



*The products shown in this catalogue represent our standard product ranges.*

*REPL flexible manufacturing capabilities mean we can adapt for special products to suit particular applications if required. Please contact your local REPL sales office to discuss any application.*

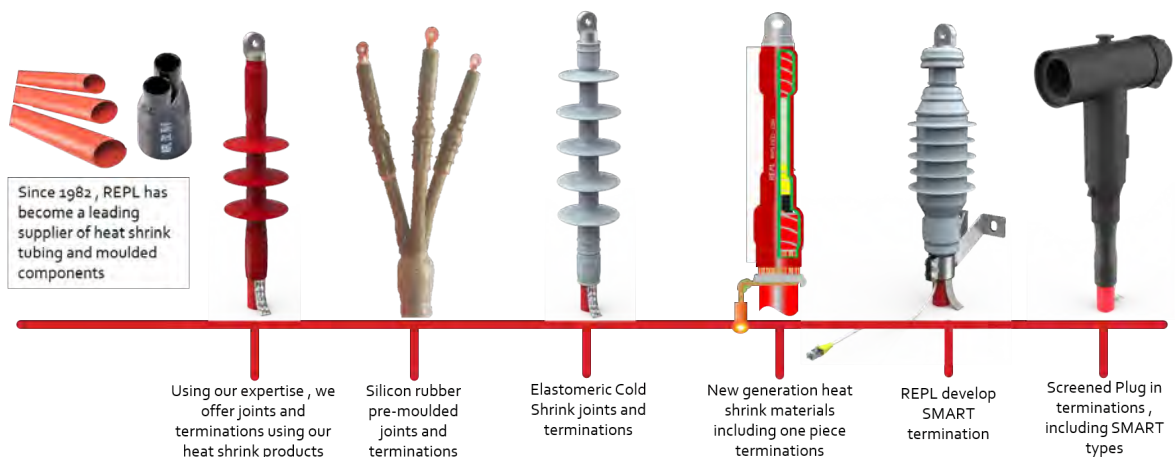
REPL have been designing and manufacturing **CABLE ACCESSORIES** for use on Energy Cables for over 38 years.

Our products are in daily use on every continent around the world.



**EVERYDAY**, we push the boundaries of technology to deliver the very best products

Over 38 years of continued product development ...



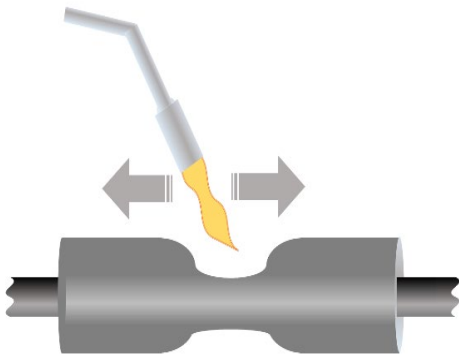
REPL offer products using three main methods of installation technology.

Each technology has specific advantages depending on the needs of the user.

We can offer impartial advice on the selection of product to ensure it meets the requirements in terms of suitability for application, environment and total cost of ownership.



## Heat Shrink



Well established for use on low and medium voltage cables, heat shrinkable products are usually made from polyolefin type plastics which have been modified to give additional properties such as improved weathering and enhanced insulation levels.

Delivered as an expanded product, once the correct amount of heat is applied they recover to their original shape.

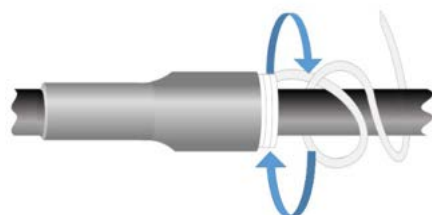
Heat Shrink is very versatile and the products can be made to enhance properties such as weathering or increase resistance to electrical tracking and control of electrical field.

Heat Shrink is resistant to most chemicals and will become rigid once it has been recovered making it a good option for mechanical protection. However, the rigidity prevents the product from flexing with the cable during normal operation meaning an effective environmental seal cannot be maintained without the aid of hot-melt adhesives or mastic tapes.

When stored correctly, there is unlimited shelf life for the product.



## Cold Shrink



Cold shrinkable products are made from elastomeric materials such as Silicon or EPDM rubbers, which are pre-stretched onto a tubular hold-out made from plastic tape in a tight spiral.

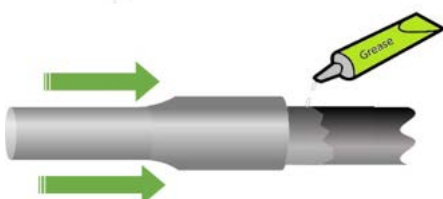
By unwinding the spiral tube, the material recovers to its original size.

The obvious advantage of Cold Shrink is the elimination of any heat source required for installation. In addition the rubber material will follow the normal expansion and contraction of cables without need for additional adhesives or mastics.

Care is needed to store product and there is a finite shelf life to ensure.



## Premoulded (Push On or Slip On)



Similar to cold shrink, these products are made of elastomeric material. Since these are supplied in unexpanded form the shelf life is unlimited.

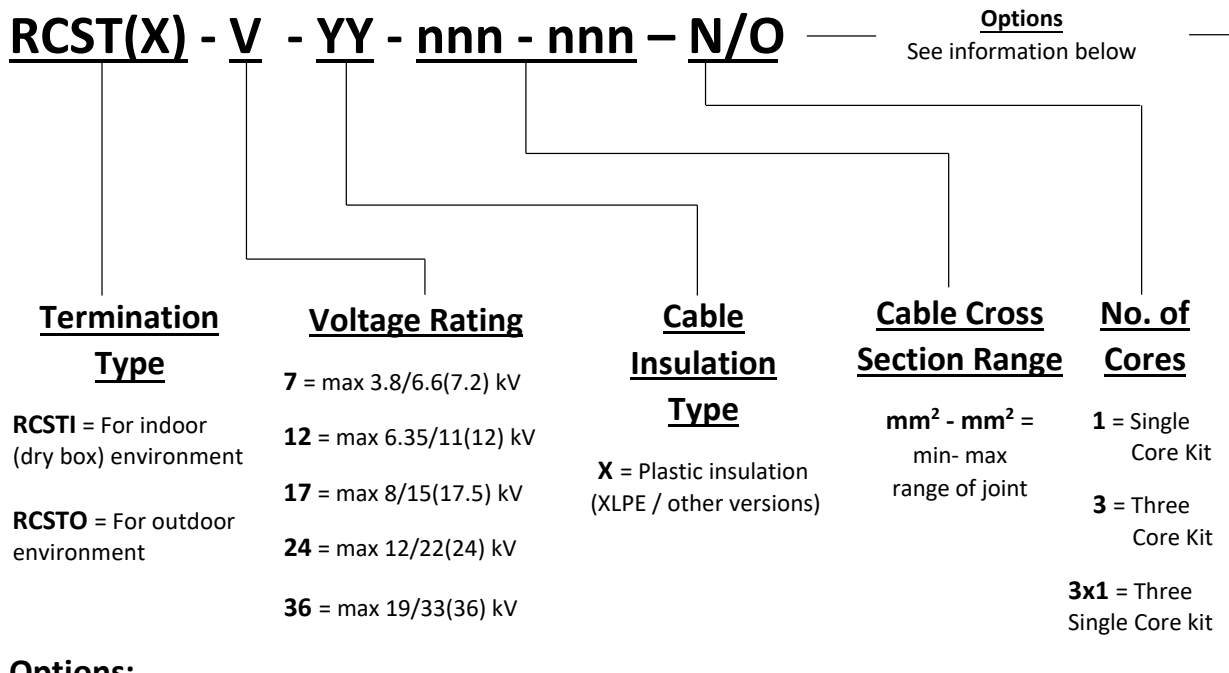
The products are applied by sliding onto cores without use of any tool up to 36kV application. Sliding is easily done manually by using silicone grease as a lubricant, without use of any tools.

RCST Cold Shrinkable medium voltage cable termination kits use moulded rubber body with integrated stress control and creepage extension sheds. They offer an “all cold” method of installation.



## RCST – Cold Shrinkable Cable Termination Designer for cables 7kV - 36kV

The coding system below allows installer to specify correct termination based on application and cable type. The termination code is made up of 5 elements as follows:



### Options:

Standard termination kits are supplied without cable lugs. The following suffix to the product code indicate options:-

- **/U** = Un-Armoured Cable earth kit supplied in kit
- **/A** = Armoured Cable earth kit supplied in kit
- **/CTS** = Copper Tape Screen earth kit supplied in kit
- **/CWS** = Copper Wire Screen earth kit supplied in kit
- **/LSC** = Lead Sheath Cover earth kit supplied in kit
- **/MC** = Electro-tinned aluminium alloy mechanical shear bolt lugs supplied in kit  
(usable for copper as well as aluminium cable conductors)
- **/MC(OP)-Y** = Offset Palm (One hole), **Y** = Metric Stud size
- **/MC(CP)-Y** = Centric Palm (One hole), **Y** = Metric Stud size

- **/CC** = Copper compression lugs supplied in kit
- **/AC** = Aluminium compression lugs supplied in kit
- **/BM** = Bimetallic compression lugs supplied in kit

In addition, accessories can be included into the kits by adding the following suffix to the product code:-

- **/FB** = Set of cold applied flexible insulating boots for straight / right angle usage (Indoor termination)
- **/IB** = Bracket & support insulator set (Outdoor termination)

### Examples:

**RCSTI- 12X 120-300-1/U/CWS/MC(OP)-M12** - Cold Shrinkable Indoor Termination for 12kV rating single core unarmoured XLPE insulated copper wire screened cables b/w 120-300mm<sup>2</sup>, supplied with mechanical offset lug (stud size-M12).

**RCSTO- 36X 50-120-3/A/CTS/MC(CP)-M12** - Cold Shrinkable Outdoor Termination for 36kV rating three core armoured XLPE insulated copper tape screened cables b/w 50-120mm<sup>2</sup>, supplied with mechanical centric lug (stud size-M12).



## RCST-(7-36)

### Cable Terminations for 1/3 core cables from 7kV to 36kV

REPL range of Cold Shrinkable Terminations are suitable for installations on medium voltage cables with polymeric insulation up to 36kV.

The termination is a one piece moulded design with an outer layer of highly track resistant silicone rubber and integrated conductive geometric stress cone.

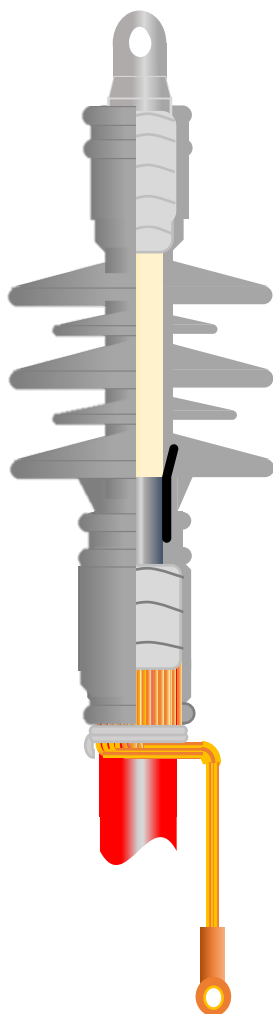
The termination bodies are pre-expanded onto a spiral former providing a suitable diameter to allow easy locating over cables and lugs. Once correctly located the body is collapsed by simply pulling out the spiral tape.

After installation, the termination provides a reliable, void free and flexible termination suitable for both indoor and outdoor environments.

Because the RCST requires no special tools or heat source for installation, it is ideal for areas where heat tools are not allowed or accessible.

There is a range of bodies in various lengths and moulded shed arrangements to cover indoor and outdoor terminations from 7.2kV to 36kV in single core and three core designs

Tested to CENELEC HD 629.1



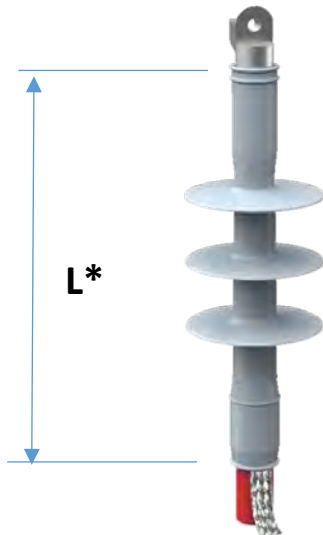
Moulded body with integrated creepage sheds



Moulded body without creepage sheds for indoor dry box

### Technical Details for RCST Cold Shrinkable Cable Termination System

Voltage Class:	7.2kV	12kV	17.5kV	24kV	36kV
Cross Section Range (mm <sup>2</sup> )	25 - 1000	25 - 1000	35 - 1000	35 - 1000	50 - 1000
Voltage Rating U <sub>0</sub> /U (U <sub>m</sub> ) kV	3.8/6.6 (7.2)	6.35/11 (12)	8.7/15 (17.5)	12.7/22 (24)	19/33 (36)
Basic Impulse Level (BIL) kV	60	95	95	125	194
Partial Discharge at 1.73U <sup>0</sup> (pC)	<10	<10	<10	<10	<10
AC Voltage Withstand , 5 min (kV)	>17	>28.5	>39	>57	>85.5
DC Voltage Withstand , 15min (kV)	>23	>38	>52	>76	>114



## RCST-(7-36)X-1

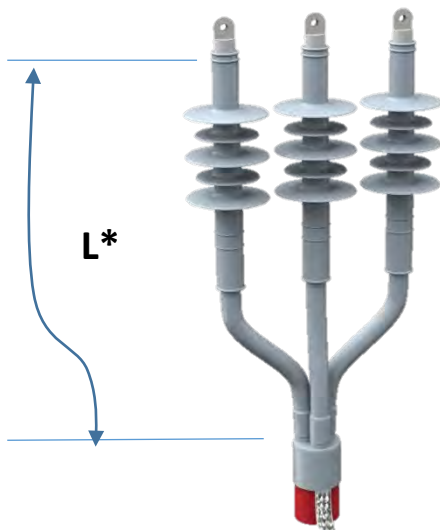
### Cable Terminations for 1 core cables from 6kV to 36kV

- Quick and easy installation using no heat source or tools
- One piece design with integrated stress control
- Silicon Rubber material for excellent electrical insulation and weathering properties
- Can be combined with gland or earth kit for armoured cables
- \* Tail length is linear length of termination body at fully recovered state.
- The creepage length is dictated by number of sheds and is calculated over the profile of the body. It normally represents >31mm/kV Class IV very Heavy according to IEC 60071-2

Voltage	Conductor Cross Section (See Note 1) (mm <sup>2</sup> )	Product Code Single Core <b>INDOOR</b> Termination	Tail Length L mm	Product Code Single Core <b>OUTDOOR</b> Termination	Tail Length L mm
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 7.2kV</b>					
7.2 kV	95 - 150	RCSTI 7X 95-150-1	320	RCSTO 7X 95-150-1	370
	185 - 300	RCSTI 7X 185-300-1	320	RCSTO 7X 185-300-1	370
	400 - 630	RCSTI 7X 400-630-1	320	RCSTO 7X 400-630-1	370
	800 - 1000	RCSTI 7X 800-1000-1	370	RCSTO 7X 800-1000-1	370
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 12kV</b>					
12 kV	50 - 95	RCSTI 12X 50-95-1	320	RCSTO 12X 50-95-1	370
	120 - 300	RCSTI 12X 120-300-1	320	RCSTO 12X 120-300-1	370
	400 - 630	RCSTI 12X 400-630-1	320	RCSTO 12X 400-630-1	370
	800 - 1000	RCSTI 12X 800-1000-1	370	RCSTO 12X 800-1000-1	370
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 17.5kV</b>					
17.5 kV	35 - 95	RCSTI 17X 35-95-1	320	RCSTO 17X 35-95-1	370
	120 - 300	RCSTI 17X 120-300-1	320	RCSTO 17X 120-300-1	370
	400 - 630	RCSTI 17X 400-630-1	320	RCSTO 17X 400-630-1	370
	800 - 1000	RCSTI 17X 800-1000-1	370	RCSTO 17X 800-1000-1	370
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 24kV</b>					
24 kV	35 - 70	RCSTI 24X 35-70-1	350	RCSTO 24X 35-70-1	370
	95 - 185	RCSTI 24X 95-185-1	350	RCSTO 24X 95-185-1	370
	240 - 300	RCSTI 24X 240-300-1	350	RCSTO 24X 240-300-1	370
	400 - 630	RCSTI 24X 400-630-1	350	RCSTO 24X 400-630-1	370
	800 - 1000	RCSTI 24X 800-1000-1	370	RCSTO 24X 800-1000-1	370
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 36kV</b>					
36 kV	50 - 95	RCSTI 36X 50-95-1	370	RCSTO 36X 50-95-1	500
	120 - 300	RCSTI 36X 120-300-1	370	RCSTO 36X 120-300-1	500
	400 - 630	RCSTI 36X 400-630-1	370	RCSTO 36X 400-630-1	500
	800 - 1000	RCSTI 36X 800-1000-1	370	RCSTO 36X 800-1000-1	500

Note 1 = Cross section is a guide only based on standard IEC designs- the cable insulation diameter is more critical dimension to ensure body fits the cable to be terminated. Above Terminations are made of Silicones which are LSZH (Low Smoke Zero Halogen) material.

## RCST-(7-36)X-3



### Cable Terminations for 3 core cables from 7kV to 36kV

- Quick and easy installation using no heat source or tools
- One piece design with integrated stress control
- Silicon Rubber material for excellent electrical insulation and weathering properties
- Utilizing Cold Shrinkable termination body combines with additional Cold Shrinkable tubing and breakout
- Adjustable tail length
- \* Tail length is linear length of termination body, tubing at fully recovered state.
- All cold installation
- Can be combined with gland or earth kit for armoured cables

Voltage	Conductor Cross Section (See Note 1) (mm <sup>2</sup> )	Product Code <b>INDOOR</b> Termination	Tail Length L mm	Product Code <b>OUTDOOR</b> Termination	Tail Length L mm
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 7.2kV</b>					
7.2 kV	95 - 150	RCSTI 7X 95-150-3	450	RCSTO 7X 95-150-3	600
	185 - 300	RCSTI 7X 185-300-3	450	RCSTO 7X 185-300-3	600
	400 - 630	RCSTI 7X 400-630-3	450	RCSTO 7X 400-630-3	600
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 12kV</b>					
12 kV	50 - 95	RCSTI 12X 50-95-3	600	RCSTO 12X 50-95-3	600
	120 - 300	RCSTI 12X 120-300-3	600	RCSTO 12X 120-300-3	600
	400 - 630	RCSTI 12X 400-630-3	600	RCSTO 12X 400-630-3	600
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 17.5kV</b>					
17.5 kV	35 - 95	RCSTI 17X 35-95-3	600	RCSTO 17X 35-95-3	600
	120 - 300	RCSTI 17X 120-300-3	600	RCSTO 17X 120-300-3	600
	400 - 630	RCSTI 17X 400-630-3	600	RCSTO 17X 400-630-3	600
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 24kV</b>					
24 kV	35 - 70	RCSTI 24X 35-70-3	600	RCSTO 24X 35-70-3	750
	95 - 185	RCSTI 24X 95-185-3	600	RCSTO 24X 95-185-3	750
	240 - 300	RCSTI 24X 240-300-3	600	RCSTO 24X 240-300-3	750
	400 - 630	RCSTI 24X 400-630-3	600	RCSTO 24X 400-630-3	750
<b>Cold Shrinkable Termination for Polymeric Insulated single core cables rated at Um= 36kV</b>					
36 kV	50 - 120	RCSTI 36X 50-120-3	600	RCSTO 36X 50-120-3	800
	150 - 240	RCSTI 36X 150-240-3	600	RCSTO 36X 150-240-3	800
	300 - 630	RCSTI 36X 300-630-3	600	RCSTO 36X 300-630-3	800

Note 1 = Cross section is a guide only based on standard IEC designs- the cable insulation diameter is more critical dimension to ensure body fits the cable to be terminated.

Above Termination bodies, tubings and breakout are made of Silicones which are LSZH (Low Smoke Zero Halogen) material.

The creepage length is dictated by number of sheds and is calculated over the profile of the body. It normally represents >31mm/kV Class IV very Heavy according to IEC 60071-2



RCSJ Cold Shrinkable medium voltage joints provide a method to connect power cables with system voltages up to 36kV using a silicon moulded body which houses a central Faraday cage and stress cones at either end.



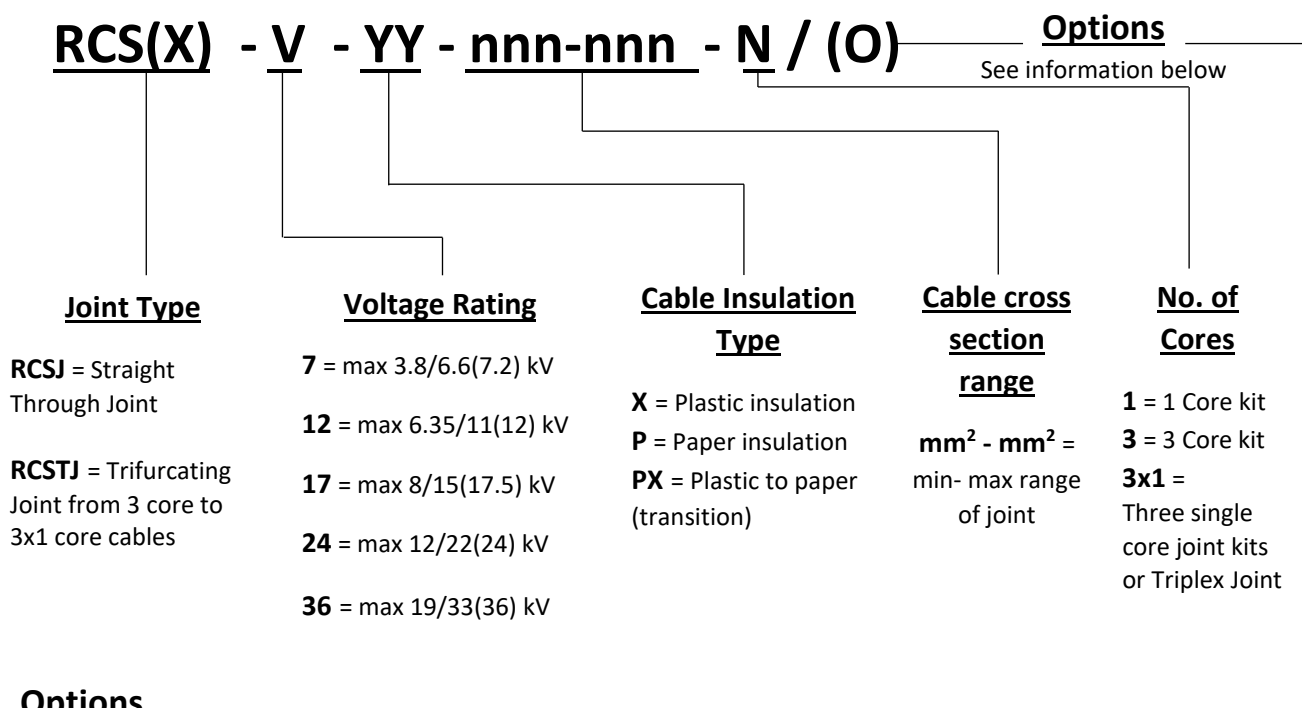
The joint body is installed without the need for any heat or special tools.

Depending on the cables to be jointed, the earth continuity and outer protection materials can be customised to suit the cable joint configurations.

## RCSJ – Cold Shrink Joint Designer for cables 7kV to 36kV

The coding system below allows installer to specify correct joint based on application and cable type.

The joint code is made up of 5 elements plus options suffix as follows:



### Options

The following suffix codes indicate options:

- **/U** = Unarmoured cable earth kit supplied in kit
- **/A** = Armoured cable earth kit supplied in kit
- **/CTS** = Copper Tape Screen earth kit supplied in kit
- **/CWS** = Copper Wire Screen earth kit supplied in kit
- **/LSC** = Lead Sheath Cover earth kit supplied in kit
- **/MC** = Electro-tinned aluminium alloy mechanical shear bolt connectors supplied in kit (default)  
(usable for copper as well as aluminium cable conductors)
- **/OHS** = Joint is supplied with a heavy wall Heat Shrink outer protection tube
- **/OCS** = Joint is supplied with a Silicone / EPDM Cold Shrink outer protection tube
- **/OR** = Joint is supplied with resin encapsulation outer protection  
(High grade Polyurethane resin supplied in touch free dual chamber bag. Latest pump-less method)
- **/LSZH** = Low Smoke Zero Halogen

### Examples :

**RCSJ- 36X 150-240-1/A/CWS/MC/OCS** - Cold Shrinkable Straight Joint for 36kV rating single core armoured XLPE insulated copper wire screened cables b/w 150-240mm<sup>2</sup>, supplied with mechanical connector and heavy wall cold shrink outer tube.

**RCSTJ- 12X 150-300-3x1/U/CTS/MC/OHS** - Cold Shrinkable trifurcating Joint for 12kV rating 3 core to 3 single core unarmoured XLPE insulated copper tape screened cables b/w 150-300mm<sup>2</sup>, supplied with mechanical connector and heavy wall heat shrink outer tube.

REPL range of RCSJ Cold Shrinkable Joints are suitable for installations on medium voltage cables up to 36kV. The Joint consists of a moulded silicon rubber body with integrated central Faraday Cage, geometric stress control, and a conductive outer layer which reinstates the key layers of the cable being jointed. The joint bodies are pre-expanded onto a spiral former providing a suitable diameter clearance to allow easy location over cables and connectors. Once correctly located the body is shrunk down by simply pulling out the spiral tape former.



To complete the joint, the cable metallic screens are connected using an appropriate method. There is a range of options available for the outer protection such as Cold Shrinkable or Heat Shrinkable tubing, or resin encapsulation. Because the RCSJ requires no special tools or heat source for installation, it is ideal for areas where heat tools are not allowed or accessible.

A range of bodies to cover cables up to 36kV in single core, three core designs and trifurcating with either extruded or paper insulation.

## Features:

- Tested to CENELEC HD 629.1
- Quick and easy installation using no heat source or special tools
- One piece design with integrated central Faraday cage and screen stress control cones
- Short parking distance required means compact joint bay area
- Silicon Rubber material for excellent electrical insulation properties
- Suitable for a wide range of mechanical cable connectors
- Kits for armoured and unarmoured type cables can be supplied
- Choice of outer protection materials

The pre-moulded silicon rubber joint bodies integrate the key components to reinstate the insulation system for a medium voltage cable.

The inner Faraday cage is at same potential as the phase connector and provides a smoothing layer onto the insulation – this means any sharp edge on the connector does not affect the performance.

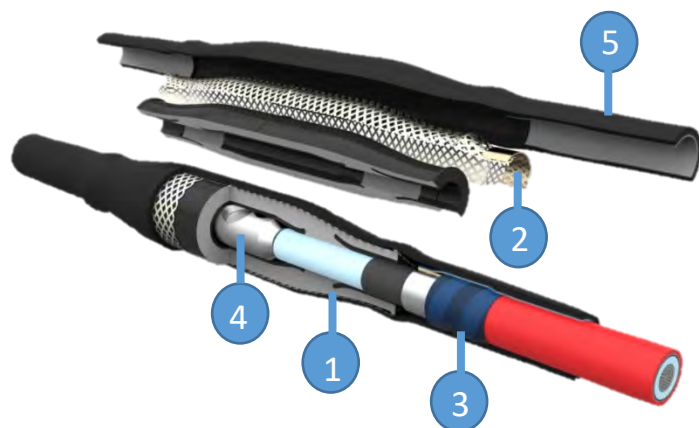
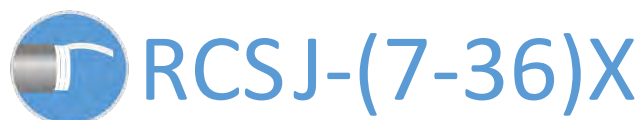
The geometric stress cones at either end provide field control at the end of the insulation screens.



## Technical Details for RCSJ Cold Shrinkable Jointing System

Voltage Class:	7.2kV	12kV	17.5kV	24kV	36kV
Cross Section Range (mm <sup>2</sup> )	95 - 1000	50 - 1000	50 - 1000	35 - 1000	50 - 1000
Voltage Rating U <sub>0</sub> /U (U <sub>m</sub> ) kV	3.8/6.6 (7.2)	6.35/11 (12)	8.7/15 (17.5)	12.7/22 (24)	19/33 (36)
Basic Impulse Level (BIL) kV	60	95	95	125	194
Partial Discharge at 1.73U <sup>o</sup> (pC)	<10	<10	<10	<10	<10
AC Voltage Withstand , 5 min (kV)	>17	>28.5	>39	>57	>85.5
DC Voltage Withstand , 15min (kV)	>23	>38	>52	>76	>114

**For Single & Three Core Polymeric Insulated cables (XLPE / EPR)**



## Typical Kit Contents

*(actual components will depend on specific joint type)*

1. Cold Shrinkable moulded joint body
2. Earth / armour screen continuity materials (dependant on cable design)
3. Mastic sealing tapes
4. Phase conductor connector<sup>1</sup>
5. Outer Protection materials , either :
  - Heavy Wall Heat Shrinkable tube  
*(Hybrid joint where heat is allowed)*
  - EPDM / Silicone rubber Cold Shrinkable tubing  
*(“ALL COLD” joint where no heat is allowed)*
  - Resin encapsulation

<sup>1</sup> – Optional, type specified at order

## Medium Voltage Straight Joints for Polymeric Insulated Cables up to 36kV

The RCSJ-X range of kits are designed for jointing either single or three core cable designs with polymeric (XLPE or EPR) insulation and to be used with mechanical type connectors.

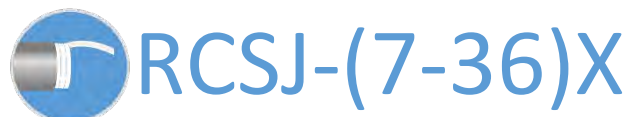
**RCSJ** – Suitable for unarmoured / armoured cable types

**RCSTJ** – Suitable for transition of 3 core cable to (3X) single core unarmoured cable type

Fully tested to the following specifications:

- CENELEC HD629.1





Voltage	Conductor Cross Section (See Note 1) (mm²)	Product Code Single Core Joint	Product Code Three Core Joint
<b>Cold Shrinkable Straight Cable Joint for Polymeric Insulated cables rated at Um= 7.2kV</b>			
7.2 kV	95 - 150	RCSJ 7X 95-150-1	RCSJ 7X 95-150-3
	185 - 300	RCSJ 7X 185-300-1	RCSJ 7X 185-300-3
	400 - 630	RCSJ 7X 400-630-1	RCSJ 7X 400-500-3
	800 - 1000	RCSJ 7X 800-1000-1	-
<b>Cold Shrinkable Straight Cable Joint for Polymeric Insulated cables rated at Um= 12kV</b>			
12 kV	50 - 120	RCSJ 12X 50-120-1	RCSJ 12X 50-120-3
	150 - 300	RCSJ 12X 150-300-1	RCSJ 12X 150-240-3
	400 - 630	RCSJ 12X 400-630-1	RCSJ 12X 300-500-3
	800 - 1000	RCSJ 12X 800-1000-1	-
<b>Cold Shrinkable Straight Cable Joint for Polymeric Insulated cables rated at Um= 17.5kV</b>			
17.5 kV	50 - 120	RCSJ 17X 50-120-1	RCSJ 17X 50-120-3
	150 - 240	RCSJ 17X 150-240-1	RCSJ 17X 150-240-3
	300 - 630	RCSJ 17X 300-630-1	RCSJ 17X 300-500-3
	800 - 1000	RCSJ 17X 800-1000-1	-
<b>Cold Shrinkable Straight Cable Joint for Polymeric Insulated cables rated at Um= 24kV</b>			
24 kV	35 - 95	RCSJ 24X 35-95-1	RCSJ 24X 35-95-3
	120 - 240	RCSJ 24X 120-240-1	RCSJ 24X 120-240-3
	300 - 630	RCSJ 24X 300-630-1	RCSJ 24X 300-500-3
	800 - 1000	RCSJ 24X 800-1000-1	-
<b>Cold Shrinkable Straight Cable Joint for Polymeric Insulated cables rated at Um= 36kV</b>			
36 kV	50 - 120	RCSJ 36X 50-120-1	RCSJ 36X 50-120-3
	150 - 240	RCSJ 36X 150-240-1	RCSJ 36X 150-240-3
	300 - 400	RCSJ 36X 300-400-1	RCSJ 36X 300-500-3
	500 - 630	RCSJ 36X 500-630-1	-
	800 - 1000	RCSJ 36X 800-1000-1	-

**Note 1** – The conductor cross sections shown are for general guidance only. The more important parameter is the insulation diameter range to ensure the moulded joint body fits correctly. For single core cables, the maximum diameter of the cable is important as the moulded joint body has to slide over the joint and have adequate room for the spiral tape to be pulled out – therefore for cables with Armour where diameter is on the top end of the range, it might be better to select next size up.

**Note 2** - Above Joints are made of Silicones which are LSZH (Low Smoke Zero Halogen) material.