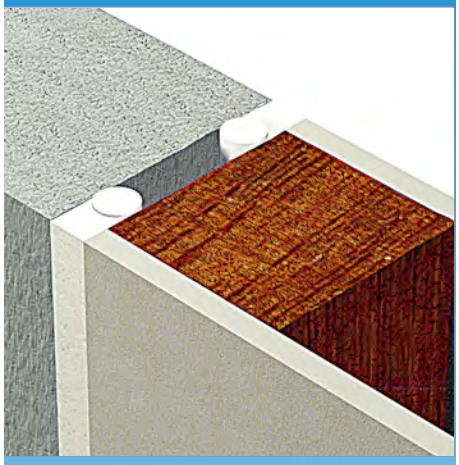
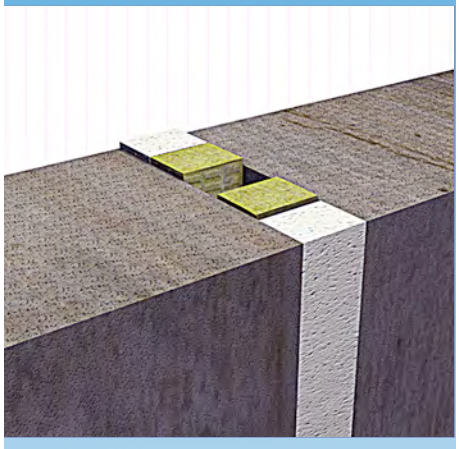
# The Passive Fire Protection Handbook

**Chapter 7: Penetration Seals - Promat PROMASEAL® Intumescent Acrylic Sealant**





***NOTE:*** *If the fire risk is from both sides of the gap, then the sealant should be installed on both sides.*

| Property | PROMASEAL® Intumescent Acrylic |
|---|---|
| Sealant base | Water-based acrylic sealant |
| Cure system | Water loss |
| Speed of Cure (23°C, 50% RH) | - |
| Skin over time (23°C, 50%RH) | Minimum 15 minutes |
| Overpaint times | 48 hours |
| Application temperature range | +5 to +30°C |
| Service temperature range | -20 to +70°C |
| Joint movement capability | ± 12.5% |
| Slump | Nil at joints up to 28mm |
| Elongation at break | N/A |
| Expansion in fire conditions | 300% |
| Shelf life when stored between 5°C to 30°C | 12 months |

Promat PROMASEAL® Intumescent Acrylic Sealant is supplied in a 310ml cartridge and has excellent adhesion to most types of surfaces. The sealant cures in air to form a non-hardening, tack-free seal, preventing the passage of smoke, toxic gases and fire.

## APPLICATIONS

Promat PROMASEAL® Intumescent Acrylic Sealant is suitable for sealing small gaps and holes in applications requiring up to 240 minutes fire resistance. Promat PROMASEAL® Intumescent Acrylic Sealant is suitable for most applications but Promat PROMASEAL® Silicone Sealant would be required for service temperatures over 70°C or where increased joint movement capability is needed. Acoustic data is available on this product, please contact the Technical Services Department on 01344 381 400.

## FIRE PERFORMANCE

The fire performance of Promat PROMASEAL® Sealants will vary according to the particular application, the surrounding substrates, the depth of sealant applied and the amount of sealant exposed to heat. Promat PROMASEAL® Sealants have been tested to the procedures adopting the criteria of BS 476: Part 20: 1987. Please note that if the fire risk is from both sides of the gap, then the systems described should be installed on both sides.

## ADVANTAGES (Promat PROMASEAL® Intumescent Acrylic Sealant)

- Good movement capability
- Tack-free
- Fire tested up to 240 minutes (integrity)
- Will not slump
- Halogen free
- Suitable for joints up to 50mm wide
- Flexible
- Good adhesion to most building products
- Can be overpainted (Intumescent Acrylic Sealant only)
- Suitable for internal and semi-exposed applications

## PAINTING

Promat PROMASEAL® Intumescent Acrylic Sealant can be overpainted after approximately 48 hours (dependent on ambient conditions). Consideration should be given to the flexibility of the finished painted coat when movement is expected. PROMASEAL® Silicone Sealant cannot be overpainted.

## INSTALLATION

Promat PROMASEAL® Sealants will adhere to most construction materials. If in doubt, the sealant should be applied to a small length of joint and examined, or the Promat Technical Services Department should be contacted. All surfaces should be clean, dry, oil and grease-free, although very porous surfaces may need to be wetted with clean water to prevent too rapid drying of the sealant before proper cure. Surfaces should also be free of dust and friable particles. It is advisable to tool the sealant firmly against the joint faces and the sealant can be dressed off with a wetted trowel.

## QUANTITY REQUIRED

Promat PROMASEAL® Sealants are packaged in 310 ml cartridges. To calculate the approximate number of cartridges required, use the following formula:

No. of cartridges required =

$$\frac{\text{Joint length (m) x joint width (mm) x sealant depth (mm)}}{310}$$

This does not allow for wastage. Please note that joint length is in metres (m) but joint width and sealant depth are in millimetres (mm).

## Chapter 7: Penetration Seals - Promat PROMASEAL® Intumescent Acrylic Sealant

Certifire Approval No CF 431

### Table 7a Promat PROMASEAL® Intumescent Acrylic Sealant - Approval Matrix

| Wall and Floor Installations | | | | | | |
|---|---|---|---|---|---|---|
| **Product Name** | | | **Promat PROMASEAL® Intumescent Acrylic Sealant** | | | |
| **Configuration** | | **Max. Joint Width (mm)** | **Minimum Seal Depth (mm)** | **Backing Material** | **Integrity (mins)** | **Insulation (mins)** |
| **Wall Constructions** | Aerated blockwork/ aerated blockwork | 50 | 25 | Ethafoam 50mm diameter | 240 | 60 |
| | Hardwood/ aerated blockwork | 50 | 25 | Ethafoam 50mm diameter | 60 | 60 |
| | Softwood/ aerated blockwork | 25 | 12 | Ethafoam 30mm diameter | 30 | 30 |
| | Steel/ aerated blockwork | 30 | 15 | Polyethylene 40mm diameter | 240 | 90 |
| | Steel/ aerated blockwork | 50 | 25 | Ethafoam 50mm diameter | 60 | 30 |
| | Brick/autoclaved aerated concrete | 25 | 10 | Polyethylene 30mm diameter | 240 | 30 |
| | Autoclaved aerated concrete/autoclave aerated concrete | 30 | 15 | Polyethylene 30mm diameter | 240 | 180 |
| | Autoclaved aerated concrete/autoclave aerated concrete | 20 | 10 | Polyethylene 20mm diameter | 240 | 240 |
| | Autoclaved aerated concrete/autoclave aerated concrete | 40 | 20 | Polyethylene 50mm diameter | 240 | 180 |
| | Autoclaved aerated concrete/autoclave aerated concrete | 50 | 25 | Polyethylene 60mm diameter | 240 | 180 |
| | Autoclaved aerated concrete brick | 15 | 10 | Polyethylene 20mm diameter | 240 | 0 |
| **Floor Constructions** | Aerated concrete/ aerated concrete | 20 | 10 | Polyethylene 30mm diameter | 240 | 120 |
| | Aerated concrete/ aerated concrete | 30 | 15 | Polyethylene 40mm diameter | 240 | 60 |
| | Aerated concrete/ aerated concrete | 40 | 20 | Polyethylene 50mm diameter | 240 | 60 |
| | Aerated concrete/ aerated concrete | 50 | 25 | Polyethylene 60mm diameter | 240 | 180 |
| | Softwood/ aerated concrete | 25 | 12 | Ethafoam 30mm diameter | 30 | 30 |
| | Hardwood/ aerated concrete | 50 | 25 | Ethafoam 50mm diameter | 30 | 30 |
| | Steel/ aerated concrete | 50 | 25 | Ethafoam 50mm diameter | 60 | 60 |
| **Application Technique:** For good adhesion the surfaces of the building element shall be free of any dust or grease and be suitably primed. | | | | | | |

*The concrete walls must be at least 150mm thick and the floors at least 230mm thick and have at least the same fire rating as that required for the penetration seal. Masonry and concrete gap faces will be within the density range of 450 to 2300kg/m$^3$, and gap faces will be free from loose or flaking material.*

A safety data sheet is available from the Promat Technical Services Department and, as with any other materials, should be read before working with the product. The product is not classified as a dangerous substance and so no special provisions are required regarding the carriage and disposal of the product to landfill. This can be placed in an on-site skip with other general building waste which should be disposed of by a registered contractor.

Fig 7.20.1

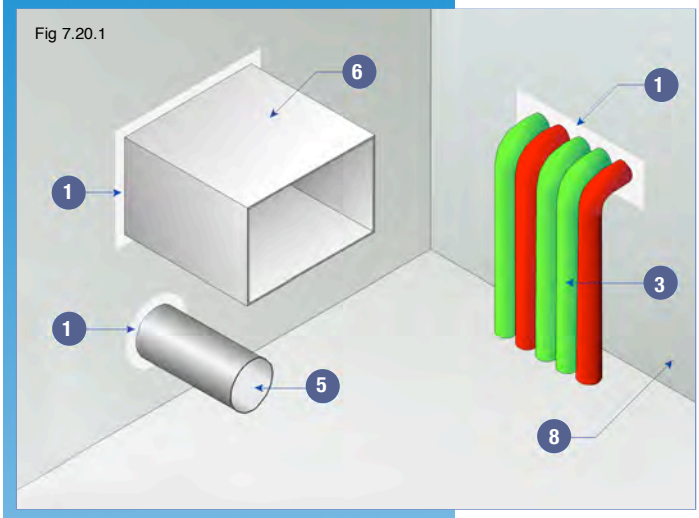
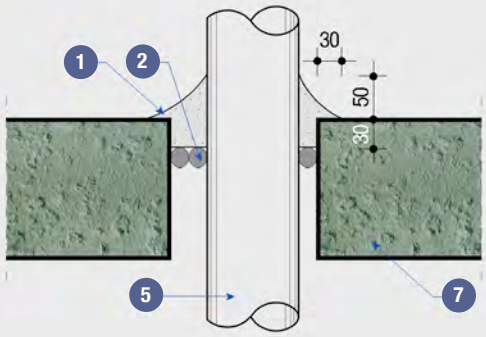
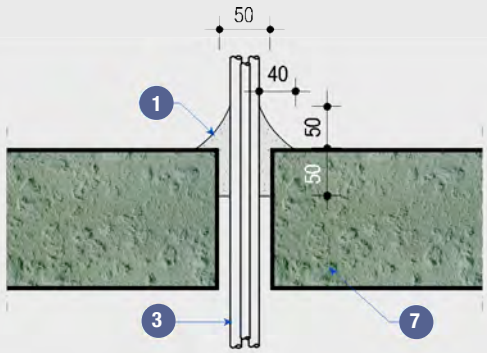



Fig 7.20.2



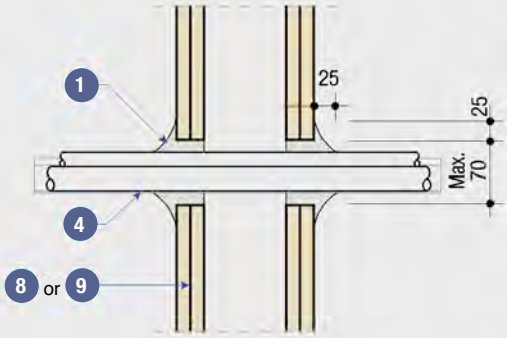

**Detail 1** – *Metal pipe through floors*

Fig 7.20.3



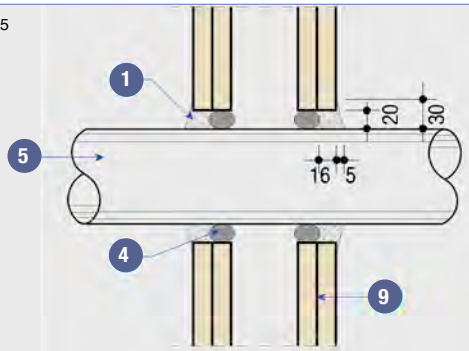

**Detail 2** – *Cables or tray through floors*

Fig 7.20.4




**Detail 3** – *Cable tray through masonry wall or partition*

Fig 7.20.5




**Detail 4** – *Metal pipe through partitions*

## PENETRATION SEALS

Promat PROMASEAL® Intumescent Acrylic or Silicone Sealant are ideal for sealing small gaps with or without penetrating elements. Supplied in a 310ml cartridge. They are also ideal for sealing around metal pipes, cables, conduits, bus ways and ducts which penetrate walls or floors.

They bond to masonry, concrete, calcium silicate board, plasterboard, metal and cable coverings and remains flexible after curing to accommodate thermal movement. PROMASEAL® Silicone Sealant is suitable for thermal movement of metal pipes.

The fire rating achieved will be limited to the fire rating of the building element through which the service passes. The size of the gaps around services that can be protected with Promat PROMASEAL® sealants have limitations. For metal pipes passing through floors the gap between the pipe and floor should be no greater than 38mm and for walls no greater than 20mm. For bundles of cables passing through floors, the maximum opening should be no greater than 50mm diameter (approximately 2000mm²) and through walls, 38mm diameter (approximately 1100mm²).

For cables on cable trays passing through walls, the maximum opening size should not exceed 70mm high x 440mm wide. In some installations when gaps are at the upper end of the range, sealant may be inclined to slump.

## TECHNICAL DATA

**Up to 120 minutes fire rating in accordance with the criteria of BS 476: Part 20: 1987, depending on application.**

1. Promat PROMASEAL® Intumescent Acrylic or Silicone Sealant.
2. Polyethylene backing rod.
3. Cables.
4. Cable tray.
5. Metal pipe.
6. Ventilation duct.
7. Concrete floor.
8. Masonry wall.
9. Lightweight partition.

## CONTROL JOINTS

Promat PROMASEAL® sealants are intumescent acrylic or silicone based gunable sealants designed for fire resistant sealing of joints and services penetrations against spread of smoke, toxic gases and fire for up to 240 minutes fire resistance.

Adhesion is excellent to most types of surface. They cure in air to form a non-hardening, tack-free seal.

When specifying or sourcing a sealant for a control joint, it is essential that the characteristics of each control joint are taken into account. Control joints are provided either in or between elements of construction to allow for differential movement caused by a number of factors including shrinkage, thermal expansion, service loads, creep or as means of joining pre-cast units.

Promat PROMASEAL® Intumescent Acrylic or Silicone Sealants vary in their movement capabilities. As a general rule, acrylic sealants have low movement properties (typically between 5% and 10%) and should not be used where movement is a high priority. For good adhesion the surfaces of the building element must be free of any dust or grease and be suitably primed. Please contact Promat Technical Services Department for details. For high movement joints please refer to the section on Promat PROMASEAL® Expansion Joint Strip.

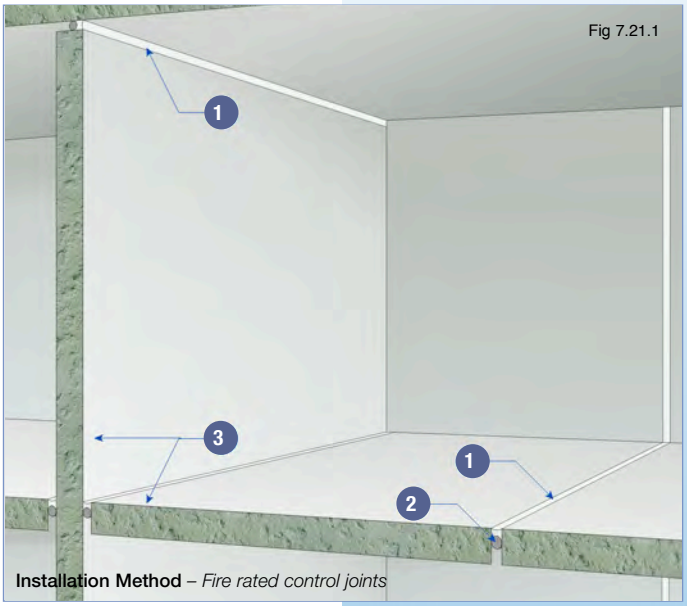
## TECHNICAL DATA

**Up to 240 minutes fire rating, integrity in accordance with the criteria of BS 476: Part 20: 1987.**

1. Typical Promat PROMASEAL® Intumescent Acrylic Sealant or Silicone, sealing depth as below. Please check with the Promat Technical Services Department to ensure correct use of the sealant specified:
2. Polyethylene backing rod.
3. Concrete wall or floor.
4. Light weight fire rated partitions.
5. Rock wool.

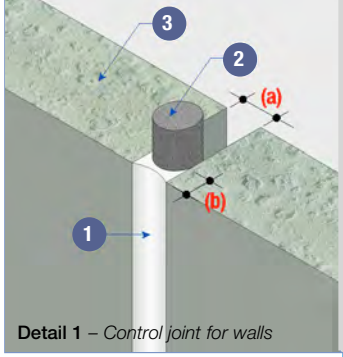
***NOTE:*** *For application on the unexposed face only, please contact Promat Technical Services Department.*

Fig 7.21.1



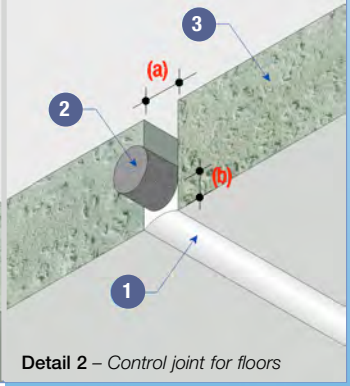

**Installation Method** – *Fire rated control joints*

Fig 7.21.2



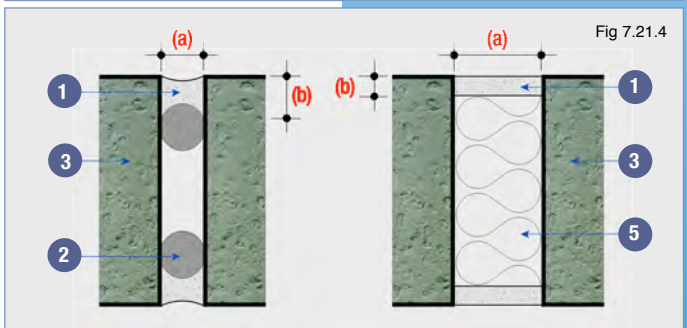

**Detail 1** – *Control joint for walls*

Fig 7.21.3



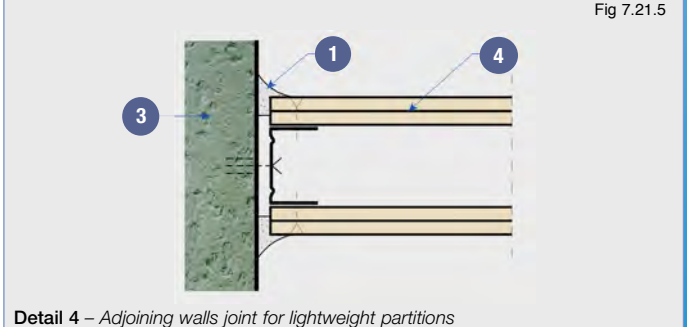

**Detail 2** – *Control joint for floors*

Fig 7.21.4




**Detail 3** – *Control joint for walls for fire from either direction*

Fig 7.21.5




**Detail 4** – *Adjoining walls joint for lightweight partitions*