FIRE COLLARS FOR PLASTIC PIPE PENETRATION

It has been shown that plastic pipes penetrating compartment walls or floors or other fire barriers present the potential for fire to pass from one compartment to another when the plastic melts and burns away. All Building Regulations specify that the fire rating of the separating building element between compartments must not be impaired by services that pass through them.

The acceptable methods of maintaining this fire rating will vary, however by far the most acceptable is to install fire collars on the plastic pipes.

It is essential that the correct fire collars are specified and that they are installed in accordance with the manufacturers instructions. The most common type of pipe collar is surface mounted. Surface mounted collars (also known as retrofit collars) are fixed around the plastic pipe, onto the surface of the building element. For floor slabs this is on the underside of the slab. For walls, they are generally placed on both sides to protect against fire exposure from either direction.

If it can be shown that the fire can only come from the one side, then the fire collar may be placed on the fire attack side of the wall provided that test data is available to prove the application achieves the required fire rating. Promat PROMASEAL® UniCollar® can be used as a retrofit collar.

IMPORTANT NOTE:

Because of the diversity of applications and the on-going test programme, the following notes in this section are of a general nature only and it is essential to confirm that the fire collar specified or being installed is approved for use on the size and type of plastic pipe, the orientation and type of service. Always contact the Promat Technical Services Department to confirm the specification is correct.

For HDPE pipes penetrating a 170mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7t

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	3.5	240	240
56	3.5	240	240
63	3.0	240	180
75	4.0	240	240
90	3.5	240	180
110	5.0	240	240
125	4.9	120	90
150	6.2	120	90
150*	6.2	240	180
200	6.2	120	120

** The penetration was protected by two Promat PROMASEAL® UniCollars, both fitted on the exposed side*

For uPVC pipes penetrating a 170mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7u

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	2.2	240	240
50	2.5	120	120
50	2.7	240	180
65	2.8	120	120
80	3.2	120	120
100	3.2	240	240
150	4.2	180	180

The Passive Fire Protection Handbook

Chapter 7: Penetration Seals - Promat PROMASEAL® UniCollar®

PRODUCT DESCRIPTION

Promat PROMASEAL® UniCollar® is a patented method of protecting plastic pipes which pass through fire rated walls and floors. The system is supplied in a boxed continuous strip, 2190mm long, which is simply cut to length on site, and attached to the wall or floor using clips (supplied), and suitable screws, bolts and anchors, if necessary.

APPLICATIONS

Promat PROMASEAL® UniCollar® is used to maintain the fire resistance of walls or floors when they are penetrated by combustible pipework made from uPVC, HDPE, PP and many other materials.

FIRE PERFORMANCE

Promat PROMASEAL® UniCollar® has been extensively tested in several countries to meet both national and international testing regimes, achieving fire resistance levels up to 240 minutes in walls and floors.

ADVANTAGES

- Fire tested up to 240 minutes in accordance with the principles of BS 476: Part 20
- Tested on a variety of pipe materials
- One product for pipe sizes from 43mm up to 200mm
- Packaged in single ordered box for lower inventory cost
- Continuous strip form
- Tools and fixings supplied
- Quick and easy to install

UNPACKING AND INSTALLATION METHOD

Detail A

Open box at contents lid. Pull out accessories. Pull out only enough Promat PROMASEAL® UniCollar® strip to protect the pipe in question.

Detail B

Lay a measuring tape on the intumescent face of the collar and cut it at marked measuring points according to the pipe size. The length required can also be determined using the chart provided and counting the segments or holding the strip around the pipe.

Detail C

Bend the intumescent side of the collar 2 or 3 times until it snaps.

Detail D

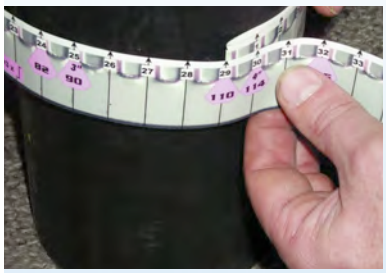
Shape the collar to fit the pipe and bevel the intumescent edge for close fit.

Detail E

Wrap the collar around the pipe and clip the first bracket into slots on both ends.

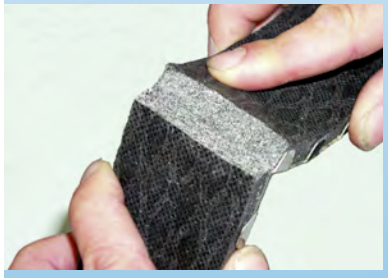
Detail F

Complete other brackets and fix the collar onto floor/wall.



Detail A

Detail B



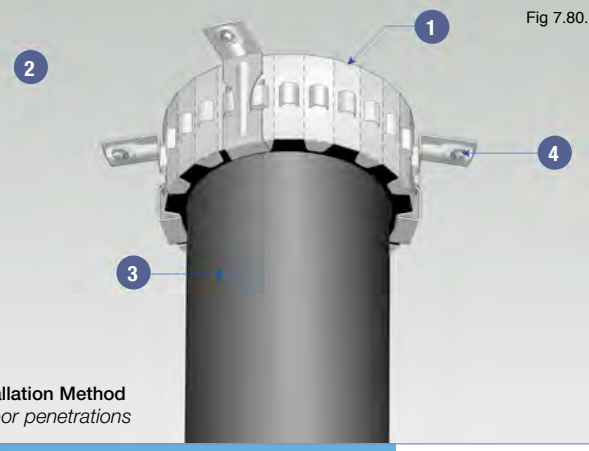
Detail C

Detail D

Detail E

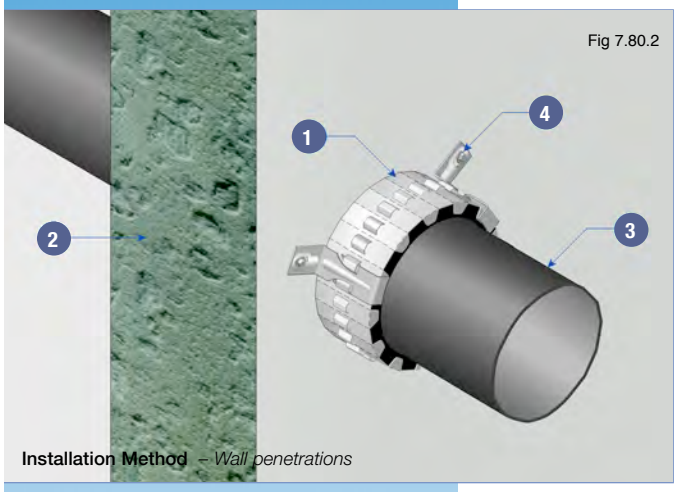
Detail F

Fig 7.80.1



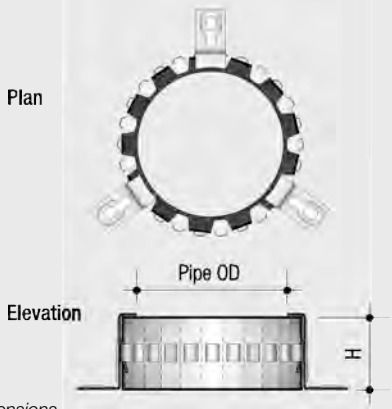
Installation Method
– Floor penetrations

Fig 7.80.2



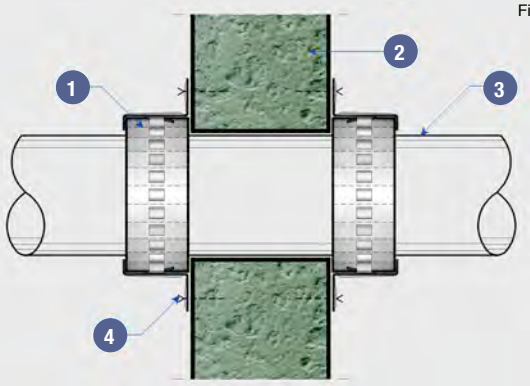
Installation Method *– Wall penetrations*

Fig 7.80.3



Detail 1 *– Dimensions*

Fig 7.80.4



Detail 2 *– Wall penetration*

INSTALLATION

Promat PROMASEAL® UniCollar® comes in a boxed strip. The length of collar can be gauged in several ways. Refer to chart as shown if the diameter of the pipe is known. If not, the circumference of the pipe can be found using a tape measure.

The strip of Promat PROMASEAL® UniCollar® is then fixed into place around the plastic pipe with metal restraining brackets (supplied) which are bolted or screwed into the surrounding surface.

DELIVERY FORM

Each box of Promat PROMASEAL® UniCollar® comprises of a 2190mm strip (146 segments) plus fixings.

The chart below shows the suggested length of strip required for each size pipe and how many casing segments to use. At the time of publication test data is available for pipe sizes up to 200mm.

Table 7I

Nominal pipe (mm)	43	50	55	63	69	75	83
Casing segments	15	17	18	20	21	22	24
Approx. collars per box	10	8.5	8	7.5	7	6.5	6
Nominal pipe (mm)	**90**	**110**	**114**	**125**	**140**	**160**	**200**
Casing segments	25	29	30	33	36	40	49
Approx. collars per box	6	5	5	4.5	4	3.75	3

TECHNICAL DATA

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

1. Promat PROMASEAL® UniCollar®.
2. Concrete wall, floor and fire rated partitions.
3. Plastic piping e.g. Polyethylene (PE) Polyvinylchloride (PVC), Polypropylene (PP).
4. Attachment with suitable anchor fixing.

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 board. 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. It can be placed in an on-site skip with other general building waste which should be disposed of by a registered contractor.

Assessment No: WFRA C91611b and WFRA 21818

For HDPE pipes penetrating a 120mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7m

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	3.5	240	180
56	3.5	240	180
63	3.0	240	180
75	4.0	240	180
90	3.5	240	180
110	5.0	240	180
125	4.9	120	90
150	6.2	120	90
150 *	6.2	240	180
200	6.2	120	120

** The penetration was protected by two Promat PROMASEAL® UniCollars both fitted on the exposed side*

For HDPE pipes penetrating a 120mm fire rated plasterboard partition protected by one Promat PROMASEAL® UniCollar® on each side

Table 7n

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	3.0	180	180
50	3.0	240	180
63	3.0	180	180
90	3.5	240	180
110*	5.0	120	120
200	7.5	120	30

** The penetration was protected by one Promat PROMASEAL® UniCollar, on the exposed side only*

For PP pipes penetrating a 120mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7o

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
110	5.0	240	240

Chapter 7: Penetration Seals - Promat PROMASEAL® UniCollar®

Assessment No: WFRA C91611b and WFRA 21818

For uPVC pipes penetrating a 120mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7p

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	2.2	240	240
50	2.5	120	120
50	2.7	240	180
65	2.8	120	120
80	3.2	120	120
100	3.2	240	180
150	4.2	180	120

For uPVC pipes penetrating a 120 minute fire rated plasterboard partition protected by one Promat PROMASEAL® UniCollar® on each side.

Table 7q

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	2.4	120	120
50	2.5	240	120
65	3.0	240	120
80	3.2	120	120
100	3.0	120	90
150	4.0	120	90

Chapter 7: Penetration Seals - Promat PROMASEAL® UniCollar®

Assessment No: WFRA C91611b and WFRA 21818

For HDPE pipes penetrating a 150mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7r

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	3.5	240	180
56	3.5	240	180
63	3.0	240	180
75	4.0	240	180
90	3.5	240	180
110	5.0	240	180
125	4.9	120	90
150	6.2	120	90
150 *	6.2	240	180
200	6.2	120	120

** The penetration was protected by two Promat PROMASEAL® UniCollars, both fitted on the exposed side*

For uPVC pipes penetrating a 150mm thick concrete floor slab protected by one Promat PROMASEAL® UniCollar® on the exposed face.

Table 7s

Nom. pipe size (mm)	Wall thickness (mm)	Integrity (min)	Insulation (min)
40	2.2	240	240
50	2.5	120	120
50	2.7	240	180
65	2.8	120	120
80	3.2	120	120
100	3.2	240	180
150	4.2	180	180