LPCB®

Loss Prevention Standard

LPS 1654: Issue 1.1

Requirements and testing procedures for the LPCB approval and listing of padlocks

bre

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PARTICIPATING ORGANISATIONS

This standard was approved by the BRE Global Governing Body. The following organisations participated in the preparation of this standard:-

Assa Abloy UK Limited
Association for Specialist Fire Protection (ASFP)
Association of British Insurers (ABI)
Association of Insurance Surveyors (AIS)
BAA plc
British Automatic Fire Sprinkler Association (BAFSA)
British Property Federation (BPF)
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Construction Industry Council (CIC)
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REVISION OF LOSS PREVENTION STANDARDS

Loss Prevention Standards will be revised by issue of revised editions or amendments. Details will be posted on our website at www.redbooklive.com

Technical or other changes which affect the requirements for the approval or certification of the product or service will result in a new issue. Minor or administrative changes (e.g. corrections of spelling and typographical errors, changes to address and copyright details, the addition of notes for clarification etc.) may be made as amendments. (See amendments table on page 20)

The issue number will be given in decimal format with the integer part giving the issue number and the fractional part giving the number of amendments (e.g. Issue 3.2 indicates that the document is at Issue 3 with 2 amendments).

USERS OF LOSS PREVENTION STANDARDS SHOULD ENSURE THAT THEY POSSESS THE LATEST ISSUE AND ALL AMENDMENTS.

FOREWORD

This Standard identifies the evaluation and / or testing practices undertaken by LPCB for the purposes of approval and listing of products and services. LPCB listing and approval of products and services is based on evidence acceptable to LPCB:-

- that the product or service meets the standard;
- that the manufacturer or service provider has staff, processes and systems in place to ensure that the product or service delivered meets the standard

and on:-

- periodic audits of the manufacturer or service provider including testing as appropriate;
- compliance with the contract for LPCB listing and approval including agreement to rectify faults as appropriate;

The responsibility for ensuring compliance with the technical and managerial process and requirements for the product or service lies with the manufacturer, service provider or supplier.

NOTES

Compliance with this LPS does not of itself confer immunity from legal obligations. Users of LPSs should ensure that they possess the latest issue and all amendments.

LPCB welcomes comments of a technical or editorial nature and these should be addressed to “the Technical Director” at enquiries@breglobal.co.uk.

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1 SCOPE

This standard describes the requirements and test methods for classifying the manual attack resistance provided by mechanically operated padlocks and the padlock fittings (e.g. padbars and shrouds) with which the padlocks are supplied.

The standard was developed because the current method for classifying the attack resistance provided by padlocks and padlock fittings, defined in BS EN 12320:2001 *Building hardware - Padlocks and padlock fittings - Requirements and test methods*, was not consistent with that employed within LPS 1175: Issue 7 *Requirements and testing procedures for the LPCB approval and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers*. This was because:

- BS EN 12320:2001 did not classify the padlock's performance according to its resistance to different levels of attack based on the tools and time available to an intruder.
- Padlocks rated to BS EN 12320:2001 that had been included within products and systems tested to LPS 1175: Issue 7 had undermined those product's/system's ability to offer intruder resistance commensurate with the security ratings sought to LPS 1175: Issue 7.

The classification system presented within this standard will aid specifiers wishing to determine whether a padlock's physical attack resistance is commensurate with that provided by security products and systems rated in accordance with LPS 1175: Issue 7.

The adequacy of the installation method(s) defined by the manufacturer is assessed. However, it is assumed that the feature/element of the item to be secured by the padlock, and any supplementary devices the padlock is to be attached to in order to secure that item (e.g. security chains), provide resistance to attack at least equivalent to that afforded by the padlock itself.

When selecting padlocks to secure a building element, enclosure or other security device, it is important to consider other aspects of the building element, enclosure or security device to be secured by the padlock to ensure they are not vulnerable to attack. Manufacturers and specifiers should therefore ensure the building element, enclosure or other security device is itself assessed and classified in accordance with LPS 1175: Issue 7.

The padlock's resistance to physical attack is classified regardless of design or materials used in their construction.

Resistance to electrical manipulation is not tested other than by attack methods possible using the tools defined within this standard. It is therefore recommended that electronic components used to operate the product are also tested and approved to relevant operational and safety standards. A separate standard for

mechatronic padlocks and their associated keys will be the subject of a future Loss Prevention Standard.

Resistance to chemical attack, vehicle impact, explosion and ballistics are outside the scope of this standard, as is durability and other general performance.

The requirements and test procedures described in this standard have, as far as possible, been rationalised and harmonised with the following corresponding British, European, LPCB and BSI standards:

- LPS 1175: Issue 7[iv] - Specification for testing and classifying the burglary resistance of building components, strongpoints and security enclosures.

Notes:

i) For guidance, the security rating system is loosely based upon domestic risks (1 and 2), commercial risks (2, 3 and 4), high security risks (5 and 6) and extremely high security facilities (7 and 8).

ii) The security rating applies to the product in the exposed condition. No provision is made for enhancement of a product by means of supplementary shrouding or other forms of protection and it is not the intention of this standard to prohibit such an arrangement.

iii) The performance of padlocks to other characteristics such as fire resistance, acoustics, durability and weathertightness, may be covered by other LPS, BS, EN and ISO standards. Contact LPCB for further information.

iv) Informative reference.

2 DEFINITIONS

The following definitions, in addition to those of BS EN 12320:2001 shall apply for the purposes of this standard.

2.1 Attack side(s)

The face(s) of the product confronting the person attempting to attack it.

2.2 Manual attack resistance

The capacity of the padlock to withstand the attempt of forced operation by manual intervention when that padlock is used in accordance with the instructions supplied with the padlock by the manufacturer.

2.3 Security rating

Numeric indication of the degree of manual attack resistance afforded by the padlock.

2.4 Security rating expectation

The anticipated security rating for which the padlock was designed.

2.5 Manual intervention attack test

A manual attempt at removing the padlock from the product/device it secures.

2.6 Total test time

The maximum duration of an individual manual intervention attack test. It is the accrued sum of the:

- working time;
- rest time of an operative for wellbeing and safety reasons;
- time taken to change tools or exchange defective expendable tool elements; and
- inspection time called by the project leader.

2.7 Working (resistance) time

The time of an individual manual intervention attack test in which a tool or tools is used to attempt to create a change in the test specimen.

The working time excludes:

- rest time of an operative for wellbeing and safety reasons;
- time to change tools or exchange defective expendable tool elements; and
- inspection time called by the project leader.

3 REQUIREMENTS

3.1 Information to be supplied by the applicant

The applicant shall provide comprehensive information about the product for consideration prior to examination and testing. This shall define the construction of the product over the range to be covered by the evaluation, together with any associated padlock fittings (e.g. padbars, chains and shrouds) and optional features (e.g. alternative shackle lengths, key mechanisms, raised shoulders and waterproof covers). It shall include:

a) Details of the applicant and, if different, the manufacturer of the product(s)/systems(s), including:

   i) Name of manufacturer.

   ii) Place of manufacture.

   iii) Year of manufacture.

   iv) Relationship of applicant to manufacturer.

   v) Company responsible for design and quality assurance.

b) Specifications and drawings accurately detailing the padlock and any associated padlock fittings (e.g. padbars, chains and shrouds) and optional features (e.g. alternative shackle lengths, key mechanisms, raised shoulders and waterproof covers). These shall include:

   i) General assembly.

   ii) Cross sections.

   iii) Specifications for all components and sub-assemblies used to assemble the padlock and any associated padlock fittings. This shall include full details of the key mechanism.

   iv) The location and design of any local areas of special protection.

   v) Details of any other elements relevant to physical security.

c) A description of the materials used to construct the product if not shown on the drawings. This shall include material thicknesses and full details of any special finishes/processes applied, e.g. hardening.

d) Details of any materials or device(s) fitted to, or incorporated within, the product that may harm those testing/using/attacking the product together with associated material safety data sheets.

e) Instructions and specifications for secure and effective installation/use of the padlock and the associated padlock fittings (e.g. padbars, chains and

shrouds). These shall confirm limitations for use and recommendations for compatible anchorage where applicable.

f) Whether the product to be tested is a prototype or is in series production.

g) The applicant's security rating expectation.

All documents shall be dated and given a reference number and issue description.

If the applicant is not the manufacturer then an application must be accompanied by written permission from the manufacturer for testing to be undertaken.

3.2 Specimens to be supplied for testing

The following shall be observed subsequent to the acceptance of an application for approval:

a) The applicant shall supply an agreed number of specimens.

b) The number of specimens to be supplied for test is dependent upon the test schedule specified for the product type, the classification sought by the applicant, together with the range of design variations and alternative options to be covered by the assessment.

All specimens shall be complete with associated keys, and padlock fittings (e.g. padbars and shrouds) to be assessed with the product, and instructions. Additional specimens may be required for separate tests.

c) The type and configuration of specimens selected for testing shall be at the discretion of the test laboratory. The normal size and configuration of the product and its intended application shall be taken into account. Where the product is offered in a range of sizes and configurations, specimens of those sizes and configurations likely to be least effective against attack shall be chosen to ensure the test results are representative of the complete range.

d) The test specimens shall at least represent those configurations incorporating optional features/accessories that could decrease the padlock's manipulation resistance. They shall not normally incorporate optional features/accessories that could increase the intruder resistance provided by the product (e.g. chemicals or other additives designed to temporarily enhance the padlock's resistance to manipulation) unless those features are designed to enable the padlock to achieve a higher security rating and that configuration is to be classified separately.

e) All specimens shall be supplied complete with specified fixings for secure installation and installed by the manufacturer or their nominated representative.

f) The laboratory may request additional components or elements of products for testing purposes.

g) If a prototype product or associated padlock fittings are supplied for testing, then classification cannot be provided until the drawings for subsequent series production have been examined and confirmed that they accord with the tested prototype or that any changes will not reduce the security rating.

Note: Changes to production methods (e.g. machining to casting) or designs between prototype and final production stages may affect the products' performance. Therefore, it is not automatically possible to attribute security ratings achieved by prototype test samples to subsequent series production.

h) When the product incorporates advances or changes in technology, then additional sample pieces, parts or sections may be requested for evaluation prior to the supply of the agreed specimens.

3.3 Design requirements

3.3.1 User instructions

Operating and maintenance instructions shall be provided with the product. These shall include (where appropriate) instructions for lubricating the mechanism, including the specification of the lubrication to be used and recommended frequency of applying such lubrication.

Note: Suppliers have a duty of care to ensure that those fitting and/or using the products know how that product should be fitted and used to achieve the performance attributed to that product. The instructions submitted for evaluation must reflect those supplied with the product and must cover all aspects of installation and use that may affect the security provided by the product when installed.

3.3.2 Installation methods

The installation methods defined for the product shall include limitations and recommendations for compatible anchorage.

Notes: i) It is recommended that all fixings and security features on products primarily intended for use in commercial properties are, as far as is reasonably possible and where applicable, tamper resistant on the non-attack side to prevent surreptitious interference of the designed level of security by an attacker's accomplice.

ii) Any exposed fixings that can be accessed from the attack side may be exploited as part of the manual intervention attack tests.

3.3.3 Minimum effective differs/codes

The number of effective differs/codes offered by the key mechanism shall be no less than that specified in Table 1 for the manufacturer's security rating expectation.

Table 1 Minimum effective differs/usable codes required for key mechanisms

Security rating	Minimum number of effective differs/usable codes	*'Equivalent' lock/hardware standard and class**
1	1 000	*BS 3621* *BS EN 12320 grade 2*
2	5 000	*BS EN 12320 grade 4*
3	30 000	*BS EN 1303 class 4*
4	30 000	*BS EN 1303 class 4*
5	100 000	*BS EN 1303 class 6*
6	100 000	*BS EN 1303 class 6*
7	1 000 000	-
8	1 000 000	-
**Note: This column is included for indication purposes only. While locks meeting these lock standards will meet the minimum differ requirements of this standard, they do not necessarily offer resistance to manual attack commensurate with the requirements of this standard.*		

3.4 Performance requirements

3.4.1 Manual attack resistance

The padlock, and/or the padlock fittings to which it is mounted, shall resist removal from the fixture to which it is attached, when tested using the methods defined in clause 4.2 in accordance with the requirements defined in clause 4.1.

3.4.2 Manipulation resistance of the key mechanism

Key mechanisms used to operate padlocks for which the applicant seeks a '+' key mechanism manipulation resistance classification, shall meet:

- The requirements for cylinders defined within Annex A.6 of BS 3621:2007+A2:2012 *Thief resistant lock assembly – key egress*; or

- The requirements of manipulation resistance class '1' defined in LPS 1242: Issue 2 *Requirements and testing procedures for the LPCB approval and listing of cylinders for locks*.

Note: This requirement does not apply to key mechanisms operated by electromechanical keys or non-mechanical devices (e.g. radiofrequency identification devices (RFID)) for which the correct electronic code must also be provided to operate the cylinder.

4 TESTING

4.1 Test requirements

4.1.1 General

The overall objective is to confirm the security rating of the product by conducting a series of manual intervention attack tests designed to identify the minimum resistance to attack provided by the product.

The attack methods used by the test team shall be those most likely, in the opinion of the test team, to result in the lowest resistance values. Exploratory tests may be made as necessary to enable the test team to determine the most effective attack methods.

Performance requirements for each security rating are defined in Table 2.

The security rating shall only be confirmed when all the requirements for the anticipated security rating are met.

4.1.2 Data

All information and drawings supplied shall be reviewed to ensure suitability for test and certification purposes.

The instructions and recommendations for secure installation shall be reviewed in order to assess potential weaknesses for test purposes and to ensure that where applicable the strength of the anchorage recommended in the instructions submitted by the manufacturer are consistent with the manufacturer's security rating expectation.

4.1.3 Conformity between specimens and documentation

The test specimens shall be visually examined for conformity with the details supplied by the applicant prior to testing.

Note: A lack of conformity identified at this stage or during testing may prevent the issue of a test report and subsequent approval / certification unless promptly corrected.

4.1.4 Conformity of specimens and documentation with design requirements

The test specimens and documentation submitted shall be reviewed to confirm whether they meet the requirements defined in clauses 3.2 and 3.3 respectively prior to testing.

4.2 Test methods

4.2.1 General

General laboratory procedures, confidential handling of specimens, event record requirements and presentation of the test report shall be in accordance with the requirements specified in BS EN ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories.

4.2.2 Manual intervention attack test procedures

Mount the padlocks, and their associated padlock fittings*, in accordance with the manufacturer's instructions.

Conduct a series of manual intervention attack tests on the padlock, and its associated padlock fittings, using tools selected from the tool category defined in Table 2 appropriate to the manufacturer's security rating expectation, with a view to removing the padlock and/or the padlock fittings to which it is mounted from the fixture to which it is attached.

The manual intervention attack tests conducted shall be those most likely to cause the specimen to fail to meet the requirements of the manufacturer's security rating expectation, and shall confirm whether all features of the product offer resistance to attack commensurate with the minimum resistance to attack defined for that security rating in Table 2.

Each individual manual intervention attack test shall be continued until either:

- the objective is achieved; or
- the maximum test duration is exceeded; or
- the team leader decides that the attack is ineffective for classification purposes.

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* If the padlock is not supplied complete with a staple, the padlock specimen shall be mounted for test on a staple representative of that recommended in the instructions supplied with the padlocks. Alternatively, if the instructions do not recommend a staple design, the padlock specimen shall be mounted on a staple of the same dimensions as the padlock's shackle and manufactured from the same material used to form the padlock's shackle.

Manual intervention attack tests shall only be aimed at areas or features which, in the opinion of the team leader, have not been weakened by previous tests. Where necessary, the manufacturer shall provide additional samples so that the laboratory can complete any necessary additional tests on those areas or features.

The working time (resistance time) shall be recorded in order to determine whether the padlock is capable of meeting the manufacturer's security rating expectation. The timing devices(s) used to record working time shall have a resolution of at least 0.01 second. At the conclusion of the test the working time shall be rounded to the next full second.

The timing device used to measure test duration shall remain activated during each individual manual intervention attack test. The resolution of this timing device shall be at least 1 second.

4.2.3 Manual intervention attack test team

The test team shall comprise a team leader whose function is to direct, time, compile an event record and control the testing work on a product specimen and a test operative whose prime function is to carry out the testing work on the specimen as directed by the team leader.

The team leader may substitute themself for the test operative at any time during testing, the operative assuming the role of time keeper whilst maintaining the event record.

A different test operative may be used for different styles of attack but only one operative (other than the team leader) shall partake in any individual test.

4.2.4 Manual intervention attack test facility

The padlocks, and any associated padlock fittings, shall be mounted on a fixture (e.g. staple) representative of that recommended within the instructions supplied by the manufacturer.

The fixture shall be mounted to a rigid frame that prevents excessive movement of the fixture during testing.

The apparatus shall also comprise attack tools of the appropriate category as specified in clause 4.2.5.

4.2.5 Manual intervention attack test tools

The tool manifest for the manual intervention attack tests and ascribed tool category is described below.

All dimensions are the maximum permitted unless otherwise specified.

No alterations shall be made to the tools other than those required to maintain the tools in good working order. Likewise, tool safety devices such as guards, fuses and other current limiting features and/or maximum speed controls, shall not be removed or altered.

The test team and anyone else present during the tests shall wear appropriate personal protective equipment.

TOOL CATEGORY A

Adhesive tape

1 Cable cutter - 150 mm long

Fishing line (e.g. polypropylene multi fibre)

Flexible plastic coupon

1 Glass cutter

Hexagon wrenches - selection 120 mm long

Hooks

1 Knife - blade 125 mm long x 3 mm thick

1 Lever (including nail pullers, prybars and utility bars) - 0.7 kg/300 mm long

Pliers (including self-gripping and cutting) - selection 200 mm long

Punches

Rope

1 Screwdriver - 6.5 mm diameter/square x 150 mm long

1 Scriber

Socket/screwdriver set -150 mm long ratchet arm

Spanners - selection 150 mm long

Traction screws *(otherwise known as 'self-tapping' screws or 'self-drilling' screws)* - selection 5.5 mm diameter x 60 mm long (carbon steel, single and twin start versions with choice of two varieties of thread/tip: deep thread and gimlet point; and self-tapping thread with drill point)

Tweezers

Wire

WD40

Wood/plastic wedges

Note: The tools of this category are selected in order to simulate an opportunist attack by bodily physical force and by stealth using minimal tools.

TOOL CATEGORY B

Tool category A plus:

1 Bolt cutter - 350 mm long

1 Claw hammer - 350 mm long/0.7kg

1 Drill bit (6 mm diameter jobber - HSS / HSCO / Carbide)

1 Hand drill - 400 mm long/1.5kg

1 Junior hacksaw plus 2 HSS blades
1 Metal plate shears - 200 mm long
1 Multiple slip joint pliers - 250 mm long
1 Pipe wrench - 250 mm long
Pliers (including self-gripping) - selection 250 mm long
1 Screwdriver - 7 mm diameter/square x 250 mm long
1 Screwdriver - 14 mm diameter/square x 400 mm long
Socket/screwdriver set - 250 mm long ratchet arm
1 Tube - 38 mm diameter x 300 mm long

Note: This tool category provides a more determined opportunist attack by bodily physical force and tools with a higher mechanical advantage.

TOOL CATEGORY C

Tool category A and B plus:
1 Axe - 350 mm long/1.5 kg
1 Bolt cutter - 400 mm long
Brick bolsters - 250 mm long x 75 mm wide blade
Cold chisels - 250 mm long x 25 mm wide blade
1 Crowbar - 700 mm long/2.5 kg
1 Drill (cordless with rotary action only) - 7.2 V d.c*
1 Drill bit (10 mm diameter jobber - HSS / HSCO / Carbide)
Fluorocarbon based freeze spray - 400 ml
1 Gas torch (Butane / Propane)
1 Hacksaw plus 2 HSS blades
1 Hammer - 400 mm long/1.5 kg
1 Pad saw plus 2 HSS blades
1 Scissor jack - 1500 kg capacity, 100 mm minimum retracted, 200 mm stroke
Wood chisels - 250 mm long x 25 mm wide blade
** Complete with a spare power pack.*

Note: The tool category is for deliberate forced entry of well-protected premises using bodily physical force and a wide selection of attack options.

TOOL CATEGORY D

Tool category A, B and C plus:
1 'A-tool' lock puller - 500 mm long
1 Bolt cutters - 500 mm long
1 Disc grinder (cordless)* - 12 V d.c with 3 cutting discs
1 Drill (cordless with rotary action only) - 12 V d.c*
5 Drill bits (13 mm diameter jobber - HSS / HSCO / Carbide)
1 Felling/fire axe - 850 mm long/3 kg

1 General purpose saw - 750 mm long
1 Hole saw - 50 mm diameter
1 Hooligan bar - 760 mm long
1 Jigsaw (cordless) - 12 V d.c with 3 HSS / HSCO / Carbide blades*
1 'K-tool' lock remover
1 Plate shears - 300 mm long
1 Sledgehammer - 900 mm long/3 kg
Steel wedges - 150 mm long
1 Tube - 75 mm diameter x 500 mm long
* Complete with one spare power pack.

Note: This tool category is for experienced attempts at forced entry.

TOOL CATEGORY D+

Tool category A, B and C plus:
1 'A-tool' lock puller - 500 mm long
1 Bolt cutters - 500 mm long
1 Circular saw (cordless) - 18 V d.c/200mm diameter with 3 blades
1 Disc grinder (cordless)* - 18 V d.c with 3 cutting discs
1 Drill (cordless with rotary action only) - 18 V d.c*
5 Drill bits (13 mm diameter jobber - HSS / HSCO / Carbide)
1 Felling/fire axe - 850 mm long/3 kg
1 General purpose saw - 750 mm long
1 Hole saw - 50 mm diameter
1 Hooligan bar - 760 mm long
1 Jigsaw (cordless) - 18 V d.c with 3 HSS / HSCO / Carbide blades*
1 'K-tool' lock remover
1 Plate shears - 300 mm long
1 Reciprocating saw - 18 V d.c with 3 HSS / HSCO / Carbide blades*
1 Sledgehammer - 900 mm long/3 kg
Steel wedges - 150 mm long
1 Tube - 75 mm diameter x 500 mm long
* Complete with one spare power pack.

Note: This tool category is for experienced attempts at forced entry.

TOOL CATEGORY E

Tool category A, B, C and D+ plus:
1 Circular saw - 1100 W/200 mm diameter with 3 blades
1 Disc grinder - 1100 W/125 mm diameter with 3 cutting discs
1 Drill (with rotary / hammer action) - 750 W
5 Drill bits (13 mm diameter jobber and long series - HSS / HSCO / Carbide)

1 'Glasmaster' saw
1 Hole saw - >50 mm diameter
1 Pinch bar - 1500 mm long
1 Reciprocating saw - 750 W with 3 HSS / HSCO / Carbide blades
1 Sledgehammer - 900 mm long/6 kg
1 Tube - 75 mm diameter x 1000 mm long
2 Wood boring spade bits

Note: This tool category provides a professional means of attempting forced entry into higher value storage areas generally after penetrating the facade.

Although the tool category incorporates mains powered tools, this serves to cover those risks where the criminal may use tools of powers greater than those permitted in tool kit D, including battery powered, petrol driven and mains powered up to that possible with the tools specified in this tool kit.

TOOL CATEGORY F

Tool category A, B, C, D+ and E plus:
1 Circular saw - 2100 W/300 mm diameter with 3 blades
1 Disc grinder - 2300 W/250 mm diameter with 3 cutting discs
1 Drill (with rotary / hammer action) - 2000 W
5 Drill bits (20 mm diameter - HSS / HSCO/ Carbide)
1 Enforcer - 450 mm long/12kg
1 Hooligan bar - 910 mm long
1 Oxyacetylene 'Saffire Portapak' cutting kit – 50 l/min oxygen consumption*
1 Reciprocating saw - 2000 W with 3 blades
1 Tube - 75 mm diameter x 1500 mm long
*Measured at standard ambient temperature and pressure, purity <99.0%.

Note: This tool category is an enhancement of category E.

Although the tool category incorporates mains powered tools, this serves to cover those risks where the criminal may use tools of powers greater than those permitted in tool kit D, including battery powered, petrol driven and mains powered up to that possible with the tools specified in this tool kit.

TOOL CATEGORY G

Tool category A, B, C, D+, E and F plus:
1 Breaker - 1900 W/15 kg plus up to 3 bits
1 Concrete chainsaw (2-stroke) - 15kg/300 mm maximum cut depth
1 Cut-off ('Stihl') saw - 5kW/450 mm diameter/15 kg with three blades
1 Diamond core drill bit - 125 mm diameter

1 Enforcer - 600 mm long/15kg

1 Hydraulic head and toe jack (“Rabbit tool”) - 15kg/5 tonne (S.W.L) output/180 mm spread

1 Oxyacetylene cutting kit – 250 l/min oxygen consumption*

1 Pneumatic impact tool (self-contained with one spare air cartridge) - 600 blows per minute / 48.263301052 kPa pressure

*Measured at standard ambient temperature and pressure, purity <99.0%.

Note: This tool category provides extreme means of attempting forced entry into higher value storage areas before resorting to the use of vehicles, firearms or explosives.

5 CLASSIFICATION

5.1 Security rating

Products are attributed a security rating as detailed in Table 2 when the product meets all the requirements defined in Section 3 and 4.

Table 2 Security rating requirements for each manual intervention attack test

Security rating classification	Tool category	Maximum working time (minutes)	Maximum test duration (minutes)
1	A	1	10
2	B	3	15
3	C	5	20
4	D	10	30
5	D+	10	30
6	E	10	30
7	F	10	30
8	G	20	60

5.2 Key mechanism’s manipulation rating

A ‘+’ may be placed adjacent to the product’s security rating if the product meets the requirements of clause 3.4.2.

Note: The ‘+’ rating signifies the key mechanisms fitted within the product offer resistance to the manipulation methods defined within Annex A.6 of BS 3621:2007 and LPS 1242: Issue 2.

6 MARKING

All specimens submitted for test shall be marked with the manufacturer/ supplier's name or trademark, product type designation and either a batch number or date of manufacture. The sample shall also be marked to indicate the attack face.

7 ADDITIONAL GUIDANCE DOCUMENTATION

Full details of the LPCB scheme for approval and listing of padlocks are provided in scheme document SD1654.

8 PUBLICATIONS REFERRED TO:

BS EN ISO/IEC 17025:2005	General requirements for the competence of testing and calibration laboratories
BS 3621:2007+A2:2012	Thief resistant lock assembly - Key egress
BS EN 1303:2005	Building hardware - Cylinders for locks - Requirements and test methods
BS EN 12320:2001	Building hardware - Padlocks and padlock fittings - Requirements and test methods
LPS 1175: Issue 7	Requirements and testing procedures for the LPCB approval and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers
LPS 1242: Issue 2	Requirements and testing procedures for the LPCB approval and listing of cylinders for locks
SD1654	LPCB scheme document – Padlocks and associated padlock fittings

For undated references please refer to the latest published issue.

Amendments Issued Since Publication

DOCUMENT NO.	AMENDMENT DETAILS	SIGNATURE	DATE
LPS 1654-1.1	1 New front cover 2 Title added to header 3 Notes amended on Page 3 4 Repagination 5 Update to copyright information	DC	Jan. 2014