frequent revision. Users therefore need to ensure that they are referring to the most recent edition.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Text introduced or altered by Amendment No. 1 is indicated in the text by tags ▌A1⟩ ⟨A1▐. Minor editorial changes are not tagged.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to the Construction Product Regulations 2013 [1].

1 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.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

A1 BS 3621, *Thief resistant lock assembly – Key egress* A1

BS 7398:1991, *Specification for hand hacksaw frames*

BS EN 1303:2015, *Building hardware – Cylinders for locks – Requirements and test methods*

BS EN 1906:2012, *Building hardware – Lever handles and knob furniture – Requirements and test methods*

BS EN 12209:2016, *Building hardware – Locks and latches – Mechanically operated locks, latches and locking plates – Requirements and test methods*

PAS 24:2016, *Enhanced security performance requirements for doorsets and windows in the UK – Doorsets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk*

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS EN 12209:2016 and the following apply.

3.1 effective combination
<non-sequential push-button units> unique group of available numbers or letters that can be entered in any order to achieve/enable unlocking

3.2 effective combination
<sequential push-button units> unique sequence of available numbers or letters that have to be entered in the right order to achieve/enable unlocking

3.3 integral additional locking unit
optional locking arrangement which cannot be separated from the mechanically operated push-button lock without dismantling, bolt withdrawal of which cannot be achieved/enabled by entering a correct code, or (where applicable) by using the key override facility

3.4 key override
facility that allows a key to withdraw the locking bolt without entering the code

3.5 mechanically operated push-button lockset
locking mechanism and set of operating furniture supplied as a unit, incorporating a push-button keypad on one or both sides

NOTE This is referred to throughout this British Standard as a "lockset".

3.6 security bolt
bolt that provides the final security (as defined by the manufacturer)

4 Application grade

The product shall be designated Grade 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, but which can only be achieved with the help of an integral additional locking unit;
- Grade 5: applications where security, abuse and usage levels are expected to be equivalent to BS 3621.

5 Lockset

When tested in accordance with the methods specified in the relevant subclauses of BS EN 12209:2016, BS EN 1303:2015, BS EN 1906:2012 or PAS 24:2016, as listed in Table 1 and Table 2, adapted as appropriate (see Note), the lockset shall meet the minimum requirements for the appropriate application grade as specified in Table 1 and Table 2.

Test sampling and sequencing shall be exactly as stated in the relevant standard, except that there need be only one sample/test for each parameter.

NOTE The requirements and associated test methods in BS EN 12209:2016, BS EN 1303:2015, BS EN 1906:2012 and PAS 24:2016 were written for locks and latches that are not operated by push buttons, and therefore might not be fully applicable to locksets.

Table deleted.

Table 1 **Lockset requirements (grades 1, 2 and 3)** *(1 of 3)*

Parameter	Relevant subclause in BS EN 12209:2016 (unless otherwise stated)	Grade 1	Grade 2	Grade 3
Return force of latch bolt	**4.1.3**	>2.5 N	>2.5 N	>2.5 N
Side load on latch	**4.2.1**	1 kN	2 kN	3 kN
Max. handle/knob operating torque (integral)	**4.2.2.3**	0.03 × handle radius (in mm) = torque (in Nm)	_	_
Max. handle/knob operating torque (separate)	**4.2.2.3**	3 Nm	3 Nm	3 Nm
Strength of latch action stops	**4.2.3**	10 Nm	10 Nm	40 Nm

A1 Table 1 **Lockset requirements (grades 1, 2 and 3)** *(2 of 3)*

Parameter	Relevant subclause in BS EN 12209:2016 (unless otherwise stated)	Grade 1	Grade 2	Grade 3
Torque on locked handle/knob (still working)	**4.2.4.1**	0.4 × handle radius (in mm) = torque (in Nm)	_	_
Durability/side load on latch bolt	**4.3.1**	100 K (no load)	200 K / 25 N	200 K / 25 N
Durability of security bolt (if separate)	**4.3.2**	25 K	100 K	100 K
Durability of snib mechanism	**4.3.3**	10 K	10 K	10 K
Door mass and closing force	**4.4**	100 kg / 25 N	100 kg / 25 N	100 kg / 25 N
Corrosion/ temperature resistance (internal)	**4.7**	96 h / (no reqt)	96 h / –20 / +80°C	96 h / –20 / +80°C
Corrosion/ temperature resistance (external)	**4.7**	240 h / (no reqt)	240 h / –20 / +80°C	240 h / –20 / +80°C
Torque on locked handle/knob (still secure)	**4.8.10**	1.0 × handle radius (in mm) = torque (in Nm)	_	_
Side load on security bolt (see Annex B, Figure 1)	**4.8.5**	1 kN	2 kN	3 kN
Projection of security bolt	**4.8.6**	10 mm	10 mm	10 mm
End load on security bolt/resulting projection (not for tubular latches)	**4.8.7**	0.5 kN / 8 mm	0.5 kN / 8 mm	1.5 kN / 8 mm
End/side loads on locking plate	**4.8.12/13**	Same loads as for lock (see above)	_	_
Resistance to removal from inside (key egress locks only)	**4.1.8**	N/A	N/A	Only with special tools
Number of effective combinations (see **3.1** and **3.2**)	**N/A**	200	500	500
Next closest combination requirement	BS 8607:2014+A1:2016, Annex B	Yes	Yes	Yes
Durability of handles/knobs (internal and external)	BS EN 1906:2012, **5.8** A)	50 K	100 K	100 K

Table 1 **Lockset requirements (grades 1, 2 and 3)** *(3 of 3)*

Parameter	Relevant subclause in BS EN 12209:2016 (unless otherwise stated)	Grade 1	Grade 2	Grade 3
Axial strength of handles/knobs (internal and external)	BS EN 1906:2012, **5.4** [B]	300 N	500 N	500 N

[A] Basic operational test only (i.e. no outward or downward forces) and it is sufficient that the product is still intact and working after the test.
[B] It is sufficient that the product is still intact and working after the test.

Table 2 **Lockset requirements (grades 4 and 5)** *(1 of 2)*

Parameter	Relevant subclause in BS EN 12209:2016 (unless otherwise stated)	Grade 4 (lockset with lever key-operated integral additional locking unit – ALU) For cylinder operated ALU – see Table 3.	Grade 5
Return force of latch bolt	**4.1.3**	>2.5 N	>2.5 N
Side load on latch	**4.2.1**	3 kN	3 kN
Max. handle/knob operating torque (integral)	**4.2.2.3**	0.03 × handle radius (in mm) = torque (in Nm)	_
Max. handle/knob operating torque (separate)	**4.2.2.3**	3 Nm	3 Nm
Strength of latch action stops	**4.2.3**	40 Nm	40 Nm
Torque on locked handle/knob (still working)	**4.2.4.1**	0.4 × handle radius (in mm) = torque (in Nm)	_
Durability/side load on latch bolt	**4.3.1**	200 K / 25 N	200 K / 25 N
Durability of snib mechanism	**4.3.2**	10 K	10 K
Door mass and closing force	**4.3.3**	100 kg / 25 N	100 kg / 25 N
Corrosion/temperature resistance (internal)	**4.4**	96 h / –20 / +80°C	96 h / –20 / +80°C
Corrosion/temperature resistance (external)	**4.7**	240 h / –20 / +80°C	240 h / –20 / +80°C
Torque on locked handle/knob (still secure)	**4.8.10**	1.0 × handle radius (in mm) = torque (in Nm)	_
Side load on security bolt (Annex B, Figure 1a rig)	**4.8.5**	10 kN	10 kN

A1 Table 2 **Lockset requirements (grades 4 and 5)** *(2 of 2)*

Parameter	Relevant subclause in BS EN 12209:2016 (unless otherwise stated)	Grade 4 (lockset with lever key-operated integral additional locking unit – ALU) For cylinder operated ALU – see Table 3.	Grade 5
Projection of security bolt	**4.8.6**	20 mm	20 mm
End load on security bolt/resulting projection (not for tubular latches)	**4.8.7**	6 [A)] kN / 17 mm	6 [A)] kN / 17 mm
End/side loads on locking plate	**4.8.12/13**	Same loads as for lock (see above)	_
Resistance to removal from inside (key egress locks only)	**4.1.8**	Only with special tools	_
Number of effective combinations	**N/A**	N/A	500
Next closest combination requirement	BS 8607:2014+A1:2016, Annex B	N/A	Yes
Strength of key (ALU)	**4.1.5**	>2.5 Nm	N/A
Type of key operation and locking (ALU)	**4.8.2/3**	(as appropriate)	N/A
Min. number of detaining elements (ALU)	**4.9.1**	5	N/A
Min. number of effective differs (ALU)	**5.12.2**	1 000	N/A
Min. number of differing key steps (ALU)	**5.12.3**	3	N/A
Non-interpassing of keys (ALU)	**5.12.4**	Yes	N/A
Coding protection (ALU)	**5.12.5**	Yes	N/A
Durability of handles/knobs (internal and external)	BS EN 1906:2012, **5.8** [B)]	100 K	100 K
Axial strength of handles/knobs (internal and external)	BS EN 1906:2012, **5.4** [B)]	300 N	500 N
Resistance to removal from door	PAS 24:2016, **A.3**	Yes	Yes

[A)] 2 kN if used with a locking plate that will take the required end load.
[B)] It is sufficient that the product is still intact and working after the test. A1

〈A1〉 Table 3 **Alternative requirements for grade 4 lockset with cylinder operated additional locking unit**

Parameter	**Relevant subclause in BS EN 1303:2015**	**Grade 4** (lockset with cylinder operated integral additional locking unit – ALU)
Strength of key	**4.2**	>2.5 Nm
Min. number of effective differs	**4.8.1**	30 000
Min. number of movable detainers	**4.8.2**	6
Max. number of identical steps	**4.8.3**	60% (and no more than 2 adjacent)
Direct coding on key	**4.8.4**	No
Non-interpassing (with 1.5 Nm on key)	**4.8.5**	Yes (before and after durability test)
Torque resistance of plug/cylinder	**4.8.6**	15 Nm
Resistance to drilling	**4.9.2**	5 min of actual drilling
Resistance to attack by chisel	**4.9.3**	40 blows
Resistance to attack by twisting	**4.9.4**	30 twists
Resistance to attack by plug/cylinder extraction	**4.9.5**	15 kN (5 min attack time)
Torque resistance of plug/cylinder	**4.9.6**	30 Nm 〈A1〉

6 Durability of keypad

6.1 Requirement

When the lockset is tested in accordance with **6.2**, it shall be possible to perform at least the following number of code entries and handle/knob turning operations without loss of normal function:

- Grade 1: 50 000 cycles;
- Grade 2: 100 000 cycles;
- Grade 3: 100 000 cycles;
- Grade 4: 100 000 cycles;
- 〈A1〉 Grade 5: 100 000 cycles. 〈A1〉

6.2 Test method

The lockset shall be mounted in a test rig in which individual push-buttons can be depressed mechanically in a sequence, using just enough force to ensure that they will operate as intended.

A test cycle shall consist of operating the lock from fully locked to fully unlocked and back to fully locked, in accordance with manufacturer's instructions.

Operation speed shall not exceed two button presses per second and one complete withdrawal and throw operation shall not exceed 6 s.

The code shall be set such that at least 30% of the available push-buttons are used, and the push-buttons used shall be as widely distributed as possible.

NOTE Where it can be shown that component tests give an equivalent result, these tests can be carried out separately.

7 Key override

Where a key override facility is provided, the lockset shall meet the requirements specified in Table 4.

Table 4 **Key override requirements**

Parameter	Relevant subclause in BS EN 1303:2015	Grade 1	Grade 2	Grade 3	Grade 4 [A1] and 5 [A1]
Key strength	**4.2**	N/A	2. 5, [A1] Nm [A1]	2. 5, [A1] Nm [A1]	2. 5, [A1] Nm [A1]
Key related security grade	**4.8**	N/A	[A1] D [A1]	[A1] D [A1]	5
Plug/cylinder resistance to extraction grade	**4.9.4**	N/A	N/A	N/A	2
Plug/cylinder torque resistance grade	**4.9.5**	N/A	N/A	N/A	2

8 General vulnerability assessment (GVA)

When the lockset is tested in accordance with Table 5, it shall meet the acceptance criteria described in Annex C.

Table 5 **General vulnerability assessment**

Type	Assessment required			
	Grade 1	Grade 2	Grade 3	Grade 4 [A1] or 5 [A1]
Standard GVA as specified in Annex C and Annex D	No	No	No	Yes
Assessment using the standard GVA tool kit, without hammers, cordless drill and drill bits, but including the following additional tools and a standard pickset: • rare earth magnets; • loid or mica (shimming material); • flat blade (similar to 150 mm/6 in steel rule or hacksaw blade); • solid piano wire (12 and 14 gauge); • automotive feeler gauges	No	No	Yes	Yes

9 Marking

9.1 Labelling and literature

The information shown in Clause **10** shall be supplied with the lockset.

9.2 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 [1)];

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

c) clear product identification;

d) the application grade (from Clause **4**);

e) application limitations, e.g. suitable for timber doors only.

9.3 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 [1)];

b) the application grade (from Clause **4**);

c) the manufacturer's name, trademark or other means of identification.

〖A1〗 This marking shall be visible after installation on both grade 4 and grade 5. 〈A1〉

10 Information supplied by the manufacturer

The manufacturer shall supply the following information:

a) the number and publication date of this British Standard, i.e. BS 8607:2014+A1:2016 [1)];

b) the application grade (from Clause **4**);

c) whether or not the lockset is intended for use in fire/smoke-resisting doors (see Annex A);

d) whether the lockset is intended for use on hinged or pivoted doors (rim or mortise 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 to read:

"To maintain the security of this lock, please observe the following recommendations.

- Change the factory-set code to your own code. Many people know the factory-set code.
- Keep the keypad clean so that wear marks do not indicate the buttons in use.
- Change the code when an employee/user leaves, or if you believe the code has been shared with unauthorized people."

[1)] Marking BS 8607:2014+A1:2016 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

Annex A (informative) Use on fire/smoke-resisting doors

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

- current test reports to BS 476-22, BS EN 1634-1, BS EN 1634-2 or BS EN 1634-3; or
- assessment by an accredited testing institute based on applicable test reports.

The documentation should indicate the methods of fixing which may be used, together with details of any intumescent materials necessary to achieve the required performance under test.

Annex B (normative) Test for next closest combination

Prior to and after the durability test, it shall not be able to operate the lockset using an incorrect code. This shall be verified by entering not fewer than five incorrect codes, which shall include:

- the correct code with the exception of one digit being entered;
- the correct code with the exception of one digit being one number different from the correct code.

Annex C (normative) General vulnerability assessment

C.1 Principles of assessment

The assessment is to be undertaken by a panel of three expert assessors qualified in accordance with Annex D. Each expert shall undertake an individual assessment and report back independently. In order for conformity to this British Standard to be claimed, the test samples assessed by all three experts shall satisfactorily withstand the test. Where a suitable test key cannot be manufactured due to the design of the product, each expert shall confirm that the product is not vulnerable to attack by a key as described in this Annex. The test is intended to assess the general vulnerability of a lockset to an attack using knowledge, skill and professional ability. It is not intended to assess the lockset's ability to resist attack involving significant force or by the use of tools only available to locksmiths.

Where an individual lockset has more than one locking mechanism, all mechanisms accessible and operable from the outside face of the door shall be subject to assessment.

C.2 Submission of samples

A total of six complete locksets shall be submitted. These shall be representative of normal production. Two samples shall be supplied to each assessor, one for examination and one for assessment purposes. Where a range of products is assessed, the panel shall agree with the manufacturer which samples are required for assessment, and the decision shall be based on the examination of detailed drawings, specimens and discussions with the interested parties. If, during the assessment process, an assessor identifies a particular vulnerability and believes that further tests are required, a maximum of two further samples shall be requested.

C.3 Preparation of the test sample

The test sample shall be mounted in accordance with the manufacturer's instructions in a wooden block or similar and the sample shall be verified as fully functional. For the majority of lockset designs a block nominally 380 mm × 150 mm × 44 mm is suitable. Where the lockset design is not compatible with this size block, the width and/or height may be increased with the agreement of the panel. The thickness of the block shall not be changed. During the test the lockset shall be mounted in a rigid fixture at a working height similar to the intended location when installed in a door; nominally 1 000 mm from floor level.

C.4 Assessment procedure

NOTE Testing specified in BS EN 12209:2016 and BS EN 1303:2015 does not form part of this procedure.

Each assessor shall dismantle and examine the first sample prior to testing and assessing the second sample. There is no overall limit to the time required to dismantle and examine the first sample.

For the second sample, the overall duration of the assessment detailed in **C.5** shall not exceed 15 min and no one test technique shall be used for more than 3 min.

The duration of the assessment detailed in **C.6** shall not exceed 3 min, with a further 4 min allowed to conduct any modification deemed necessary in accordance with **C.6**d).

A technique is considered to be a combination of tools and location; any change in either shall be deemed to constitute a new technique. All types of lockset are deemed to have failed if it is possible for any of the assessors to withdraw the security bolt such that its projection is less than 5 mm, or if any part of the lockset can be removed from its mountings in such a manner that it would render a door insecure. A cylinder lock is deemed to have failed if it becomes possible to fully rotate the cam from the front face of the lock using the specified tools.

C.5 Assessment of all lock types (lever, cylinder, etc.)

All lockset types shall be assessed in accordance with the following procedure.

a) The assessors shall be familiar with the lockset construction.

b) Using the tools specified in **C.7**, the assessors shall attempt to open the lockset using manual dexterity and manipulative skills, rather than excessive force.

*NOTE 1 If the assessor believes that it is possible to open the lockset using a tool that is not listed in **C.7** but which is of similar availability and aggressiveness, this should not, at that point, be recorded as a failure, but should be reported to the BSI committee responsible for this British Standard (see Foreword).*

c) Normally locksets shall be assessed for resistance to attack from both sides. Locksets that have an obvious "attack" side (e.g. with push-button pad and protective furniture on one side only) shall be assessed from the attack side only.

NOTE 2 The principal objective when assessing a range of locksets is to identify the most vulnerable lockset within the range. This might require more than one lockset within a range to be assessed.

NOTE 3 It is acknowledged that attacks on locking devices can result in the device becoming inoperable and could thereby prevent occupants from exiting premises. This could be dangerous, particularly in the event of a fire or similar emergency, therefore locksets should, as far as is reasonably practicable, be designed to remain operable from the inside after attacks, particularly attacks not involving force.

C.6 Additional procedure for the assessment of lock cylinders (integral or separate)

Cylinders used in a lock design shall additionally be assessed in accordance with the following procedure, for which a further time allowance is made (see **C.4**).

a) 〈A1〉 Sample cylinders shall have combinations in which all step heights are in the mid-range, and are as close together as possible, but which also conform to the manufacturer's specification and the requirements of BS EN 1303:2015. 〈A1〉

b) During assessment, cylinders shall be installed in a lockset, which in turn shall be mounted as detailed in **C.3**.

c) The test key used for this assessment shall be machine cut by the manufacturer and shall comprise all bottom steps. A test key shall be rejected if the assessor does not consider it to be representative of a machine cut key, or is of the opinion that the steps are cut in such a way that it would reduce the likelihood of defeating the cylinder.

d) The length of the test key and its shoulder shall not be modified by the manufacturer; this may be done by the assessor.

e) Where a cylinder has a non-random feature as part of the combination (e.g. in a combination supplied to a specific distributor and/or region) the test key shall exhibit that non-random feature.

f) In the case of double-sided cylinders, where one side only is intended for use on the outside of the door, only this side shall be subjected to test and the higher security side shall be clearly marked accordingly.

C.7 Permissible tools

Only the tools listed in Table C.1 may be used in undertaking the general vulnerability assessment.

NOTE This list is intended to give a general description of the tools allowed. It is not intended to give precise dimensions, or to fully detail the type of tool. A general tolerance of ±10% is acceptable on all dimensions and values.

Table C.1 **List of tools permitted for use in the general vulnerability assessment** *(1 of 3)*

Item	Additional details
Screwdriver 0.10 m with slotted tip (may be used as a lever)	100 mm chrome vanadium screwdriver
Screwdriver 0.15 m with slotted tip (may be used as a lever)	150 mm chrome vanadium screwdriver
Screwdriver 0.20 m with slotted tip (may be used as a lever)	200 mm chrome vanadium screwdriver
0.5 kg (nom.) ball peen hammer	–
Miniature hand hacksaw frame in accordance with BS 7398:1991, Type A, with integral tension	Junior blades
0.5 kg (nom.) claw hammer	–
Mild steel tube 0.3 m long with 32 mm diameter, wall thickness 2 mm	–

Table C.1 **List of tools permitted for use in the general vulnerability assessment** *(2 of 3)*

Item	Additional details
Pair of pliers	Combination pliers 200 mm
Allen key set – 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 4.0 mm, 5.0 mm, 6.0 mm, 8.0 mm, 10.0 mm	–
Craft knife	Precision knife set
Tweezers	Six-piece tweezer set
Wire	Various diameters to 4 mm – any length
Wedges	Various plastic/timber wedges as required
Multiple slip joint pliers (240 mm)	Slip joint utility pliers
6 mm wood chisel	–
25 mm wood chisel	–
Additional screw/nuts drivers suitable for the head forms shown in BS EN 12209:2016, Figure 2	–
Parallel punch set (100 mm/150 mm) 3.2 mm, 4.0 mm, 4.8 mm, 5.5 mm, 6.4 mm	–
20 piece screwdriver set, variety of sizes including slotted tip 3 mm to 12 mm, Phillips [2)] type No. 0–3, Pozidrive[3)] type No. 0–3	1. Instrument 75 × 3 2. Instrument 150 × 3 3. Parallel tip 100 × 4 4. Parallel tip 150 × 5.5 5. Flared tip 40 × 6.5 stubby 6. Flared tip 150 × 6.5 7. Parallel tip 250 × 6.5 8. Flared tip 200 × 8 9. Flared tip 250 × 10 10. Flared tip 300 × 12 11. Pozidrive[3)] type 60 × 0 12. Pozidrive[3)] type 75 × 1 13. Pozidrive[3)] type 30 × 2 stubby 14. Pozidrive[3)] type 100 × 2 15. Pozidrive[3)] type 150 × 3 16. Phillips[2)] type 60 × 0 17. Phillips[2)] type 30 × 1 stubby 18. Phillips[2)] type 75 × 1 19. Phillips[2)] type 100 × 2 20. Phillips[2)] type 150 × 3

[2)] Philips is a trade mark owned by The Philips Centre, Guildford Business Park, Guildford, Surrey GU2 8XH, United Kingdom. This information is given for the convenience of users of this standard and does not constitute an endorsement by BSI of the product named. Equivalent products may be used if they can be shown to lead to the same results.

[3)] Pozidrive is a trade mark owned by 272 Bath Street, Glasgow, G2 4JR, United Kingdom. This information is given for the convenience of users of this standard and does not constitute an endorsement by BSI of the product named. Equivalent products may be used if they can be shown to lead to the same results.

Table C.1 **List of tools permitted for use in the general vulnerability assessment** *(3 of 3)*

Item	Additional details
Drill bits HSS (1 mm to 13 mm)	1. 0 HSS drill bit 2. 0 HSS drill bit 3. 0 HSS drill bit 4. 0 HSS drill bit 5. 0 HSS drill bit 6. 0 HSS drill bit 7. 0 HSS drill bit 8. 0 HSS drill bit 9. 0 HSS drill bit 10. 0 HSS drill bit 12. 0 HSS drill bit 13. 0 HSS drill bit
Vice grip set (125 mm and 250 mm, parallel jaws)	125 mm 250 mm
Cordless drill (10 V to 24 V, max 3 Ah)	–
Pad saw and HSS blades	–
Picking tools – cylinders	Rake pick – HPC novice pick set Tensioner
Picking tools – lever	2 in 1 pick Overlift
Self-tapping screws	Assorted – including purpose-designed traction screws or equivalent
Test key	[See **C.6**c) and **C.6**d)]
Impactor	Any proprietary impactor appropriate to the manipulation techniques considered in **C.6** *NOTE Other tools in this list may also be used as impactors, e.g. the handle of a screwdriver.*
Resilient device for attaching to the test key	–
Petroleum-based water displacement lubricant spray	–
One up key	–
One down key	–

Annex D (normative)

Assessment panel

For a valid claim to be made in respect of conformity of a product to this British Standard, it shall have successfully undergone the general vulnerability assessment in accordance with Annex C.

The assessment shall in all cases be undertaken by a panel of three locksmiths, each of whom can demonstrate expertise and experience such as to be able to form a reliable and disinterested judgement as to the probability of a lockset being able to withstand the types of attack simulated by the procedures specified in **C.4** to **C.6**.

NOTE 1 Such expertise and experience could be demonstrated by a recognized qualification in locksmithing, achieved by examination (e.g. BLI; ALOA), supplemented by:

- *ten years' experience as a practising locksmith; and*
- *current full membership in good standing, of not less than five years' continuous duration, of a professional locksmithing body.*

NOTE 2 For assessments undertaken by a lock manufacturer, the experts may be directly employed or may be contracted for the purpose. A register containing details of some of those known to be appropriately qualified within the UK can be accessed by application to the BSI Knowledge Centre.

Bibliography

Standards publications

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 476-22, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-loadbearing elements of construction*

BS EN 179, *Building hardware – Emergency exit devices operated by a lever handle or push pad, for use on escape routes – Requirements and test methods*

BS EN 1634-1, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows*

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

BS EN 1634-3, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies*

Other publications

[1] GREAT BRITAIN. Construction Product Regulations 2013. London: The Stationery Office.

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Copyright in BSI publications

All the content in BSI publications, including British Standards, is the property of and copyrighted by BSI or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use.

Save for the provisions below, you may not transfer, share or disseminate any portion of the standard to any other person. You may not adapt, distribute, commercially exploit, or publicly display the standard or any portion thereof in any manner whatsoever without BSI's prior written consent.

Storing and using standards

Standards purchased in soft copy format:

- A British Standard purchased in soft copy format is licensed to a sole named user for personal or internal company use only.
- The standard may be stored on more than 1 device provided that it is accessible by the sole named user only and that only 1 copy is accessed at any one time.
- A single paper copy may be printed for personal or internal company use only.

Standards purchased in hard copy format:

- A British Standard purchased in hard copy format is for personal or internal company use only.
- It may not be further reproduced – in any format – to create an additional copy. This includes scanning of the document.

If you need more than 1 copy of the document, or if you wish to share the document on an internal network, you can save money by choosing a subscription product (see 'Subscriptions').

Reproducing extracts

For permission to reproduce content from BSI publications contact the BSI Copyright & Licensing team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email subscriptions@bsigroup.com.

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Useful Contacts

Customer Services
Tel: +44 345 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 345 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

bsi.