

Installation Instructions

DREX0074 CMH[®]-CON CMH - Connect



These installation instructions are only for use with the following Drexan HeatTracer constant wattage heater products: PipeGuard[®] CMH.

CMH-CON is suitable for Division 1 Locations only if used with kit DREX0019 (Division 1 Adapter Kit: Drexan Cat.# DIV1-ADP – supplied separately).

This kit may be installed in temperatures as low as -40°F/-40°C.



WARNING: This is an electrical device and in order to ensure proper operation and prevent shock or fire it must be installed correctly. Read these important warnings. Follow all installation instructions.

CAUTION: Ground-fault equipment protection must be used to minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed and to comply with Drexan requirements, agency certifications and national electrical codes. Conventional circuit breakers may not stop arcing. The metal sheath of CMH heating cable shall be grounded, but shall not be used as the grounding means.

CAUTION: A ground fault protection device must be used with this heating device.

ATTENTION: Ce produit doit être utilisé avec une protection de mise à la terre.

Each heating device branch circuit or each heating device shall have ground fault equipment protection.

Metallic structures or materials such as metal pipes used to support CMH cable shall be grounded.

CMH Cable:

- is not to cross or come in contact with itself.
- must be installed with Listed Thermal Switch temperature controller to limit the Power On Max Continuous Exposure Temperature as shown in "PipeGuard CMH Data Sheet # HD100318-1".
- may be terminated or spliced in any certified enclosure mounted off the heated surface.

Component approvals and performance characteristics are based on Drexan specific parts only. Substitution will void approvals and performance claims.

Component and heating cable ends must be kept dry before and during installation. Fire resistant thermal insulation should be used. De-energize before installation or servicing.

Minimum bend radius @ 68 °F (20 °C): 1.0 in (25 mm).

APPROVALS



231572



E471335

Class I, Div. 1/2, Groups A, B, C, D

Class II, Div. 1/2, Groups E, F, G

Class III

120 – 277 Volt. 30 W/ft. max., Maximum withstand temperature 450°C power off.

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KIT CONTENTS

- (2) Strain Relief Fittings (with grommets and washers)
- (2) Silicone Boots
- (2) ¾" Sealing Rings (use with HP-BRAK, bottom entry)
- (2) #2 Anti-short Bushings (optional accessories)
- (2) Heat Shrink Sleeves
- (2) Silicone Boots (for end seal only)
- Installation Instructions
- Silicone RTV Sealant

REQUIRED BUT NOT PROVIDED

Materials

- Pipe straps
- Thermostat
- Junction Box

Equipment

- HP-BRAK bracket
- Fine tooth hacksaw
- Pipe wrench
- CMH Stripping Tool
- Electrical Tape

I. ASSEMBLY INSTRUCTION DETAILS

Note: CMH cable may be terminated in any enclosure certified for the application. When using a non-metallic enclosure use a hub with a grounding lug.

1. Megger the insulation resistance between the sheath and conductors. The reading should be 20 MOhm or higher prior to installing the cable. After thermal insulation is installed on the pipe ensure the megger reading is 5 MOhm or higher.

Note: CMH Cable is a zone type cable. Refer to CMH Cable Reference Chart at the back of these instructions.

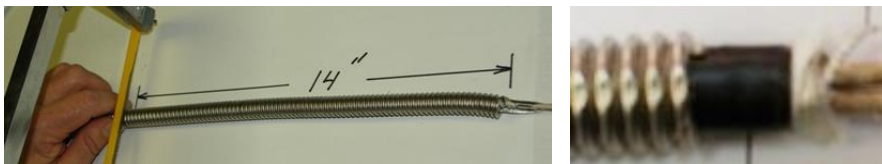
2. Using a hacksaw, cut the desired length of CMH cable allowing an extra three (3) feet (1 m) per end and appropriate cable length for heat sinks such as valves, flanges and pipe supports.
3. Using a CMH Stripping Tool, strip the sheath back 12" (30.4 cm) from the raw end, remove and discard. This exposes the core to locate the zone node.

Note: If the cable has two-foot zones you may have to strip back up to 24" (60.8 cm). Refer to chart on page 4. Zones nodes can be identified by the indent in the core. Strip back the insulation to expose and confirm the location of the node.

Note: If using a hacksaw cut around the sheath being careful not to damage the core.



4. From the node measure 14" (35.5 cm), mark the sheath and strip the sheath to the mark. Discard the sheath. Wrap a layer of electrical tape around the core, next to the sheath, to prevent the insulation from unwrapping into the sheath.



5. Cut and remove the wrapped insulation, down to the tape and close to the end of the sheath, taking care not to damage the insulation on the bus wires. Discard the outer insulating layers and cut the heater element close to the tape.

Note: It is critical to ensure the heater element is cut cleanly and no strands can make contact with the sheath when installing the boot.



6. Place the supplied heat shrink over any exposed bus wire that might be present such as where the node was located. **Ensure the heater element is trimmed back close to the tape isolating the heater element from the sheath** or bus wire. This kills the next 10" (25.4 cm) zone of heating cable under the sheath and serves as a 10" (25.4 cm) cold lead.



7. Slide the cable connector, washer and grommet onto the cable sheath.



8. Position the boot over the bus wires close to the sheath. Apply silicone sealant inside the boot and around the cable sheath, 1/2" (13 mm) from the end of the sheath.

Important: after installing the boot megger the cable between the sheath and conductors to ensure the heater element is isolated from the sheath. The insulation resistance reading should be 5 MOhm or higher.



9. Thread the cable connector (strain relief) into the junction box and tighten. Tighten the middle nut to engage the strain relief onto the cable sheath. Position the washer inside and grommet inside the chamber. Tighten down the nut compressing the grommet ensuring an environmental seal.

Note: If the washer is not positioned properly the grommet might be difficult to compress inside the chamber. Ensure all threads bottom out after tightening.



10. Make electrical connection as required.

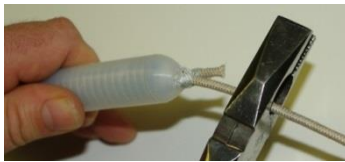
II. END OF CIRCUIT TERMINATION

Note: CMH cable may be terminated in any enclosure certified for the application. When using a non-metallic enclosure use a hub with a grounding lug.

11. Repeat Steps # 1 through 8.

12. Trim the bus wire conductors to different lengths **UNLESS connecting to a Lighted End Seal where you will require sufficient tail length to make a connection in the box. (See instructions for CMH-LE-1/2R Lighted End Seal).**

Important: After completing the termination install, megger the cable between the sheath and conductors to ensure the heater element is isolated from the sheath. The insulation resistance reading should be 5 MOhm or higher.



13. Push the supplied silicone boots onto the conductors.



14. Install into an approved enclosure.

15. Thread the cable connector (strain relief) into the junction box and tighten. Tighten the middle nut to engage the strain relief onto the cable sheath. Position the washer and grommet inside the chamber. Tighten down the nut compressing the grommet ensuring an environmental seal.

Note: if the washer is not positioned properly in the chamber the grommet might be difficult to compress inside the chamber. Ensure all threads bottom out after tightening.



III. CMH CABLE REFERENCE CHART		
CABLE REFERENCE	COLOUR CODING (Target resistance per zone (ohm))	ZONE LENGTH
5CMH208	BLACK (4326)	2 FT
5CMH277	LIME GREEN (7673)	
10CMH240	WHITE (2880)	
5CMH208 10CMH277	BLUE (3836)	
15CMH277	ORANGE (2558)	
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5CMH120	NO COLOUR (2880)	1 FT
15CMH208		
20CMH240		
10CMH120	YELLOW (1440)	
30CMH208		
10CMH208	DARK GREEN (4326)	
15CMH120	BROWN (960)	
10CMH208	RED (3836)	
15CMH240		
20CMH277		
20CMH120	GREY (720)	
20CMH208	FLUOR PINK (2163)	
30CMH120	LIGHT BLUE (480)	
30CMH240	PURPLE (1920)	

IV. PREVENTIVE MAINTENANCE

Prior to startup and on a regular annual basis it is recommended that both visual and electrical inspections be performed. The following is a list of heating cable system checks.

- Thermal Insulation: Check the waterproofing for damage as well as cracks or gaps in caulking on the thermal insulation to ensure no damage exists resulting in poor insulation values.
- Inspect all electrical enclosures for moisture, corrosion or foreign matter.
- Check all electrical connections for tightness and perform an insulation resistance check with a megger, from heating cable conductor to sheath (ground). The minimum resistance should be 5 MOhm or higher.

HEATING CABLE TESTING REPORT

Customer		Contractor	
Site Location		Project Ref.	
READINGS PRIOR TO INSTALLATION:			
Insulation Resistance (MOhm)		Panel No.	Breaker No.
Ambient Temp.	Volts	Amps	
Tested By		Date	
READINGS AFTER INSTALLATION:			
Insulation Resistance (MOhm)		Panel No.	Breaker No.
Ambient Temp.	Volts	Amps	
Tested By		Date	
FINAL READINGS:			
Insulation Resistance (MOhm)		Panel No.	Breaker No.
Ambient Temp.	Volts	Amps	
Tested By		Date	