

Introduction

PROMASEAL® Fire Pillows are used to limit the spread of fire through openings in fire resisting walls and floors where these are used for the penetration of cables or services. PROMASEAL® Fire Pillows are particularly useful where alterable fire seals are required.

PROMASEAL® Fire Pillows consist of strong, flexible, water resistant coated woven bags filled with intumescent materials. They are installed by laying the pillows in courses with minimum 50mm overlap between pillows as they are built up within the opening around services, and can be removed and re-built to accommodate changes of cables and services as required.

PROMASEAL® Fire Pillows are available in three sizes:

- Large (330mm long x 200mm wide x 45mm thickness)
- Small (330mm long x 200mm wide x 25mm thickness)
- Finger (330mm long x 50mm wide x 20mm thickness)

Wall seals - Installation Instructions

Shake the PROMASEAL® Fire Pillows to ensure an even distribution of materials within the bags. Lay the PROMASEAL® Fire Pillows into the opening with the shorter dimension of the pillow (pillow width) across the width of the opening, so that the pillows are laid in a brick-coursework type layout, with minimum 50mm overlap of the pillows between layers.

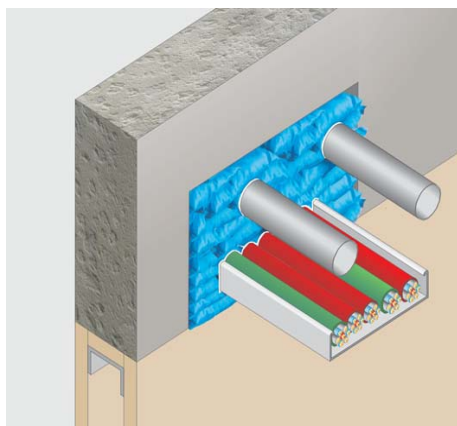
The PROMASEAL® Fire Pillows must be packed tightly into the opening around the service penetrations. Small Fire Pillows or Finger Fire Pillows may be inserted to fill any smaller holes and to pack gaps within cable trays or trunking.

When inserting the final pillows, in order to achieve a tight seal it is advisable that the pillows are pulled into position using the flap at the end of the pillow.

Services penetrating through the PROMASEAL® Fire Pillow seal must be supported at maximum 500mm from the faces of the seal using steel angles, hangers or channels.

Smaller but visible gaps such as gaps between penetrations and pillows can be sealed using PROMASEAL® Intumescent Sealant as required to ensure a cold smoke seal is achieved if required.

The PROMASEAL® Fire Pillows will react and expand in a fire situation and seal even the smallest of gaps to provide a fire and smoke seal, providing up to 120 minutes fire integrity performance in walls.



- Walls must be minimum 100mm thick for 60 minutes fire resistance, or minimum 200mm thick for 90 or 120 minutes fire resistance. The wall must have at least the same fire resistance as that required by the penetration seal. The minimum density for concrete walls is 780kg/m³, and 600kg/m³ for walls made of concrete blocks.
- It is essential that the fire pillows be replaced correctly after new services have been installed.
- A warning label should be applied to the completed seal to notify that the pillows form a fire rated barrier and should not be disturbed.
- PROMASEAL® Fire Pillow wall seals are non-load bearing.
- The maximum area of wall opening that can be sealed using PROMASEAL® Fire Pillows is 1m² with maximum dimensions of 1m x 1m.

For guidance on the quantity of Fire Pillows required to fill an opening, please refer to table 1 (small pillow) and table 2 (large pillow) on page 3.

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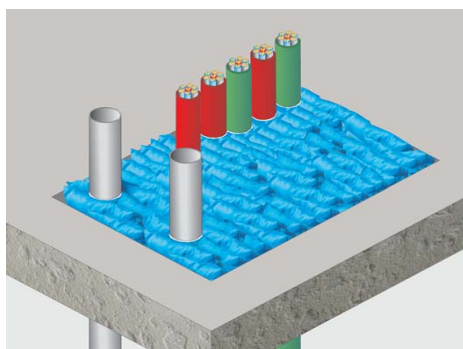
Floor Penetrations - Installation Instructions

Mechanically fix a supporting steel mesh (50mm-square with 5mm wires) into the soffit of the floor slab for the PROMASEAL® Fire Pillows to be laid into. Alternatively the sides of the mesh can be returned up the vertical sides of the floor opening and fixed into the sides of the floor opening or the top of the floor slab. The mesh must be fixed with M6 expanding steel anchors, with 50mm steel washers, at 200mm nominal centres. The steel mesh is locally cut away for the passage of services, but must be continuous around each penetration. A second alternative is for the mesh to be supported with minimum 2mm diameter steel wire at 200mm nominal centres around the perimeter of the floor opening. The wires are securely twisted around the mesh and fastened to the sides of the opening or top of the slab using M6 expanding steel anchors as detailed above.

Shake the PROMASEAL® Fire Pillows to ensure an even distribution of materials within the bags. Place the PROMASEAL® Fire Pillows vertically into the opening with the shorter dimension of the pillow (pillow width) across the width of the opening, so that the pillows are laid in a brick-coursework type layout, with minimum 50mm overlap of the pillows between layers.

The PROMASEAL® Fire Pillows must be packed tightly into the opening and around the service penetrations. Small Fire Pillows or Finger Fire Pillows must be inserted to fill any smaller holes and to pack gaps within cable trays or trunking.

Smaller but visible gaps such as gaps between penetrations and the pillows can be sealed using PROMASEAL® Intumescent Sealant as required to ensure a cold smoke seal is achieved if required. The PROMASEAL® Fire Pillows will react and expand in a fire situation, the Fire Pillows will expand to seal even the smallest of gaps and provide a fire and smoke seal, providing up to 120 minutes fire integrity performance in floors. See table 3 for fire resistance period and depth of PROMASEAL® Fire Pillow seal required.



- Floors must be minimum 100mm thick for 60 minutes fire resistance or minimum 150mm thick for 90 or 120 minutes fire resistance, the floor must have at least the same fire resistance as that required by the penetration seal. The minimum density for the concrete floor is 780kg/m³
- It is essential that the fire pillows be correctly replaced after new services have been installed.
- A warning label should be applied to the completed seal to notify that the pillows form a fire rated barrier and should not be disturbed.
- PROMASEAL® Fire Pillow floor seals are non-load bearing.
- The maximum area of floor opening that can be sealed using PROMASEAL® Fire Pillows is 1 square metre, with maximum dimensions of 1m x 1m.

For guidance on the quantity of fire pillows required to fill an opening, please refer to table 1 (small pillow) and table 2 (large pillow) on page 3.

Service penetrations

PROMASEAL® Fire Pillows are installed around electrical cables and non-combustible service penetrations. Cables should be mounted in steel cable trays or ladders, or mounted in steel trunking or conduits. Note: the inside of the trunking or conduit must be packed with PROMASEAL® Finger Fire Pillows for the depth of the seal.

Other services which may be fitted through the seals are steel or copper pipes and steel ducts fitted with steel dampers. The dampers must have shown by test to be suitable for this type of penetration seal installation and for the required fire resistance and orientation.

All penetrating services and dampers must be supported not further than 500mm from the face of the seal on each side of the seal so that the weight of any penetration is not taken by the PROMASEAL® Fire Pillows. Services should be supported via steel angles, hangers or channels.

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Table 1. Small Fire Pillow usage (330mm length x 200mm width x 25mm thickness pillows)

Width (mm)	Seal type	Length (mm)					
		100	300	500	700	900	1000
200	Wall	3	9	14	20	26	28
	Floor	3	7	12	17	22	24
400	Wall	6	17	28	40	51	56
	Floor	5	15	24	34	43	48
600	Wall	9	26	42	59	76	84
	Floor	7	22	36	51	65	72
800	Wall	12	34	56	79	101	112
	Floor	10	29	48	67	87	96
1000	Wall	14	42	70	98	126	140
	Floor	12	36	60	84	108	120

Table 2. Large Fire Pillow usage (330mm length x 200mm width x 45mm thickness pillows)

Width (mm)	Seal type	Length (mm)					
		100	300	500	700	900	1000
200	Wall	2	5	8	11	13	15
	Floor	2	4	6	9	11	12
400	Wall	3	9	15	21	26	29
	Floor	3	7	12	17	22	24
600	Wall	5	13	22	31	39	44
	Floor	4	11	18	25	33	36
800	Wall	6	18	29	41	52	58
	Floor	5	15	24	34	43	48
1000	Wall	8	22	36	51	65	72
	Floor	6	18	30	42	54	60

Table 3. Fire resistance - Depth of PROMASEAL® Fire Pillow seals (mm)

Seal type	Penetrating services	Integrity / Insulation	Fire Resistance Period (minutes)			
			30	60	90	120
Wall	None	Integrity & insulation	150	180	250	300
	Yes	Integrity & insulation	150	200	250	300
	Yes	Integrity only	180	180	250	300
Floor	None	Integrity & insulation	150	150	200	200
	Yes	Integrity & insulation	150	200	250	300
	Yes	Integrity only	150	150	200	200

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