

# Outdoor Terminations



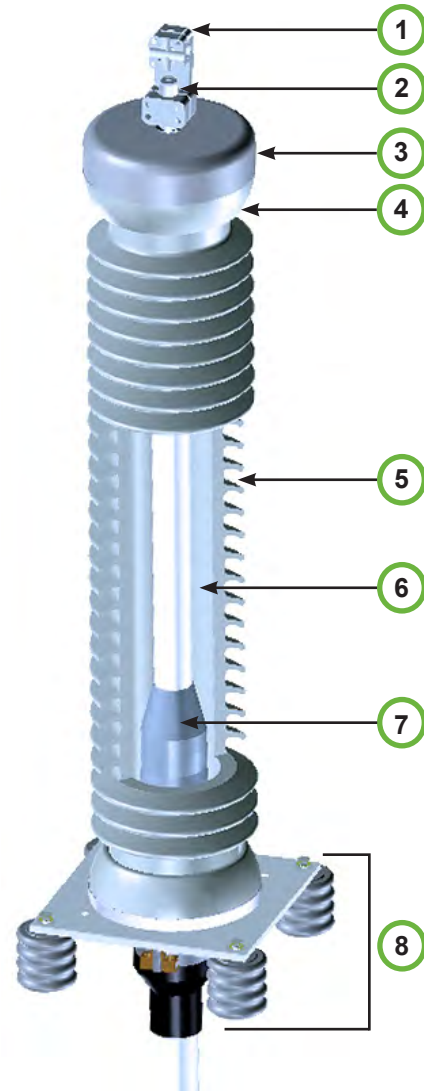
G&W's Python® outdoor PAT style transmission terminations are designed for extruded dielectric cable systems from 72.5kV to 245kV IEC (69kV to 230kV IEEE).

## 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**
<b>72.5 (69) kV</b>		
Copper	240mm <sup>2</sup> - 1600mm <sup>2</sup> (500 kcmil - 3200 kcmil)	40.5mm - 93.2mm (1.59 in. - 3.67 in.)
Aluminum	240mm <sup>2</sup> - 1600mm <sup>2</sup> * (500 kcmil - 3200 kcmil) *	
<b>145 (138) kV and 170 (161) kV</b>		
Copper	240mm <sup>2</sup> - 1200mm <sup>2</sup> (500 kcmil - 2500 kcmil)	43mm - 96.5mm (1.69 in. - 3.80 in.)
Aluminum	240mm <sup>2</sup> - 1200mm <sup>2</sup> * (500 kcmil - 2500 kcmil) *	
<b>245 (230) kV</b>		
Copper	400mm <sup>2</sup> - 2500mm <sup>2</sup> (750 kcmil - 5000 kcmil)	74mm - 123.9mm (2.91 in. - 4.88 in.)
Aluminum	400mm <sup>2</sup> - 1600mm <sup>2</sup> * (750 kcmil - 3200 kcmil) *	

\* Aluminum conductors larger than 1200mm<sup>2</sup> (2500 kcmil) may require special conductor connection provisions.

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

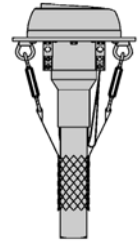
## Insulator Options

- **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

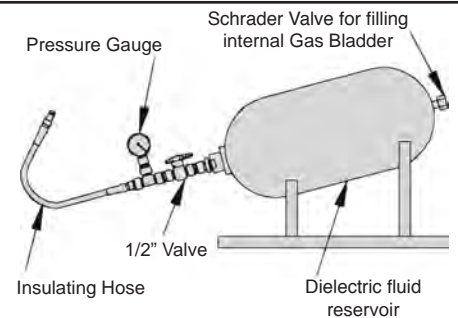
Aerial Conductor Size		Style 4 Clamp Type		Lug Material	Code
		Aerial Lug Height Dimension			
		mm <sup>2</sup>	AWG/kmil		
35-240	#2-500	7	178	Bare Copper	<b>C1</b>
				Tinned	<b>C1T</b>
				Silver Plated Copper	<b>C1S</b>
300-500	550-1000	7	178	Bare Copper	<b>C2</b>
				Tinned	<b>C2T</b>
				Silver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

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

## 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

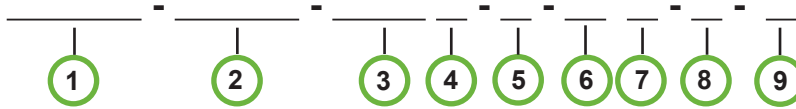
	Approximate Ship Weight	
	Porcelain	Composite
<b>PAT119</b>	150 kg (327 lbs)	100 kg (217 lbs)
<b>PAT140</b>	270 kg (592 lbs)	180 kg (394 lbs)
<b>PAT150</b>	290 kg (639 lbs)	188 kg (415 lbs)
<b>PAT160</b>	1068 kg (2337 lbs)	780 kg (1710 lbs)

# 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	<b>PAT119</b>
145	138	650	<b>PAT140</b>
170	161	750	<b>PAT150</b>
245	230	1050	<b>PAT160</b>

### 2 Insulator- Material, Color, and Creepage

PAT 119		Code	PAT 140		Code
Porcelain, gray, 1702mm standard creepage		<b>1702G</b>	Porcelain, gray, 3540mm standard creepage		<b>3540G</b>
Porcelain, brown, 1702mm standard creepage		<b>1702B</b>	Porcelain, brown, 3540mm standard creepage		<b>3540B</b>
Porcelain, gray, 2464mm extra creepage		<b>2464G</b>	Porcelain, gray, 5050mm extra creepage		<b>5050G</b>
Porcelain, brown, 2464mm extra creepage		<b>2464B</b>	Porcelain, brown, 5050mm extra creepage		<b>5050B</b>
Silicone rubber, gray, 1524mm standard creepage		<b>1524G</b>	Silicone rubber, gray, 3283mm standard creepage		<b>3283G</b>
Silicone rubber, gray, 2194mm extra creepage		<b>2194G</b>	Silicone rubber, gray, 4863mm extra creepage		<b>4863G</b>
PAT 150		Code	PAT 160		Code
Porcelain, gray, 4115mm standard creepage		<b>4115G</b>	Porcelain, gray, 5221mm standard creepage		<b>5221G</b>
Porcelain, brown, 4115mm standard creepage		<b>4115B</b>	Porcelain, brown, 5221mm standard creepage		<b>5221B</b>
Porcelain, gray, 5890mm extra creepage		<b>5890G</b>	Porcelain, gray, 8006mm extra creepage		<b>8006G</b>
Porcelain, brown, 5890mm extra creepage		<b>5890B</b>	Porcelain, brown, 8006mm extra creepage		<b>8006B</b>
Silicone rubber, gray, 3728mm standard creepage		<b>3728G</b>	Silicone rubber, gray, 5272mm standard creepage		<b>5272G</b>
Silicone rubber, gray, 5410mm extra creepage		<b>5410G</b>	Silicone rubber, gray, 7693mm extra creepage		<b>7693G</b>

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

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

**6** Aerial Lugs

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

**8** Additional Components

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

**4** Conductor Material

Material	Code
Copper	<b>C</b>
Aluminum	<b>A</b>

**5** Mounting/Entrance Configuration

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

**7** Aerial Lug Finish

Finish	Code
None	<b>X</b>
Tinned	<b>T</b>
Silver	<b>S</b>

**9** Installation

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

**EXAMPLE:**

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

145kV termination with gray porcelain insulator for 630mm<sup>2</sup> copper conductor, mounting plate with standoff insulators, aluminum entrance housing and heat shrink seals, with clamp style, tinned copper aerial lug for 240mm<sup>2</sup> maximum overhead conductor with standard, mechanical shrink installation.