



Cable Accessories

for Extruded Dielectric Cable 69kV - 230kV Rated



- Components used in cable systems
- 100% Tested
- Factory Molded
- For outdoor applications through 230kV
- For gas insulated substations and transformers through 230kV
- Dry type designs available for easy installation
- Mechanical Shrink installation option available



Engineered to order. Built to last.

Catalog Python13



▲ G&W headquarters in Bolingbrook, IL USA

COMPANY PROFILE

Since 1905, G&W Electric has helped energize the world with innovative power system solutions. With the introduction of the first disconnectable cable terminating device, G&W began to build a reputation for engineering custom solutions to meet the needs of system designers. In addition to cable accessories, solutions comprise of the latest in load and fault interrupting switchgear, reclosers, system protection equipment and distribution automation.

G&W products are backed by extensive design and production testing in accordance with industry standards. Even more important is the proven performance and assured reliability that only comes over time. G&W products have been proving themselves in installations worldwide for many decades.

Today's G&W combines extensive research and development with ISO 9001 certified quality systems in both its manufacturing and design processes. An extensive global sales organization and experienced customer response teams provide you with a valuable resource. A resource which is ready to work with you on your specific system requirements.

G&W HEADQUARTERS

To meet the growing demand for our products, G&W recently relocated to a new 360,000 square foot facility in Bolingbrook, IL, a suburb of Chicago. Our new facility is a world-class operation allowing us to more than double our manufacturing capability. It is here where the latest in engineering and production modeling technology is combined with automated manufacturing equipment to assure that our products meet quality standards and customer requirements.

G&W Electric Facilities:
G&W Electric Co. Headquarters (Bolingbrook, IL, USA)
G&W Shanghai (China)
G&W Canada (Mississauga, Ontario)
G&W Mexico (San Luis Potosi)
G&W do Brazil (Salvador)
G&W sales office (Delhi, India)
G&W sales office (Singapore)
Manufacturer's Brass and Aluminum Foundry (Blue Island, IL, USA)

MARKETS SERVED

G&W's serves investor owned, municipal and rural electric cooperative utilities; commercial and industrial; universities; renewable energy; mining; transportation; engineering firms, consultants, contractors and government agencies.

Cable Accessories Overview

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OVERVIEW OF G&W CABLE ACCESSORIES

In 1905 G&W introduced the first disconnectable cable terminating device. Now, over 100 years later, G&W continues to create technical innovations that have improved performance and reliability.

With over 100 years experience, G&W is the name you can trust for quality cable accessories. With sales representation worldwide, G&W has a proven track record for success.

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

The optional mechanical shrink feature offers an easier and faster installation while reducing possible damage during installation.

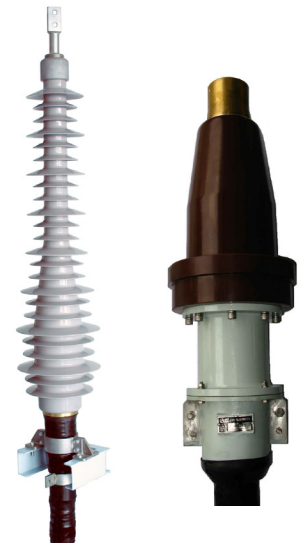
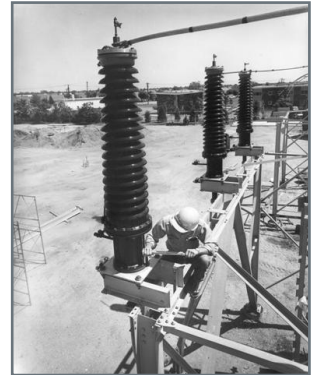
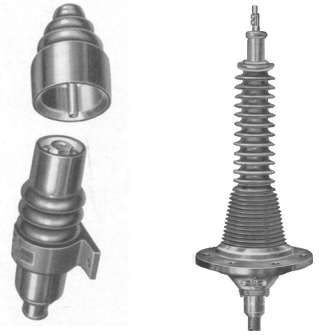
G&W also offers installation supervision and installation training, which can be customized to suit the audience.



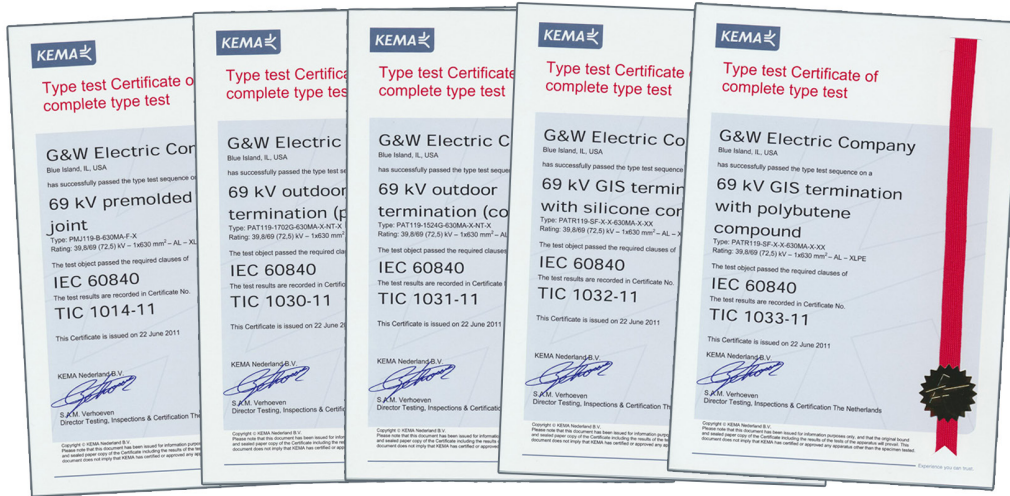
▲ G&W high voltage testing laboratory in Bolingbrook, IL

G&W Cable Accessories History

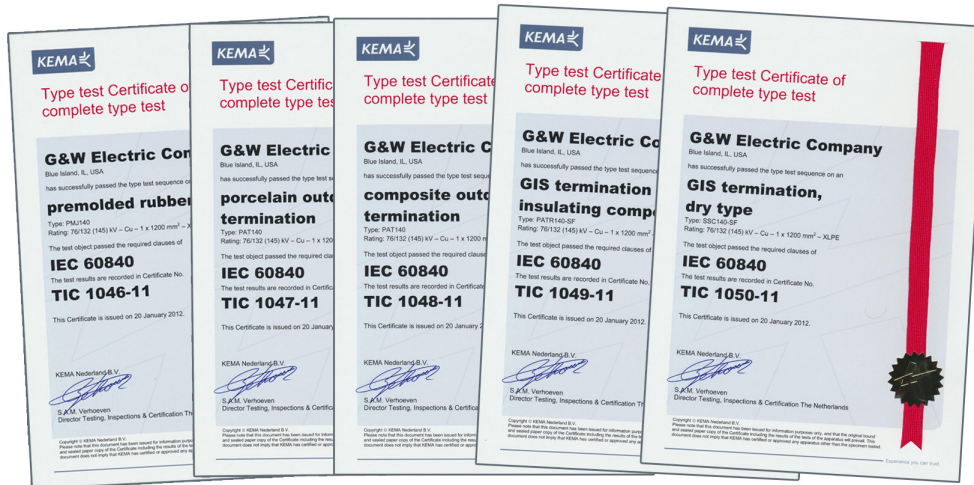
- 1905 – First product introduction: The disconnectable porcelain style pothead
- 1924 – Introduction of 66kV potheads
- 1952 – Introduction of 161kV terminations for high pressure fluid filled cables
- 1954 – Introduction of 230kV terminations for high pressure fluid filled cables
- 1958 – Introduction of 69kV stop joint for low and high pressure fluid filled cables
- 1959 – Introduction of 138kV terminations for high pressure gas filled cables
- 1961 – First 345kV condenser style termination installed at Cornell University
- 1963 – Introduction of joint for 138kV low and high pressure fluid filled cables
- 1966 – Introduced Slip-on® terminations with factory installed stress control and factory filled dielectric fluid for 15-46kV applications
- 1969 – Research and development test lab built at Blue Island, Illinois, USA
- 1969 – 500kV terminations for high pressure fluid filled cables sent to Waltz Mill underground transmission testing program
- 1969 – Extended the application range of Slip-on® design terminations to 161kV extruded dielectric cables
- 1991 – First installation of 220kV terminations and joints for extruded dielectric cables State Electricity Commission of Victoria, Australia project
- 1999 – Introduction of 138kV transition joints for low and high pressure fluid filled cables
- 1999 – Opened Shanghai, China Manufacturing facility
- 2000 – Acquisition of CTM “Cable Transition Module” molded epoxy transition joint product lines through 33kV applications
- 2002 – Introduced silicone rubber stress cones for transmission voltage (69kV-230kV) terminations for extruded dielectric cables
- 2006 – Acquisition of PSC and Easy-On 2 distribution voltage (15kV-46kV) and (69kV) spring loaded elastomeric terminations
- 2006 – Introduced dry type terminations for outdoor applications up to 138kV extruded dielectric cables
- 2007 – Introduced Python® brand terminations and joints with mechanical shrink installation method for 69kV-230kV extruded dielectric cables
- 2011 – First prequalification test per IEC 62067 completed on Python® 230kV rated products for extruded dielectric cables



Certifications



▲ 69kV type test certificates.



▲ 138kV type test certificates.



▲ 220kV prequalification test certificates.

Dry Type Outdoor Terminations



G&W's Python® premolded dry type outdoor terminations are available for 145kV IEC (138kV IEEE) XLPE cable systems.

FEATURES

- Lightweight
- Dry type premolded termination body
- Flexible design
- Vertical, horizontal or angled mounting positions
- Mechanical shrink installation
- Tested to IEC 60840

STANDARD COMPONENTS

1. Conductor Connector
(Crimp type connectors supplied as standard)
2. Hood nut
3. Corona shield cap
4. Termination body
5. Stress Cone
6. Position and cushion ring
7. Slip ring
8. Cable entrance housing
9. Insulation and seal tapes
10. Mounting bracket
11. Heat shrink tube
12. Grounding plate
13. Wiping seal

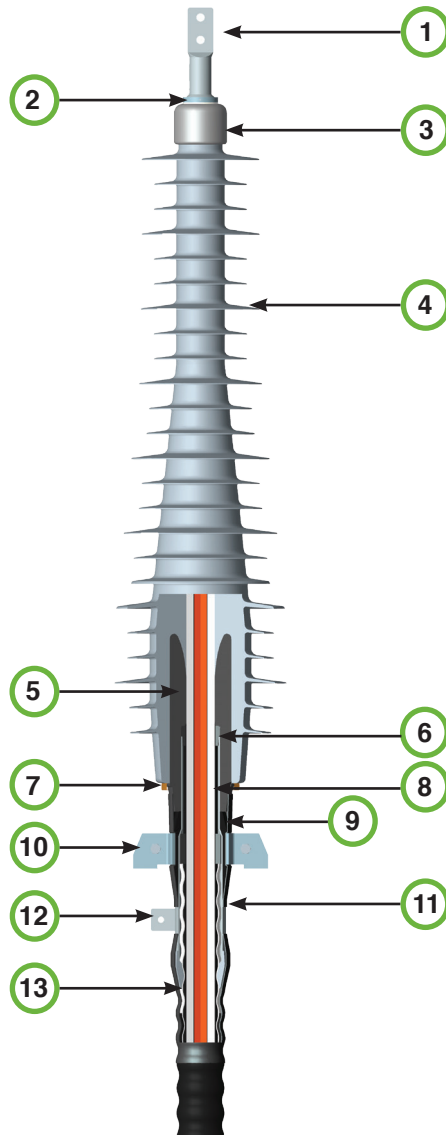
APPLICATION

Corrugated aluminum sheath or corrugated copper sheath or lead sheathed cables.

Application Range, XLPE Cable

Conductor Material	Conductor Size	Insulation Diameter*
145 (138) kV		
Copper	240mm ² - 1000mm ² (500 kcmil - 2000 kcmil)	59mm - 81mm (2.32 in. - 3.19 in.)

*Contact your G&W representative for additional cable sizes.

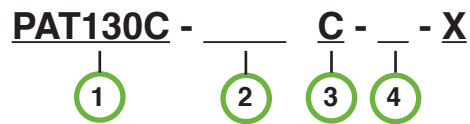


Dry Type Outdoor Terminations

CATALOG NUMBER BUILDER

Use the chart below to build your G&W catalog number. This number should be used for all inquiries and quote requests. In addition, the following cable information is required to process your order:

1. Conductor size and O.D. of conductor (nominal and max)
2. Insulation O.D. (min and max)
3. Insulation shield O.D. (min and max)
4. Jacket O.D. (nominal and max)
5. Cable construction details with metallic sheath type and fault current rating.



① Basic Termination

Rated Voltage kV (IEC)	Rated Voltage kV (IEEE)	BIL (kV)	Code
145	138	650	PAT130C

② Conductor Size (See application range chart, Page 6)

Size mm ²	Code	kcmil	Code
240	240M	500	500K
300	300M	750	750K
400	400M	1000	1000K
500	500M	1250	1250K
630	630M	1500	1500K
800	800M	1750	1750K
1000	1000M	2000	2000K

③ Conductor Material

Material	Code
Copper	C

④ Aerial Connection

Description	Code
2-Hole, Non-rotating	2H
4-Hole NEMA, Rotating	4H

Aerial Lug Options

2-Hole, Non-rotating	
Underground Conductor Size	Hole I.D.
240mm ² - 300mm ² (500 kcmil - 750 kcmil)	13mm
400mm ² - 1000mm ² (1000 kcmil - 2000 kcmil)	17mm
4-Hole NEMA, Rotating	
Underground Conductor Size	Hole I.D.
240mm ² - 1000mm ² (500 kcmil - 2000 kcmil)	14.5mm

Ship Weight

Catalog Prefix	Approximate Ship Weight
PAT130C	36 kg (80 lbs)

EXAMPLE:

PAT130C-630MC-2H-X

145kV termination for 630mm² copper conductor with 2-hole, non-rotating aerial connection.

Outdoor Terminations



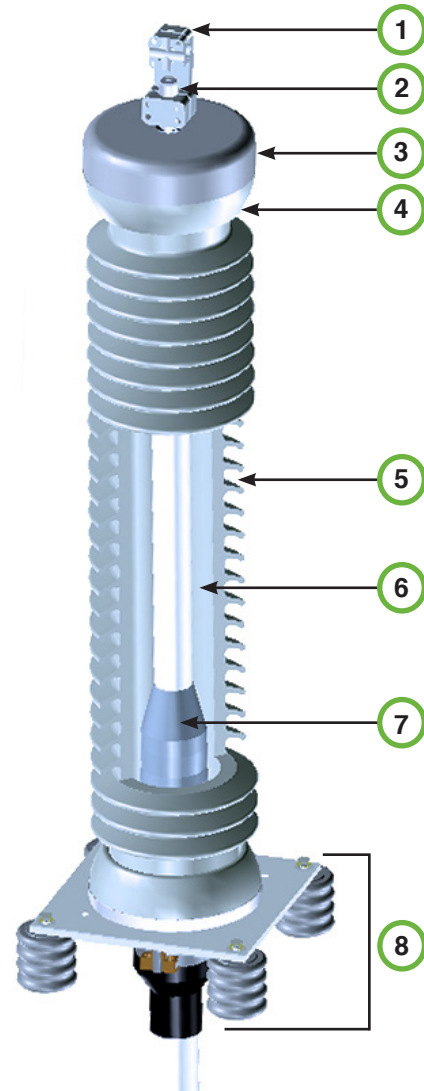
G&W's Python® outdoor PAT style transmission terminations are designed for extruded dielectric cable systems from 72.5kV to 245kV IEC (69kV to 230kV IEEE).

FEATURES

- Stress Cone: Factory molded and 100% tested
- Available with mechanical shrink or slip on installation method
- 69kV and 138kV are type tested per applicable requirements of IEEE 48 and IEC 60840
- 230kV is prequalified and type tested per IEC 62067
- Suitable for XLPE and EPR insulated cables

STANDARD COMPONENTS

1. Aerial lug specified by user
2. Connector (Crimp type connectors supplied as standard)
3. Aluminum cap plate
4. Aluminum corona shield
5. Insulator
6. Dielectric fluid
7. Premolded rubber stress cone
8. Aluminum entrance housing with heat shrink seal, standoff insulators (4) and galvanized steel mounting plate.
9. Cable preparation kit. Kit includes grease, sandpaper, PVC tape, heat shrink seal, solder, flux, tinned copper ground braid and grounding lugs.



Application Range

Conductor Material	Conductor Size	Insulation Diameter**
72.5 (69) kV		
Copper	240mm ² - 1600mm ² (500 kcmil - 3200 kcmil)	40.5mm - 93.2mm (1.59 in. - 3.67 in.)
Aluminum	240mm ² - 1600mm ² * (500 kcmil - 3200 kcmil) *	
145 (138) kV and 170 (161) kV		
Copper	240mm ² - 1200mm ² (500 kcmil - 2500 kcmil)	43mm - 96.5mm (1.69 in. - 3.80 in.)
Aluminum	240mm ² - 1200mm ² * (500 kcmil - 2500 kcmil) *	
245 (230) kV		
Copper	400mm ² - 2500mm ² (750 kcmil - 5000 kcmil)	74mm - 123.9mm (2.91 in. - 4.88 in.)
Aluminum	400mm ² - 1600mm ² * (750 kcmil - 3200 kcmil) *	

* Aluminum conductors larger than 1200mm² (2500 kcmil) may require special conductor connection provisions.
 **Contact your G&W representative for additional cable sizes.

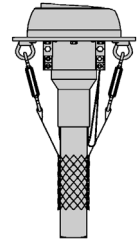
Insulator Options

- **Gray porcelain** (standard)
- **Brown porcelain** (optional)
 - Blends with existing installations
- **Silicone rubber, composite insulator** (optional)
 - Less than one third the weight of porcelain insulator
 - Will not break or fracture
 - Fire and UV resistant

Note: Extra creepage available on all models.

Cable Suspension Grip Option

- Supplied with:
- Stainless steel cable grip
 - Turnbuckles (2)
 - Eyebolts (2)



Arcing Horns Option

- Prevents damage to insulator due to significant overvoltage conditions
- Provides an alternate current path away from the insulator
- Adjustable to system requirements

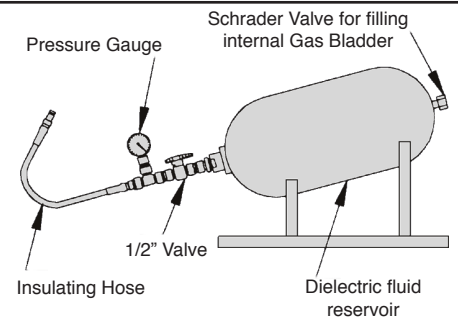
Aerial Lug Options

		Style 4 Clamp Type				Lug Material	Code
		Aerial Conductor Size		Aerial Lug Height Dimension			
mm ²	AWG/kmil	inches		mm			
		35-240	#2-500	7			
						Tinned	C1T
						Silver Plated Copper	C1S
300-500	550-1000	7		178		Bare Copper	C2
						Tinned	C2T
						Silver Plated Copper	C2S

Style 8 NEMA 4-Hole Type	
Description	Code
Bare Copper	N
Tin Plated Copper	NT
Silver Plated Copper	NS

Dielectric Fluid Volume Compensating System

- Required for proper performance in horizontal or inverted termination installations.
- Compensates for dielectric fluid expansion and contraction caused by temperature fluctuations.
- Supplied with:
 - Dielectric fluid reservoir with internal gas bladder
 - Insulating hose
 - Optional alarm device to signal accidental loss of dielectric fluid
- Contact your G&W representative for additional information.



Drain Valve Option

- Permits sampling of the dielectric fluid
- Located on base plate
- Required if volume compensating system option is specified

Ship Weight

Catalog Prefix	Approximate Ship Weight	
	Porcelain	Composite
PAT119	150 kg (327 lbs)	100 kg (217 lbs)
PAT140	270 kg (592 lbs)	220 kg (485 lbs)
PAT150	290 kg (639 lbs)	188 kg (415 lbs)
PAT160	1068 kg (2337 lbs)	780 kg (1710 lbs)

Outdoor Style PAT Terminations

CATALOG NUMBER BUILDER

Use the chart below to build your G&W catalog number. This number should be used for all inquiries and quote requests. In addition, the following cable information is required to process your order:

1. Conductor size and O.D. of conductor (nominal and max)
2. Insulation O.D. (min and max)
3. Insulation shield O.D. (min and max)
4. Jacket O.D. (nominal and max)
5. Cable construction details with metallic screen type and fault current rating.



1 Basic Termination

Rated Voltage kV (IEC)	Rated Voltage kV (IEEE)	BIL (kV)	Code
72.5	69	350	PAT119
145	138	650	PAT140
170	161	750	PAT150
245	230	1050	PAT160

2 Insulator- Material, Color, and Creepage

PAT 119		Code	PAT 140		Code
Porcelain, gray, 1702mm standard creepage		1702G	Porcelain, gray, 3540mm standard creepage		3540G
Porcelain, brown, 1702mm standard creepage		1702B	Porcelain, brown, 3540mm standard creepage		3540B
Porcelain, gray, 2464mm extra creepage		2464G	Porcelain, gray, 5050mm extra creepage		5050G
Porcelain, brown, 2464mm extra creepage		2464B	Porcelain, brown, 5050mm extra creepage		5050B
Silicone rubber, gray, 1524mm standard creepage		1524G	Silicone rubber, gray, minimum creepage of 4495mm		4495G
Silicone rubber, gray, 2194mm extra creepage		2194G			
PAT 150		Code	PAT 160		Code
Porcelain, gray, 4115mm standard creepage		4115G	Porcelain, gray, 5221mm standard creepage		5221G
Porcelain, brown, 4115mm standard creepage		4115B	Porcelain, brown, 5221mm standard creepage		5221B
Porcelain, gray, 5890mm extra creepage		5890G	Porcelain, gray, 8006mm extra creepage		8006G
Porcelain, brown, 5890mm extra creepage		5890B	Porcelain, brown, 8006mm extra creepage		8006B
Silicone rubber, gray, 3728mm standard creepage		3728G	Silicone rubber, gray, 5272mm standard creepage		5272G
Silicone rubber, gray, 5410mm extra creepage		5410G	Silicone rubber, gray, 7693mm extra creepage		7693G

3 Conductor Size
(See application range chart, Page 8)

Size mm ²	Code	kcil	Code
240	240M	500	500K
300	300M	750	750K
400	400M	1000	1000K
500	500M	1250	1250K
630	630M	1500	1500K
800	800M	1750	1750K
1000	1000M	2000	2000K
1200	1200M	2500	2500K
1400	1400M	3000	3000K
1600	1600M	5000	5000K
1800	1800M		
2000	2000M		
2500	2500M		

6 Aerial Lugs

Description	Code
No aerial lug	X
Clamp, Copper, 240mm ² max	C1
Clamp, Copper, 300mm ² - 500mm ²	C2
NEMA 4-hole, Copper	N

8 Additional Components

Description	Code
No additional components required	X
Arcing horns	AH
Drain valve	DV
Stainless steel suspension grips	SG

4 Conductor Material

Material	Code
Copper	C
Aluminum	A

5 Mounting/Entrance Configuration

Description	Code
Mounting plate with standoff insulators (4), aluminum entrance housing and heat shrink seals	X
Wiping sleeve for lead sheath, corrugated aluminum, or corrugated copper cable, Mounting plate with standoff insulators (4)	WS

7 Aerial Lug Finish

Finish	Code
None	X
Tinned	T
Silver	S

9 Installation

Description	Code
Mechanical shrink	X
Slip on: Use for spares or long term storage. Installation tool is available and is ordered separately	S

EXAMPLE:

PAT140-3540G-630MC-X-C1T-X-X

145kV termination with gray porcelain insulator for 630mm² copper conductor, mounting plate with standoff insulators, aluminum entrance housing and heat shrink seals, with clamp style, tinned copper aerial lug for 240mm² maximum overhead conductor with standard, mechanical shrink installation.

Dry GIS and Transformer Terminations



G&W's Python® SSC style transmission terminations are designed for gas insulated substation and transformer applications on extruded dielectric cable systems rated up to 145kV IEC (138kV IEEE).

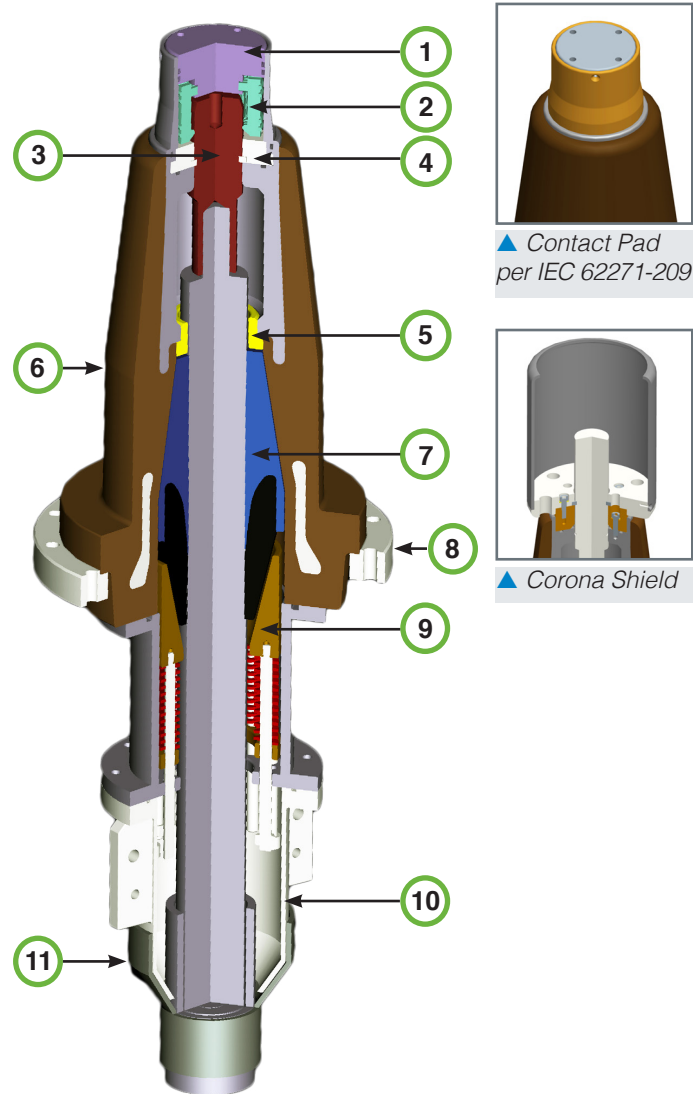
FEATURES

- Pressure tight epoxy socket insulator
- Prefabricated silicone rubber stress cone
- Dry type design, no oil filling of the termination required
- Dimensions meet the requirements of IEC 62271-209
- Third party type tested per IEC 60840
- 230kV is type tested per IEC 62067
- Suitable for GIS applications through 230kV and transformer (oil-immersed) applications through 170kV IEC (161kV IEEE)
- Application range is 240mm² - 2500mm² XLPE cable

STANDARD COMPONENTS

1. Contact Pad
2. Quick connect assembly
3. Connector
4. Connector stopper
5. Stress cone stopper
6. Epoxy Insulator
7. Premolded rubber stress cone
8. Clamping ring
9. Stress cone compression kit
10. Entrance housing
11. Heat shrink tube

Note: Standard kit also includes: grease, sandpaper, PVC tape, heat shrink seal, solder, flux, tinned copper ground braid and grounding lugs.



Application Range

Conductor Material	Conductor Size	Insulation Diameter**
145 (138) kV		
Copper	240mm ² - 2000mm ² (500 kcmil - 4000 kcmil)	57.5mm - 101.5mm (2.26 in. - 3.99 in.)
Aluminum	240mm ² - 1200mm ² * (500 kcmil - 2500 kcmil) *	
170 (161) kV		
Copper	240mm ² - 2000mm ² (500 kcmil - 4000 kcmil)	57.5mm - 101.5mm (2.26 in. - 3.99 in.)
Aluminum	240mm ² - 1200mm ² * (500 kcmil - 2500 kcmil) *	
245 (230) kV		
Copper	400mm ² - 2500mm ² (750 kcmil - 5000 kcmil)	76.5mm - 116.5mm (3.01 in. - 4.59 in.)
Aluminum	400mm ² - 1600mm ² * (750 kcmil - 3200 kcmil) *	

* Aluminum conductors larger than 1200mm² (2500 kcmil) may require special conductor connection provisions.

**Contact your G&W representative for additional cable sizes.

Dry GIS and Transformer Terminations

CATALOG NUMBER BUILDER

Use the chart below to build your G&W catalog number. This number should be used for all inquiries and quote requests. In addition, the following cable information is required to process your order:

1. Conductor size and O.D. of conductor (nominal and max)
2. Insulation O.D. (min and max)
3. Insulation shield O.D. (min and max)
4. Jacket O.D. (nominal and max)
5. Cable construction details with metallic screen type and fault current rating.



1 System Voltage

Rated Voltage kV (IEC)	Rated Voltage kV (IEEE)	BIL (kV)	Code
145	138	650	SSC140
170	161	750	SSC150
245	230	1050	SSC160

2 Connection Type

Description	Code
Stem Connector	X
Contact Pad per IEC 62271-209	SF

3 Corona Shield Option

Description	Code
None	X
Corona Shield	CS

4 Conductor Size (See application range chart, Page 12)

Size mm ²	Code	kcmil	Code
240	240M	500	500K
300	300M	750	750K
400	400M	1000	1000K
500	500M	1250	1250K
630	630M	1500	1500K
800	800M	1750	1750K
1000	1000M	2000	2000K
1200	1200M	2500	2500K
1400	1400M	3000	3000K
1600	1600M	5000	5000K
1800	1800M		
2000	2000M		
2500	2500M		

5 Conductor Material

Material	Code
Copper	C
Aluminum	A

Ship Weight

Catalog Prefix	Approximate Ship Weight
SSC140	90 kg (199 lbs)
SSC150	90 kg (199 lbs)
SSC160	110 kg (243 lbs)

EXAMPLE:

SSC140-SF-X-630MC

145kV termination with IEC 62271-209 contact pad for 630mm² copper conductor.

GIS and Transformer Terminations



G&W's Python® PATR style transmission terminations are designed for gas insulated substation and oil immersed equipment applications on extruded dielectric cable systems rated: 72.5kV, 145kV, and 245kV IEC (69kV, 138kV, 230kV IEEE)

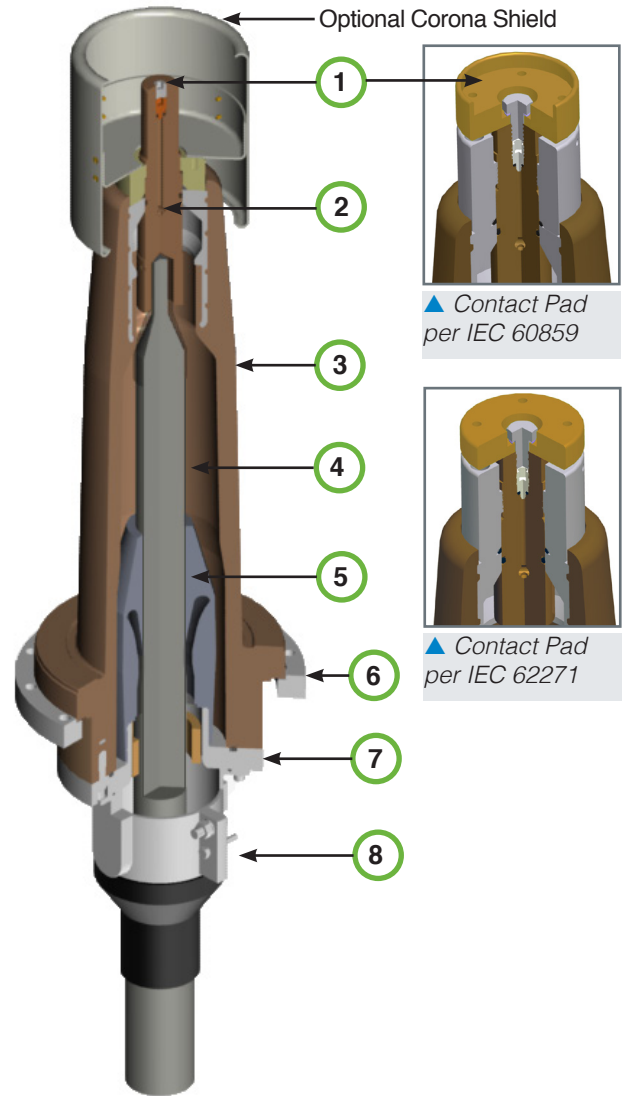
FEATURES

- Stress Cone: Factory molded and 100% tested
- Available with mechanical shrink or slip on installation method
- 69kV and 138kV are type tested per applicable requirements of IEEE 48 and IEC 60840
- 230kV is prequalification and type tested per IEC 62067
- Suitable for XLPE and EPR cables

STANDARD COMPONENTS

1. Equipment connection:
 - Contact pad style suitable for GIS or oil immersed transformer applications
 - Stem connector style suitable for oil immersed transformer applications. Various styles of aerial lugs are available for stem connector design.
2. Connector with double "O"-ring seal
3. Epoxy insulator with built-in cable shield break
4. Dielectric fluid
5. Premolded rubber stress cone
6. Aluminum clamping ring
7. Aluminum base plate
8. Aluminum entrance housing with heat shrink seal

Note: Standard kit also includes: grease, sandpaper, PVC tape, heat shrink seal, solder, flux, tinned copper ground braid and grounding lugs.



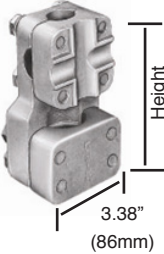
Application Range

Conductor Material	Conductor Size	Insulation Diameter**
72.5 (69) kV		
Copper	240mm ² - 1600mm ² (500 kcmil - 3200 kcmil)	40.5mm - 90mm (1.59 in. - 3.54 in.)
Aluminum	240mm ² - 1600mm ² * (500 kcmil - 3200 kcmil) *	
145 (138) kV		
Copper	240mm ² - 1200mm ² (500 kcmil - 2500 kcmil)	43mm - 96mm (1.69 in. - 3.78 in.)
Aluminum	240mm ² - 1200mm ² * (500 kcmil - 2500 kcmil) *	
245 (230) kV		
Copper	400mm ² - 2500mm ² (750 kcmil - 5000 kcmil)	74mm - 124.9mm (2.91 in. - 4.92 in.)
Aluminum	400mm ² - 1600mm ² * (750 kcmil - 3200 kcmil) *	

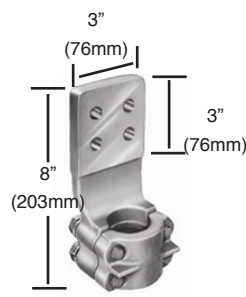
* Aluminum conductors larger than 800mm² (1600 kcmil) may require special conductor connection provisions.

**Contact your G&W representative for additional cable sizes.

Aerial Lug Options- Used only with Stem Connector Style



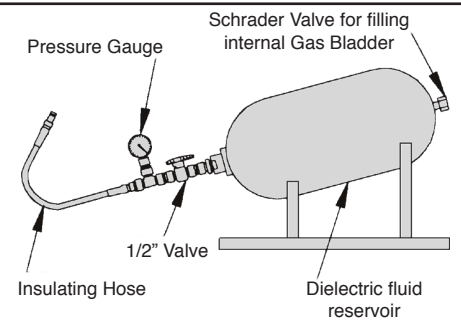
Style 4 Clamp Type					
Aerial Conductor Size		Aerial Lug Height Dimension		Lug Material	Code
mm ²	AWG/kcmil	inches	mm		
35-240	#2-500	7	178	Bare Copper	C1
				Tinned	C1T
				Silver Plated Copper	C1S
300-500	550-1000	7	178	Bare Copper	C2
				Tinned	C2T
				Silver Plated Copper	C2S



Style 8 NEMA 4-Hole Type	
Description	Code
Bare Copper	N
Tin Plated Copper	NT
Silver Plated Copper	NS

Dielectric Fluid Volume Compensating System

- Required for proper performance in horizontal or inverted termination installations.
- Compensates for dielectric fluid expansion and contraction caused by temperature fluctuations.
- Supplied with:
 - Dielectric fluid reservoir with internal gas bladder
 - Insulating hose
 - Optional alarm device to signal accidental loss of dielectric fluid
- Contact your G&W representative for additional information.



Oil Filling Kit

- Required for filling terminations during installation.
- Kit must be ordered separately.
- Kit can be used to fill multiple terminations. G&W recommends ordering one oil filling kit per six terminations ordered.
- Supplied with:
 - Pump
 - Valves and fittings
 - Hose (2 meters)
 - Sight glass

Connectors

Connection Type	Code
Stem Connector	X
Contact Pad per IEC 60859	SF
Contact Pad per IEC 62271-209	SG

- Crimp type connectors supplied as standard
- Shear bolt connectors available

Ship Weight

Catalog Prefix	Approximate Ship Weight
PATR119	72 kg (160 lbs)
PATR140	90 kg (200 lbs)
PATR160	177 kg (390 lbs)

GIS and Transformer Terminations

CATALOG NUMBER BUILDER

Use the chart below to build your G&W catalog number. This number should be used for all inquiries and quote requests. In addition, the following cable information is required to process your order:

1. Conductor size and O.D. of conductor (nominal and max)
2. Insulation O.D. (min and max)
3. Insulation shield O.D. (min and max)
4. Jacket O.D. (nominal and max)
5. Cable construction details with metallic screen type and fault current rating.



1 System Voltage

Rated Voltage kV (IEC)	Rated Voltage kV (IEEE)	BIL (kV)	Code
72.5	69	350	PATR119
145	138	650	PATR140
245	230	1050	PATR160

2 Connection Type

Description	Code
Stem Connector	X
Contact Pad per IEC 60859	SF
Contact Pad per IEC 62271-209	SG

3 Corona Shield Option

Description	Code
None	X
Corona Shield	CS

4 Conductor Size (See application range chart, Page 14)

Size mm ²	Code	kcmil	Code
240	240M	500	500K
300	300M	750	750K
400	400M	1000	1000K
500	500M	1250	1250K
630	630M	1500	1500K
800	800M	1750	1750K
1000	1000M	2000	2000K
1200	1200M	2500	2500K
1400	1400M	3000	3000K
1600	1600M	5000	5000K
1800	1800M		
2000	2000M		
2500	2500M		

5 Conductor Material

Material	Code
Copper	C
Aluminum	A

7 Aerial Lugs (Use only with stem connector)

Description	Code
No aerial lug	X
Clamp, Copper, 240mm ² max	C1
Clamp, Copper, 300mm ² - 500mm ²	C2
NEMA 4-hole, Copper	N

8 Aerial Lug Finish

Finish	Code
None	X
Tinned	T
Silver	S

6 Entrance Configuration

Description	Code
Aluminum entrance housing and heat shrink seal	X
Wiping Sleeve for lead sheath, corrugated aluminum, or corrugated copper cable, Mounting plate with standoff insulators (4)	WS

9 Installation

Description	Code
Mechanical Shrink	X
Slip On- Use for spares or long term storage. Installation tool is available and is ordered separately	S

EXAMPLE:

PATR140-X-CS-630MC-X-C1S-X

145kV termination with stem connector and corona shield for 630mm² copper conductor with clamp style, silver plated aerial lug, with standard, mechanical shrink installation.

Premolded Joint



G&W's Python® premolded rubber joints (PMJ) are available for 145kV and 245kV IEC (138kV and 230kV IEEE) extruded dielectric cable systems.

▲ PMJ shown installed on cable with copper housing outer protection.

FEATURES

- Factory premolded joint
- 100% routine tested
- 138kV are type tested per applicable requirements of IEEE 48, IEC 60840
- 230kV is prequalification and type tested per IEC62067

APPLICATIONS

- Extruded dielectric cable systems, XLPE and EPR insulated
 - Cable ground shield: copper wires / tapes, corrugated aluminum or copper sheath, lead sheath.
 - Direct burial, submersed or vault.

OPTIONS

- Available with mechanical shrink or slip-on installation method.
- Shield break or Non shield break configurations.
- Available with the following options for outer protection:
 - Heat shrink tubing
 - Copper housing
 - Fiberglass housing
 - Copper and fiberglass housing
- Shear bolt connectors available.

Application Range

Conductor Material	Conductor Size	Insulation Diameter**
145 (138) kV		
Copper	400mm ² - 1200mm ² (750 kcmil - 2500 kcmil)	60mm - 94mm (2.36 in. - 3.70 in.)
Aluminum	400mm ² - 1200mm ² * (750 kcmil - 2500 kcmil) *	
245 (230) kV		
Copper	400mm ² - 2500mm ² (750 kcmil - 5000 kcmil)	82mm - 117mm (3.23 in. - 4.61 in.)
Aluminum	400mm ² - 2500mm ² * (750 kcmil - 5000 kcmil) *	

* Aluminum conductors larger than 500mm² (1000 kcmil) may require special conductor connection provisions.

**Contact your G&W representative for additional cable sizes.

Premolded Rubber Joints

CATALOG NUMBER BUILDER

Use the chart below to build your G&W catalog number. This number should be used for all inquiries and quote requests. In addition, the following cable information is required to process your order:

1. Conductor size and O.D. of conductor (nominal and max)
2. Insulation O.D. (min and max)
3. Insulation shield O.D. (min and max)
4. Jacket O.D. (nominal and max)
5. Cable construction details with metallic screen type and fault current rating.



1 System Voltage

Rated Voltage kV (IEC)	Rated Voltage kV (IEEE)	BIL (kV)	Code
145	138	650	PMJ140
245	230	1050	PMJ160

2 Shield Break Option

Description	Code
With Shield Break	B
Without Shield Break	N

3 Conductor Size (See Application section for available application range)

Size mm ²	Code	kcmil	Code
400	400M	750	750M
500	500M	1000	1000K
630	630M	1250	1250K
800	800M	1500	1500K
1000	1000M	1750	1750K
1200	1200M	2000	2000K
1400	1400M	2500	2500K
1600	1600M	3000	3000K
1800	1800M	5000	5000K
2000	2000M		
2500	2500M		

4 Conductor Material

Material	Code
Copper	C
Aluminum	A

5 Additional Housing Protection

Description	Code
None	X
Copper Housing with Compound	C
Fiberglass Housing with Compound	F
Copper Housing and Fiberglass Enclosure with Compound	CF

6 Installation Method

Description	Code
Mechanical Shrink	X
Slip On- Use for spares or long term storage. Installation tool is available and is ordered separately	S

Ship Weight

Catalog Prefix	Approximate Ship Weight
PMJ140	75 kg (165 lbs)
PMJ160	105 kg (266 lbs)

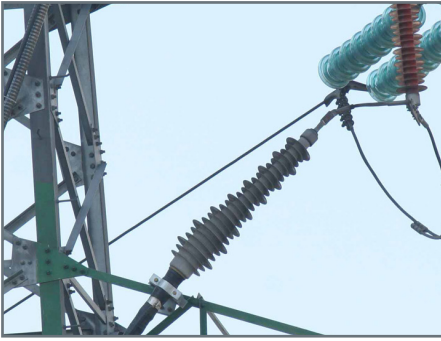
EXAMPLE 1: PMJ140-B-630MC-CF-X

Premolded joint, 145kV (138kV), with shield break 630mm² copper conductor cable. Kit is supplied with copper housing with compound and fiberglass enclosure with compound. Mechanical shrink installation method.

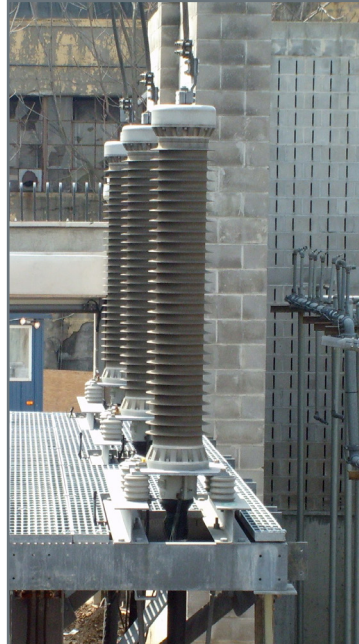
EXAMPLE 2: PMJ160-N-2500KA-X-S

Premolded joint, 245kV (230kV), without shield break for 2500 kcmil aluminum conductor cable. Slip-On installation method.

Application Photos



▲ Dry type outdoor termination angle mounted on a tower.



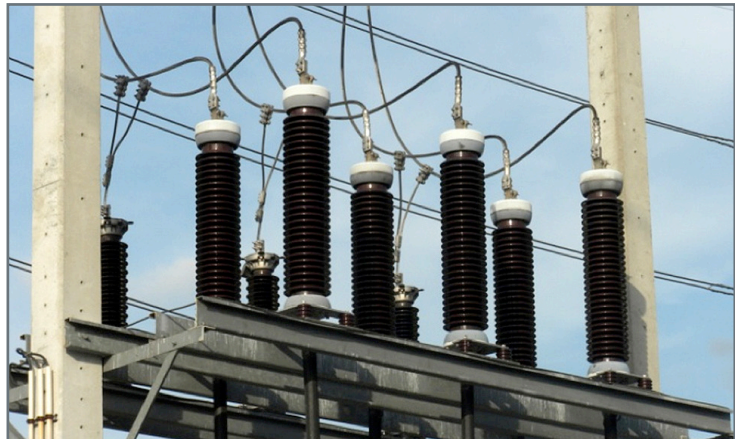
▲ Outdoor termination



▲ Installation of premolded joint.



▲ Dry type outdoor termination in a substation application.



▲ Outdoor terminations with optional brown porcelain.



▲ PATR140-SF terminations installed in a GIS.



▲ SSC140-SF terminations installed in a GIS.

G&W offers a complete line of **Distribution and Transmission Cable Accessories** including:

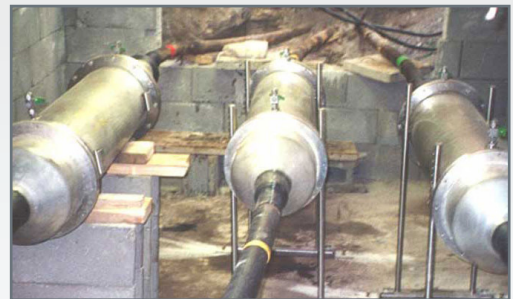
Distribution Cable Terminations

- Support wide variety of cable types through 46kV
- High grade, wet process porcelain insulators
- Field assembled designs offer interchangeable parts
- Variety of designs offer built-in stress relief and insulation



Distribution Cable Joints and Splices

- Support wide variety of cable types through 35kV
- From simple tape splice kits to innovative epoxy designs
- Elbow interfaces for quick disconnect and reconnect
- Joints for underground vaults or direct burial



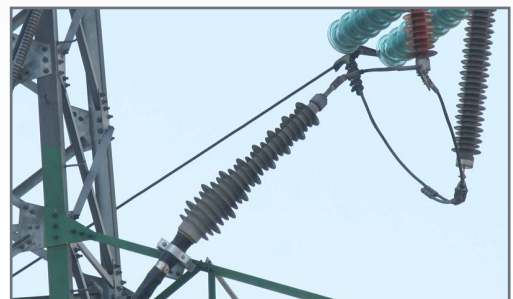
Transmission Cable Accessories for Self-contained and Pipe Type Cables

- Offers a variety of accessories for all cable systems
- For outdoor applications through 345kV IEEE
- For gas insulated substations through 345kV IEEE
- Transition joints available through 138kV IEEE



Transmission Cable Accessories for Extruded Dielectric Cable

- For outdoor applications through 230kV IEEE
- For gas insulated substations through 230kV IEEE
- Dry type designs available for easy installation



G&W Electric Company

305 W. Crossroads Pkwy
Bolingbrook, IL 60440-4938 USA
Tel 708.388.5010 Fax 708.388.0755

www.gwelec.com
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