

PROTECTA® FR DAMPER

INSTALLATION INSTRUCTIONS



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For guidance on fire sealing other types of services in the same aperture, please refer to the fire-sealing product's technical documents.

GENERAL PRODUCT DESCRIPTION

Protecta® FR Damper is used to fire proof ventilation ducts which penetrate fire rated constructions such as fire compartments and fire walls; preventing the passage of fire and smoke (surrounding and inside the ventilation duct).

The product consists of a steel casing and contains horizontal steel blades, treated with a technically advanced heat expanding graphite which closes off the whole damper in a fire.

The damper can be installed in the fire seal and the ventilation ducting attached, or the damper can be connected to the ducting and then fire sealed.

The aperture where the ducts pass through can include one or multiple ventilation ducts. One can also pass through other technical services such as cables, cable trays and pipes within the same aperture.

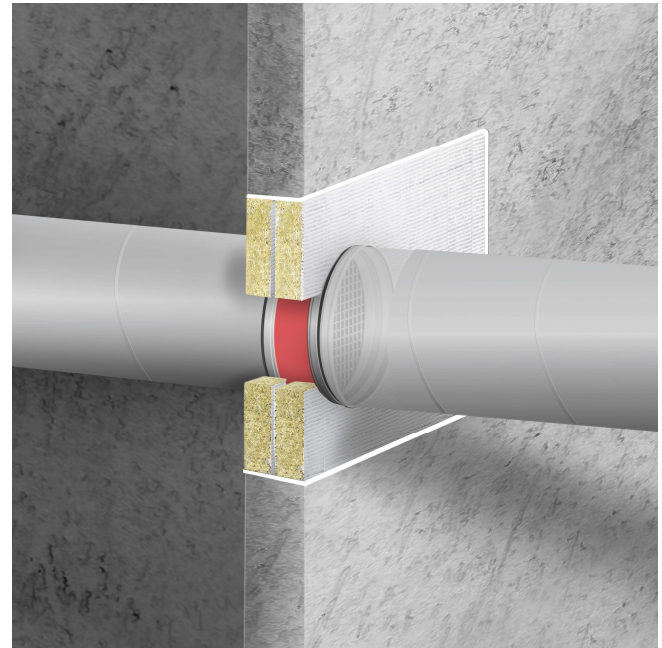
GENERAL GUIDE

Minimum separations and limitations:

Services can be sealed as specified in the detailed drawings. With FR Putty and FR Acrylic, only a single damper can be installed in an aperture, and minimum separation between apertures should be at least 30mm. With FR Board and EX Mortar, an aperture can include several services, and they may also be different. There must be sufficient distance between two ventilation ducts so that the fire seal can be constructed as stated in these installation instructions. Services should be a minimum of 25mm from seal edges, and the minimum separation between apertures should be at least 200mm.

Supporting constructions: Flexible walls must have a minimum thickness of 100mm and comprise steel studs or timber studs*) lined on both faces with minimum 2 layers of 12.5 mm thick boards. Rigid walls must have a minimum thickness of 100mm mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m³. Timber walls must have a minimum thickness of 100mm and comprise solid wood or cross-laminated timber. Rigid floors must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m³. Timber floors must have a minimum thickness of 150mm and comprise solid wood or cross-laminated timber. The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.

*) Timber studs: no part of the penetration seal may be closer than 100 mm to a stud, and minimum 100 mm of insulation of class A1 or A2 according to EN 13501-1 must be provided within the cavity between the penetration seal and the stud.



FIRE CLASSIFICATION TABLE

| Construction | Description | Classification |
|---|---|--------------------|
| Flexible and rigid walls with thickness ≥ 100 mm | $\leq \varnothing 400$ mm damper/duct with ≥ 200 mm mineral wool mat on both sides | EI 120 I+O (E 120) |
| | $\leq \varnothing 1250$ mm damper/duct with ≥ 500 mm mineral wool mat on both sides | EI 60 I+O (E 90) |
| | ≤ 600 mm high x 1000mm wide damper/duct with ≥ 500 mm mineral wool mat on both sides | EI 120 I+O (E 120) |
| | ≤ 1200 mm high x 1700mm wide damper/duct with ≥ 500 mm mineral wool mat on both sides | EI 90 I+O (E 90) |
| Timber walls with thickness ≥ 100 mm | $\leq \varnothing 400$ mm damper/duct with ≥ 200 mm mineral wool mat on both sides | EI 90 I+O (E 90) |
| | $\leq \varnothing 1250$ mm damper/duct with ≥ 500 mm mineral wool mat on both sides | EI 60 I+O (E 90) |
| Rigid floors with thickness ≥ 150 mm | $\leq \varnothing 400$ mm damper/duct with ≥ 150 mm mineral wool mat on top side | EI 120 I+O (E 180) |
| | $\leq \varnothing 1000$ mm damper/duct with ≥ 500 mm mineral wool mat on top side | EI 90 I+O (E 90) |
| | $\leq 600 \times 1000$ mm damper/duct with ≥ 500 mm mineral wool mat on top side | EI 60 I+O (E 90) |
| | $\leq 1000 \times 1000$ mm damper/duct with ≥ 500 mm mineral wool mat on top side | EI 90 I+O (E 90) |
| Timber floors with thickness ≥ 150 mm | $\leq \varnothing 400$ mm damper/duct with ≥ 150 mm mineral wool mat on top side | EI 90 I+O (E 90) |
| | $\leq \varnothing 1000$ mm damper/duct with ≥ 500 mm mineral wool mat on top side | EI 90 I+O (E 90) |

The mineral wool mat described has thickness ≥ 30 mm and density ≥ 80 kg/m³ with or without aluminium foil, attached according to the product's installation instructions. Rockwool or Mineral Wool (such as PM4) of the same or greater density and thickness may be used, but glasswool is not permitted. The I+O symbol means the dampers may be exposed by fire from either side.

INSTALLATION

Preparations

1. Before installing the fire seal ensure that the surface of all service penetrations and surrounding construction is wiped clean, dry, free from all loose contaminants, dust, oils and grease.
2. Where the fire seal is to be installed against surfaces that cannot tolerate direct contact; appropriate surface preparation should be made (contact Polyseam for guidance in these cases). For paints sensitive to sealing compounds, priming with a PVA primer is recommended.
3. The dampers can be fitted in the apertures either by connecting them to the ventilation ducts before the fire seal is started, or fixed in the apertures with the fire seal, and connected to the ducts afterwards. If the latter, the dampers can be fixed as follows:

FR Putty Cord – Friction fitted or cast in the supporting construction. However, if there is a small gap, these can be plugged with mineral fibres for a tighter fit.

FR Acrylic – Friction fitted with the backing material.

FR Board – Friction fitted with pieces of the boards, or install the boards first and make holes to friction fit the dampers afterwards.

EX Mortar – Friction fitted in the shutter board before casting the mortar. With larger heavier dampers, they can be held in place by hand, whilst trowelling a bead of mortar pre-mixed as a filler on top of the shutter surrounding the dampers, which will cure quickly and keep the dampers in place.

In walls, the blades inside the damper must be aligned horizontally.

Installation with Protecta FR Putty Cord in gaps less than 10mm

4. Follow the detail drawings on page 3.
5. To aid adhesion to porous substrates take a thumb size piece of the putty cord and gently rub over the required installation mounting area (especially important in soffit applications).
6. Place the Putty Cord around the damper so that it seals the damper to the wall or floor all the way round.
7. Press the Putty Cord into the wall or floor and damper with your thumbs to form a fillet or V shape joint, ensuring good contact is made all the way round the services and the wall or floor.

OR,

Installation with Protecta FR Acrylic in gaps of 10 – 30mm

4. Follow the detail drawings on pages 3 – 4.
5. When installing the sealant in gypsum boards, the exposed edges of the board can be wetted with water, or FR Acrylic diluted with water to prime the surfaces, helping adhesion and preventing excessive joint shrinkage.
6. When installing the backing material, cut this slightly oversize and insert into the gap ensuring a tight friction fit. Ensure correct depth is achieved.
7. Fill the gap or joint with Protecta® FR Acrylic to the required depth.
8. Apply the sealant generously to prevent air bubbles. Finish the bead with a moist spatula, pallet knife or brush.

OR,

Installation with Protecta FR Board in larger wall apertures

4. Follow the detail drawing on page 4.
5. When fitting boards into drywalls the coated side of the board should be flush with the surface of the wall on both sides. In seals wider than 2400mm, uninterrupted separating studs will be required at 2400mm centres or less.
6. When fitting boards in masonry or concrete walls, the boards can be installed back-to-back and positioned to either side of the construction or anywhere in between.
7. Cut the required boards to suit the aperture dimensions and type and size of service penetration(s). All exposed and cut edges of the board can be sealed with Protecta® FR Coating or Protecta® FR Acrylic prior to fitting which will act as an adhesive and ensure a smoke tight seal.
8. All joints, gaps or imperfections in the installed seal must be filled with Protecta® FR Acrylic on both sides.

OR,

Installation with Protecta EX Mortar in larger floor apertures

4. Follow the detail drawing on page 3.
5. If the mortar seal is required to be load bearing, please see instructions in the Technical Data Sheet.
6. Bare metal passing through the seal must be protected against corrosion using a suitable primer/protection system.
7. The seal can be positioned to either side of the floor or anywhere in between. However, when installing EX Mortar in hollow floor slabs or boards, level the fire seal with the soffit side. Ensure there is sufficient thickness of concrete below the void for the depth of mortar. Where this is not the case, tubular voids should be filled with stone wool normally the same thickness as the depth of the floor slab.
8. Install a shutter board to achieve the required thickness of mortar. Make sure that this achieves a very tight seal – any small openings should be sealed with Protecta® FR Acrylic.
9. The faces of the aperture may be moistened for better adhesion.
10. Pour clean water into a suitable mixing vessel and add the mortar to obtain the required consistency (normally 2 parts mortar to 1 part water). Mix steadily at low speed and ensure that any lumps of powder are fully dispersed. Always add the mortar to the water, do not reverse this mixing process. For different mix ratios and drying times, please refer to the EX Mortar's Technical Data Sheet.
11. Once the desired consistency is achieved pour or trowel the mortar onto the shutter board making sure that it flows into all corners and around services. Apply a firm pressure to the mortar to eliminate any trapped air bubbles. Build up to the required depth.

After the fire seal is installed;

1. If not already done, connect the ventilation ducts to the damper(s).
2. Insulate the duct towards the fire seal with a mineral fibre mat, with or without aluminium foil, in lengths given in the table on page 1. If the duct is ending in a wall then insulate on one side only.

