G&W Electric

Engineered to order. Built to last.®

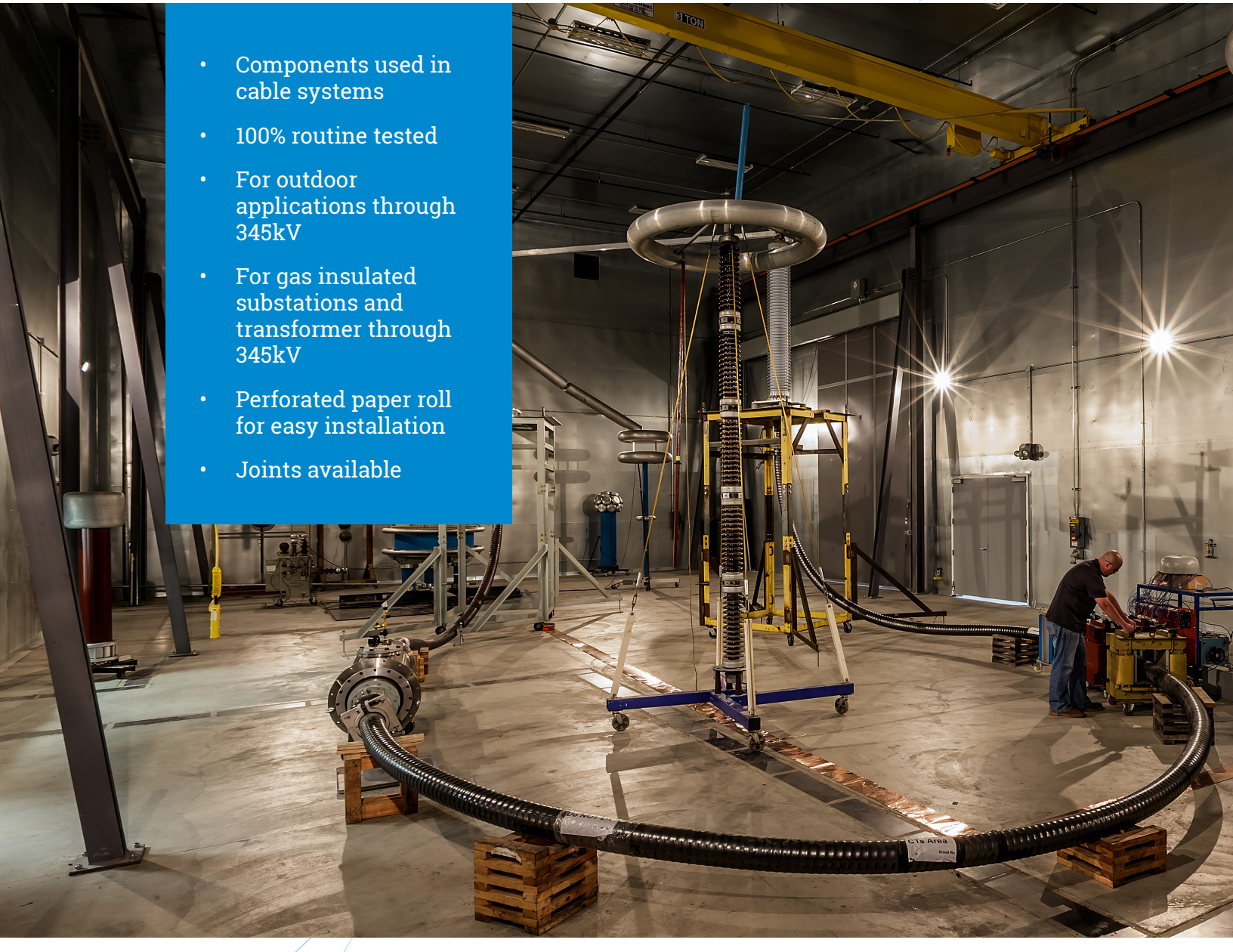
Oil Insulated Paper Cable Accessories

For oil insulated paper cable 69kV-345kV

G&W Electric's portfolio of transmission cable accessories reflects our long history of industry-leading research and development. We are a pioneer in the design and manufacturing of quality cable accessories, with a long history of expertise that actively contributes to development standards for IEEE.

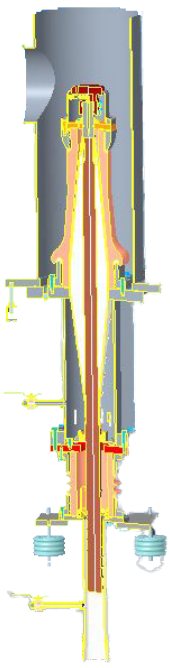
G&W Electric offers a variety of transmission cable accessories for extruded dielectric cable systems. Accessories are available for extruded, self-contained and pipe type cables for outdoor and equipment mount applications. Our power cable accessories are designed to the latest industry standards to ensure time-proven, reliable system performance.

- Components used in cable systems
- 100% routine tested
- For outdoor applications through 345kV
- For gas insulated substations and transformer through 345kV
- Perforated paper roll for easy installation
- Joints available

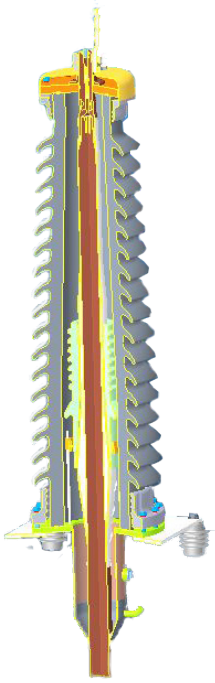


G&W Electric's high voltage testing laboratory in Bolingbrook, IL

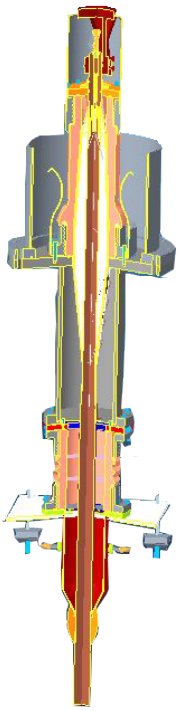
OIL INSULATED PAPER CABLE TYPES



GIS Termination for HPFF



Outdoor Termination for LPFF



GIS Termination for LPFF

Outdoor Terminations - Transmission Voltage Cable Terminations for Pipe Type Fluid Cables - ATA-N

G&W Electric's outdoor **ATA-N** style transmission terminations are designed for high pressure fluid filled cable systems from 69kV through 345kV.

FEATURES

- Perforated paper roll for easy installation
- All terminations routine tested per IEEE 48
- Suitable for paper or LPP cable insulations
- Three pressure rating designs available

STANDARD COMPONENTS

- Porcelain termination with aluminum body
- Connector – Crimp type connector standard for all copper cables and small aluminum cables. Migweld connectors are used for large aluminum cables.
- Aerial lug
- Stress cone materials kit
- Perforated paper roll
- Corona shield
- Inner stress porcelain for 161kV and below
- Capacitor stack for 230kV and 345kV
- Semi-stop with skid wire connection
- Baseplate
- Pipe stub assembly with valve, coupling, and stand-off insulators

Pressure Ratings for ATA-N

Item	Standard	High Strength (-HS)	Extra High Strength (-EHS)
Nominal Operating Pressure - psi	200	300	400
Max. Continuous Operating Pressure (over 10 hours) - psi	275	410	750
Max. Transient Pressure (up to 10 hours) - psi	300	450	840 (up to 6 hours)
Max. Peak Transient - psi	400	600	-
Max. Field (proof) - psi	350	525	-
Factory Test (1 hour) - psi	500	750	1000

ATA-N-style Transmission Terminations

Voltage-kV	Catalog Code	BIL-kV	Max Conductor Size -kcmil	Creepage Distance-in. (mm)	Shipping Weight-lbs (kg)	Approximate Oil Volume-Gal (L)
69	ATA119N	350	2000	52 (1321)	600 (272)	2 (8)
69	ATA110N	350	3500	61 (1549)	650 (295)	7 (27)
115	ATA139N	550	1500	80 (2032)	800 (363)	8 (30)
115	ATA130N	550	3500	98 (2489)	900 (408)	8 (30)
138	ATA149N	650	1500	98 (2489)	900 (408)	11 (42)
138	ATA140N	650	3500	120 (3048)	1100 (499)	12.5 (48)
161	ATA159N	750	1500	120 (3048)	1100 (499)	12.5 (48)
161	ATA150N	750	3500	138 (3505)	1250 (567)	15 (57)
230	ATA160NC	1050	3500	205 (5221)	2200 (998)	22 (84)
345	ATA180NC	1300	3500	236 (5995)	3500 (1589)	50 (190)

***NOTE**: Catalog codes listed are for 200psi nominal operating pressure, add -HS to catalog code to indicate 300psi nominal operating pressure, and -EHS to catalog code to indicate 400psi nominal operating pressure.*

Outdoor Terminations - Transmission Voltage Cable Terminations for High Pressure Gas Filled Cables - ATA-NG

G&W Electric's outdoor **ATA-NG** style transmission terminations are designed for high pressure gas filled cable systems from 69kV through 138kV.

FEATURES

- Perforated paper roll for easy installation
- All terminations routine tested per IEEE 48
- Suitable for paper or LPP cable insulations
- Three pressure rating designs available

STANDARD COMPONENTS

- Porcelain termination with aluminum body
- Connector - Crimp type connector standard for all copper cables and small aluminum cables. Migweld connectors are used for large aluminum cables.
- Aerial lug
- Stress cone materials kit
- Perforated paper roll
- Corona shield
- Semi-stop with skid wire connection
- Baseplate
- Pipe stub assembly with valve, coupling, and stand-off insulators

Pressure Ratings for ATA-NG

Item	Standard	High Strength (-HS)	Extra High Strength (-EHS)
Nominal Operating Pressure - psi	200	300	400
Max. Continuous Operating Pressure (over 10 hours) - psi	275	410	750
Max. Transient Pressure (up to 10 hours) - psi	300	450	840 (up to 6 hours)
Max. Peak Transient - psi	400	600	-
Max. Field (proof) - psi	350	525	-
Factory Test (1 hour) - psi	500	750	1000

ATA-NG-style Transmission Terminations

Voltage-kV	Catalog Code	BIL-kV	Max Conductor Size-kcmil	Creepage Distance-in. (mm)	Shipping Weight-lbs (kg)
69	ATA119NG	350	1250	52 (1321)	650 (295)
69	ATA110NG	350	3000	61 (1549)	700 (317)
115	ATA139NG	550	1750	98 (2489)	850 (385)
115	ATA130NG	550	3000	120 (3048)	1050 (476)
138	ATA149NG	650	1250	120 (3048)	1100 (499)
138	ATA140NG	650	3000	138 (3505)	1300 (590)

NOTE: *Catalog codes listed are for 200psi nominal operating pressure, add -HS to catalog code to indicate 300psi nominal operating pressure, and -EHS to catalog code to indicate 400psi nominal operating pressure.*

Outdoor Terminations - Transmission Voltage Cable Terminations for Low Pressure, Medium Pressure, and Self Contained Fluid Filled Cables - ATL-N

G&W Electric's outdoor **ATL-N** style transmission terminations are designed for low pressure, medium pressure, and self contained fluid filled cable systems from 69kV through 230kV.

FEATURES

- Perforated paper roll for easy installation
- All terminations routine tested per IEEE 48
- Suitable for paper or LPP cable insulations
- Three pressure rating designs available

STANDARD COMPONENTS

- Porcelain termination with aluminum body
- Connector - Crimp type connector standard for all copper cables and small aluminum cables. Migweld connectors are used for large aluminum cables.
- Aerial lug
- Stress cone materials kit
- Perforated paper roll
- Corona shield
- Inner stress porcelain for 161kV and below
- Capacitor stack for 230kV
- Semi-stop with skid wire connection
- Baseplate
- Copper wiping sleeve and stand-off insulators

Pressure Ratings for ATL-N

Item	Standard	High Strength (-HS)	Extra High Strength (-EHS)
Nominal Operating Pressure - psi	15	40	100
Max. Continuous Operating Pressure (over 10 hours) - psi	22	55	138
Max. Transient Pressure (up to 10 hours) - psi	24	60	150
Max. Peak Transient - psi	32	80	200
Max. Field (proof) - psi	28	70	175
Factory Test (1 hour) - psi	40	100	250

ATL-N-style Transmission Terminations

Voltage-kV	Catalog Code	BIL-kV	Max Conductor Size-kcmil	Creepage Distance-in. (mm)	Shipping Weight-lbs (kg)	Approximate Oil Volume-Gal (L)
69	ATL119N	350	2500	52 (1321)	450 (205)	2 (8)
69	ATL110N	350	3500	61 (1549)	600 (272)	5 (19)
115	ATL139N	550	2500	80 (2032)	750 (350)	7 (27)
115	ATL130N	550	3500	98 (2489)	800 (363)	7 (27)
138	ATL149N	650	2500	98 (2489)	800 (363)	10 (38)
138	ATL140N	650	3500	120 (3048)	1050 (476)	10.5 (40)
161	ATL159N	750	2500	120 (3048)	1050 (476)	10.5 (40)
161	ATL150N	750	3500	138 (3505)	1100 (499)	15 (57)
230	ATL160NC	1050	3500	205 (5221)	1600 (726)	30 (114)

NOTE: Catalog codes listed are for 15psi nominal operating pressure, add -HS to catalog code to indicate 40psi nominal operating pressure, and -EHS to catalog code to indicate 100psi nominal operating pressure.

GIS Terminations - Transmission Voltage GIS Cable Terminations for Pipe Type Fluid Cables - ATA-N-SF

G&W Electric's GIS **ATA-N-SF** style transmission terminations are designed for high pressure fluid filled cable systems from 138kV through 345kV.

FEATURES

- Perforated paper roll for easy installation
- Dimensionally designed per IEEE 1300
- All terminations routine tested per IEEE 48
- Suitable for paper or LPP cable insulations
- Single phase and three phase solutions available
- Three pressure rating designs available

STANDARD COMPONENTS

- Porcelain termination with aluminum body
- Connector - Crimp type connector standard for all copper cables and small aluminum cables. Migweld connectors are used for large aluminum cables.
- Flat bus interface connection
- Stress cone materials kit
- Perforated paper roll
- Corona shield
- Ground shield
- Semi-stop with skid wire connection
- Baseplate
- Pipe stub assembly with valve, coupling, and stand-off insulators

Pressure Ratings for ATA-N-SF

Item	Standard	High Strength (-HS)	Extra High Strength (-EHS)
Nominal Operating Pressure - psi	200	300	400
Max. Continuous Operating Pressure (over 10 hours) - psi	275	410	750
Max. Transient Pressure (up to 10 hours) - psi	300	450	840 (up to 6 hours)
Max. Peak Transient - psi	400	600	-
Max. Field (proof) - psi	350	525	-
Factory Test (1 hour) - psi	500	750	1000

ATA-N-SF-style Transmission Terminations

Voltage-kV	Catalog Code	BIL-kV	Max Conductor Size-kcmil	Shipping Weight-lbs (kg)	Approximate Oil Volume-Gal (L)
138	ATA140N-SF	650	3500	530 (240)	7.5 (29)
230	ATA160N-SF	1050	3500	800 (363)	9 (34)
345	ATA180N-SF	1300	3500	800 (363)	9 (34)

NOTE: Catalog codes listed are for 200psi nominal operating pressure, add -HS to catalog code to indicate 300psi nominal operating pressure, and -EHS to catalog code to indicate 400psi nominal operating pressure.

GIS Terminations - Transmission Voltage GIS Cable Terminations for Low Pressure, Medium Pressure, and Self-Contained Fluid Filled Cables - ATL-N-SF

G&W Electric's GIS **ATL-N-SF** style transmission terminations are designed for low pressure, medium pressure, and self-contained fluid filled cables systems from 138kV through 345kV.

FEATURES

- Perforated paper roll for easy installation
- Dimensionally designed per IEEE 1300
- All terminations routine tested per IEEE 48
- Suitable for paper or LPP cable insulations
- Single phase and three phase solutions available
- Three pressure rating designs available

STANDARD COMPONENTS

- Porcelain termination with aluminum body
- Connector – Crimp type connector standard for all copper cables and small aluminum cables. Migweld connectors are used for large aluminum cables.
- Flat bus interface connection
- Stress cone materials kit
- Perforated paper roll
- Corona shield
- Ground shield
- Semi-stop with skid wire connection
- Baseplate
- Copper wiping sleeve and stand-off insulators

Pressure Ratings for ATL-N-SF

Item	Standard	High Strength (-HS)	Extra High Strength (-EHS)
Nominal Operating Pressure - psi	15	40	100
Max. Continuous Operating Pressure (over 10 hours) - psi	22	55	138
Max. Transient Pressure (up to 10 hours) - psi	24	60	150
Max. Peak Transient - psi	32	80	200
Max. Field (proof) – psi	28	70	175
Factory Test (1 hour) - psi	40	100	250

ATL-N-SF-style Transmission Terminations

Voltage -kV	Catalog Code	BIL-kV	Max Conductor Size-kcmil	Shipping Weight–lbs (kg)	Approximate Oil Volume-Gal (L)
138	ATL140N-SF	650	3500	530 (240)	7.5 (29)
230	ATL160N-SF	1050	3500	780 (354)	9 (34)
345	ATL180N-SF	1300	3500	780 (354)	9 (34)

Catalog codes listed are for 15psi nominal operating pressure, add -HS to catalog code to indicate 40psi nominal operating pressure, and -EHS to catalog code to indicate 100psi nominal operating pressure.

GIS Terminations - Transmission Voltage GIS Cable Terminations for Low Pressure, Medium Pressure, and Self-Contained Fluid Filled Cables - ATL-A-SF

G&W Electric's GIS **ATL-A-SF** style transmission terminations are designed for low pressure, medium pressure, and self-contained fluid filled cables systems from 115kV through 161kV.

FEATURES

- Perforated paper roll for easy installation
- Dimensionally designed per IEC60859
- All terminations routine tested per IEEE 48
- Suitable for paper or LPP cable insulations
- Three pressure rating designs available

STANDARD COMPONENTS

- Epoxy nose cone with aluminum body
- Connector – Crimp type connector standard for all copper cables and small aluminum cables. Migweld connectors are used for large aluminum cables.
- Flat bus interface connection
- Stress cone materials kit
- Perforated paper roll
- Corona shield
- Ground shield
- Semi-stop with skid wire connection
- Baseplate
- Copper wiping sleeve and stand-off insulators

Pressure Ratings for ATL-A-SF

Item	Standard
Nominal Operating Pressure - psi	15
Max. Continuous Operating Pressure (over 10 hours) - psi	22
Max. Transient Pressure (up to 10 hours) - psi	24
Max. Peak Transient - psi	32
Max. Field (proof) – psi	28
Factory Test (1 hour) - psi	40

NOTE: For other pressure ratings, please contact factory

ATL-N-SF-style Transmission Terminations

Voltage -kV	Catalog Code	BIL-kV	Max Conductor Size-kcmil	Shipping Weight–lbs (kg)
138	ATL140A-SF	650	4000	675 (306)
161	ATL150A-SF	750	3200	675 (306)

Joints - Transmission Voltage Joints for all oil impregnated paper insulated cable systems

G&W Electric's various joint designs available for different oil impregnated paper insulated transmission cable systems up to 345kV.

FEATURES

- Suitable for paper or LPP cable insulations.
- Custom designed and engineered for specific cable, system requirements and field constraints.
- Kits contain all parts and materials required to build the joint in the field.
- All casing tested to 2.5 times operating pressure.
- Telescoping casings available
- 345kV LPP joints are qualified per IEEE 404-12 with additional tests performed at reduced oil pressure of 100 psi to verify the design margins

STANDARD COMPONENTS

- Multi-piece casings with valves
- System appropriate joint entrances (wiping sleeves, reducers, or trifurcators)
- Connector kits
- Taping kits
- Taping templates

Catalog number system as follows:

JNT - - - - - -

Description	Code
Copper	C
Aluminum	A

Code	Number of Conductors
1	1 Conductor
3	3 Conductor

Code	Voltage
19	69kV
30	115kV
40	138kV
50	161kV
60	230kV
80	345kV

Code	Joint Type
NL	Normal/ Straight joint
ST	Stop joint
TF	Trifurcating joint
SP	Other type of joint

Code	Cable Type
SC	SCOF
LF	LPFF
LG	LPGF
MF	MPFF
MG	MPGF
HP	HPFF-paper insulation
HL	HPFF-LPP insulation
HG	HPGF

Size mm²	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		

Code	Shield Break Option
N	Non-shield break
B	Shield break

ORDERING INFORMATION

For efficient ordering, please provide the following information:

- System voltage
- Cable specification
- Cable pipe material, diameter and thickness
- System pressure rating
- Manhole size

Transition Joints - Transmission Voltage Transition Joints

G&W Electric's transmission voltage level transition joints are used to connect from extruded solid dielectric cable to different oil impregnated paper insulated transmission cable systems up to 161kV.

FEATURES

- Suitable for paper or LPP cable insulations.
- Custom designed and engineered for specific cable, system requirements and field constraints.
- Kits contain all parts and materials required to build the joint in the field.
- Allows for phase-in of extruded solid dielectric cable over months or years.
- Uses two known technologies to simplify installation

STANDARD COMPONENTS

- Multi-piece casings with valves
- Interface plate
- Dry type GIS termination
- Clamp connector kit
- Paper cable connector kit
- Cable preparation kit
- Wiping sleeve or pipe stub entrance depending on system pressure

Catalog number system as follows:

Description	Code
Copper	C
Aluminum	A

TJNT ____ - ____ - ____ - ____ - ____ - ____

Code	Voltage
19	69kV
30	115kV
40	138kV
50	161kV
60	230kV
80	345kV

Code	Cable Type
SC	SCOF
LF	LPFF
LG	LPGF
MF	MPFF
MG	MPGF
HP	HPFF-paper insulation
HL	HPFF-LPP insulation
HG	HPGF

Size mm²	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		

Code	Shield Break Option
N	Non-shield break
B	Shield break

ORDERING INFORMATION

For efficient ordering, please provide the following information:

- System voltage
- Cable specification
- Cable pipe material, diameter and thickness
- System pressure rating
- Manhole size

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Since 1905, G&W Electric has been a leading provider of innovative power grid solutions, including the latest in load and fault interrupting switches,reclosers, system protection equipment, power grid automation and transmission and distribution cable terminations, joints and other cableaccessories. G&W is headquartered in Bolingbrook, Illinois, U.S.A., withmanufacturing facilities and sales support in more than 100 countries,including Canada, Italy, China, Mexico, Brazil, India, UAE and Singapore. 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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