

Heat-shrinkable joints for flexible cables up to 1 kV

In modern heavy industries such as open-cast mining, ship-building, steelworks and chemical plants flexible cables used for power supply have to withstand rough handling and prolonged exposure to abrasive materials and fluids. To meet the need for a fast, dependable connection and repair technique for such cables, we developed a joint system which is slim and flexible enough to allow spooling of the cable, quick to install and resistant to aggressive liquids and mechanical abuse.

Our joints for flexible cables meet Raychem specification PPS 3013. Their performance and ease of use are a result of our capability in materials science and long experience in the field of power engineering.

Ease of installation

The connector insulating sleeves and outer joint sleeve are made of tough, flexible polymers specially developed and cross-linked to give them an „elastic memory“. This enables the joint to be supplied as a kit of ready-expanded components. When positioned over the joint and heated, each component shrinks to a pre-determined diameter tightly fitting the cable and automatically providing the correct insulation thickness in one operation. Shrinking requires no special skills and can be carried out in a few minutes with a commonly available gas torch. The heat-shrinkable feature also means each kit can accommodate a range of cable sizes. Requiring no special equipment and eliminating curing delays, installation can be made on-site and the joint taken into service immediately.



Moisture sealing

The components of the joint are supplied internally pre-coated with special adhesives. The heat of installation causes the adhesive to melt and flow under the shrinking action, bonding to the cable insulation and making a robust seal against water and chemicals. Heat-sensitive paint on the outer joint sleeve provides the installer with an additional check that he has applied sufficient heat to activate the adhesive.

Flexible and abrasion resistant

Tough, pliable materials and a small overall diameter make Raychem flexible joints suitable for use on trailing cables. Their resistance to the stress and strain of repeated winding onto take-up reels has been confirmed by a rigorous Raychem test programme and reliable service in demanding field conditions in many countries.

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Flexible heat-shrinkable sleeves are first slipped over the cable core ends and the conductors jointed. The sleeves are then shrunk down over the connectors to insulate them and seal out fluids and chemicals.



After the joint area has been smoothed out with strips of electrical filler, the adhesive-coated outer sleeve is shrunk into place to restore the cable oversheath and complete the joint.

Minimum performance for Raychem joints for flexible cables up to 1 kV

Test Sequence		Result
Insulation Resistance	between conductor and grounded water bath	$\geq 1000 \text{ M}\Omega$
Impact	4 kg wedge dropped 6 times from 2 m	no functional damage
A.C. Voltage Withstand	4 kV for 15 min	no breakdown and no flashover
Load Cycling	63 cycles 5h heating, 3h cooling Conductor temperature as for cable specification	pass
A.C. Voltage Withstand	repeat	no breakdown and no flashover
Load Cycling	as above with cable in 1 m water, oversheath removed	pass
Insulation Resistance	repeat	$\geq 1000 \text{ M}\Omega$
Flexibility	internal test method	no electrical or mechanical failure
Insulation Resistance	repeat	$\geq 1000 \text{ M}\Omega$
A.C. Voltage Withstand	repeat	no breakdown and no flashover
Abrasion	DIN 53516	less than cable oversheath
Flame Resistance	IEC 60332	self-extinction
Notes:	1. All voltages are phase to ground 2. Further details are given in Raychem specification PPS 3013	

Ordering information

Raychem joints for flexible cables up to 1 kV are available for shielded and unshielded cables with 2 to 5 cores and cross-sections up to 120 mm². A full selection table is available on request.

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

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale. ALR, AMP, AXICOM, B&H, BOWTHORPE EMP, CROMPTON INSTRUMENTS, DORMAN SMITH, DULMISON, GURO, HELLSTERN, LA PRAIRIE, MORLYNN, RAYCHEM, and SIMEL are trademarks.



Energy Division – a pioneer in the development of economical solutions for the electrical power industry. Our product range includes: cable accessories, connectors & fittings, electrical equipment, instruments, lighting controls, insulators & insulation enhancement and surge arresters.



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