Raychem Heat-shrinkable Wall Feedthroughs for Cables with Plastic and Rubber Oversheaths

Power cables brought into buildings underground create a water and gas sealing problem at the cellar wall. Water in the cable trench can flow into the building unless a reliable seal is made between the hole in the concrete and the cable oversheath. An effective bond is required both to various types of concrete wall and mortar, and to polymeric cable materials. In addition, the sealing system must withstand thermal expansion and contraction of the cable over long time periods, as well as soil-setting. Practical considerations place further demands on the design. The product should be suitable for immediate use, but also capable of being buried in the ground for future requirements. A re-usable system is desirable to simplify cable replacement.

Sealing between the feedthrough and the wall

The Raychem feedthrough consists of a galvanized steel spiral over which a longer heat-shrinkable tubing is installed. The resulting corrugated spiral surface acts as a labyrinth-like path to obstruct moisture flow between the feedthrough and the wall. An external coating of special primer further improves adhesion to various types of concrete. The steel spiral makes the feedthrough rigid enough to permit installation during initial concrete pouring. When cables are to be taken through existing walls, quick-drying cement may be used to fix the feedthrough in place.

Sealing between the cable and the feedthrough

The heat-shrinkable tubing extends beyond the spiral at each end and is internally coated with sealant. The ends are covered with protective caps to allow the feedthrough to be left in the ground for later use. When installing the cable, these are pulled off and the ends of the tubing heated with a commonly available gas torch. This causes the tubing to shrink in diameter to fit the cable, at the same time as the sealant melts and flows. The ease and reliability of this sealing technique has been proven in millions of Raychem buried cable accessories and corrosion protection systems.

Cable replacement

Our design allows removal of the cable and replacement with any of a range of sizes of new cable.

Raychem
from TE Connectivity

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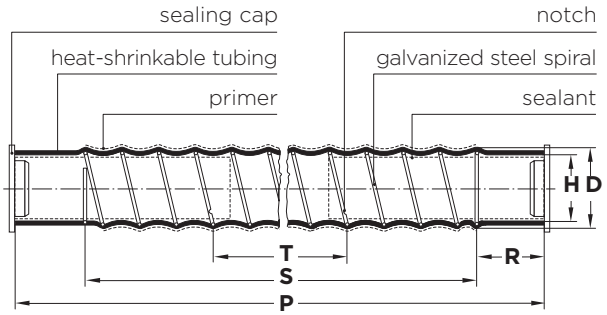
Performance

Tests at independent laboratories and our facilities have demonstrated the wall feedthrough's ability to establish an effective seal against water and gas. Typically the sealing surface between cable and feedthrough withstood a differential pressure of 0.02 MPa applied inside the feedthrough and at least 0.1 MPa acting externally. When the feedthrough was properly installed in the wall, the sealing interface between feedthrough and wall withstood at least 0.1 MPa gas or water pressure. These results are confirmed by over 25 years' reliable service of installed units, and recognition by trade and engineering institutes such as, for example, the German DVGW (Deutscher Verein des Gas und Wasser Faches e.V.). A detailed test report is available. Raychem wall feedthroughs are one result of our capability in materials science. As one of the leaders in heat-shrinkable materials and one of the largest cable accessory makers, we offer a wide range of sealing, corrosion protection, repair and insulating systems, each specifically developed to meet the needs of power supply and construction industries.

Heat-shrinkable Tubing Properties for Wall Feedthrough		**Test Method**		**Material Requirements**
Tensile Strength		ISO 37		14 MPa min.
Ultimate Elongation		ISO 37		350% min.
Hardness		ISO 868		50-70 shore D
Low Temperature Flexibility	4 hours at -40°C ±3°C	ASTM D2671	Procedure C	No cracking
Water Absorption		ISO 62	Method 1	0.25% max. after14 days at 23°C ±2°C
Solvent Resistance	7 days at 23°C ±2°C in transformer oil to VDE 0370	ISO 1817		
	Tensile Strength	ISO 37		14 MPa min.
	Ultimate Elongation	ISO 37		300% min.
Additional Properties	Further details are given in Raychem specification PPS 3010/19			

Dimensions



Ordering Information

Raychem Part Number	Application Range (diameter)	**H** a min.	b max.	**D** ±3	**P** +20 – 35	**R** ±20	**S** ±15	**T** ±15
EPAF 2004	8- 14	16	8	23	700	90	520	330
EPAF 2008	12- 25	28	10	36	700	90	520	330
EPAF 2010	18- 36	41	16	50	800	90	620	430
EPAF 2020	29- 56	59	26	70	700	90	520	330
EPAF 2030	55- 98	106	54	120	760	115	530	330

Notes: 1. Drawing depicts typical part
2. Dimensions in millimeters
a = as supplied
b = after free recovery

Raychem wall feedthroughs are supplied complete with detailed installation instructions.

For further details on this or any other Raychem products please contact your local sales representative.

TE Energy – innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, lighting controls, power measurement and control.

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