Cold Shrink Medium Voltage Cable Accessories

For extruded dielectric power cable from 8.7kV through 35kV and up to 630mm^2

G&W Electric

Engineered to order. Built to last.

G&W Electric cable accessories are designed to accommodate cables from all manufacturers and can be created to accommodate any customer cable system

Pre-Molded (PM) Series Cold Shrink Accessories

As a cable accessories manufacturer with more than 100 years of history, G&W Electric offers a range of cable accessories to meet medium voltage, high voltage, ultra high voltage and extra high voltage requirements.

The G&W Electric Pre-Molded (PM) series of cold shrink medium voltage cable accessories are high-end products available for extruded dielectric power cables from 8.7kV through 35kV and up to 630mm^2.

State-of-the-art software is employed to perform electric stress analysis and optimization which ensures the electric stress of these cable accessories is distributed in the most rational way. Liquid silicone rubber is used as the raw material, which greatly improves the mechanical and electrical properties of this product. This allows installation in various kinds of complicated environments, resulting in simple, reliable installation and excellent product performance.

Features and Benefits

- Liquid silicone rubber (LSR) is used for outstanding electrical insulation
- Employs design concepts used for high voltage stress control
- Hydrophobic and highly UV resistant for excellent performance in outdoor applications
- Superior flexibility ensures that the product holds the cable firmly, eliminating air gaps produced by thermal expansion and contraction during operation
- With 300% expansion allowance, a single product can be used with a variety of cable sizes
- Does not require special skills when installing
- Eliminates uneven heating that may occur when installing heat shrink accessories
- Single piece pre-molded design eliminates errors that could occur with multiple piece accessories

Applications and Standards

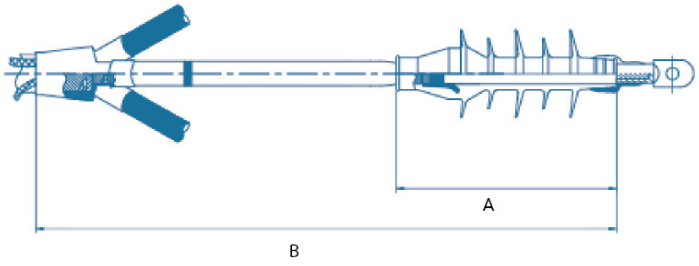
- Standard and non-standard cables with extruded solid insulation (XLPE and EPR)
- Copper and aluminum conductors
- Metal shielding (Copper Wire, Copper Tape, Aluminum Foil, etc.)
- Armored or non-armored jackets (Steel wire armor, etc.)
- GB/T 12706
- GB/T 18889
- IEC 60502

Three-core Power Cable with Extruded Insulation

Indoor/Outdoor Terminations

Voltage Level	Outdoor	Indoor
15kV	A 330 B 850 Creepage 470	A 190 B 760 Creepage 240
20kV	A 290 B 850 Creepage 580	A 220 B 800 Creepage 280
30kV	A 290 B 1050 Creepage 580	A 220 B 1000 Creepage 280
35kV	A 460 B 1050 Creepage 950	A 380 B 1000 Creepage 700

Main Parameters	8.7/15kV	12/20kV	18/30kV	26/35kV
AC power frequency withstand voltage (5 min.)	39kV	54kV	81kV	117kV
Power frequency withstand voltage (1 min., wet, outdoor terminals only)	35kV	48kV	72kV	104kV
DC withstand voltage (15 min.)	35kV	48kV	72kV	104kV
Impulse voltage test (+/-10 times)	95kV	125kV	170kV	200kV
Partial discharge test	≤10 pC at 15kV	≤10 pC at 20kV	≤10 pC at 35kV	≤10 pC at 45kV
Combined cycling test with AC voltage, 60 cycles (In air)	23kV	30kV	45kV	65kV
Salt spray test (Outdoor)	11kV	15kV	22.5kV	33kV
Wet aging test (Indoor)	11kV	15kV	22.5kV	33kV



Three-core power cable

Three-core Power Cable with Extruded Insulation

Three-core Power Cable with Extruded Insulation

Indoor/Outdoor Termination Kits

Voltage Class, kV	Conductor Cross Section, mm2 reference	Insulation OD Application Range, mm	Indoor Termination Type Chart		Outdoor Termination Type Chart	
			Single-Core Kits	Three-Core Kits	Single-Core Kits	Three-Core Kits
8.7/15kV	25 - 50	17 - 21	PMN15-1.1	PMN15-3.1	PMT15-1.1	PMT15-3.1
	70 - 120	21 - 25	PMN15-1.2	PMN15-3.2	PMT15-1.2	PMT15-3.2
	150 - 240	25 - 30	PMN15-1.3	PMN15-3.3	PMT15-1.3	PMT15-3.3
	300 - 400	30 - 37	PMN15-1.4	PMN15-3.4	PMT15-1.4	PMT15-3.4
	500 - 630	37 - 42	PMN15-1.5	PMN15-3.5	PMT15-1.5	PMT15-3.5
12/20kV	30 - 50	20 - 22	PMN20-1.1	PMN20-3.1	PMT20-1.1	PMT20-3.1
	70 - 150	22 - 29	PMN20-1.2	PMN20-3.2	PMT20-1.2	PMT20-3.2
	185 - 400	29 - 38	PMN20-1.3	PMN20-3.3	PMT20-1.3	PMT20-3.3
	500 - 630	38 - 44	PMN20-1.4	PMN20-3.4	PMT20-1.4	PMT20-3.4
18/30kV	35 - 70	22 - 29	PMN18-1.1	PMN18-3.1	PMT18-1.1	PMT18-3.1
	95 - 240	29 - 38	PMN18-1.2	PMN18-3.2	PMT18-1.2	PMT18-3.2
	300 - 630	38 - 44	PMN18-1.3	PMN18-3.3	PMT18-1.3	PMT18-3.3
26/35kV	50 - 95	31 - 35	PMN35-1.1	PMN35-3.1	PMT35-1.1	PMT35-3.1
	120 - 185	35 - 40	PMN35-1.2	PMN35-3.2	PMT35-1.2	PMT35-3.2
	240 - 400	40 - 47	PMN35-1.3	PMN35-3.3	PMT35-1.3	PMT35-3.3
	500 - 630	47 - 57	PMN35-1.4	PMN35-3.4	PMT35-1.4	PMT35-3.4

Three-core Indoor and Outdoor kits

1. Cold shrinkable indoor termination body
2. Finger spreader/Trifurcate
3. Long cold shrink tubes to rebuild insulation
4. PVC tape
5. Insulation tape
6. Filling and Sealing strip
7. Gloves-two types
8. Silicone grease
9. Triangle cone
10. Scale ruler
11. Cold shrinkable sealing tube
12. Cleaning cloth
13. Grounding braid

Three-core Power Cable with Extruded Insulation

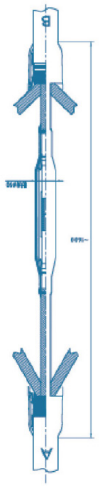
Straight Joints

Voltage Class, kV	Conductor Cross Section, mm2, reference	Insulation OD Application Range, mm	Straight Though Joint Type Chart	
			Single-Core Kits	Three-Core Kits
8.7/15kV	25-50	17 - 21	PMJ15-1.1	PMJ15-3.1
	70-120	21 - 25	PMJ15-1.2	PMJ15-3.2
	150-240	25 - 30	PMJ15-1.3	PMJ15-3.3
	300-400	30 - 37	PMJ15-1.4	PMJ15-3.4
	500-630	37 - 42	PMJ15-1.5	PMJ15-3.5
12/20kV	30-50	20 - 22	PMJ20-1.1	PMJ20-3.1
	70-150	22 - 29	PMJ20-1.2	PMJ20-3.2
	185-400	29 - 38	PMJ20-1.3	PMJ20-3.3
	500-630	38 - 44	PMJ20-1.4	PMJ20-3.4
18/30kV	35-70	22 - 29	PMJ18-1.1	PMJ18-3.1
	95-240	29 - 38	PMJ18-1.2	PMJ18-3.2
	300-630	38 - 44	PMJ18-1.3	PMJ18-3.3
26/35kV	50-95	31 - 35	PMJ35-1.1	PMJ35-3.1
	120-185	35 - 40	PMJ35-1.2	PMJ35-3.2
	240-400	40 - 47	PMJ35-1.3	PMJ35-3.3
	500-630	47 - 57	PMJ35-1.4	PMJ35-3.4

Main Parameters	8.7/15kV	12/20kV	18/30kV	26/35kV
AC power frequency withstand voltage (5 min.)	39kV	54kV	81kV	117kV
DC withstand voltage (15 min.)	35kV	48kV	72kV	104kV
Impulse voltage test (+/-10 times)	95kV	125kV	170kV	200kV
Partial discharge test	≤10 pC at 15kV	≤10 pC at 20kV	≤10 pC at 30kV	≤10 pC at 45kV
Combined cycling test with AC voltage *(30 cycles in air and 30 cycles in water)*	23kV	30kV	45kV	65kV

Straight Joint Kit

1. Joint body
2. Filling tapes
3. Spring Roll
4. Grounding braid
5. Silicone grease
6. Copper mesh
7. PVC tapes
8. Sandpaper
9. Armor tapes
10. Gloves
11. Cleaning Cloth
12. Waterproof tapes
13. Semi-con tapes
14. Measuring tape
15. Conductor connector



Three-core Power Cable with Extruded Insulation

Applications

Outdoor terminations

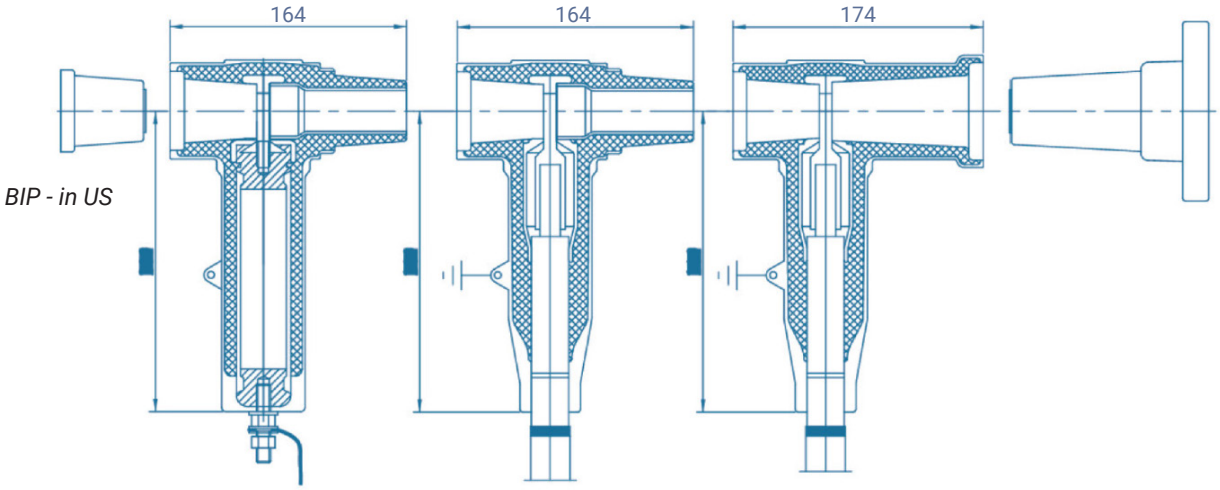
Indoor terminations

Connection to equipment

Straight thru joint

The application photos listed in this document are for general information purposes only. Please contact G&W Electric for additional information.

Shielded Separable Connectors



Epoxy Plug

Shielded rear surge arrester

Shielded rear connector

Shielded T connector

Epoxy "C" type bushing

Shielded T and Shielded Rear Connectors Kits

Shielded Separable Connectors, Main Features

1. High temperature vulcanized liquid silicone rubber is used for:
   - Outstanding electrical performance, - Superior flexibility,
   - High weather resistance
   - High aging resistance, - Flame retardant
2. Prefrabicated integrated design with built-in stress cone
3. Extruded outer shield with a considerable thickness
4. Attractive and lightweight, easy to install
5. Insulation plug with built-in voltage detector
6. Scalable connections allowing combinations

Applicable Standards

- GB/T 12706
- GB/T 18889
- IEC 60502
- EN 50180
- EN 50181

Main Parameters	8.7/15kV
AC power frequency withstand voltage (5 min.)	35kV
DC withstand voltage (15 min.)	39kV
Impulse voltage test (+/-10 times)	95kV
Partial discharge test	≤10 pC at 15kV
Combined cycling test with AC voltage, 63 cycles (33 in air + 30 in water)	23kV
Shield resistance	≤5 k Ω
Leakage current (at Um)	≤0.5mA

Shielded T connectors

1. T Connector Body
2. Screw Bolt & Nut
3. Lug
4. Epoxy Plug
5. Cleaning Cloth
6. Gloves
7. PVC Tapes
8. Sand Paper
9. Silicone Grease
10. WIre
11. Assembly Tooling

Shielded rear connectors

1. Rear Connector Body
2. Screw Bolt & Nut
3. Lug
4. Connecting Rod
5. Cleaning Cloth
6. Gloves
7. PVC Tapes
8. Sand Paper
9. Silicone Grease
10. Grounding WIre
11. Assembly Tooling

Shielded Separable Connectors

Voltage Class, kV	Conductor Cross Section, mm2, reference	Cable Insulation range (mm)	Shielded T Connector Type Chart		Shielded Rear Connector Type Chart	
			Single-core Models	Three-Ccre Models	Single-core Models	Three-Ccre Models
8.7/15kV	25-50	17 - 21	PMTC15-1.1	PMTC15-3.1	PMBC15-1.1	PMBC15-3.1
	70-120	21 - 25	PMTC15-1.2	PMTC15-3.2	PMBC15-1.2	PMBC15-3.2
	150-240	25 - 30	PMTC15-1.3	PMTC15-3.3	PMBC15-1.3	PMBC15-3.3
	300-400	30 - 37	PMTC15-1.4	PMTC15-3.4	PMBC15-1.4	PMBC15-3.4
	500-630	37 - 42	PMTC15-1.5	PMTC15-3.5	PMBC15-1.5	PMBC15-3.5

Shielded Rear Surge Arrester

Name	Units	Parameters
Product Model	-	PMBA15 (17/45)
System nominal voltage	kV	10
Surge protector rated voltage	kV	17
Continuous operating voltage	kV	13.6
Nominal discharge current, In	kA	5
Reference voltage, DC, 1 mA	kV	≥24
Leakage current, 0.75U, 1 mA	μ A	≤10
Steep current impulse residual voltage	kV	≤51.8
Lightning impulse residual voltage	kV	≤45
Switching impulse residual voltage	kV	≤35
Resistive current (Peak value)	μ A	≤200
Full current (Peak value)	μ A	≤700
Partial discharge at 14.3 kV	pC	≤10
2ms square wave current impulse withstand	A	200
High current impulse withstand	kA	65

Shielded Rear Surge Arrester

250A Euro Style Shielded Loadbreak Elbow Connector

Voltage Class, kV	Conductor Cross Section mm^2	Cable Insulation range (mm)	Shielded Elbow Connector	
			Single-Core Models	Three-Core Models
8.7/15kV	25 - 50	17 - 21	PMEC15250-1.1	PMEC 15200-3.1
	70 - 95	21 - 23	PMEC15250-1.2	PMEC 15200-3.2
	120	23 - 25	PMEC15250-1.3	PMEC 15200-3.3

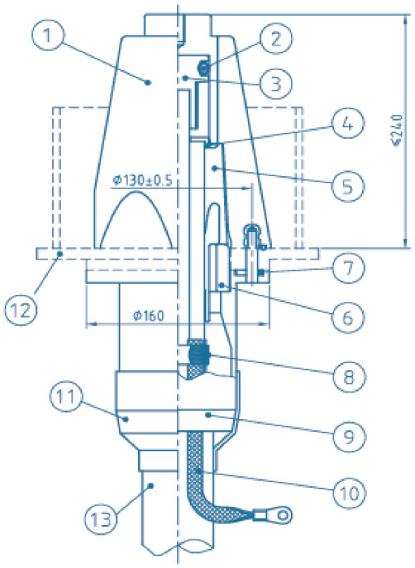
250 A Euro Style Shielded Loadbreak Elbow Connector

Inner Cone Plug-in

Separable Connectors

Main Parameters	26/35kV
AC power frequency withstand voltage (5 min.)	117kV
DC withstand voltage (15 min.)	104kV
Impulse voltage test (+/-10 times)	200kV
Partial discharge test	≤10 pC at 45 kV
Combined cycling test at constant pressure, 63 cycles (33 in air + 30 in water)	65kV

1. Epoxy insulator
2. Spring contact
3. Conductor connector
4. Stress cone stop ring
5. Stress cone
6. Stress cone support ring
7. Sealing gasket
8. Roll spring
9. Entrance housing
10. Grounding braid
11. Heat shrink tube
12. Housing flange
13. Cable



Inner Cone Plug-in Separable

Connector Type Chart

Voltage Class, kV	Conductor Cross Section, mm2	Single-Core Models	Three-Core Models
26/35kV	150	GIS 35-1.7	GIS 35-3.7
	185	GIS 35-1.8	GIS 35-3.8
	240	GIS 35-1.9	GIS 35-3.9
	300	GIS 35-1.10	GIS 35-3.10
	400	GIS 35-1.11	GIS 35-3.11
	500	GIS 35-1.12	GIS 35-3.12
	630	GIS 35-1.13	GIS 35-3.13

Contact us today

708.388.5010 or info@gwelec.com

G&W Electric

Engineered to order. Built to last.

Since 1905, G&W Electric has been a leading provider of innovative power distribution solutions, including the latest in load and fault interrupting switchgear, reclosers, system protection equipment, power grid automation and transmission and distribution cable terminations, joints and other cable accessories. G&W Electric is headquartered in Bolingbrook, Illinois, U.S.A., with manufacturing facilities and sales support in more than 100 countries, including China, Mexico, Canada, UAE, India, Singapore, Brazil and Italy. We help our customers meet their challenges and gain a competitive edge through a suite of advanced products and technical services.

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