Promat

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PROMASEAL® UniCollar®

for Cable and Pipes Penetration Seals

Penetration Seals

Fire, Floor Waste & Slab Penetration Collars For Plastic Pipes

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

The acceptable methods of maintaining this fire resistance will vary between countries and authorities. However, by far the most common method is to install fire collars around the plastic pipes. All fire collars are designed to prevent the spread of fire where plastic pipes and cables penetrate fire rated elements thus maintaining the Fire Resistance Level (FRL) of the element. They all consist of intumescent compounds which, exposed to fire, expand under pressure to seal off penetrations. The unique and patented opening mechanism of Promat retrofit collars allows installation before or after pipe work is installed. These collars contain no asbestos, fibres or solvents and are unaffected by water and atmospheric conditions.

It is of particular importance to note that for plastic pipe penetrations, care must be exercised when accepting test reports or assessments. Research has shown that different types of plastics behave in different ways under fire conditions. Test data should reflect the following:

1. The Type of Plastic

Building materials made of different type of plastics, such as high density polyethylene (HDPE), polyvinyl chloride (PVC), unplasticised polyvinyl chloride (uPVC), polyethylene (PE), polypropylene (PP), acrylonitrile butadiene styrene (ABS) etc, are commonly used in modern buildings. These plastics soften, melt or burn at different rates and temperatures. Fire stopping products particularly collars have to be shown capable of coping with all variables, including the full range of diameters, in all different plastic thicknesses, in both horizontal and vertical orientations.

2. The Diameter of Pipe

The bigger the pipe the more difficult it is to seal, mainly due to the rate of the intumescent reaction for the fire stopping material to seal the openings.

3. The Orientation of Pipe (Wall or Floor)

Pipes tested in a floor will not necessarily behave in the same manner when tested in a wall and the reverse equally applies.

4. The Wall Thickness of Pipe

Thin wall pipes collapse fast and fire collars have to react swiftly to close the opening. Thick walled pipes collapse slowly and fire collars have to retain sufficient expanded intumescent product to seal openings over a longer period of time.

5. The End Conditions During The Test

Pipes that have been fire tested with both the end inside and the end outside of the test furnace and capped (sealed) must only be protected with these fire collars when the end conditions on site are similar.

It is generally accepted that if a pipe is tested with the end inside the furnace capped, and the end outside the furnace uncapped, that this test would cover storm waste, sewage and water supply. If pipes are tested with both ends capped, this would represent a less onerous position, e.g. pipes that have taps or valves or water traps in line.

The Promat range of fire collars are purpose made of plastic (cast-in) painted steel shells (retrofit) with integral mounting points, containing a specially formulated intumescent material. They prevent the passage of fire through gaps in compartment walls and floors caused by the collapse and/or melting of combustible services in the event of fire. It is essential that the correct fire collars are specified and that they are installed in accordance with Promat instructions.

As a general rule there are THREE (3) types of collars:

Surface Mounted (Retrofit) Type

Surface mounted collars (also known as retrofit collars) are fixed around the plastic pipe, onto the surface of a 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 one side, then the fire collar may be placed on the fire risk side of the wall provided that test data is available to prove the application achieves the required fire rating. PROMASTOP® UniCollar® (with the code of UC) and PROMASEAL® fire collars (with the code of CFC, FC or FCS) can all be used as retrofit collars.

Insert Type

Insert collars are placed around the pipes, within the thickness of the wall or floor. Generally, only one collar is required to protect from either direction for walls.

PROMASEAL® Wall Collars (with code FCW) can be used as insert-wall collars. These collars sit within the cavity of lightweight partitions, ideal for use where space is at a premium. This is particularly useful for work in shafts or any area where access for installation is restricted to one side.

PROMASTOP® UniCollar® may also be used on some types of pipe for these applications.

Cast-in Type

Cast-in collars are used only in floor slabs and are placed into position, on the formwork, before a slab is poured. This method means accurate setting out of all plumbing work is vital.

PROMASEAL® fire collars (with the code of Hi-Blu, Green or PSS), can be used as cast-in collars. For use with floor waste, there are two special collars, PROMASEAL® cast-in type collar (FWS) and retrofit type collar (FWR).

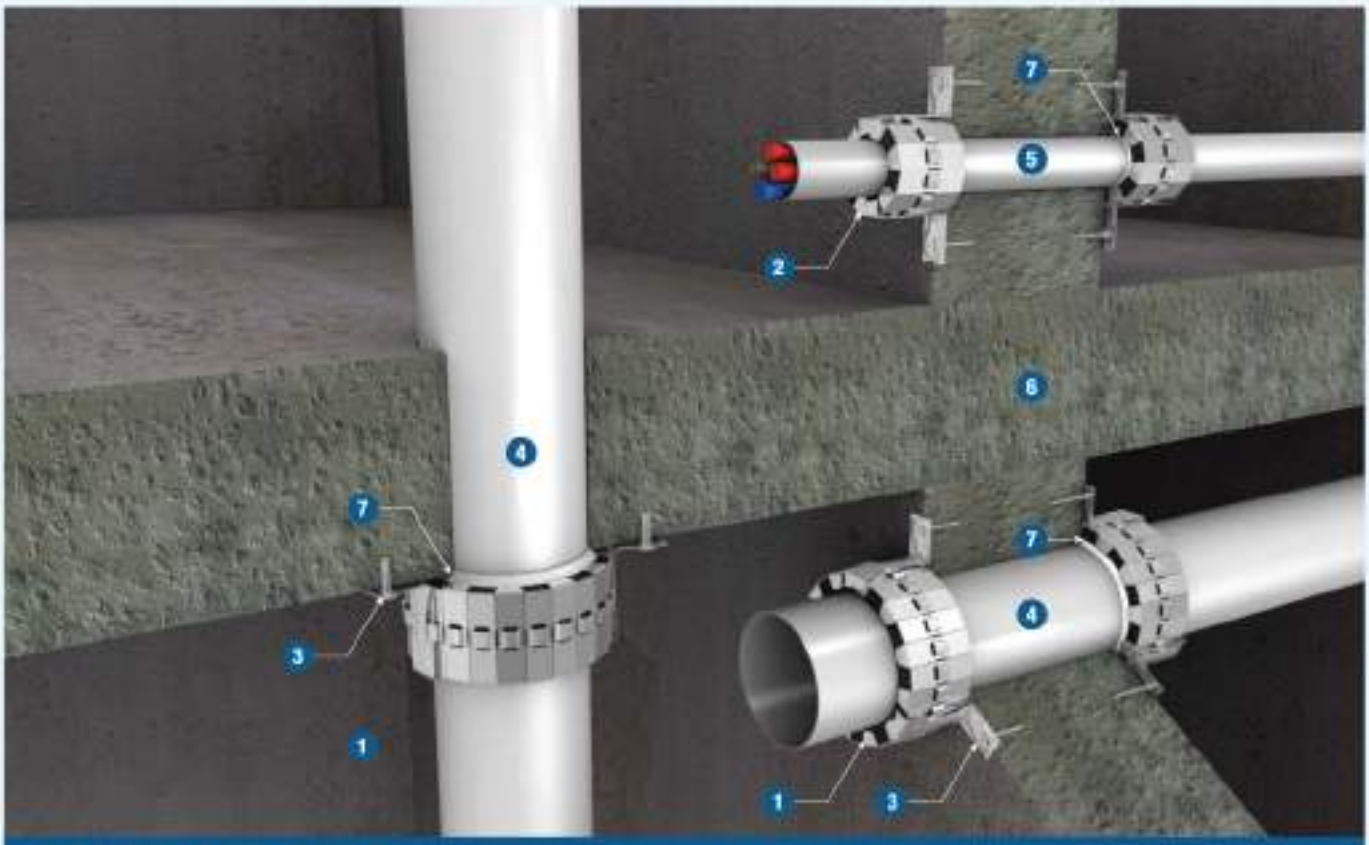
Recommended Specification

Where appropriate, the specified plastics penetrations through floor/wall openings should be properly fire stopped using a PROMASTOP®/PROMASEAL® collar capable of providing fire resistance of -/240/-, -/240/240, -/180/180 or -/120/120 or as specified in the appropriate regulations or by the relevant regulatory body, when tested and assessed in accordance with AS1530: Part 4 or BS476: Part 20: 1987 as applicable. BCA 2008 no longer allows the waiving of insulation criteria for plastic pipe penetrations as a Deemed to Satisfy solution. Such waiving is now treated as an alternate solution. Installation of any fire stopping product should be carried out according to the manufacturer's recommendations. Please consult Promat for further details.

IMPORTANT: Because of the diversity of applications and Promat's on-going test programme, the above information and 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 Promat to confirm the specification is correct.

PROMASEAL® UniCollar®

UC



TECHNICAL DATA

For FRL up to -/240/240, insulation criteria will vary depending on type and sizes of the pipes, and the type of penetrating elements.

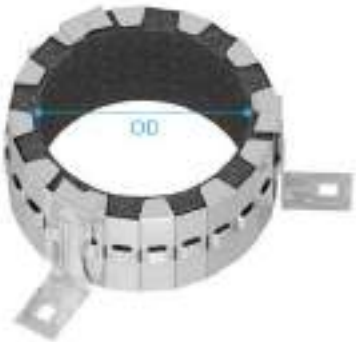
1. PROMASTOP® UC UniCollar®
2. PROMASEAL® CFC Conduit Collar (see separate PDF for dimensions)
3. Bracket fixed by attachment with suitable anchor, i.e. steel expanding fasteners, or laminating screws when fixing to drywall construction.
4. Plastic piping, e.g. HDPE, uPVC etc.
5. Conduit pipe with or without cables
6. Masonry or concrete floor slab/wall or drywall construction
7. PROMASEAL® AN Acrylic Sealant to act as a seal against the passage of cold smoke (not required for fire performance if the movement of cold smoke is not being considered)

Dimensions Guide

Pipe size (mm) nominal (OD) (inches)	43 1.24	50 1.5	56 –	63 2	69 –	75 2.5	83 –	90 3
Casing segments	15	17	18	19	20	21	22	24
Approx. collars per box	10	8.5	8	7.5	7.5	7	6.5	6
Brackets per collar	2*	2*	2*	2*	2*	3	3	3

Pipe size (mm) nominal (OD) (inches)	110 –	114 4	125 –	140 5	160 6	200 –
Casing segments	25	29	30	33	36	40
Approx. collars per box	6	5	5	4.5	4	3.75
Brackets per collar	3	3	3	5	5	5

All figures in the above table are tested on both floor and wall applications.
*3 brackets are recommended for framed walls if framing is not available to screw into.



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