
Technical Specification

DHF TS 009:2019

Enhanced security and general requirements for letter boxes
where mail is retrieved from the same side as delivery

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Foreword

This Technical Specification replaces the 2012 version of DHF TS 009. The aim is to provide a classification for the enhanced security and general requirements for letter boxes. This Technical Specification provides a means of evaluation against opportunist attack to try and prevent the contents/letter box being removed.

In view of the security nature of the Technical Specification, users are strongly advised to consider the desirability of testing, inspection and third-party certification of products conforming to it. Appropriate conformity attestation arrangements are described in BS EN ISO/IEC 17065.

1: Scope

- 1.1 This technical specification defines the requirements for classification of enhanced security and general requirements for lockable private letter boxes where mail is retrieved from the same side as delivery.

The types of product covered are as follows:

- Single wall mounted letter boxes
- Single post mounted letter boxes
- Multiple letter boxes

- 1.2 Letter boxes may be for internal or external use.

- 1.3 Letter boxes may be secured by:

- A mechanical lock cylinder
- A mechanical digital lock

Other types of lock are currently excluded but may be included in future revisions of this specification.

- 1.4 This technical specification does not include:

- Letter boxes designed for slide-through use
- Letter plates (fixed to doors or side-panels)

These may be covered by TS 008.

- 1.5 Although some tests are taken from EN 13724, this technical specification does not provide for classification against the European standard.

2: References

Normative references

BS 8607:2014+A1:2016	Mechanically operated push-button locksets - Requirements and test methods
EN 1303:2015	Building hardware - Cylinders for locks - Requirements and test methods
EN 1670:2007	Incorporating corrigendum March 2008 Building hardware - Corrosion resistance - Requirements and test methods
EN 12209:2016	Building hardware - Mechanically operated locks and locking plates - Requirements and test methods
EN 13724:2013	Incorporating corrigendum January 2016 Postal services - Apertures of private letter boxes and letter plates - Requirements and test methods
PAS 24:2016	Enhanced security performance requirements for doorsets and windows in the UK Doors

3: Terms and definitions

- 3.1 Aperture - opening through which a letter post item is delivered
- 3.2 Flap - pivoted component, generally flat, whose purpose is to cover and/or seal the aperture
Note: Flaps can open inwards or outwards
- 3.3 Gauge mail - items used to test the delivery of letter post items
- 3.4 Letter plate - aperture with flap located on door, door-side-panel or a wall consisting of a frame, a flap and installation material
- 3.5 Lock mechanism - locking device which is operated mechanically, electronically or by other means provided by an approved operator
- 3.6 Letter box - receptacle into which mail is delivered at the domicile of the addressee
- 3.7 Manufacturer - organisation which manufactures or present the letter box for test
- 3.8 Slide-through letter box - letter box with the aperture at the delivery side; item removal at the opposite side

4. Classification

- 4.1 Classification of enhanced security and general requirements for letter boxes as detailed below:

1st Character - Type of letter box

A = Single wall mounted letter box
B = Single post mounted letter box
C = Multiple letter boxes

2nd Character - Corrosion Grading based on EN 1670

1 = 24 hours
2 = 48 hours
3 = 96 hours
4 = 240 hours
5 = 480 hours

3rd Character - Water penetration Grading based on EN 13724

0 = No performance determined
1 = Complies with EN 13724 cl: 6.6.2 water penetration requirements

5. Requirements and test procedures

5.1 Resistance to manual attack

Timing

To comply with this specification, the product must resist a series of attack tests, each for 60 seconds.

The time will start when the first tool touches the letter box and will run continuously for the test time.

Test method

The product on test is processed through two stages: an appraisal and a series of attack tests. The purpose of the appraisal is to ascertain which attack methods will be used in the attack tests.

Following the appraisal, the product will be fitted to a rigid timber substrate, as described in the manufacturer's fitting instructions. Where a range of fitting heights are specified, the mean height shall be used. The selected attack tests will then take place and be timed.

Each attack test shall be carried out on a new sample or in an area unaffected by earlier tests.

Each test may use any combination of the test tools but only one tool may be used by the tester at any one time.

The attempts to defeat the letter box shall be limited to hand pressure only, i.e:

- The test tool may be used to pry or manipulate the sample
- The test tool shall not be used to impact the sample
- The test tool may be placed against the sample and impacted with the tester's hand
- Testers may brace themselves against any vertical substrate by means of their hand
- Testers may not brace themselves against any vertical substrate by means of any other part of their body

Tool kit

The tool kit on the following page is available to the testers:

Attack & manipulation	PAS 24 Clause
Assorted mild steel wire, not more than 2 mm in diameter and not more than 700 mm in length	A.2.1.1
Two credit cards, of size $[(55 \pm 5) \times (85 \pm 5)]$ mm and (0.7 ± 0.3) mm thick	A.2.1.2
Two paint scrapers, with a blade width of approximately (75 ± 15) mm in width	A.2.1.3
One craft knife, with a maximum overall length of 180 mm, a straight blade (0.6 ± 0.1) mm thick and an exposed blade of length (28 ± 7) mm, e.g. a Stanley-trimming type knife	A.2.1.4
Two flat blade screwdrivers, of length (150 ± 20) mm overall, a shank length of (75 ± 15) mm, a shank diameter of (3 ± 0.5) mm and a blade width of (3 ± 1) mm. The shank shall be of vanadium or chrome tool grade steel	A.2.1.5
One flat blade screwdriver, of length (200 ± 20) mm overall, a shank diameter of (6 ± 1) mm and a blade width of (6 ± 1) mm	A.2.2.3
One crosspoint screwdriver, of length (200 ± 20) mm overall, a shank diameter of (6 ± 1) mm and point size 2	A.2.2.5
One cross head screwdriver, of length (200 ± 20) mm overall, a shank diameter of (6 ± 1) mm and point size P(Z)2, e.g. a Pozidriv screwdriver	A.2.2.6
Self-gripping pliers a) Straight jaw self-gripping pliers, with a nominal length between the end of the fixed jaw and the non-adjustable section of the handle of (210 ± 10) mm b) Curved jaw self-gripping pliers, with a nominal length between the end of the fixed jaw and the non-adjustable section of the handle of (210 ± 10) mm in length	A.2.3.1
Tools for manipulation only	
Set of small screwdrivers with various head designs, (maximum 100 mm overall length with a shaft diameter 6 mm +/- 2 mm) Head forms as EN 12209 cl: 4.1.8. i.e. Slot, Phillips, Pozidriv, Hex socket, (Allen), Torx, Torx pin, Hex bolt	
Set of spanners (maximum length of 180 mm)	
Set of hexagon Allen keys (maximum length of 120 mm)	
Long nose engineers' pliers (200 mm long +/- 10 mm)	
Set of pin punches (100 mm long +/- 10 mm maximum diameter 8 mm)	

Where clause numbers are given, the definitive details of the tools can be found in PAS 24.

Test mail

The letter box shall contain 5 No. C4, 140 gsm envelopes each containing 3 No. A4, 80 gsm sheets of paper. The Viking envelope 2097939 has been found to be effective for this test.

Pass/fail criteria

The specimen is deemed to have failed:

- a) If any item of the test mail is removed from the letter box substantially intact
- b) If the letter box is removed from its fixings

NOTE 1: a failure of the substrate to which the letter box is mounted does not constitute a fail of the letter box.

NOTE 2: For the purposes of this specification, the following method is used to determine if test mail is "substantially intact".

The test mail shall be printed with Times New Roman type, size 12 point. This shall cover the entire page excepting 25 mm margins all round. After removal from the letter box, all the type on any one page shall be readable.

Where the test mail is torn or otherwise damaged, it shall be permitted to spend a further 30 seconds repairing or assembling the test mail before attempting to read it.

Test team

The test team shall be a minimum of 2 testers. One of the testers shall be experienced in the attack testing of security products.

Each individual test shall be undertaken by one single tester. Different attacks may be undertaken by different testers provided each separate attack is conducted by only one individual.

Video recording

The attack tests will normally be recorded with a video recorder. The recording shall be retained by the test laboratory in line with its normal retention policies. It may be made available to the client but it shall not be published or made publicly available.

5.2 Aperture size

It shall be possible to push gauge mail into the letter box through the aperture without folding or damaging it. Each item of gauge mail must be fully contained within the letter box and any flap closed.

It shall be possible to empty gauge mail from a letter box without folding or damaging it.

Two items of gauge mail are to be used in separate tests:

EN 13724 Gauge 1 (flexible): 229 mm x 324 mm x 24 mm

EN 13724 Gauge 2 (solid): 138 mm x 225 mm x 20 mm

Letter boxes shall comply with EN 13724 cl:5.3.1 and Annex A with an aperture size of 1 or 2

size	short side of aperture	long side of aperture
1	min. 30 mm max. 35 mm	min. 325, max. 400 mm for width-wise posting of gauge 1 envelopes
2	min. 30 mm max. 35 mm	min. 230, max. 280 mm for lengthwise posting of gauge 1 envelopes

5.3 Ergonomics

The force required to fully open the flap shall not exceed 8 N when measured according to EN 13724 cl: 5.4.3.

The flap shall be self-closing after a letter post item has been inserted as required by EN 13724 cl: 5.4.4.

It shall be possible to operate any key or thumbturn with a torque of 1.5Nm in accordance with EN 1303.

5.4 Lock mechanism

The letter box shall be fitted with either of:

- a mechanical key operated cylinder
- a mechanical push button lock

A mechanical key operated cylinder shall meet the requirements of EN 1303 Classification Box 7 "Key Related Security" Grade 3. As such, it shall comply with EN 1303 cl: 4.8.1 to cl: 4.8.6.

A mechanical push button lock shall comply with BS 8607 Grade 1; Number of effective combinations. Annex B, Test for next closest combination shall be carried out without a durability test.

The performance of the lock mechanism is verified by means of a declaration made by the manufacturer.

5.5 Flap strength

Where the letter box is fitted with an outward opening flap, the flap shall meet the requirements of EN 13724 cl: 5.7.6 and cl: 6.7.6.3. This test shall be carried out for all aperture sizes.

5.6 Corrosion resistance

Classification and testing shall be in accordance with the requirements of EN 1670. The following grades shall be used for letter boxes:

grade 1	24 hours	low corrosion resistance
grade 2	48 hours	moderate corrosion resistance
grade 3	96 hours	high corrosion resistance
grade 4	240 hours	very high corrosion resistance
grade 5	480 hours	exceptionally high corrosion resistance

Following the test, the letter box shall meet the appearance acceptance conditions of EN 1670 cl: 5.4. Following the test, the letter box shall meet the Ergonomic requirements in cl: 5.3 of this specification.

Where letter boxes are too large to effectively fit in standard corrosion cabinets, the test agency may devise appropriate sample tests.

5.7 Water penetration

If required, the letter box may be classified for resistance against water penetration.

Testing and assessment shall be in accordance with the requirements of EN 13724, cl: 5.6.2 & 6.6.2.

5.8 Fixings

Where fixings are not provided, guidance shall be made to the type of fixings to be used. Fixings supplied or recommended shall meet or exceed a load of 1.5kN.

This load is for the product as a whole. Where the product is fitted using up to 3 fixings, then each fixing shall be required to withstand this load. Where 4 or more fixings are used, then the load per fixing may be reduced to half the shown load providing there is adequate spacing of the fixings.

This is based purely on the pull-out load of the fixing into the substrate. It does not consider any type of criminal attack directly on the fixing. These are covered in cl: 5.1.

The manufacturer shall provide a declaration to the test agency on the suitability of fixings supplied or recommended.

5.9 Fitting heights

The fitting heights of the letter box shall be as specified in EN 13724 Annex B and Annex C.

Where the fitting height is dependent on the installation, then guidance on actual fitting heights shall be given in the instructions.

5.10 Instructions & labelling

Letter boxes shall be provided with fitting instructions.

These instructions shall include the following:

- Manufacturer's/supplier's name
- The manufacturer's/supplier's contact details
- The product name/part number
- Advice on appropriate locations and substrates to which the product should be fitted
- Advice on fixings for installation
- Advice on fitting heights
- Installation instructions
- Maintenance and operation instructions
- TS 009 classification information

Each letter box shall carry a label giving:

- Manufacturer's/supplier's name
- The product name/part number
- TS 009 classification information

An example of this is:

DHF TS 009:2019		
Acme Letterboxes Ltd Letter box model 2		
1	2	3
Type	Corrosion	Water Penetration
A	3	1

This label will normally be placed inside the letter box such that it is visible when the letter box is opened to collect mail.

5.11 Tolerances

Throughout this specification, the following tolerances shall apply, unless otherwise specified:

- mass in kilograms or grams (kg or g): $\pm 5 \%$
- length in millimetres (mm): $\pm 2 \%$
- force in kilo Newton or Newton (kN or N): $\pm 2 \%$
- torque in Newton metres (Nm): $\pm 5 \%$
- time in seconds or minutes (s or min): $\pm 5 \%$
- temperature in degrees Celsius ($^{\circ}\text{C}$): $\pm 2 \text{ }^{\circ}\text{C}$

6. Samples

Where a product range is submitted for evaluation, the test agency shall consider each individual test for each letter box type. Where (by engineering judgement) it can be shown that a weaker or equivalent type is to be evaluated, then no further testing needs to be carried out.

A typical test programme is shown below. The test agency may vary this depending on the product design. In particular, they may ask for additional manual attack samples.

Sample Number	Clause	Test
Sample 1		Water Penetration Manual Attack
Sample 2		Aperture Size Manual Attack
Sample 3		Manual Attack
Sample 4		Flap Strength
Sample 5		Ergonomics Corrosion Resistance

The samples supplied for testing shall be fully functioning products, complete with all the hardware, accessories and fixings.

The manufacturer shall supply sufficient fixings for test purposes. Where the manufacturer does not supply fixings with the product, they shall supply representative fixings as specified in their installation instructions. These shall be the minimum size specified and suitable for fixing to the test wooden substrate.

The manufacturer shall supply a copy of their installation instructions.

The manufacturer shall supply a declaration the lock mechanism complies with cl: 5.4

The manufacturer shall provide a declaration on the suitability of fixings supplied or recommended.

Where the letter box has not yet attained a pass to TS 009, sample instructions and labels shall be supplied separately for assessment purposes.

7. Report

The test report shall include the following information:

- The name and address of the applicant
- The name and address of the manufacturer, if different from the applicant
- Product numbers/names of the letter boxes
- Details of the letter box; this may be construction drawings, photographs, etc.
- Classification achieved

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