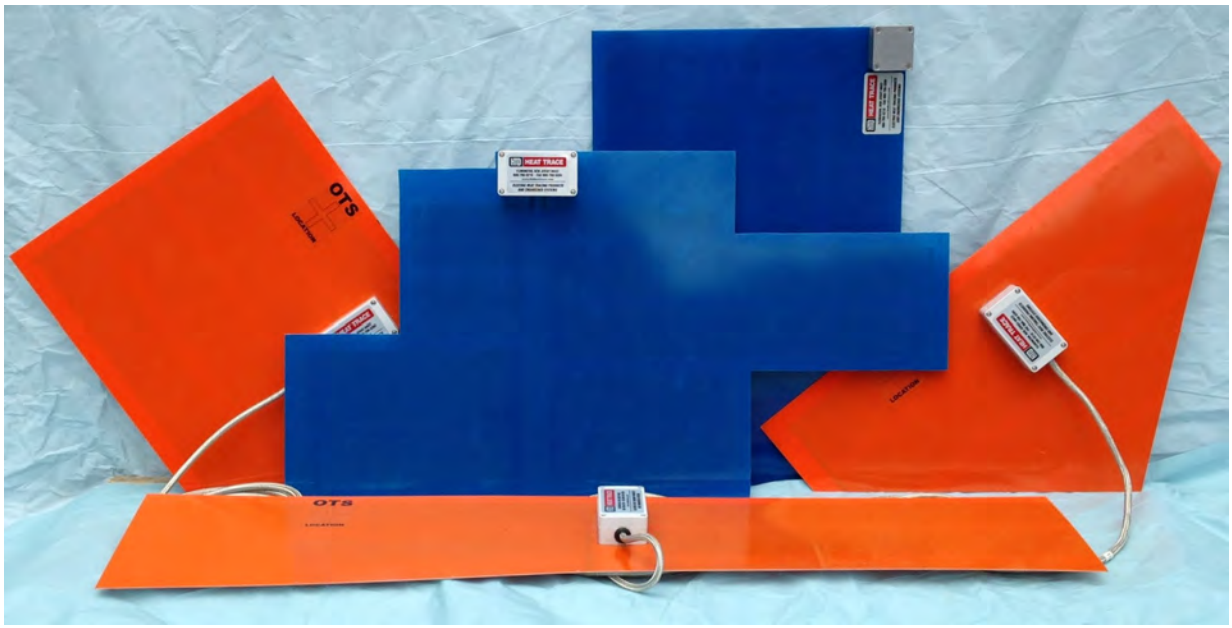
HEAT TRACE

HEATER PAD SPX-C

INSTALLATION INSTRUCTIONS



CUSTOM DESIGNED, FLEXIBLE, LOW-PROFILE WATERPROOF HEATER PADS

FM C US APPROVED

SPX

For freeze protection and process heating applications on plastic, metal and composite surfaces

SPX-C HEATER PAD

SPX-C heater pads are specifically designed to provide the unique product and system features essential for the safe and reliable application of heat to the surface of heat-sensitive plastic, FRP and metal tanks, hoppers, chutes and other custom applications.

SPX-C heater pads are custom designed with pad dimensions and power outputs available for each unique application. The SPX-C can be engineered with ultra-low watt density for freeze protection on extremely heat-sensitive composites and is also available with watt densities up to 0.60 Watts a square inch, for maximum maintain temperatures up to 180°F(82°C)

This guide outlines the general installation procedures that must be completed to successfully install the SPX-C heater pads, temperature controller and the temperature sensors.

All SPX-C heater installations on non-metallic tanks require the use of a dual thermostat controller as specified in this guide.

Single thermostat controllers may be used on metal tank applications and, in these instances, the reader should contact HTD to discuss the appropriate instrumentation.

Please read all instructions carefully before attempting any installation procedures. De-energize before installation or servicing.

THERMAL INSULATION

All heat traced equipment must be thermally insulated. For the SPX-C Heating System to operate properly it must be designed with a particular type and thickness of thermal insulation in mind.You must specify the type and thickness of insulation you intend to use before purchasing your SPX-C Heating System, please consult HTD before beginning the installation.

ACCESSORIES

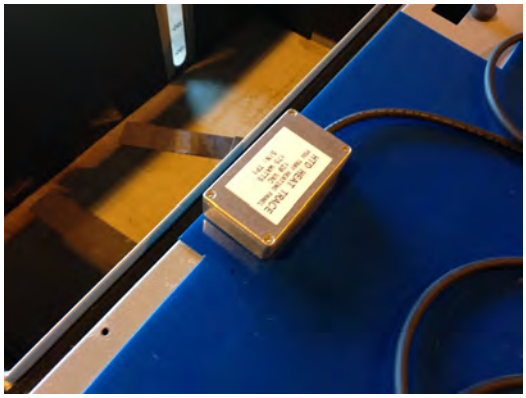
SEALING TAPE	Use type IAAT 3 adhesive backed aluminum tape to seal the four edges of each SPX-C heater pad to the tank surface. This simple procedure prevents infiltration of thermal insulation between the tank surface and the heater pad.

INSTALLATION DETAILS

MINIMUM TEMPERATURE DURING INSTALLATION	0°F (-18°C) Without adhesive 40°F (4.44°C) With adhesive
MINIMUM BENDING RADIUS	15 in (381 mm)
MINIMUM TANK DIAMETER	30 in (762 mm)

GROUND FAULT PROTECTION

Heat Tracing systems must have ground-fault equipment protection



APPROVALS

Factory Mutual approved to IEEE standard 515 and CSA standard C22.2 no.130-03 for use in the following areas:
Unclassified
Class I Div.2 Groups B,C,D
Class II Div.2 Group F
Class III Div.2

SPX-C HEATER PAD

PREPARATORY STEPS

STEP 1

The SPX-C heater pad can be mounted to the heated surface in several ways. Factory installed adhesive, layup into a composite structure or banding. In every case, ensure that the tank surface is clean, dry, and free of any dirt, rust, grease,oil or any other substance that may interfere with mounting the SPX-C heater.

STEP 2

Review the design drawings to determine the mounting locations of the SPX-C heaters.
Do not install the SPX-C heaters at this time.
Mark the provisional heater pad locations and complete Steps 3 and 4 first.

STEP 3

Review the Temperature Controller to be used on the installation and determine a position on or near the heated equipment, as in figure 3, usually at approximately 5 feet (1.5m) up from grade level, in a safe, low-traffic location that can be easily viewed and maintained.

It is very important to ensure that the distances between the Temperature Controller and the provisional locations of each heater take into account the individual cold lead cable lengths of each heater pad being used.

SPX-C heaters are supplied with custom length cold leads designed to reach the system controller from each heater's designated location. If necessary adjust and mark the final locations of each heater pad to ensure that each cold lead cable is long enough to reach the location selected for the temperature controller.

STEP 4

Mount the temperature controller. Mounting to the tank may require the use of an adhesive-backed controller mounting pad, as in figure 3, a suitable bracket or banding.

TEMPERATURE CONTROLS

An appropriate form of temperature control must be used with all SPX-C Tank Heating Systems.

This is particularly important for all installations that are located in hazardous areas.

SPX-C Heating Systems installed on plastic and FRP tanks must be temperature controlled with a dual thermostat system.
The process thermostat controls the required tank temperature and the over-temperature thermostat acts as a high temperature cut out switch to prevent overheating and potential damage to the tank.

Use a controller such as the HTD type 2SPCP for all un-classified area installations and a type 2HSPCP Controller for hazardous area installations.
(consult data sheet for details of hazardous area approvals and classifications).

Figure 3.

STEP 5.
Install the heaters at the previously measured locations. The heaters can be mounted with adhesive backing, banding or can be laid up into the composite structure.

STEP 6.
Using strips of IAAT3 sealing tape, seal the edges of each SPX Heater as shown in **Fig 4.** This step will prevent thermal insulation and debris from migrating between the heating panel and tank surface. Thermal insulation or debris between the heater and tank may lead to unsafe operating conditions and over-heating.
This is a critical and essential step on all installations that will involve the use of any type of thermal insulation that is sprayed or foamed into position.

Figure 4.

TEMPERATURE SENSOR LOCATIONS

The most common, safe, efficient and effective method of controlling SPX-C Heating Systems is the use of a Dual Thermostat Controller to provide process temperature control and over-temperature protection of the system.

This approach is mandatory for all hazardous area installations, irrespective of the type of tank being used or the nature of the materials being stored within the tank. The dual thermostat control approach is also mandatory for all applications that involve fiberglass (FRP) vessels, other types of non-metallic tanks, tanks with non-metallic linings and tanks that will contain heat-sensitive products.

For these type of applications, the Process Temperature Sensor (PCS) should be located directly on the outside surface of the vessel, between 6 and 8 inches(152-203mm) from one heater pad and 15 inches (381 mm) from the base of the Vessel. The sensor may be mechanically fixed to the surface of the tank or taped in position with IAAT3 sealing tape.

The Over-Temperature Sensor (OTS) should be located directly on top of the OTS LOCATION decal **FIG 9.** on the back of one SPX-C Heater. The over-temperature thermostat ensures that falling liquid levels within the tank, which may result in increased heating panel operating temperature, are immediately detected and the heating panel system operation is automatically controlled at a temperature that is safe for the tank, tank contents and/or the environment surrounding the installation. The sensor should be attached to the back of the SPX-C pad using three strips of IAAT3 sealing tape, as shown in **Fig 10**. Secure all capillaries or sensor leads to the tank surface with 6 inch long strips of IATT3 sealing tape.

TEMPERATURE SETTINGS & OPERATION

The Process Temperature Controller should be set to the desired maintain temperature of the vessel. The Over Temperature Controller must be set below the maximum exposure temperature of the vessel contents, the maximum exposure temperature of the vessel's contstruction and no higher than the 220°F (105°C) maximum exposure temperature of the SPX-C heater pad.

STEP 7.

Use an Ohmmeter to check the resistance (Ω) of each SPX-C heater. Review the design drawings for the acceptable values for each type of SPX heater.

STEP 8.

Using a 500 VDC Megger, measure the insulation resistance (IR) value between the heater pad and the ground wire. Insulation resistance value must be 20MΩ minimum.

Do not proceed with any heater pad that records a resistance value outside of the tolerance values shown in the design drawings.

Do not proceed with final installation any heating pad that records an IR value less than 20MΩ.

Contact HTD in either instance before proceeding.

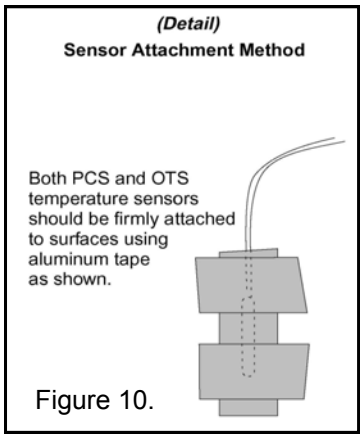


Figure 10.

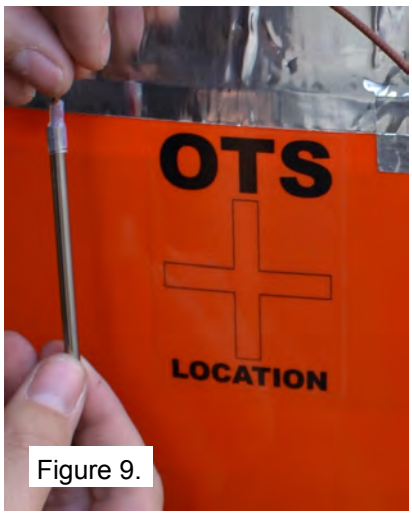
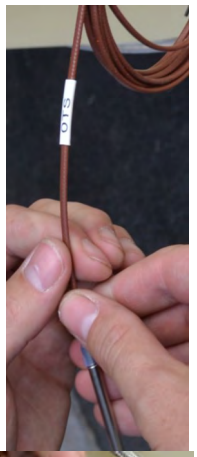


Figure 9.



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