

DATIM

Installation Instructions

Rev 4

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Doorset Installation Instructions

1. Installer Qualifications

It is strongly recommended that the installer is a member of a recognised quality assurance scheme to ensure that best practise is followed.

In respect of fire doors, inspection authorities may require evidence that the installation process complies with the tested specification, including:

- Intumescent seals and gaskets fitted to the perimeter and any hardware items.
- Compliance of any glazing with the requirements of the relevant BM Trada Global Assessment.
- The quality of the supporting construction and the prepared opening.
- The fixing methods used for the fire doorset.
- Fire and smoke-stopping methods used in fitting-in gaps and voids.

Should you require any assistance with such documentation please contact our Technical Department.

2. Pre-installation preparation

2.1. First or Second-Fix

Best practise is a second-fix operation with openings prepared as construction proceeds, with pre-hung doorsets installed later. The advantages are:

- Operating gaps (which affect the correct operation of most intumescent perimeter seals) can be maintained.
- Doorsets are delivered when site conditions are suitable.

Using the 'first-fix' method, door frames are built-in during construction and door leaves are fitted later. This can be unsatisfactory because:

- Construction operations and wet trades will invariably damage finishes and cause distortion and/or swelling. The cost of remedial works and protection can be high.
- Door leaves are likely to need trimming to fit in their openings.

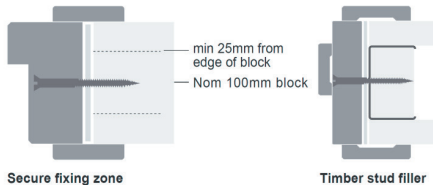
2.2. Door Frame Design

The combination of door frame profile and supporting construction must allow for secure fixing.

Note 1: Fixing within 25mm from the edge of masonry (excluding any plaster) should not be attempted.

Note 2: Fixings into metal stud partitions should be made into full-length timber fillers in the studs unless the drywall partition manufacturer can provide sufficient fire test evidence to the contrary.

Make fixings to each jamb spaced 100mm from the top and bottom, with others a maximum of 500mm apart. Additional fixing to the door frame head is recommended for doorset widths over 1100mm.



2.3. Co-ordinating dimensions

The co-ordinating height, width and thickness of prepared openings, the fitting-in margin and allowed tolerances must be planned. This information must be available before the start of door manufacture.

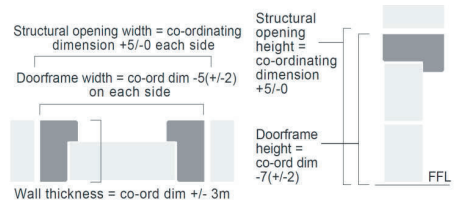
2.3.1. Prepared Openings

Prepared openings must be: plumb; square; built to the co-ordinating dimensions subject to a tolerance of $+5/-0$ mm at each jamb and $+5/-0$ mm at the head; constant co-ordinating thickness around their perimeter within a tolerance of $+/-3$ mm. It is vital to control partition thickness if architraves are to be fitted without excessive trimming and scribing.

Check accuracy of prepared openings as early as possible so that any remedial work can be completed before any attempt is made to install doors.

2.3.2. Door frame size and fitting-in margins

The overall door frame dimensions should be the co-ordinating height and width -5 mm ($+/-2$ mm) on each jamb and -7 mm ($+/-2$ mm) at the head to allow door frames to be packed up slightly if necessary for the door leaf to swing over high spots or floor coverings.



2.4. Recesses for floor mounted closer boxes

Plan pockets to receive closer boxes in reinforcement, floors and screeds. The pockets must be formed and located with a high degree of accuracy to co-ordinate with the door frame position.

For timber or hollow floors, special mounting cradles are available – please speak to your Doorsets Project Manager.

2.5. Fire Door Doorset Margins

a) Door Edge Gaps; Representative of those tested but as a guideline, a minimum of 2mm and a maximum of 4mm.

b) Alignment Tolerances; Leaves must not be proud of each other or from the Door frame by more than 1mm.

c) Threshold; Maximum of 10mm between the bottom of leaf and top of floor covering.

However if the Doorset is required for Smoke Control, the Threshold Gap must be a Maximum of 3mm between the bottom of leaf and top of floor covering.

If 3mm is not possible due to Site Tolerances, then an Automatic Drop Seal can be fitted. However please refer to the Doorset Global Assessment to ensure a Drop Seal is permitted

3. Site Delivery

3.1. Moisture content

Timber doorsets are manufactured with moisture content of 10-12% for internal use and 12-14% for external use, in accordance with industry standards.

Doorset deliveries should not be attempted until site moisture readings are between 40 and 60% RH, and any forced-drying procedures have been completed.

Doorset Installation Instructions

3.2. Storage area

The storage area must be clean, level, suitable for stacking doorsets and provide sufficient space for doors to be manoeuvred around, sorted and re-stacked as installation proceeds. The floor should be suitable to allow the use of pallet moving equipment.

3.3. Priming and sealing

The applicable British Standard is BS 6150:1991 Code of practice for painting of buildings.

Prime or seal all items supplied 'in the white' immediately following delivery, including top and bottom edges, apertures and preparations for hardware.

Apply further coats within a reasonable time and before doorsets are installed.

3.4. Handling

Avoid bruising and damage caused by heavy contact with the ground. Wear clean gloves to avoid leaving finger marks.

3.5. Stacking

3.5.1 Doorsets

- Do not store doorsets standing upright or leaning as this causes bowing.
- Stack doorsets horizontally in their closed position (resting on the door frame stop lath) on level supports that extend across the full width of the bottom doorset. Provide support at the centre and at 300mm from each end. If over 2150mm in height, provide a second intermediate support.
- Cover the support battens with cardboard or similar to prevent marking. Ensure the battens are of sufficient thickness to provide clearance from glazing beads and projecting ironmongery fitted to adjacent doorsets.
- Stack with the largest doorset at the bottom with size reducing up the stack. Depending on the frame depths, doorsets can usually be stacked to a maximum of 10 sets.

3.5.2. Door leaves (e.g. Double Doors)

- The same principles apply when stacking door leaves (for example in the case of double doors which are always supplied un-assembled).
- It is especially important to ensure that supporting battens are levelled before stacking.

3.5.3. Covering & Protection

Exposure to light will fade timber.

Cover stacks with opaque sheeting to prevent fading and keep doors clean. This is very important in the case of veneered doorsets.

5. Doorset Installation

Install doorsets only when site conditions are suitable.

Note: Operating gaps around door leaves will vary between 2 & 4mm.

Any movement of the structure after doors are installed will definitely affect these margins and could cause malfunction.

Movement can result from:

- Shrinkage due to drying out
- Growth due to increase in moisture
- Deflection of structural members

Defer installation if conditions are unsuitable.

The Doorset Frame must be installed directly onto the Subfloor and not the Floor Covering.

No gaps are permitted from the Subfloor to the Underside of the Doorset Frame.

5.1. Installing doorsets (second-fix)

5.1.1. Packing

Pack between the door frame and the prepared opening immediately above each fixing position. Ensure that the doorset assembly when

in position is perfectly plumb and square. Prehung doorsets have the great advantage that the leaf serves as a template for fixing the frame. Avoid later shrinkage by using packing that is durable, hard and stable.

Packers (for Timber, PVC-U or Composite Doorset construction only)

- a) Plastic packers may be used but only for 30min fire resistant doorsets and only if cut back 10mm and capped with appropriate intumescent mastic (see section 1 above).
- b) Softwood packers can be used for 30min fire resistance period only. These do not need to be cut back or capped with intumescent mastic.
- c) Hardwood packers can be used for up to 60min fire resistance period. These do not need to be cut back or capped with intumescent mastic.
- d) Packers made from non-combustible or limited combustibility material (e.g. calcium silicate board or plasterboard) can be used for any fire resistance period. These do not need to be cut back or capped with intumescent mastic.

It is permitted to use alternative packer arrangements and materials providing they are directly supported for use with the type of doorset being installed (e.g. timber, steel or composite). Supporting evidence must be test evidence generated at a UKAS accredited laboratory to BS 476: Part 22: 1987 or BS EN 1634-1 for the required period of fire resistance. Assessments for different packer materials and arrangements are acceptable providing they have been written by Warrington Fire. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use. Ensure that jambs are straight, operating gaps are even in tolerance and that fixing screws cannot distort the frame when tightened.

Note: The lateral force at the bottom hinge position can compress packings and metal studs causing the leading edge to drop. Before installation, ensure that studs are secure and fillings are dry.

5.1.2. Fixing

5.1.2.1 – Fire Doorsets

When the doorset frame has been packed into the prepared opening, remove door leaves if necessary to facilitate fixing.

The frame jambs are top be fixed to the supporting construction using steel fixings at 600mm maximum centres.

The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. It is not necessary to fix the frame head on a Single Doorset, although packers must be inserted.

Fix doorset frame in masonry in conjunction with plugs and woodscrews with minimum 50mm penetration into the masonry. Fix doorset frames in metal stud partitions with wood screws having drilled a pilot hole through the stud into the timber stud filler with minimum 50mm penetration into the stud filler. Ensure that the doorframe fixing pulls the timber filling tightly into the stud and pulls the stud up tight against the packing.

5.1.2.2 – Security Doorsets

Further to the above, the fixings should be at 400mm Centres with a minimum penetration of 70mm on Pas24 or SBD Doorsets. The Wall Construction should be built in accordance to the necessary security standards and to suit the above.

5.1.3. Sealing to Structural Opening

The Door Frame to Structural Opening Gap must be protected using one of the following methods.

a) Intumescent mastic: Tested to EN 1366 part 4, BS 476 part 22, BS 476 part 20 or EN1364-1. Test duration must be at least the same or higher than the integrity period of the fire doorset being fitted. Please note the below for more details.

b) Expanding foam: This is not recommended to be used due to the variability of the installation and the more complex understanding

Doorset Installation Instructions

of whether the test evidence is suitable for use. However, where there is test evidence to EN 1366 part 4, BS 476 part 22, BS 476 part 20 or EN 1364-1, with the test duration being at least the same or higher than the integrity period of the fire doorset being fitted, then expanding foam may be used. Please note the below for more details.

c) Mineral fibre/ceramic fibre: Euroclass A1 or A2 to EN 13501-1 and heat resistant to at least 1000°C. Please note the below for more details.

A. INTUMESCENT MASTIC:

Option 1 (30 and 60 minute fire resisting timber doors only): As shown in the tables in BS 8214:2016 clause 9.4.1

The specification for mastic must be as given in clause 9.4.2 in BS 8214: 2016, summarised below:

- Test evidence for the mastic must be to one of the following standards: BS 476 part 20, BS EN 1366-4, BS 476 part 22 or BS EN 1634-1. The test evidence can be for the mastic between any materials.
- Supporting test evidence must be for the required period of fire resistance or greater.
- Length of tested seal must be at least 1m, but this does not restrict its use in an application for a fire door of larger length.

Option 2 (all door types e.g. timber, steel, composite): As documented in the doorset or intumescent mastic manufacturer's supporting test evidence or assessment report.

For installation methods not covered by the details contained in the tables in clause 9.4.1 in BS 8214: 2016 (i.e. option 1 above), or for fire resisting applications in excess of 60 minutes, it is permitted to use the guidance given in the supporting door manufacturer's test evidence/assessment document or an assessment that has been produced for the mastic manufacturer. The details given in the relevant assessment for the use of mastic with fire resisting doors must be precisely followed and the test evidence and/or assessment must be to BS 476: Part 22 or BS EN 1634-1.

Supporting test evidence must have been generated at a UKAS accredited laboratory and the assessment must have been written by Warrington Fire. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

B. FIRE FOAM:

Option 1 Datim Supplies recommend using the Seal Tight Solutions ST99 FR Foam (B1 Fire Rated Expanding Foam) when installing our Doorsets. This has been thoroughly tested to BS476 Part 20/22 and BS EN 1634:3 2004. Please contact the Datim Technical Office on 01246 572277 for Procurement, or for further information if required.

Option 2 (30 minute fire resisting timber doors only): Use as documented in the tables in BS 8214:2016 clause 9.4.1

The specification for fire foam must be as given in clause 9.4.2 in BS 8214: 2016, summarised below:

- Test evidence for the foam must be to one of the following standards: BS 476 part 20, BS EN 1366-4, BS 476 part 22 or BS EN 1634-1. The test evidence can be for the mastic foam between any materials.
- Test evidence must have used a minimum gap width of 20mm and a maximum fully filled depth of 100mm.
- Test evidence must have been carried out with no mastic capping or architraves.

Option 3 (all door types e.g. timber, steel and composite, with 30minutes fire resistance and above):

Use as documented in doorset or foam manufacturer's supporting test evidence or assessment report

For installation details not covered by the details contained in the tables in clause 9.4.1 in BS 8214: 2016 (i.e. option 1 above), it is permitted to use the guidance given in the supporting door manufacturer's assessment report or an assessment that has been produced for the foam manufacturer. The details given in the relevant assessment for the use of foam with fire resisting doorsets

must be precisely followed and the test evidence and/or assessment must be to BS 476: Part 22 or BS EN 1634-1. Supporting test evidence must have been generated at a UKAS accredited laboratory and the assessment must have been written by Warringtonfire. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

C. MINERAL ROCK FIBRE PACKING:

Option 1 (30 and 60 minute fire resisting timber doors only): As shown in the tables in BS 8214:2016 clause 9.4.1

The specification for mineral rock fibre packing must be as given below:

- Must be a fibre that is manufactured using rock. Glass wool and other types of mineral fibres are not acceptable.
- All other details must be as per the specification given in the tables in section 9.4.1 in BS 8214: 2016 (e.g. maximum permitted gap size, intumescent mastic and architrave requirements)

Option 2 (all door types e.g. timber, steel, composite and 30minutes fire resistance and above):

For installation details not covered by the details contained in the tables in clause 9.4.1 in BS 8214: 2016 (i.e. option 1 above), it is permitted to use the guidance given in the supporting doorset manufacturer's assessment report. The details given in the relevant assessment for the use of mineral rock fibre with fire resisting doors must be precisely followed and the assessment must be to BS 476: Part 22 or BS EN 1634-1. Supporting assessments must have been written by Warrington Fire. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

5.1.4. Architraves

a. PVC-U Architraves:

These cannot be used on either side of a fire resisting doorset unless there is test evidence or an assessment available for their use in conjunction with the particular doorset and associated sealing method between the back of frame and supporting structure. This guidance also applies to other non-timber based architraves.

b. Timber architraves;

General Timber architraves must be fitted unless there is test evidence, an assessment report or detail in 9.4.1 of BS 8214: 2016 for alternative materials or for a sealing solution between the back of frame and supporting structure that does not require an architrave to be fitted. Test evidence must be generated at a UKAS accredited laboratory to BS 476: Part 22: 1987 or BS EN 1634-1 for at least the period of fire resistance required. Assessments must be from Warrington Fire and to BS 476: Part 22: 1987 or BS EN 1634-1. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

Option 1 For 30 and 60 minute fire resisting timber doors the following architrave specification is suitable for use with the details given in section 9.4.1, where required in BS 8214: 2016:

Architraves to be minimum 15mm thick constructed from softwood, hardwood or MDF with 15mm overlap on both the frame and wall/ supporting structure.

Option 2 For details outside of the specification given in section 9.4.1 in BS 8214: 2016 and for non-timber doorsets or doorsets with fire resistance in excess of 60 minutes, the details given in the relevant assessment for the door design must be followed. The assessment must be written by Warrington Fire and be to BS 476: Part 22: 1987 or BS EN 1634-1. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

5.1.5. Hanging Door Leaves

Check and adjust for correct gaps and operation of seals. Blade and brush contact seals should overlap the opposing face by 1.0 – 1.5mm. Compression seals should be 50% compressed along their entire

Doorset Installation Instructions

length. Door leaf variation can be maximum 1mm proud of the door frame at any one part. For double sets, when the doors are shut, leaf to leaf variation should be maximum 2mm proud of corresponding leaf at any point.

Note: Adjustment to the fit of door leaves at the installation stage should be deferred until the site is completely dry and the installation stable.

- Adjustments made too early can result in excessive gaps as the building dries.
- If possible, carry out adjustments by reducing or increasing packing. Alternatively, pack out behind hinges or recess them further.
- Only as a last resort should door leaf edges be trimmed – this may necessitate the replacement of seals and repositioning of hardware affecting the quality and integrity of the door. See 5.2 Modification of doorsets

5.1.6. Doorstops

Fix loose door stops after all adjustments. Fit to suit the shape of the door leaf, permit an easy latching action and ensure any seals are in correct contact with the door leaf face.

If the Doorsets are scheduled to have Batwing Seals, please ensure that a 3/4mm Margin is left between the Door and Stop Lath.

5.1.7. Concealment of Fixings

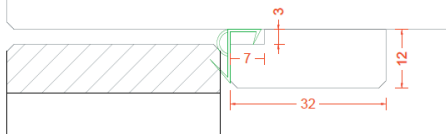
Dress exposed fixings of doorframes, doorstops and architraves as specified.

Note: 1. This operation and the final fitting of architraves should be left until all adjustments to gaps and door leaf operation have been made.

2. Frame fixing screws are normally concealed behind the door stop laths. Where this is not possible, screws should be concealed with timber or plastic pellets. Pins are punched and filled with proprietary wax filler, coloured to match.

5.1.8 Batwing Seals

On Smoke Rated Doorsets (and if scheduled), a perimeter Batwing Seal must be installed.



This product must be installed to allow the proper opening and closing of the door assembly with a minimal amount of force. The door assembly should be checked periodically to insure proper operation. This product has been designed to provide an effective smoke seal in the gap around a fire rated door.

This product is to be installed as illustrated, around the perimeter of the door assembly. Care should be taken to install this product without stretching or damaging it in any way. The temperature of the frame should be above 5°C. The frame should be thoroughly cleaned removing dust, oil, grease or dirt. Certain paint products may make adhesion difficult. If necessary, lightly sand the painted surface and then thoroughly clean. Secure adhesion is crucial to the proper performance of this product!

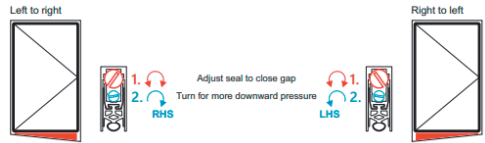
Installation Steps As Follows;

1. Measure the frame at the top and both sides.
2. Cut the product to fit using a knife or scissors, mitring the top corners.
3. Remove the protective backing to expose the adhesive backing.
4. Adhere seal to the exact location on frame where section is to be installed. Do not remove and relocate.
5. Inspect seal to assure proper location.
6. Do not install this product to impede the opening and closing of the door assembly. The door assembly must operate effectively.

5.1.9 Dropseal Adjustments

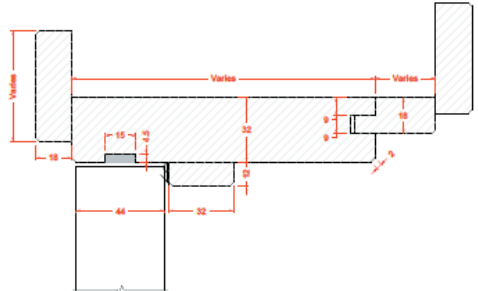
The Dropseals installed in the Doorsets have not been adjusted.

This must be done on site, so that the Dropseal can be adjusted accordingly to suit the undercut and floor level. Please note the below diagram for adjustments.



5.2.0 Extension Liners

Extension liners fit into the grooves on the frame, and can be slid in out slightly adjusting to the suit the Structural Opening. Extension Liners should be fixed and sealed in the same method as the frame.



Doorset Installation Instructions

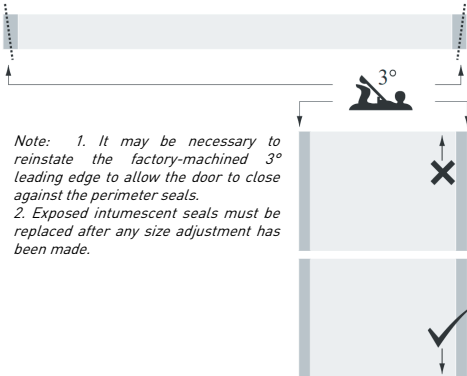
5.2. Modification of doorsets

Where door leaves & frames have been supplied & fitted separately, it may be necessary to make minor modifications when installing.

NOTE: Where a doorset is supplied hung, with a Silver BM Trada Certification plug fitted, NO site modifications or additions, e.g. trimming or glazing, may be made to the doorset without the certification becoming invalid and being withdrawn.

5.2.1. Trimming edges

When Doors & Frames have been supplied and fitted separately it may be necessary to trim Door Leaves. The maximum adjustment that can be made is to be 20% of the lipping size, ie a maximum of 1.2mm reduction. Remove equal amounts from each vertical edge and make all height adjustment to the bottom of the Door Leaf. Any adjustments required, please check the Doorset Global Assessment or contact Datim's Technical Office on 01246 572277 for confirmation.



Note: 1. It may be necessary to reinstate the factory-machined 3° leading edge to allow the door to close against the perimeter seals.
2. Exposed intumescent seals must be replaced after any size adjustment has been made.

6. Q-Mark Plug Identification

bmtrada
Proud to be part of **element**

Fire Door Certification Scheme

Outer colour - period of fire integrity.
Inner/tree colour - status of manufacture.
Unique certified company's number.

Outer colour - Period of fire integrity (mins)

- 30 (Yellow)
- 60 (Blue)
- 90 (Orange)
- 120 (Black)

Inner/Tree colour

- Approved door leaf and/or frame* (FD30 & FD60 only). Intumescent strips not supplied. (Red)
- Approved door leaf and/or frame* (FD30 & FD60 only). Intumescent strips prepared for & supplied. (Green)
- Approved factory fitted glazing. (Orange)
- Complete certified factory hung doorset. (Silver)
- Certified installation of a complete factory hung doorset. (Gold)

*Where the frame and leaf are produced by separate Q-Mark companies, both the frame and leaf must have their own red/green plug.

For details of the scheme and list of certified companies visit www.bmtrada.com or call +44 (0) 1494 569960

If you require further information, please contact Datim Technical 01246 572277.

7. Additional Information

Fire Door Global Assessments can be made available.

Please contact Datim Technical on 01246 572277.

Additional Information can also be sourced from BS 8214: 2016 or the latest ASDMA Guidance Documents which are available from the ASDMA Website www.asdma.com

Or please call Datim Technical on 01246 572277.