

## Installation Instructions

### CMH-LP-E

### CMH® - Low Profile End Seal



These installation instructions are only for use with the following Drexan HeatTracer Constant Wattage heater products: PipeGuard® CMH

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

**Note:** Can be installed directly on pipe up to 121°C (250°F). If pipe temp is higher, install above insulation.



**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.**

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

PipeGuard CMH cable:

- is not to cross or come in contact with itself.
- is to be thermostatically controlled.
- may be terminated or spliced in any certified enclosure mounted off the heated surface.

PipeGuard CMH heating cable and components comply to the IEEE 515 Standard for Electric Trace Heating.

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.

### APPROVALS



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

- (1) Corrugated Sleeve (321 SS)
- (1) Silicone Large Boot
- (1) Tube Silicone RTV Sealant (high temperature)
- (2) Pipe Straps
- (2) Silicone Small Boots
- Installation Instructions

## REQUIRED BUT NOT PROVIDED

### Equipment

- CMH Stripping Tool
- Fine tooth hacksaw
- Electrical Tape

## I. ASSEMBLY INSTRUCTION DETAILS

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.**

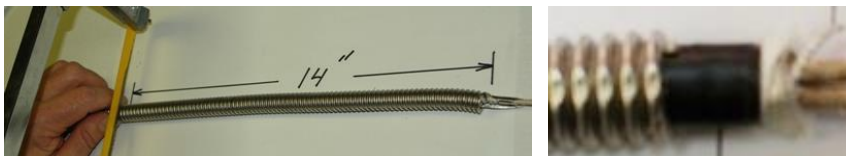
2. Using a hacksaw, cut the desired length of CMH cable allowing an extra three (3) feet (1 m) per end and appropriate cable length for heat sinks such as valves, flanges and pipe supports.
3. Using a CMH Stripping Tool, strip the sheath back 12" (30.4 cm) from the raw end, remove and discard. This exposes 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 5. 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.**



- Trim the bus wire conductors to different lengths



**Important:** Prior to completing the termination end seal, 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.

- Push the supplied small silicone boots onto the conductors



- Position the large boot over the bus wires close to the sheath. Fill the boot with silicone sealant and around the cable sheath, ½" (13 mm) from the end of the sheath.

**Note:** Squeeze the boot between fingers to remove excess air when filling the boot with silicone. Rotate the boot in one direction when pushing onto the sheath to provide a good environmental seal.



**Important:** After installing the boot megger the cable from the powered end 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.

- Use the remaining silicone inside the corrugated sleeve, spread silicone on the boot and slide the sleeve over the boot (end of cable) turning in one direction until it bottoms out. The corrugated sleeve provides mechanical protection of the environmentally sealed end of cable.



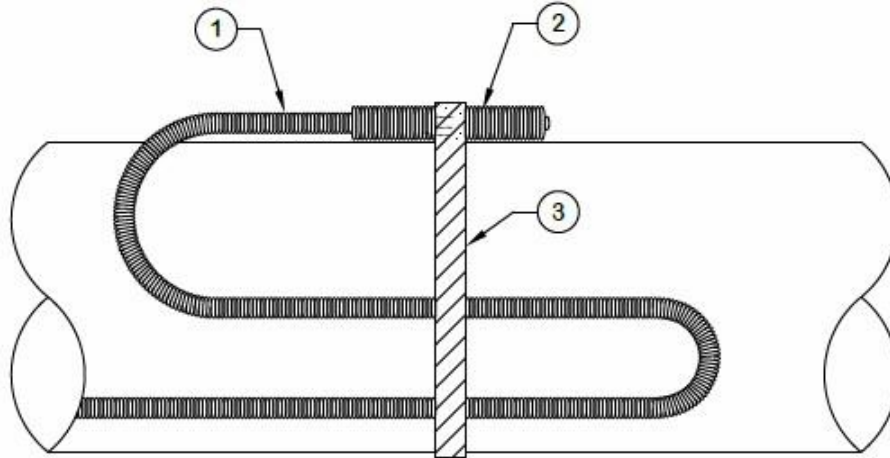
- Use supplied pipe straps to secure the end seal to the pipe.

**Note:** if the pipe temperature exceeds 121° C (250°F), place the end seal above the insulation off the pipe.



## II. ASSEMBLY DRAWING

ITEM	DESCRIPTION	QUANTITY
1	PipeGuard CMH HEATER CABLE	AS REQ'D
2	CMH-LP-E (DREX0075) Low Profile End Seal	1
3	Pipe Strap	2



### NOTES

- ON A PIPE HOTTER THAN 121 DEGREES C (250F) MOUNT THE CMH-LP-E (DREX0075) OFF THE PIPE OVER THE INSULATION
- CMH-LP-E (DREX0075) IS CSA/CUS CERTIFIED UP TO CLASS I DIV.2 (ZONE 2)
- THE NON-HEATED SECTION OF THE CABLE END IS EITHER 10" OR 20" DEPENDING ON THE WATTAGE OUTPUT. REFER TO INSTRUCTIONS.
- WHERE MULTIPLE RUNS OR LOOPS OF A CONSTANT WATTAGE HEATER CABLE (SERIES MI AND PIPEGUARD CMH) ARE APPLIED TO PIPE SHOES AND SUPPORTS, CARE MUST BE TAKEN TO ENSURE THAT EXCESSIVE HEAT IS NOT GENERATED. DEPENDING IN PART UPON THE PIPE DIAMETER, IT MAY NOT BE NECESSARY TO INSTALL MULTIPLE RUNS OF CABLE AT A PIPE SHOE. CABLE WATTAGE OUTPUT MUST BE CONSIDERED. PLEASE REFER TO NOTE #1 ON INSTALLATION DRAWING 22.

			<small>DRAWN</small> MRC <small>DATE</small> 2015/06/15	<small>TITLE</small> <b>INSTALL - CMH LOW PROFILE END SEAL</b>		
			<small>CHECKED</small> - <small>DATE</small> -			
			<small>ENGINEER</small> - <small>DATE</small> -			
			<small>APPROVED</small> - <small>DATE</small> -	<small>SCALE</small> NTS	<small>DRAWING NO.</small> <b>DWG021</b>	<small>REV</small> <b>0</b>
<small>REV</small>	<small>DATE</small>		<small>REVISION</small>			

<b>III. CMH CABLE REFERENCE CHART</b>		
<b>CABLE REFERENCE</b>	<b>COLOUR CODING (Target resistance per zone(ohm))</b>	<b>ZONE LENGTH</b>
5CMH208	BLACK (4326)	2 FT
10CMH240	WHITE (2880)	
10CMH277	BLUE (3836)	
15CMH277	ORANGE (2558)	
5CMH120	NO COLOUR (2880)	1 FT
15CMH208		
20CMH240		
5CMH277	LIME GREEN (7673)	
10CMH120	YELLOW (1440)	
30CMH208		
10CMH208	DARK GREEN (4326)	
15CMH120	BROWN (960)	
15CMH240	RED (3836)	
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.		
<b>READINGS PRIOR TO INSTALLATION:</b>						
Insulation Resistance (MOhm)				Panel No.		Breaker No.
Ambient Temp.		Volts		Amps		
Tested By					Date	
<b>READINGS AFTER INSTALLATION:</b>						
Insulation Resistance (MOhm)				Panel No.		Breaker No.
Ambient Temp.		Volts		Amps		
Tested By					Date	
<b>FINAL READINGS:</b>						
Insulation Resistance (MOhm)				Panel No.		Breaker No.
Ambient Temp.		Volts		Amps		
Tested By					Date	