

# dhf Enhanced Specification For Doorsets

## **DHF TS 006:2011**

Specification for enhanced lifetime & severe duty performance  
of hinged and pivoted doorsets

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# Foreword

This performance specification does not replace any existing performance specification. Approval against the requirements of this performance specification was possible from November 2010.

The aim of this specification is to provide approval for enhanced lifetime and severe duty performance and requirements of hinged and pivoted, doorsets from **dhf**.

The technical provisions of this specification have been adopted as a common basis for the approval of pedestrian doorsets.

All tests follow published test methods and are to severe duty rating; however, some performance requirements in this document are greater than those in the classification documents.

## 1. Scope

- 1.1 This specification defines the technical and performance requirements for approval of hinged and pivoted doorsets.
- 1.2 The type of products able to be approved against this specification are hinged and pivoted doorsets designed for all areas, except domestic (dwellings) situations.
- 1.3 This specification does not provide for certification against European standards but uses the products standard EN 14351-1 and uses some supporting standards as the basis of its approval.
- 1.4 This specification is designed to provide **dhf** approval for hinged and pivoted doorsets with enhanced lifetime & severe duty performance.
- 1.5 This specification does not detail the requirements for a certified ISO 9000 quality management system but will require compliance with Clause 7 of EN 14351-1, which relates to the requirements of Factory Production Control.
- 1.6 The main purpose of the test is to prove the enhanced performance of the product when it is tested and passes to this specification.
- 1.7 In addition to the requirements of this technical document TS 006, if additional external weather characteristics are needed then these shall be performed to EN 1026, EN 1027 and EN 12211.

## 2. References

### Normative References

EN 14351-1	Windows and external pedestrian doors without resistance to fire and/or smoke leakage characteristics
EN 1191	Windows and doors: resistance to repeated opening and closing - test method
EN 1192	Doors classification of strength requirements
EN 12046-2	Operating forces - test method part 2: doors
EN 12217	Doors-operating forces - requirements and classification
EN 947	Hinged or pivoted doors, Determination of the resistance to vertical load
EN 948	Hinged or pivoted doors, Determination of the resistance to static torsion
EN 949	Windows and curtain walling, doors, blinds and shutters, determination of the resistance to soft and heavy body impact for doors
EN 950	Door leaves, determination of the resistance to hard body impact
DD 171:1987	Guide to specifying performance requirements for hinged or pivoted doors
PAS 24:2007	Enhanced security performance requirements for door assemblies

## 3. Terms and definitions

- 3.1 **Doorset**  
The complete unit consisting of a door, frame leaf or leaves supplied with the hardware and seals if required
- 3.2 **Hinged and pivoted**  
Products that have a solid or rigid leaf and the main movement is turning
- 3.3 **Test specimen**  
Complete full working construction ready for test

### 3.4 Sub-frame

Surrounding frame in which the test specimen is mounted

### 3.5 Test rig

Steel framed construction with movable steel supports, into which the sub-frame containing the test specimen can be mounted

## 4. General requirements

4.1 Before the commencement of any approval, the client (applicant) shall supply the following information to the test laboratory about the product(s) to be approved:

- a) Name and address of the manufacturer if different to the applicant
- b) Full detailed drawings of the test specimen:
  - i) cross sectional details
  - ii) assembly of the product, detailing weld points, fasteners, etc
  - iii) location details of all hardware
  - iv) the materials and thicknesses used in construction of the product
  - v) list of hardware items and their reference numbers for products fitted to the test specimen
- c) Manufacturer's installation instructions
- d) A detailed list of any dangerous substances
- e) The use of historic data for the repeated opening and closing tests (at least 1 million cycles) can be taken into account by **dhf** and the test laboratory, providing there has been no significant change in the design of the door, it was performed to EN 1191, and was generated by a UKAS or equivalent accredited test laboratory (approved by **dhf**) and was prior to the introduction of this technical specification (TS 006). A full test report or reports must be submitted to support this historic data

4.1.1 The size and range of the products to be covered shall be agreed in advance of any testing, are they single doors, double doors with or without glazing, any glazing designs, and the hardware items to be used, etc

### 4.2 The test requirements cover the following characteristics

- 4.2.1 Resistance to repeated opening and closing
  - 4.2.2 Vertical loading
  - 4.2.3 Static torsion
  - 4.2.4 Soft and heavy body impact
  - 4.2.5 Hard Body impacting
  - 4.2.6 Slamming closed
  - 4.2.7 Closing against an obstruction
  - 4.2.8 Abuse force on the door handle
  - 4.2.9 Cantilever test
  - 4.2.10 Jarring
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## 5. Test requirements & procedures

Test sequence	Characteristics	dhf requirements	Test methods / classification	Additional criteria for pass or failure
1	Operating forces (Lock and lever operation)	Class 1	EN 12046-2	EN 12217
2	Vertical loading (Weight on leading edge of door)	1000N	EN 947	EN 1192
3	Static torsion (Twist test with bottom of the door held fixed)	550N	EN 948	EN 1192
4	Soft and heavy body (Impact test on door face)	240j	EN 949	EN 1192
5	Hard body (Steel ball-bearing impact on door face)	8j	EN 950	EN 1192
6	Slamming closed (Door slamming into rebate)	200 times	Clause A.8.1 of DD 171: 1987	The door must operate correctly
7	Slamming open (Door forced open)	20 times	Clause A.8.2 of DD 171: 1987	The door must operate correctly
8	Closing against obstruction (Wedge at hinge end)	300N	Clause A.13 of DD 171: 1987	The door must operate correctly
9	Abuse forces on hardware (Test on lever handles)	1000N	Clause A.15 of DD 171: 1987	The door must operate correctly
10	Hard body impact test on the edges of doors	180j	With the door held open at 90° to the frame and restricted from moving impact the hinge and leading edge of the door leaf 3 times at 750mm from bottom of leaf edge, using the 50kg hard body impactor described in PAS 24 (Clause 6.5)	The door must operate correctly after impacting (i.e close smoothly into the frame) any visual damage on the door and/or seals will be recorded in the report.
11	Canter lever test (Door hitting a floor stop)	20 slamming open tests with a stop point	Position the floor stop at 90° to the frame and between 250/300mm from the hinge end of the door face. Using test method Clause A.8.2 of DD171:1987 slam the door against the stop 20 times	The door must operate correctly
12	Jarring		Clause A.8.1 of DD 171:1987	The door must operate correctly
13	Operating forces (Lock and lever operation)	Class 1	EN 12046-2	On completion of tests 2-11, the doorset must meet the requirements of EN 12217/EN 12400
14	Repeated opening & closing of doorsets	1 million	EN 1191	Note: The hardware items can be replaced if deemed to have failed during the endurance testing. If replaced this shall be recorded in the final test report and the number of cycles achieved when the hardware was changed. This will help towards the maintenance requirements of the product.

**5.1** Only one test sample shall be supplied for testing (starting with the performance requirements and then the repeated opening and closing and shall be fully functioning products complete with its sub- frame, hardware and accessories). The test sample shall be secured into the sub-frame in accordance with the manufacturer's installation instructions

- 5.2 The test apparatus shall consist of a rigid steel frame with moveable steel supports in which test specimens of various dimensions can be mounted. The frame shall not deflect more than 5mm in any normal plane whilst under test conditions
- 5.3 The sub-frame supporting the test specimen shall be either a metal tube of 120 mm x 120 mm x 5 mm or a timber sub-frame of 120 mm x 120 mm fitted to the manufacturer's instructions
- 5.4 The test specimen shall be visually examined for conformity with the details supplied by the client
- 5.5 The test specimen shall be checked for any damage prior to testing and any damage shall be recorded
- 5.6 Doorsets for testing with and without door closers are permitted
- 5.7 The test report shall include the following information:
- name and address of the applicant
  - name address of the manufacturer if different from the applicant
  - details of the test specimen, construction drawings, material details, thickness, infill, etc
  - overall sizes of the test specimen
  - date of manufacture
  - any glazing details
  - hardware details and classification against the EN product standards (if applicable)
  - copy of the installation instructions
  - class/grade achieved
  - all relevant sizes to be covered
  - details of any damage to the specimen prior to testing and whilst under testing conditions
  - dated signatures

## 6. Family of products / variations with a view to possible assessment

- 6.1 Hinged and pivoted doorsets where assessed as part of a family, a report shall be generated at a UKAS or equivalent accredited facility approved by **dhf**.
- 6.2 Historic data for repeated opening and closing testing (only) can be used providing there is no significant failure occurring during the test sequence 1 to 13. The test laboratory making this assessment will have to be satisfied that the evidence supplied for the repeated opening and closing test is sufficient and relates to the product range to be covered. This can be supported by the Factory Production Control to confirm that no significant design changes have taken place since the evidence was generated.
- 6.3 **To be agreed in advance of any testing between the manufacturer and test facility:**
- a) Double leaf doors hinged or pivoted (thickness 45 mm / 54 mm)
  - b) Single leaf doors hinged or pivoted (thickness 45 mm / 54 mm)
  - c) Plain meeting styles
  - d) Rebated meeting styles
  - e) Plain meeting styles with smoke seals
  - f) Substitution of door core materials in doors of otherwise identical mechanical construction
  - g) Substitution of glass types in vision panels
  - h) Size of vision panels
  - i) Number of hinges 3, 4, etc, the positioning of hinges.

- j) Over panels and side panels
- k) Frame profile variations
- l) Replacement of hardware models
- m) Doorsets tested with and without door closers

## 7. Factory production control

### 7.1 General

Factory production control (FPC) system is the permanent internal control of production exercised by the manufacturer. The aim of the FPC system is to ensure that the product characteristics are maintained within specified limits during production

The manufacturer shall set up a systematic FPC system in the form of written policies and procedures taking into account the following aspects:

- Product types and range of application
- Manufacturing processes (eg assembly of components purchased from external suppliers)
- Batch quantity
- The manufacturer shall appoint a person to be responsible for the FPC system in each factory

The production control requirements shall be decided by the manufacturer and shall include the following operations appropriate to the manufacturing processes:

- Specification and verification of raw materials and constituents
- Controls and tests, if any, to be carried out during manufacture in accordance with a frequency specified by the manufacturer
- Verifications and tests, if any, to be carried out on finished products in accordance with a frequency specified by the manufacturer
- Description of actions to be taken in case of non-conformity

An FPC system according to EN ISO 9001:2015 or to similar international standards and made specific to the product is deemed to meet the FPC requirements of this specification.

## 8. Audit requirements

- 8.1 One full audit test will be performed every 5 years or on completion of 250,000 manufactured samples, whichever is the more frequent
- 8.2 If any part of the audit test fails, the client will be notified and discussion on possible modifications and / or further samples to be taken and tested will be agreed

## 9. Installation instructions

- 9.1 Each door assembly shall be supplied with full installation instructions containing information such as, maintenance, correct fixing positions

## ANNEX A (normative)

### A.1 Bodies operating certification schemes to the technical provisions of this schedule

**dhf**

### A.2 Organisations ratifying this schedule

BRE Building Technology Group

Bucknalls Lane, Watford, Hertfordshire. WD25 9XX. Tel. 01923 664100

Chiltern International Fire

Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire. HP14 4ND. Tel. 01494 569800

**dhf**

42 Heath Street, Tamworth, Staffordshire. B79 7JH. Tel. 01827 52337

Exova Warrington fire

Key Industrial Park, Fernside Road, Willenhall, West Midlands. WV13 3YA. Tel. 01902 722122



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