

PCK-HLC

IN And HT Series Power Connection Kit For Hazardous Locations Pipe Tracing

DESCRIPTION

PCK-HLC allows you to make electrical connections with IN and HT Series heating cables used in hazardous locations. The kit contains components needed to make one power input connection and one end termination in Ordinary or Division 2 locations; or one power input connection in Division 1 locations; or one end termination in Division 1 locations. Slices and power input splices can be made by using 2 kits.

ADDITIONAL ITEMS REQUIRED BUT NOT SUPPLIED

- Weather-Tight Junction Box, .75" (2cm) NPT Hubs*
- Sealing Fitting (Division 1)*
- Pipe Strap (for pipe sizes other than 2" to 6" (5 to 15cm) O.D.)
- Additional Fiberglass Tape

* The hazardous location designation of the complete cable set is governed by the lowest hazardous location rating of the sealing fitting and outlet box.

TOOLS REQUIRED

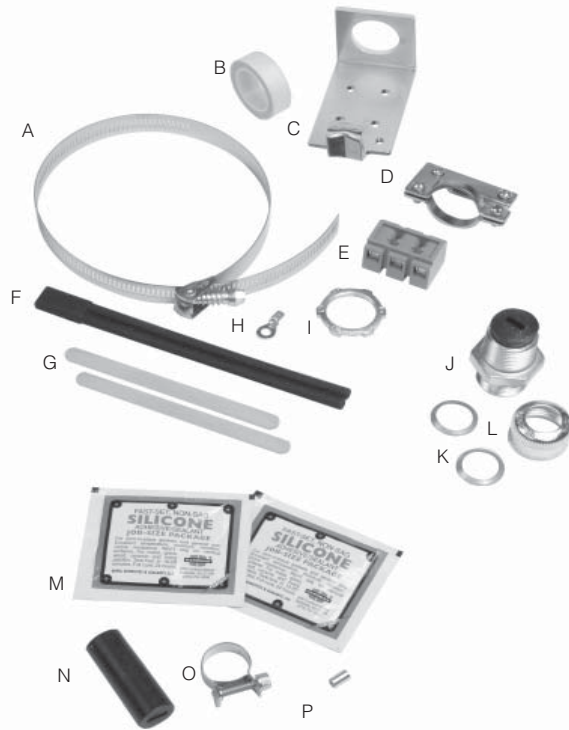
- Flat-Head Screwdriver
- Needle-Nose Pliers
- Wire Stripper/Cutter
- Utility Knife Or Razor Blade
- Diagonal Cutting Pliers
- Crimp Tool

INSTALLATION PRECAUTIONS

1. If the heating cable has a stainless steel braid, the following caution applies: The metal covering shall not be used as the bonding-to-ground means. Alternative means of protection shall be provided per CE Code part I.

LE REVETEMENT METALLIQUE DE CE CABLE CHAUFFANT NE DOIT PAS ETRE UTILISE COMME MOYEN DE MISE A LA TERRE, TOUTEFOIS, LES ATTACHES OU MATERIAUX METALLIQUES UTILISES POUR SOUTENIR CES CABLES DOIVENT ETRE MIS A LA TERRE.

2. Ground metal structures used for support on which the cable is installed in accordance with CE Code part I, Section 10.
3. For cable installed in outdoor or wet indoor locations, use a suitable weatherproofing cover (such as aluminum jacketing) to protect the thermal insulation.
4. After installation of thermal insulation is complete, the insulation resistance of the system should not be less than 10 Mohms when measured at 500 VDC between each circuit and ground with set de-energized and all circuit neutrals isolated from ground.

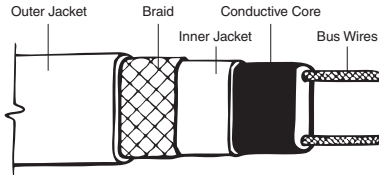


- A. Stainless Steel Pipe Straps
- B. Fiberglass Tape
- C. Standoff Bracket
- D. Stainless Steel Relief Grip
- E. Termination Block
- F. Termination Boot
- G. Spreader Stick (2)
- H. Ring Connector
- I. .75" (2cm) Sealing Locknut
- J. Connector Assembly
- K. Rings
- L. Connector Assembly Cap
- M. Silicone Sealant
- N. End Seal Cap
- O. End Seal Clamp
- P. Crimp Sleeve



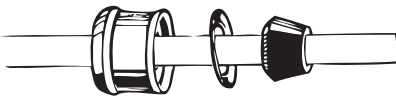
5. Install cable at -22°F (-30°C) or above.
6. Do not install heating cable closer than .5" (13mm) to any exposed combustible surface unless the cable has a metal shield or sheath and is provided with a positive temperature control which will limit the surface temperature to a value not exceeding 162°F (72°C).
7. Minimum bending radius for the heater is .25" (2cm).

CONNECTING TO POWER
Power connection instructions for heater with braid and outer jacket.



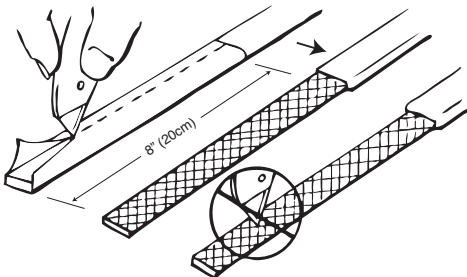
Detail 1.

Cable with braid and outer jacket components are shown in Detail 1.



Detail 2.

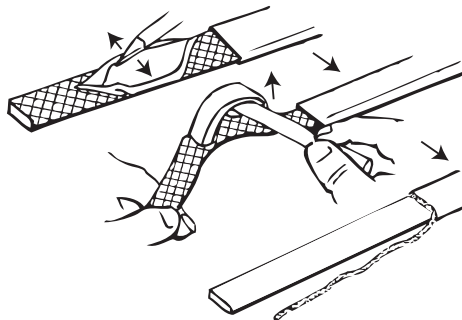
Slide the connector cap, washer and grommet over the heater.



Detail 3.

Lightly score the outer jacket and strip as shown.

Do not cut through braid or inner jacket.



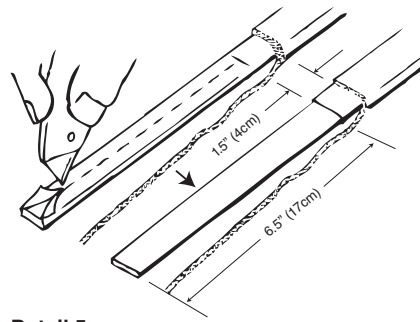
Detail 4.

Work opening through braid at jacket cut back and pull out inner core.

Twist braid into a cold lead.

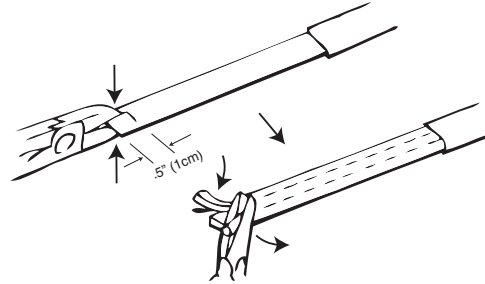
DELTA-THERM Corporation, P.O. Box 345, Wauconda IL, 60084

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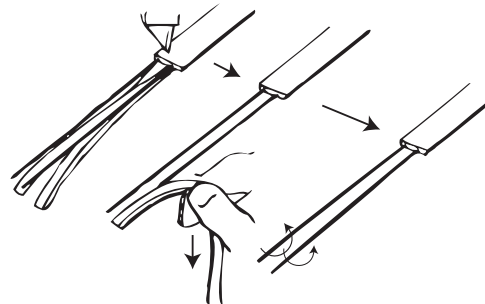
Detail 5.

Lightly score the inner jacket and strip as shown.



Detail 6.

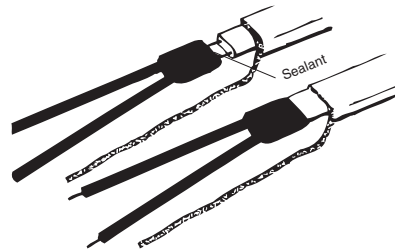
Cut inner core at end as shown. Roll back with pliers and peel bus wires away from core.



Detail 7.

Remove core material from between the bus wires and any core material remaining on the bus wires.

Retwist bus wires.

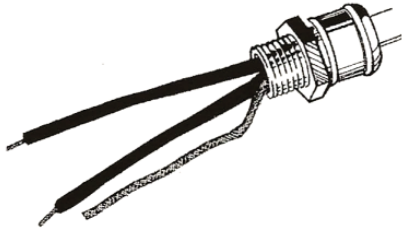


Detail 8.

Start sliding the bus wires into the termination boot. Before the boot is completely on, fill the boot end with RTV sealant.

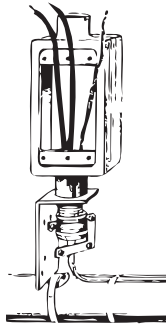
Continue sliding the heater into the boot until fully inserted. Make sure the wires do not touch or cross. Trim the ends to the wires to .375" (.95cm).

**Follow these instructions for
ORDINARY AND DIVISION 2 INSTALLATIONS**



Detail 9.

Slide the grommet up to the outer jacket cut back. Guide the cold leads, braid and heater through the connector body (inside bevel end toward grommet), insert the grommet into the body and tighten the connector cap.



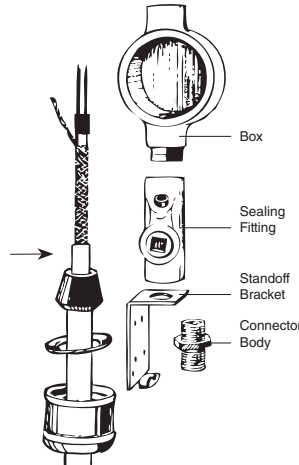
Detail 10.

Insert the connector body through the standoff bracket and thread a junction box onto the connector. (Use a thread sealant for a water-tight seal.) (Use locknut if needed to make up any gap between bracket and box.) Attach the rounded portion of the strain relief grip to the connector cap aligning the flat surface of the grip with the heater surface. Attach the grip to the heater.

Attach the standoff bracket to the pipe using the pipe strap. Connect the cold lead wires to power supply and braid cold lead to ground wire. Install box cover.

Secure the heater to the pipe with fiberglass tape or cable ties about every 12" (30cm).

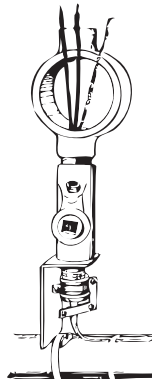
**Follow these instructions for
DIVISION 1 INSTALLATIONS**



Detail 9.

Pull enough heater through the grommet so that the cold leads and heater can be guided through the connector body (inside bevel end toward grommet) and an approved sealing fitting such that the heating portion of the heater will end just prior to entering an approved connection box and the cold leads will be in the box.

Score and remove enough additional outer jacket so that the outer jacket cut back will be centered in the sealing fitting.



Detail 10.

Insert the connector body through the standoff bracket and attach an approved sealing fitting to the connector. Attach an approved box to the sealing fitting.

Guide the cold leads, braid and heater through the connector body and sealing fitting into the box. Insert the grommet into the body and tighten the connector cap.

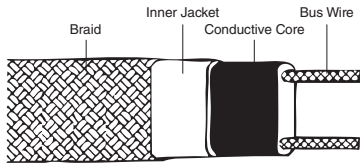
Attach the rounded portion of the strain relief grip to the connector cap aligning the flat surface of the grip with the heater surface. Attach the grip to the heater. Attach the standoff bracket to the pipe using the pipe strap.

Connect the cold lead wires to power supply and braid cold lead to ground using the ring tongue terminal provided. Install the box cover.

Secure the heater to the pipe with fiberglass tape or cable ties about every 12" (30cm).

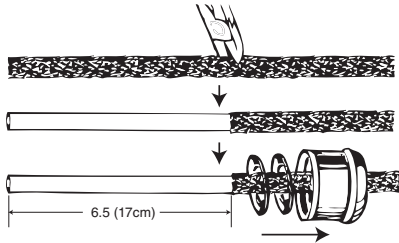
CONNECTING TO POWER
Power connection instructions
for heater with braid only.
(NO OUTER JACKET)

ORDINARY AND DIVISION 2 INSTALLATIONS



Detail 1.

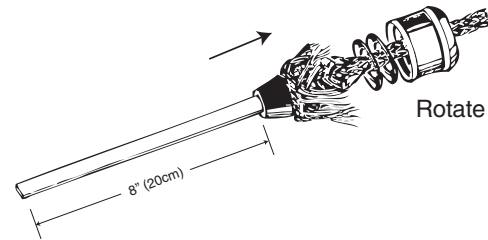
Cable with braid only (no outer jacket) components are shown in Detail 1.



Detail 2.

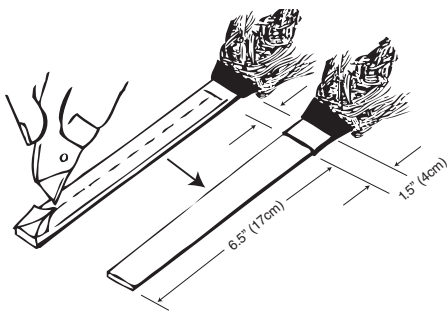
Trim the braid back 6.5" (17cm)

Slide the connector cap, and two (2) washers over the heater and braid.



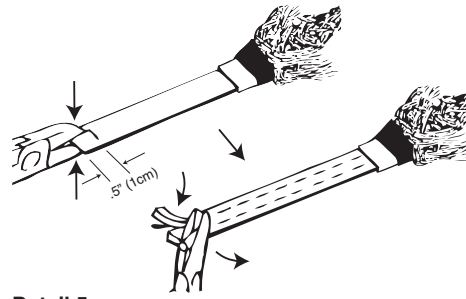
Detail 3.

Slide the grommet on the heater, pushing the braid back, until 8" (20cm) of heater is through the grommet.



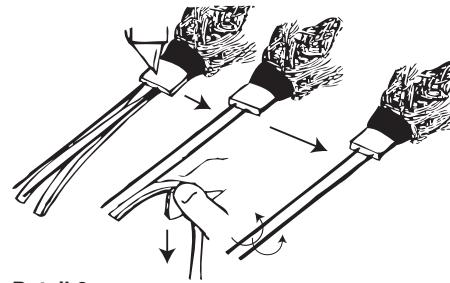
Detail 4.

Lightly score the inner jacket and strip as shown.



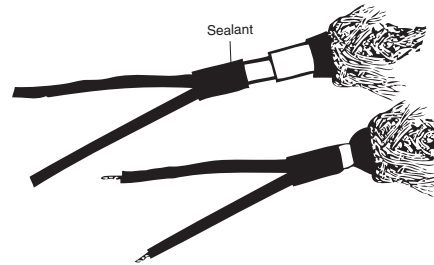
Detail 5.

Cut inner core at end as shown. Roll back with pliers and peel bus wires away from core.



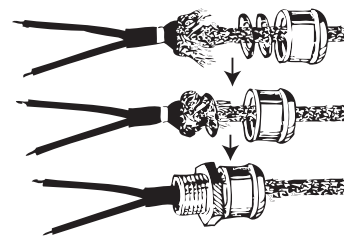
Detail 6.

Remove core material from between the bus wires and any core material remaining on the bus wires. Retwist bus wires.



Detail 7.

Start sliding the bus wires into the termination boot. Before the boot is completely on, fill the boot end with RTV sealant.



Detail 8.

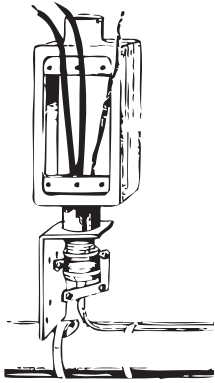
Continue sliding the heater into the boot until fully inserted. Make sure the wires do not touch or cross.

Trim the ends of the wires to .375" (1cm).

Spread the braid out and slide the first washer up to the grommet trapping the braid between the grommet and washer.

Fold the braid back over the first washer and slide the second washer and cap over the folded braid.

Guide the cold leads and heater through the connector body (inside bevel toward grommet), insert the grommet into the body and tighten the connector cap.



Detail 9.

Insert the connector body through the standoff bracket and thread a junction box onto the connector. (Use a thread sealant for a water-tight seal.) (Use locknut if needed to make up any gap between bracket and box.) Attach the rounded portion of the strain relief grip to the connector cap aligning the flat surface of the grip with the heater surface. Attach the grip to the heater.

Attach the standoff bracket to the pipe using the pipe strap. Connect the cold lead wires to power supply. Install box cover.

Secure the heater to the pipe with fiberglass tape or cable ties about every 12" (30cm).

INPUT POWER SPLICE

(For power connection to two lengths of heater) (additional kits required)

To make a power connection to two lengths of heater use a box with an additional hub to accommodate the second heater. Follow the above power connection procedure for the first heater. For the second heater, install the connector fitting components in the additional hub in the box. Prepare the heater following the above procedure; then guide the cold leads and heater through for connection to power inside the box.

SPLICE

(For splicing two lengths of heater) (additional kits required)

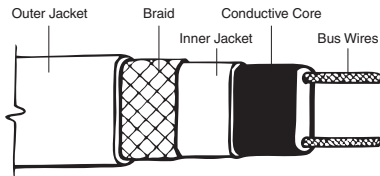
To splice one length of heater to another length, use a box with appropriately located hubs. Follow the above power connection procedure for the first heater. For the second heater, install the connector fitting components in the additional hub in the box; then guide the cold leads and heater through. Attach leads from one heater to leads from the other heater.

END TERMINATION INSTRUCTIONS

Follow these instructions for ORDINARY AND DIVISION 2 INSTALLATIONS

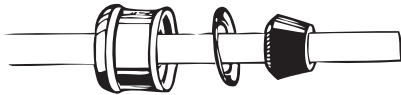
Follow the instructions included with the End Seal Kit.

Follow these instructions for DIVISION 1 INSTALLATIONS



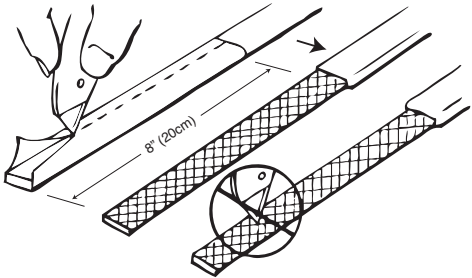
Detail 1.

Cable with braid and outer jacket components are shown in Detail 1.



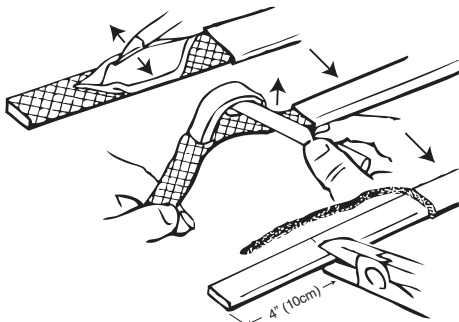
Detail 2.

Slide the connector cap, washer and grommet over the heater.



Detail 3.

Lightly score the outer jacket and strip as shown. Do not cut through braid or inner jacket.

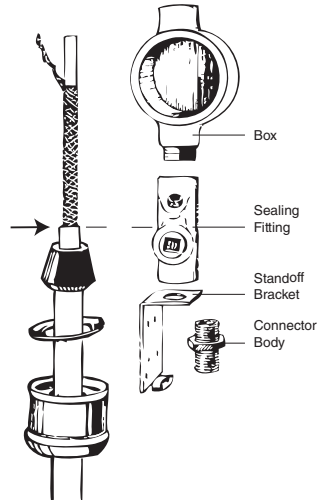


Detail 4.

Work opening through braid at jacket cut back and pull out inner heater.

Twist braid into a cold lead.

Cut off 4" (10cm) of heater

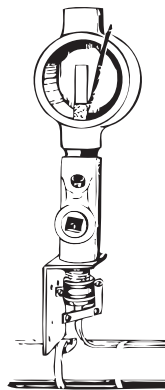


Detail 5.

Pull enough heater through the grommet so that the heater end can be guided through the connector body (inside bevel end toward grommet) and an approved sealing fitting and into a box.

Score and remove enough additional outer jacket so that the outer jacket cut back will be centered in the sealing fitting.

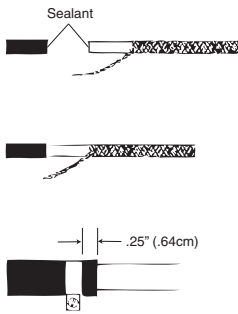
Insert the connector body through the standoff bracket and attach an approved sealing fitting to the connector. Attach an approved box to the sealing fitting.



Detail 6.

Guide the heater and braid through the connector body and sealing fitting into the box. Insert the grommet into the body and tighten the connector cap.

Attach the rounded portion of the strain relief grip to the connector cap aligning the flat surface of the grip with the heater surface. Attach the grip to the heater. Attach the standoff bracket to the pipe using the pipe strap.



Detail 7.

Install end seal components.

Trim the end of the heater if needed so that once the end seal cap is on it will be centered in the box.

Apply RTV sealant into the end cap and also on the end of the heater.

Slide the end cap on the heater.

Slide the clamp over the end cap and position it .25 (.64cm) from the heater entrance point. (Note: the screw may have to be completely removed in order to get the clamp over the cap, and then reinstalled.) Tighten the clamp until the cap deforms.

Connect the braid cold lead to ground point in box using the ring tongue terminal provided.

Install the box cover.

Complete the sealing fitting installation by filling with sealing compound per manufacturer's instructions.

The material in this document is presented in good faith and believed to be reliable and accurate. However, because testing conditions may vary and material quality or information that may be provided in whole or in part by others may be beyond our control, no liability is assumed for results obtained or damages incurred through the application of the data and test presented.

TECHNICAL INFORMATION HT SERIES SELF-REGULATING PIPE TRACING CABLE

120 Volt Breaker Sizing And Max. Circuit Length Ft. (m)

	15A	20A	30A
HT 120-5 If Started At			
50°F (10°C)	150' (46)	200' (61)	240' (73)
0°F (-20°C)	150' (46)	200' (61)	240' (73)
-40°F (-40°C)	130' (40)	170' (52)	210' (64)
HT 120-10 If Started At			
50°F (10°C)	90' (27)	120' (37)	180' (55)
0°F (-20°C)	85' (26)	110' (34)	165' (50)
-40°F (-40°C)	80' (24)	105' (32)	160' (49)
HT 120-15 If Started At			
50°F (10°C)	70' (21)	90' (27)	135' (41)
0°F (-20°C)	65' (20)	85' (26)	125' (38)
-40°F (-40°C)	60' (18)	80' (24)	120' (37)

240 Volt Breaker Sizing And Max. Circuit Length Ft. (m)

	15A	20A	30A
HT 240-5 If Started At			
50°F (10°C)	250' (76)	330' (101)	480' (146)
0°F (-20°C)	230' (70)	305' (93)	440' (134)
-40°F (-40°C)	220' (67)	295' (90)	420' (128)
HT 240-10 If Started At			
50°F (10°C)	140' (43)	190' (58)	280' (85)
0°F (-20°C)	130' (40)	175' (53)	260' (79)
-40°F (-40°C)	125' (38)	170' (52)	250' (76)
HT 240-15 If Started At			
50°F (10°C)	100' (31)	135' (41)	200' (61)
0°F (-20°C)	95' (29)	125' (38)	185' (56)
-40°F (-40°C)	90' (27)	120' (37)	180' (55)

HT Series Electrical Specifications

	HT120-5	HT120-10	HT120-15	HT240-5	HT240-10	HT240-15
Voltage	120 VAC	120 VAC	120 VAC	240 VAC	240 VAC	240 VAC
Max. Circuit Length Ft. (m)	240' (73)	180' (55)	135' (41)	480' (146)	280' (85)	200' (61)
Thermal Rating At 50°F (10°C) Watts/Ft. (Watts/m)	5 (17)	10 (33)	15 (51)	5 (17)	10 (33)	15 (51)
Bus Wire Size (AWG)	16	16	16	16	16	16
Maximum Maint. Temp. °F (°C)	250° (120°)	250° (120°)	250° (120°)	250° (120°)	250° (120°)	250° (120°)
Maximum Exp. Temp. °F (°C)	366° (185°) 150 PSIG Saturated Steam	366° (185°) 150 PSIG Saturated Steam	366° (185°) 150 PSIG Saturated Steam	366° (185°) 150 PSIG Saturated Steam	366° (185°) 150 PSIG Saturated Steam	366° (185°) 150 PSIG Saturated Steam

Circuit Breakers

Recommends circuit breakers to minimise effects of transit startup currents.

Westinghouse:	Types BA, EB, EHB, FB, HFB
Gen. Electric:	E100 Type TEB, E150 Types TED, THED
Square D:	Types EH, FA, IF

TECHNICAL INFORMATION IN SERIES SELF-REGULATING HEATING CABLES

120 Volt Breaker Sizing And Max. Circuit Length Ft. (m)

	15A	20A	30A	40A
IN120-3 If Started At				
50°F (10°C)	300' (91)	-	-	-
0°F (-18°C)	200' (61)	270' (82)	330' (101)	-
-20°F (-29°C)	180' (55)	230' (70)	330' (101)	-
IN120-5 If Started At				
50°F (10°C)	230' (70)	270' (82)	-	-
0°F (-18°C)	150' (46)	200' (61)	270' (82)	-
-20°F (-29°C)	130' (40)	175' (53)	260' (79)	270' (82)
IN120-8 If Started At				
50°F (10°C)	150' (46)	200' (61)	210' (64)	-
0°F (-18°C)	95' (29)	125' (38)	190' (58)	210' (64)
-20°F (-29°C)	85' (26)	100' (31)	170' (52)	210' (64)
IN120-10 If Started At				
50°F (10°C)	115' (35)	150' (46)	180' (55)	-
0°F (-18°C)	70' (21)	95' (29)	145' (44)	180' (55)
-20°F (-29°C)	60' (18)	85' (26)	120' (37)	165' (50)

240 Volt Breaker Sizing And Max. Circuit Length Ft. (m)

	15A	20A	30A	40A
IN240-3 If Started At				
50°F (10°C)	660' (201)	-	-	-
0°F (-20°C)	410' (125)	560' (171)	660' (201)	-
-20°F (-29°C)	360' (110)	480' (146)	660' (201)	-
IN240-5 If Started At				
50°F (10°C)	460' (140)	540' (165)	-	-
0°F (-20°C)	300' (91)	400' (122)	540' (165)	-
-20°F (-29°C)	260' (79)	345' (105)	520' (159)	540' (165)
IN240-8 If Started At				
50°F (10°C)	295' (90)	390' (119)	420' (128)	-
0°F (-20°C)	195' (59)	250' (76)	375' (114)	420' (128)
-20°F (-29°C)	170' (52)	225' (69)	340' (104)	420' (128)
IN240-10 If Started At				
50°F (10°C)	230' (70)	305' (93)	360' (110)	-
0°F (-20°C)	150' (46)	200' (61)	300' (91)	360' (110)
-20°F (-29°C)	130' (40)	175' (53)	260' (79)	360' (110)

IN Series Electrical Specifications

	IN120-3	IN120-5	IN120-8	IN120-10	IN240-3	IN240-5	IN240-8	IN240-10
Voltage	120 VAC	120 VAC	120 VAC	120 VAC	240 VAC	240 VAC	240 VAC	240 VAC
Max. Circuit Length Ft. (m)	330' (100)	270' (82)	210' (64)	180' (55)	660' (201)	540' (165)	420' (128)	360' (110)
Thermal Rating at 50°F (10°C) Watts/Ft. (Watts/m)	3 (10)	5 (16)	8 (26)	10 (33)	3 (10)	5 (16)	8 (26)	10 (33)
Maximum Maint. Temp °F (°C)	150° (66°)	150° (66°)	150° (66°C)	150° (66°)	150° (66°)	150° (66°)	150° (66°)	150° (66°)
Maximum Exp. Temp. °F (°C)	185° (85°)	185° (85°)	185° (85°)	185° (85°)	185° (85°)	185° (85°)	185° (85°)	185° (85°)

Circuit Breakers

Recommends circuit breakers to minimise effects of transit startup currents.

Westinghouse:	Types BA, EB, EHB, FB, HFB
Gen. Electric:	E100 Type TEB, E150 Types TED, THED
Square D:	Types EH, FA, IF