

TS 015:2026 – Enhanced Security Performance Requirements for key safes or lock boxes

Foreword

The widespread deployment of key safes and lock boxes in domestic and commercial settings has necessitated clear, measurable performance specifications to support consistent product assessment and the identification of insecure products.

This technical specification has been developed with reference to known attack techniques and the tools typically employed by opportunistic burglars. The specification is intended to match the requirements of PAS 24:2022+A1:2024 in its resistance to commonly used tools and methods. A product meeting this specification should be expected to offer a good level of resilience against such attacks.

The specification covers a range of designs, including surface mounted and shackle products, and recognises that overall security depends not only on the key safe itself but also on the installation substrate, fixing method, and the clarity of user instructions. For this reason, the specification places particular emphasis on these factors.

The specification includes requirements for corrosion resistance and durability supporting the manufacture and selection of key safes that offer reliable protection for stored keys.

TS 015:2026 acts both as a technical benchmark for manufacturers and a practical guide for installers, assessment bodies, and end-users who rely on transparent and dependable performance criteria. Its purpose is to establish a clear threshold of security performance.

TS 015 specification employs human testing, and certification ensures that this gives, as far as is reasonably practicable, consistent, and reproducible results. Independent testing via an approved assessment body and third party certification is required to comply with the specification.

1. Scope

This technical specification defines the test methods and acceptance criteria for evaluating enclosures designed for the secure storage of a single set of keys, commonly referred to as key safes, key boxes, key vaults, or lock boxes. The primary objective of this specification is to ensure that these enclosures deliver a reliable, durable, and secure storage solution, resistant to attack normally associated with the casual or opportunist burglar.

This specification applies to wall mounted keys safes and shackle key safes. Locking may be push-button or scroll lock on the following substrates: concrete, concrete block, brick, stone and/or masonry.

Electronic key safes, key cabinets, safes with a mechanism operated by a key and products installed on any substrates other than those specified above are excluded from this specification.

Key safes with fewer than 1,000 unique combinations cannot be approved to this specification.

2. Normative References

PAS 24:2022+A1:2024 – Enhanced security performance requirements for doorsets and windows in the UK.

BS EN 1670:2007 - Building hardware. Corrosion resistance. Requirements and test methods.

BS 7398:1991 – Specification for hand hacksaw frames.

BS 8607:2014+A1:2016 - Mechanically operated push button locksets – Requirements and test methods.

3. Terms and Definitions

Assessment Body: An appropriately qualified independent organisation responsible for evaluating whether a product, system, process, or service meets the specified requirements of a recognised specification or regulatory framework body accredited by UKAS (United Kingdom Accreditation Service). As an interim position, UKAS test facilities to the following standards such as PAS 24, BS 3621, TS 007 are deemed to be acceptable. With effect from (Insert date), test facilities will be required to be accredited to UKAS for TS 015.

Attack Side: The external face accessible to an attacker.

Clutch Mechanism: A feature within the locking mechanism allowing free rotation without unlocking if manipulated improperly.

General Vulnerability Assessment (GVA): A test assessing resistance to manipulation, primarily using covert and opportunistic attacks using low-noise methods.

Key Safe: An external enclosure mounted to a solid substrate, designed for the secure storage of a key or keys. Also sometimes referred to as a lock box, key box, key vault or key garage.

Push-button: Refers to the button that is pressed allowing a code to be entered as part of opening a key safe.

Scroll Lock: Refers to a type of lock where the code is entered by aligning a series of wheels, sometimes referred to as combination lock.

Shackle Key Safe: A portable key safe incorporating a shackle that provides a method of locking to a suitable shackle mount.

Shackle Mount: A mounting bracket designed to be securely attached to a wall or similar permanent substrate.

Specialist Tooling: Only available directly from locksmiths.

Third Party Certification: An independent verification process where an unbiased, external organisation assesses a product, service, or company to confirm it meets specific quality, safety, or performance standards, providing assurance to customers, regulators, and stakeholders that requirements are consistently met, often involving ongoing audits for continued compliance.

Wall Mounted Key Safe: A wall-mounted key safe is a secure storage space for keys or similar, installed on a wall or similar permanent substrate.

4. Sample Selection, Failure Criteria and Reporting

The following quantities are required to facilitate testing; these shall be representative of the current production version. Drawings of the key safe shall also be provided to allow adequate technical review assessment of any security vulnerabilities.

Testing in accordance with clause 5): Minimum of 10 samples shall be provided, inclusive of fixings and/or shackle mount.

Testing in accordance with clause 6): Minimum of 2 samples shall be provided, inclusive of fixings and/or shackle mount.

Testing in accordance with clause 7): 6 samples shall be provided.

Testing in accordance with clause 8): 1 sample per test shall be provided.

Detailed drawings of the assembly and associated parts should be provided to support the technical assessment.

4.1 Failure time and criteria

4.1.1 Total attack time

The total attack time for Clauses **6)** and **8)** shall not exceed **3 mins**. The total rest time shall not exceed **7 mins**.

Total attack time is inclusive of changing methods and/or tooling.

Time taken to consider the vulnerability of the assembly during the test shall form part of the test time.

4.1.2 Failure criteria

Removal of the key safe from the test substrate through failure of the fixings to keep the key safe attached to the substrate.

Removal of the key safe from the test substrate through failure of the shackle or the shackle mount.

Failure of the vault/enclosure of the key safe that will allow the key as defined in Appendix 2 to be removed via a suitably sized hole.

Removal of the key (specified in Appendix 2) from the key safe via opening of the vault.

*Note: For Clauses **6)** , **7)** and **8)** - The key safe is not required to remain operational at the conclusion of the test; the objective is that the key remains safe.*

4.1.3 Durability and corrosion

For Clause 9) a failure is defined as:

- Key safe not operational - User unable to open the key safe and retrieve a key and/or return the key safe and lock the key safe following either test.
- Button or adjacent surfaces have worn in a way that results in deciphering of the code.
- After testing, the key safe cannot be opened by next closest combination.

4.2 Test Report

The test report shall include the following information:

a) a concise description of the key safe, including at least the following information, checked before test:

1. manufacturer's name and specific product identification
2. type of key safe
3. type and details of fixings, including dimensions
4. Reference to the top level part number for the assembly as per the drawings supplied
5. installation instructions

c) full detail of the attack methods and tools, including attack times and results.

d) the laboratory ambient temperature at the time of test.

e) the test organisation, date of test, and test engineer and any witnesses.

f) a statement that the results are valid only for the conditions under which the test was conducted.

g) For Clause 7) - full detail of the impact testing (Hard and Soft) and confirmation apparatus complies with the specified test standard.

h) For Clause 8) – a test report should be submitted by each assessor inclusive of full detail of the manipulation method if successful.

5. Testing - Physical Attack

The key safe shall be assessed for resistance to an opportunist attack using the tool set defined within PAS 24:2022+A1:2024, Section A.2 Tool Group A, B, and C. In addition to this tool set, any tool as defined in Appendix 1 can be used.

The key safe shall be attached to the test substrate using the fixings and manufacturer's installation instructions.

The fixings supplied for the test and manufacturer's instructions shall be recorded in the test report. The manufacturer shall agree to submit any proposed amendment to the installation method (instructions) or alternate fixings to the assessment body when third party certification, as recommended by this specification, is in place. No claim of compliance shall be declared by the manufacturer if amended fixing instructions or alternative fixings have not been verified. This also applies to testing completed under Clause 0).

Samples should be mounted at 1400 mm above floor level measured to the base of the test sample.

The test substrate is defined in Appendix 3.

5.1. Assessment method

The objective of this assessment is to provide the test engineer with a list of common points of key safe or lock box failure, listed below at 5.1.1, and methods of attack, listed below at 5.1.2, in order that the product can be subjected to a manual attack using knowledge, skill and professional ability.

The method of attack can utilise any technique, combinations of tools and location, noting the individual limitations within 5.1.1 and 5.1.2 (inclusive of the accompanying notes).

The overall attack time for each of the failure criteria listed in 5.1.1 is defined as per 0.

The time taken to change tools or to focus on a different location or technique shall be included within the overall attack period.

5.1.1 The following common points of key safe or lock box failure should be assessed:

- a) Key safe removed from test substrate – Fixings coming loose.
- b) Key safe removed from test substrate – Shearing of the fixings.
- c) Key safe removed from test substrate – Failure of the rear vault wall via pry attack.
- d) Key safe shackle compromised and key safe removed from the test substrate.
- e) Key safe prised open (Penetration/Pry test).
- f) Hinge pin driven loose and key safe opened.
- g) Key safe vault broken open (impact test).
- h) Open mechanism/Clutch overridden.
- i) Key safe opened by compromising the mechanism and overriding the latch.
- j) *Any other combination of tools found within this specification and or techniques to remove from the wall and/or access the key.

* Where a new method is identified, the details shall be shared with DHF to facilitate an update to this specification.

5.1.2 Methods of attack

The information below describes possible methods of attack to promote consistency during testing. These methods are not intended to be prescriptive, and variations in technique or tooling may be applied where appropriate, see point **J)** above.

All methods of attack should be utilised. It is noted that a single key safe can be used for more than one test, providing each test is independent and does not interact with the follow-on test.

Attack **a)** Using the wrecking bar as an impactor on a screwdriver or chisel in the area between the key safe and the substrate. Once a gap has been established, the wrecking bar combined with the screwdriver/chisel can be used to lever the key safe off the wall.

Attack **b)** As above, use screwdriver/chisel to shear through the fixings.

Attack **c)** Similar to attack **a)** only the back of the key safe fails not the fixings.

Attack **d)** Using either brute force attack or a combination of screwdrivers and/or the wrecking bar, force open the retaining mechanism on the shackle or break the shackle. Use the hacksaw to cut the shackle. Use the spanners to break the shackle (attack method used on padlocks).

Attack **e)** Using the wrecking bar as an impactor on a screwdriver or chisel around the perimeter of the lid. If a gap can be established, the wrecking bar and/or combined with the screwdriver/chisel can be used to lever the lid open. The attack method can be used to force the latch down by targeting the gap where the latch secures the product.

Attack **f)** Using the wrecking bar as an impactor and the punches, try to remove the hinge pin. Once removed or partially removed, use the wrecking bar or screwdriver to open the key safe.

Attack **g)** Using the wrecking bar, continually impact the key safe, targeting either front face or the side wall, eventually full failure or cracking may occur. A screwdriver, chisel or wrecking bar can then be used to pry open any cracks to access the key. Impact can also lead to failure of the fixings and removal from the wall as per method **a)**, particularly if the side wall is attacked.

Attack **h)** Using the self-gripping pliers, try and overload the opening mechanism.

Attack **i)** Using the wrecking bar as an impactor on a screwdriver or punch, specifically targeting the latch by piercing the vault above the latch and pushing the latch down, or by targeting the mechanism that controls the movement (e.g. Attack through the buttons/scroll lock and forcing the latch down.)

Note 1: Damage to the underlying substrate can be expected during physical attack testing, cracking of the substrate that leads to the key safe being removed from the test wall will necessitate retesting. If the substrate cracks again, it is recommended that an alternative manufacturer of concrete block is tested.

Note 2: Where a shackle key safe is tested, it shall be provided with a suitable method of retention to the test substrate termed a “shackle mount”. This method of retention must be included with the key safe and tested according to methods a) b) and j) from above.

Note 3: Shackle key safes shall be restrained when completing physical tests d) through to j) - The use of a suitable test apparatus is required. This should hold the key safe firmly and ensure the test is comparable to testing completed on a surface mounted key safe. This will ensure the vault strengths are tested in a comparable way and a suitable deduction on equivalence can be made.

Note 4: Where a key safe can be fitted as a surface mounted or shackle version, it will be tested in both configurations. Failure in either configuration will result in the key safe not meeting the specification.

Note 5: The torque gauge as defined in PAS 24:2022+A1:2024 shall not be used to impact the key safe directly or indirectly using other tools. The wrecking bar in Appendix 1 shall not be used to directly impact the tools A.2.4.3 or A.2.4.4 from PAS 24:2022+A1:2024.

Note 6: The hacksaw can be used on any parts of the key safe during the physical attack and specified time.

6. Testing – Soft and Hard Body impact testing

PAS 24 specifies a series of impact-based security evaluations intended to determine whether building hardware can resist deliberate attempts at forced entry using dynamic loading methods.

Soft and hard body impact testing will be applied to a key safe in accordance with the method and apparatus defined in PAS 24:2022+A1:2024 section B.4.8 and B.4.9. The impact location is defined as the center of the body of the key safe, see Appendix 4. The key safe will be mounted at a height of 1400 mm above floor level measured to the base of the test sample.

One hard body and one soft body test impact should be completed; a separate key safe should be used for each test.

7. Testing - General Vulnerability Assessment (GVA)

The assessment shall be conducted by a panel of three expert assessors who are qualified in accordance with 7.2. Each expert shall independently carry out an assessment of the key safe and submit their findings separately.

Conformity can only be achieved where all three assessments provide a positive result.

NOTE: The purpose of this assessment is to evaluate the vulnerability of a key safe to attacks based on knowledge, skill, and professional expertise. It is not intended to assess the key safe's resistance to excessive physical force or the use of specialist tools typically available only to professional locksmiths. Brute force attacks are covered in clause 5.

7.1 Assessment method

Lock manipulation skills are relatively widespread; therefore, the lock shall demonstrate resistance to picking and or manipulation. Common manipulation methods should be considered relative to open-source content available online. If a technique is identified that appears simple in nature with no specialist tooling, this technique should be considered in scope due to its simple nature. Disassembly of a test sample to understand the possible vulnerabilities prior to assessment is permitted.

As part of the assessment, the panel shall consider whether any audible or tactile methods which do not require specialist equipment can be deployed to decipher the code.

Method: A visual inspection of the mechanism when disassembled to determine any possible vulnerabilities followed by an attempt to pick or manipulate the lock using tools as defined in PAS 24:2022+A1:2024 inclusive of section A.4.5 and tools in table A.1.

No time limit is specified for the visual assessment and method development prior to a test.

If a method can be developed, the key safe will be deemed to have failed the assessment only if the method can be deployed on a randomly specified code: The code shall be of a minimum of 4 digits, where a manufacturer has recommended a code length or approach (e.g. use of recurring digits) within its user instructions this intent shall be followed.

7.2 Assessment Panel

The assessment shall be conducted by a panel of three locksmiths with recognised professional accreditation, each of whom shall possess the necessary expertise and experience to make a sound, impartial judgment on the likelihood of a lock withstanding the types of attacks described below.

Expertise and experience shall be demonstrated through a recognised locksmithing qualification obtained by examination (e.g. BLI, ALOA), and further supported by:

- A minimum of ten years' experience as a practicing locksmith, and
- Current full membership, in good standing for at least five consecutive years, in a recognised professional locksmithing organisation.
- All GVA testing should be undertaken under the supervision of a professional locksmith's organisation.

8. Testing - Durability and Corrosion

The key safe should be assessed and shall meet the following criteria:

- Locking mechanisms shall withstand 10,000 cycles (deemed equivalent to 10 years of regular use) when tested using a minimum code length of 4 digits, or as per recommend code setting instructions - inclusive of opening and closing of the key safe. These tests can, if necessary, be done in two stages, for example with a scroll lock key safe a test to cover the rotation of dials, with a separate test to cover the open and closing of the vault. Testing can be done without automation if desired.
- After 10,000 cycles, there shall be no visible wear that is permanent in nature that could be used to identify any of the buttons tested when compared to those that were not tested i.e. those that are used within the code and those that are not used. This requirement applies only to push-button key safes. Cycling shall reflect normal use and shall not apply excessive pressure or abrasive wear. The adjacent surface to the button shall not show signs of wear that could contribute to deciphering of the code. The key safe can be cleaned prior to visual assessment to remove any temporary fingerprints or dust.
- Corrosion resistance: Shall meet BS EN 1670:2007 - Grade 3 (96-hour salt spray).

9. Installation and user information

The performance of a key safe with respect to resistance to attack is heavily dependent on satisfactory installation.

The user manual shall be made available for review as part of assessment to this specification, and in subsequent annual reviews – The installation method contained in the instructions shall be used for assessment in clause 5.

Changes to the installation method or fixings will necessitate review as per the detail in Clause 5.

Where any change in the design or manufacture is proposed that may impact the performance of the product in relation to its test evidence, this would require further assessment or testing depending on the changes proposed.

9.1 Marking Requirements

The key safe and packaging shall be marked as follows:

- The number of this specification: TS 015:2026
- Manufacturer's name or logo
- Unique product model/serial identifier

9.2 User Information

The user manual shall contain the following information – Font size should be no smaller than 8pt, legible and easily found.

"This key safe complies with DHF TS 015 and provides resistance against covert and physical attacks using tools commonly associated with opportunist burglary attempts. The key safe must be installed on suitable substrates using manufacturer-specified fixings."

If the key safe comes a default/factory set code:

"The factory set code must be changed to your own unique code before use, failure to do this significantly reduces the security of the product."

"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 unauthorised people."

The user manual shall define the method of installation, inclusive of the following information, advice is specific to the key safe supplied.

9.2.1 Surface mounted key safe

"Avoid installation within 150 mm of the edge of the substrate

Fixings should not be installed in the mortar line

Approval covers installation on brick, concrete block, concrete and masonry

Failure to follow the user instructions for installation will invalidate the TS 015 approval and any third party certification."

9.2.2 Shackle mounted key safe

"The key safe should not be attached to anything other than the supplied shackle mount

Avoid installation of the shackle mount within 150 mm of the edge of the substrate

Fixings for the shackle mount should not be installed in the mortar line

Approval covers installation on brick, concrete block, concrete and masonry

Attaching the shackle to anything other than the supplied shackle mount and/or failure to follow the user instructions for installation will invalidate the TS-015 approval and any third party certification."

10 Certification

A key safe claiming compliance with this specification shall undergo third party certification. It is recommended that certification bodies should include assessment/review of evidence of the following.

- Annual physical security audit - Inclusive of reviewing any changes to the vault, locking mechanism, fixings, shackle and installation method.
- Audit of manufacturing methods to ensure consistency of supply e.g. FPC (Factory Production Control).
- Durability and corrosion assessments every 3 years.

Recognised quality marks are encouraged for consumer confidence and insurance recognition.

11 Appendix 1

11.1 Additional Tool Set

Miniature hand hacksaw frame to BS 7398:1991, Type A with integral tension and high-speed steel blade, 18TPI blade.

Spanners 6, 8, 9, 10, 11, 13, 17 and 19 mm – Length not to exceed 280 mm.

Wrecking bar – Total length shall not exceed 340 mm long, 0.7kg

Punches – Parallel punch, 2 and 4 mm, 1 centre punch, length not to exceed 200 mm long.

Masking tape – reel width not to exceed 20 mm.

Pen (for marking only).

Diagonal Cutting Pliers: length not to exceed 160 mm long.

Combination Pliers: length not to exceed 190 mm long.

Long Nose Pliers: length not to exceed 210 mm.

Tweezers – length not to exceed 180 mm long.

Note: The Stanley Wonder Bar meets the criteria for the wrecking bar above

12 Appendix 2

The key size that is to be used when testing the product and determining if a key can be removed is shown in Figure 1. Variations of up to ± 2 mm on below specification are permissible.

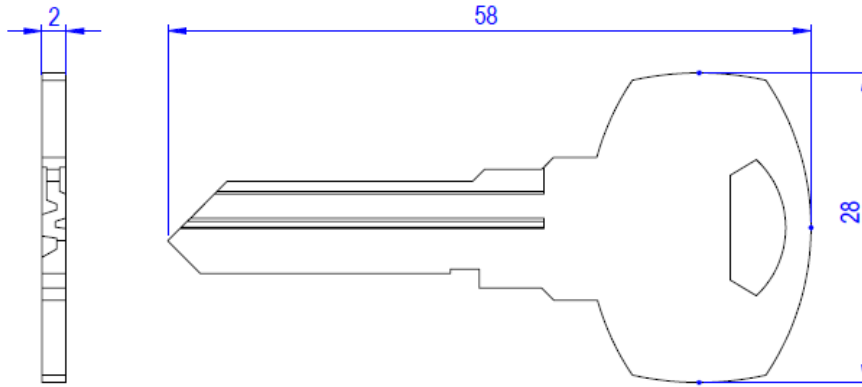


Figure 1: Minimum key size

13 Appendix 3

Standard 7.3 N/mm² concrete blocks - Standard domestic house block, with a thickness of 100 mm. Key safe or shackle mount not within 50 mm of the edge of the block, the test rig shall be designed in a way that replicates mounting of the key safe or shackle mount, specifically with a 500 mm region around the test article and extended to the floor, flush mounting of the concrete block to the surround will ensure tooling access is restricted as it would be if mounted to wall. Please see Figure 2 for indicative guide.

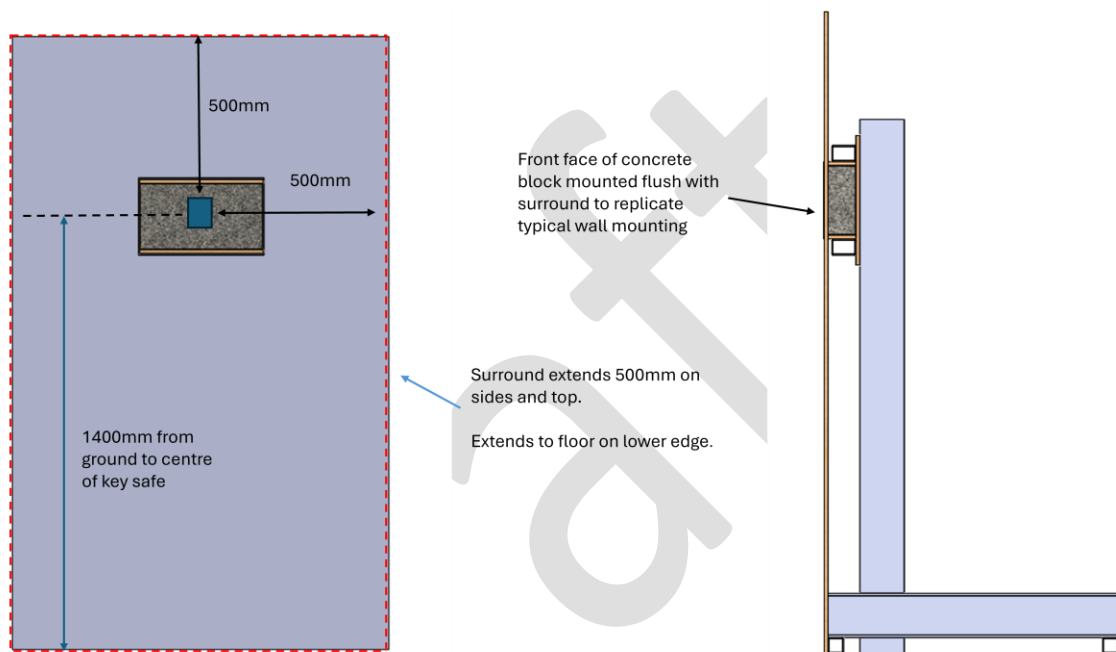


Figure 2: Example mounting for attack testing

14 Appendix 4

Impact location should be the center of the key safe as defined whilst looking at the front of the key safe and shown illustratively below

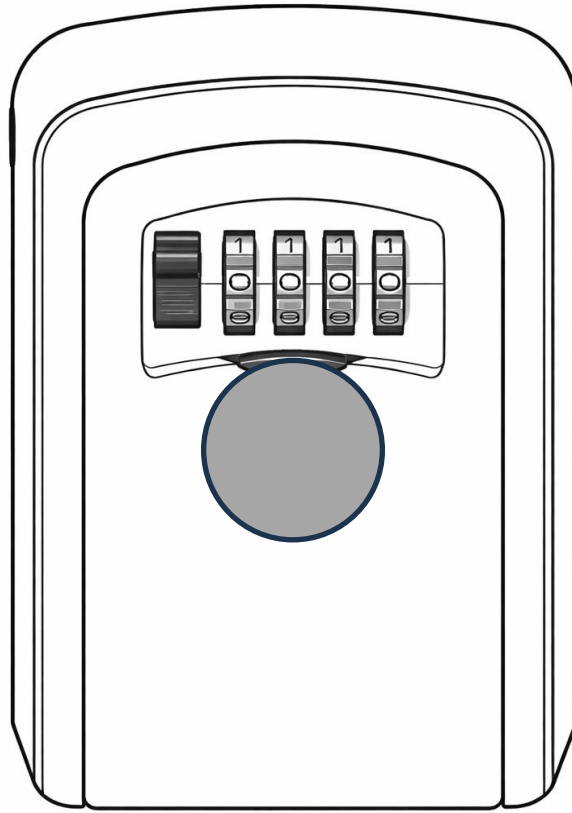


Figure 3: Target Location for Impact - Centre of the main body of the key safe – Target location within ± 15 mm.