

Installation Instructions

CMH-TERM


CMH® Termination



These installation instructions are only for use with the following Drexan HeatTracer Self-Regulating heater product:

PipeGuard® CMH

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 shall be provided to de-energize all normally ungrounded conductors of electrical heating cable sets, with ground fault settings sufficient to allow normal operation of the heater unless applicable codes permit otherwise, and 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.

Do not use substitute parts or use electrical tape unless directed. Component approvals and performance characteristics are based on Drexan specific parts only. Substitution will void warrantee, approvals and performance claims.

The heating cable core is conductive and can short if not properly insulated and kept dry. Component and heating cable ends must be kept dry before and during installation. Fire-resistant thermal insulation materials should be used.

Heating cable core bus wires can overheat and short when damaged. When cutting the cable jacket or core do not break bus wire strands.

- The metal sheath of CMH cable shall be grounded, but shall not be used as the grounding means.
- 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.
- CMH cables are to be thermostatically controlled.
- CMH cable may be terminated or spliced in any certified enclosure mounted off heated surface.

APPROVALS



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

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

Class III

231572

120 – 277 Volt. 30 W/ft. max., Maximum withstand temperature 350°C Power Off

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Kelowna, BC, Canada, V4V 1S5

KIT CONTENTS

- (2) Silicone boots – small (End Seal only)
- (2) Strain Relief fittings
- (2) ¾" sealing ring (use with HP bracket, bottom entry)
- (2) Silicone boots - large
- (2) Heat shrink sleeves
- Installation Instructions

REQUIRED BUT NOT PROVIDED

Materials

- Pipe Straps
- Glass Fiber Cloth Tape, Drexan Cat.# TAPE-GCR-HT / TAPE GCS-LT or equivalent
- Thermostat
- Junction box

Equipment

- Fine-tooth Hacksaw
- CMH Stripping Tool
- Silicone RTV Sealant
- Electrical Tape
- Multi-head Screwdriver
- Pipe Wrench

I. ASSEMBLY INSTRUCTION DETAILS

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

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

Note: CMH Cable is a zone type cable. Refer to CMH Cable Reference Chart on p.4.

2. Using a hacksaw, cut the desired length of CMH cable allowing an extra 3 feet (90 cm) per end and appropriate cable length for heat sinks such as valves, flanges and pipe supports.
3. Screw the CMH gland body into an enclosure and mount in a suitable location.
4. Using a CMH Stripping Tool, strip the sheath back 12" (30.4 cm) from the raw end, remove and discard. This exposes the core and now you can locate the zone node.

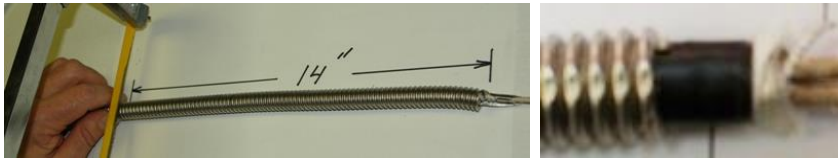
Note: If the cable has two-foot zones you may have to strip up to 24" (60.8 cm). Refer to p. 4.

5. Zones nodes can be identified by the indent in the core.
6. 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.



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



- Cut and remove, down to the tape, close to the end of the sheath, the wrapped insulation 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.
- Place the supplied heat shrink over any exposed bus wire that might be present such as where the node was located.

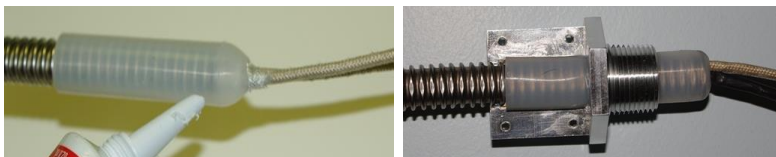
Note: it is not necessary to shrink the tubing. Ensure the heater element is trimmed back close to the tape isolating the heater element from the sheath or bus wire. This kills the next 10" (25.4 cm) zone of heating cable under the sheath and serves as a 10" (25.4 cm) cold lead.



- Apply silicone sealant around the cable sheath, $\frac{3}{4}$ " (20 mm) from the end of the sheath prior to placing the supplied clear silicone boot over the buss wires and onto the sheath. This will provide an environmental seal inside the junction box. Important: At this time megger the cable between the sheath and conductors to ensure the heater element is not in contact with the end of the cable sheath (dead short). The insulation resistance reading should be 20 MOhm or higher.



- Remove the clam shell portion of the gland fitting (remove 4 screws). Place a ring of silicone around the boot as shown in the below picture. The silicone will assist with sliding the boot into the strain relief chamber as well as provide an environmental seal.



12. Insert the cable through the gland and into the enclosure. Replace the clam shell and re-install screws (tighten screws in a rotating order).



13. Make the 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 be sure to use a hub with a grounding lug.

14. Repeat Steps # 1 through 9.
15. 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 the boot is installed megger the cable between the sheath and conductors to ensure the heater element is not in contact with the end of the cable sheath (dead short). After completion of cable install the megger reading should be 20 MOhm or higher.



16. Push the supplied silicone boots onto the conductors.



17. Install into an approved enclosure

CMH CABLE REFERENCE CHART		
CABLE REFERENCE	COLOUR CODING	ZONE LENGTH
5CMH208	BLACK	2 FT
10CMH277	BLUE	2 FT
15CMH120	BROWN	1 FT
10CMH208	DARK GREEN	1 FT
20CMH208	FLUOR PINK	1 FT
20CMH120	GREY	1 FT
5CMH277	LIME GREEN	1 FT
5CMH120	NO COLOUR	1 FT
15CMH208		1 FT
20CMH240		1 FT
15CMH277	ORANGE	2 FT
30CMH240	PURPLE	1 FT
15CMH240	RED	1 FT
20CMH277		1 FT
10CMH240	WHITE	2 FT
10CMH120	YELLOW	1 FT
30CMH208		1 FT

III. 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	