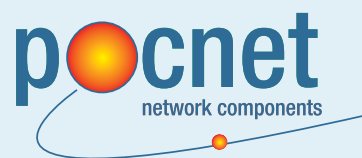




# Speed™ line Joints



Accessories for high voltage  
polymeric cables

## About us

Prysmian Cables & Systems is a world-class multinational company. Founded in 1872 as "Ditta Pirelli & C.", it has achieved a leading position for more than a century of operations in its two key international markets - "Energy Cables and Systems" and "Telecom Cables & Systems".

Prysmian Cables and Systems is the world's largest manufacturer of power and telecommunications cables, with 54 manufacturing facilities in 22 countries in five continents and a market share in excess of 10%.

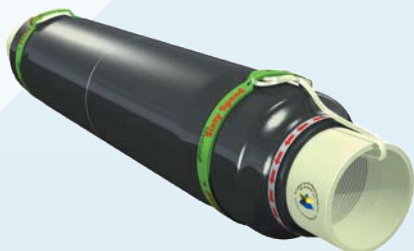
Prysmian Energy Cables and Systems is a global solutions provider, offering a wide range of integrated solutions, such as cable systems, system design and engineering, project management, installation and post-sale services.

Prysmian Energy Cables and Systems concentrates on continuous product innovation and on achieving a competitive edge by focusing on research and development. This is done through Prysmian's own R&D centres and by co-operating with universities, scientific institutions and above all, our customers. Prysmian's worldwide organisation makes and delivers advanced technological solutions to customers anywhere in the world.

Prysmian started manufacturing insulated cables for electric power distribution around 1880 and soon afterwards initiated the development of the first cable accessories.

Prysmian's very long and successful experience in HV and EHV cable systems have led to the development of a comprehensive range of accessories for extruded dielectric cables.

A relentless R&D effort focused on rubber compounds as well as on electrical design has created accessories for all applications, based on pre-moulded and factory tested joint sleeves and termination stress cones that are recognised worldwide for their unsurpassed reliability.



## Joint core basics

The origin of the current product range of accessories for HV polymeric cables dates back to 1978 when Prysmian, strong of its very long and successful experience in Fluid Filled cable systems developed its first generation of accessories for extruded cable systems.

These accessories are based on pre-moulded electrical components, i.e. stress cones for terminations and one-piece sleeves for joints.

Pre-moulded sleeves and stress cones are currently available for HV polymeric cables from 72.5 kV up to 525 kV and adopt the same design at all voltage classes.

Thanks to its outstanding electrical and mechanical properties, ethylene-propylene rubber (EPR) has been favoured for the rubber mouldings manufacture. After a thorough research on rubber compounds properties, Prysmian developed a proprietary formulation with superior characteristics that is manufactured in-house, which guarantees an unsurpassed reliability of the products.

The mechanical properties of Prysmian special compounds ensure a constant pressure at the cable/moulding interface during the entire lifetime of the accessories, whilst the electrical design has been optimised to minimise the electrical stress concentration in the same area. Prysmian one-piece pre-moulded sleeves and stress cones are completely manufactured in-house.

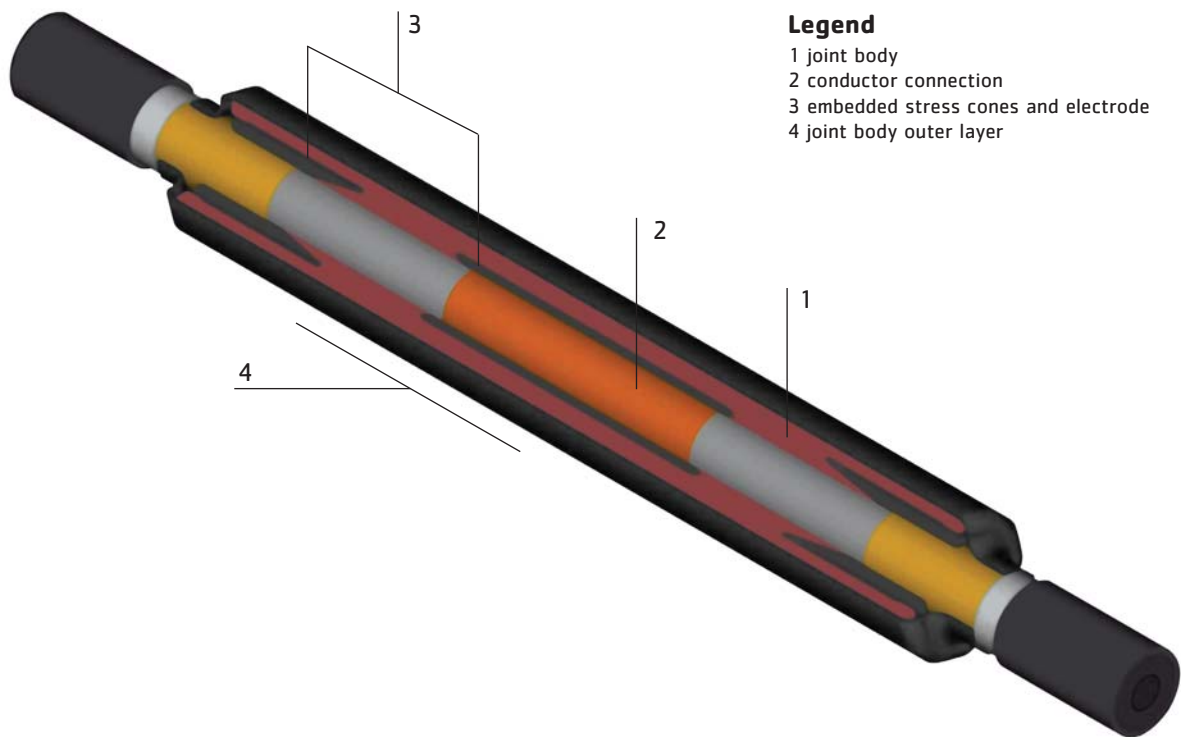
The moulding process has been refined thanks to the long-standing presence of Prysmian in the rubber industry; each single moulding is mechanically and electrically tested in the factory (the applied electrical test parameters are stricter than those established by the international standards) and certified individually.

Prysmian HV Accessories quality system complies with both ISO 9001 and ISO 14001 standards. Prysmian HV accessories based on EPR mouldings represent a highly reliable solution that is considered a key component in the safe operation of a HV cable system.

The reliability of its HV accessories has made Prysmian the worldwide market leader in terms of design and quality and all major power Utilities consider Prysmian products the benchmark in terms of performance and service.

# Sixty Speed™, Oneten Speed™, Onethirty Speed™ and Onefifty Speed™ Joints

premoulded joints from 72,5 kV up to 170 kV



## > Additional features

### Smart design

The Speed™ line joints design has been conceived to achieve a considerable reduction of installation time and efforts.

### Delivered already expanded over carrier spiral tubes

The Speed™ line joints are delivered to customers already expanded over easily removable support spiral tubes to make the joint installation easier. No specific tools are required to install the Speed™ line joints.

### 100% factory tested

The Prysmian Speed™ line joints are delivered to customers after a complete and thorough series of factory tests and inspections and are certified piece by piece. The internal testing procedure has been fine-tuned over more than 25 years of experience in High Voltage accessories.

### Wide cable size range taking

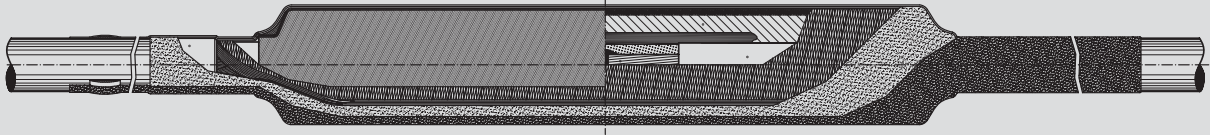
Within the same voltage class a single joint size applies to a wide range of cable diameters as per the technical data table shown in this leaflet. The Speed™ line joints are suitable for the connection of any cable design.

### Compliance with major international standards

The Speed™ line joints are designed and qualified in compliance with IEC, IEEE, Chinese and French standards.

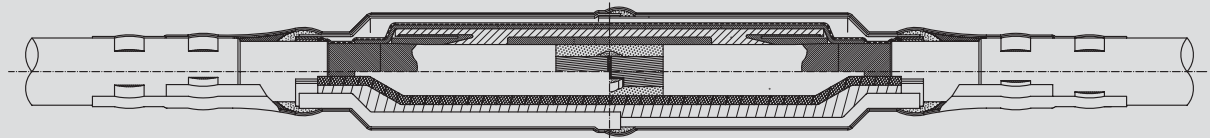
## Outer Protections

### Heat or cold shrinkable tubes



This solution has very compact dimensions and is fit to be used for cables with copper wires screen. It consists of a double layer of heat shrinkable tubes that are applied on site over the joint to guarantee full sealing against water penetration. Totally cold shrinkable solutions, which allow installation without flames, are available for continuous joints up to 72,5 kV and for any type of cable.

### Copper casing plus heat or cold shrinkable



This solution has a very compact design and is fit to be used for cables with metallic sheath. It consists of a combination between a metallic protective sleeve to be plumbed on the cable sheath and a double layer of heat shrinkable tubes that are applied on site over the joint sleeve to guarantee full sealing against water penetration. Totally cold shrinkable solutions, which allow installation without flames, are available for continuous joints up to 72,5 kV and for any type of cable.

## Application Chart

Joint size*	Cable dimensions range**		Approximate joint outer diameter on cable (mm)***				Ø1
	Min. cable insulation diameter (mm)	Max. cable outer diameter (mm)	Sixty Speed™		Oneten Speed™		
			without copper casing	with copper casing	without copper casing	with copper casing	
1	35	56	110	115	150	155	27
2	47	78	120	140	160	180	36
3	55	98	130	160	170	200	46

Joint size*	Cable dimensions range**		Approximate joint outer diameter on cable (mm)***				Ø1
	Min. cable insulation diameter (mm)	Max. cable outer diameter (mm)	Onethirty Speed™		Onefifty Speed™		
			without copper casing	with copper casing	without copper casing	with copper casing	
1	47	78	170	200	180	210	36
2	60	98	180	210	190	220	46
3	70	112	190	220	200	230	52

\* Further sizes are possible on request

\*\* All conductor cross sections commonly used in 60 and 110 kV circuits are covered

\*\*\* Outer diameters are referred to continuous joint type - Joint maximum length is 1000 mm for all joint size/voltage class

# Product range

Accessories for HV polymeric cables, like straight and sectionalised joints, have a significant importance in the reliability of any cable circuit. Different designs are currently available on the market.

## > The Speed™ joints philosophy

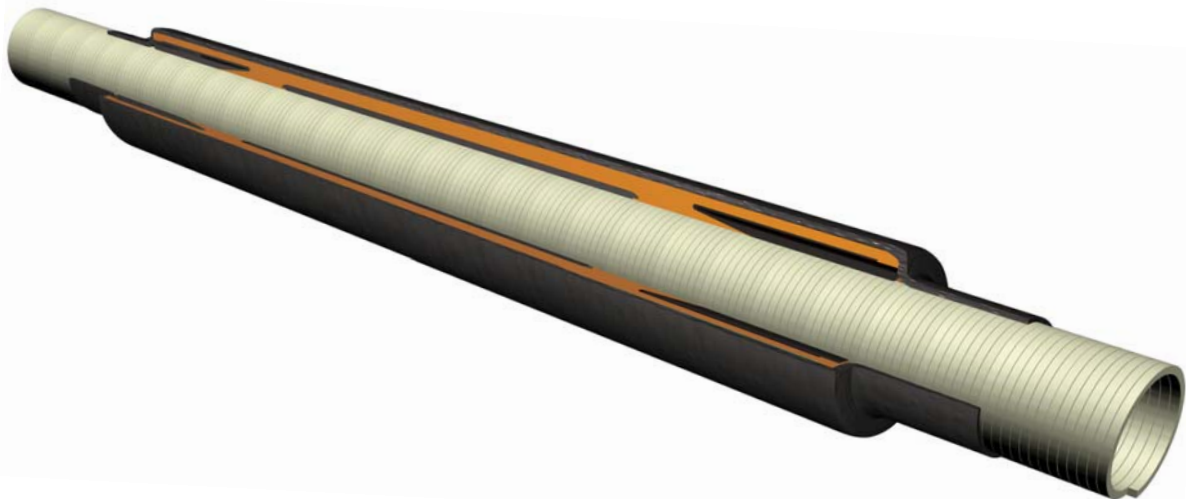
Prysmian has taken the major advantages of each type of design available on the market and - thanks to the elastic properties of its proprietary EPR compound - has developed a new generation of one piece premoulded joints that are delivered to final customers with a rubber moulding already expanded (factory expanded) over carrier spiral tubes.

The Prysmian Speed™ product range consists of 2 main joint families:

- > Sixty Speed™ Joints for  $U_{max}$  72,5 kV
- > Oneten Speed™ Joints for  $U_{max}$  123 kV
- > Onethirty Speed™ Joints for  $U_{max}$  145 kV
- > Onefifty Speed™ Joints for  $U_{max}$  170 kV

This cold-shrink design guarantees the same reliability as any other traditional design with several additional advantages, namely an easier and faster installation that does not require special tools.

The Speed™ line joints are available with continuous or sectionalised outer screen.



Speed™ joint expanded over spiral tubes

Speed™ joint during manual pulling removal of the spiral tube

Installed Speed™ joint

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