

ELECTRIC HEAT TRACING FOR THE REFRIGERATION INDUSTRY



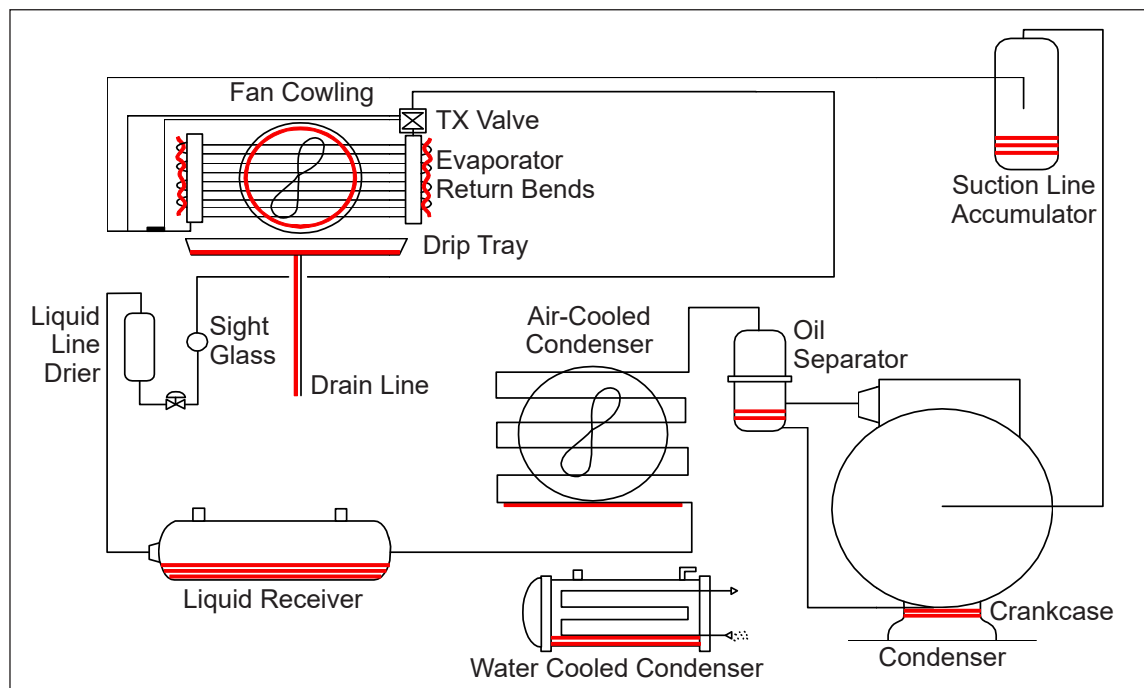
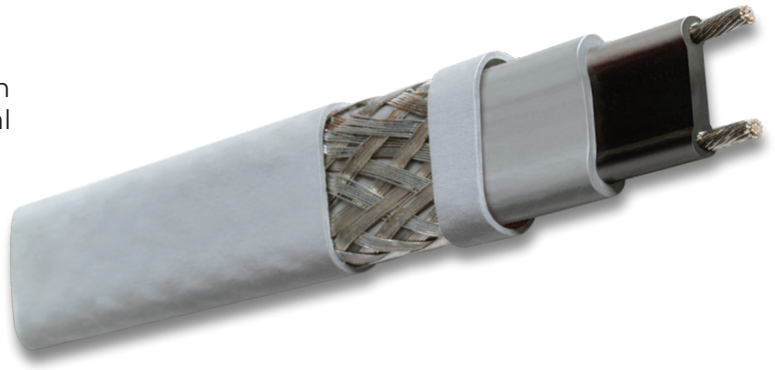
THERMON

Heat Tracing for the Refrigeration Industry

Thermon self-regulating heat tracing cables cover the complete range of applications from frost protection to high temperature industrial installations.

This brochure outlines applications in the freezer industry where Thermon heat tracing cables can be utilized. These cables, together with a complete range of accessories, have been specifically designed for low temperature use in the freezer industry.

The Self Regulating design renders the heater burnout proof particularly at 'cross-overs' as the output will vary over its entire length depending on temperature.



Typical Refrigeration Plant

The schematic diagram above shows many applications where Thermon heat tracing cables may be used on refrigeration plant. In outdoor installations, particularly in cold climates it is most important to maintain minimum operating temperatures to ensure that refrigerant gases remain as a vapor.

The following application notes describe where the heating cables may be used on refrigeration plants, cool rooms, and commercial freezer cabinets. Thermon will be pleased to provide assistance on the selection of heating cables to suit your application. All heating cables operate on 240Vac power supply. Low voltage designs are available with TESH

Liquid Receiver

A heating cable may be required in cold climates to maintain refrigerant liquid temperature for optimum system efficiency.

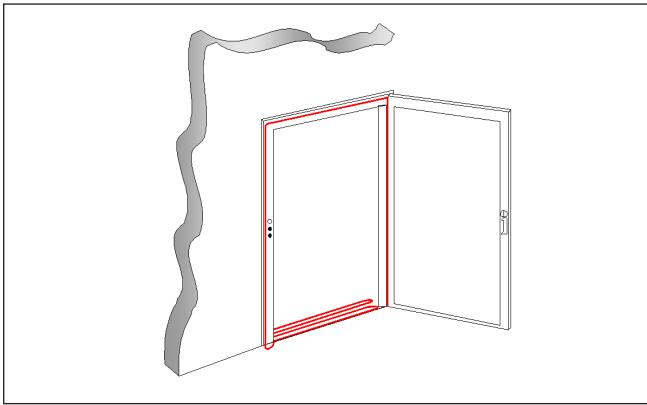
Oil Separator

A heating cable may be required to prevent liquid refrigerant returning to the compressor by maintaining it as a vapor.

Suction Line Accumulator

A heater will assist boil off and ensure that the refrigerant remains as a vapor back to the compressor.

Suitable Heating cables for these applications are **FLX and DLX, CCH** crankcase heater with strap or **CDH** condensate drain heater.



Cool Room Doors

Warm air entering a cool room will condense and freeze upon contact with a cold surface. Heating cable installed in the doorway architrave or sliding door seal increases the surface temperature above 0°C and prevents ice forming between frame and door.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable or **TESH Low Voltage** Heating cable

Cool Room Thresholds

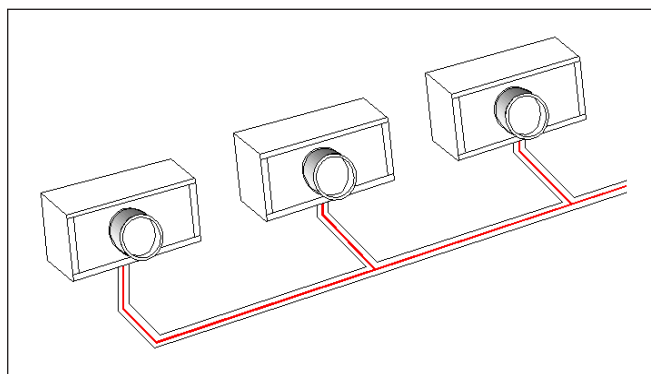
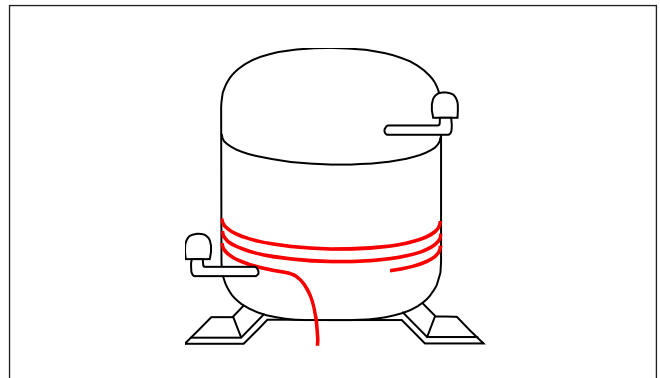
Ice may form at the cool room threshold where warm air enters, condenses, and freezes. This is prevented by running heating cable in floor channels, conduits, or sawn slots directly in the concrete.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable

Compressor Crankcase Heaters

Compressors may be damaged by the formation of refrigerant liquid in the crankcase particularly after long 'off' periods. It may be necessary to heat the crankcase to evaporate the refrigerant trapped in the oil, particularly for outdoor installations in cold climates.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable or purpose made crankcase heater for compressors, type **CCH** complete with strap



Drain Lines

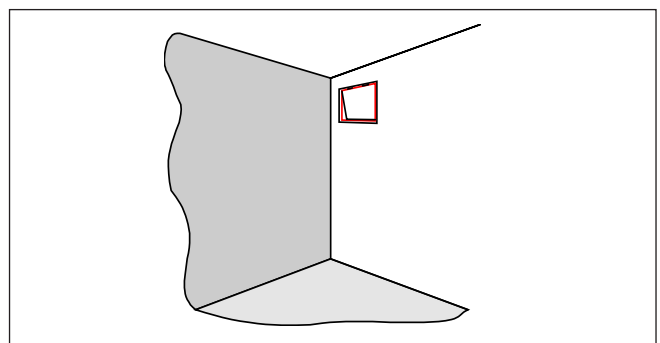
The drain line from the drip trays also requires heat tracing to prevent ice formation. The heater may be attached to the underside of the pipe in one straight run, or spiraled if required. On plastic pipes the heating cable should be covered with aluminum foil tape to assist heat dispersion. The heating cable may also be run inside the pipe provided the connection and end seal are external. The drain line must be insulated with minimum thickness of 25 mm.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable or purpose made **Condensate Drain** heater for drains, type **CDH**

Pressure Relief Ports Or Safety Vents

These are mounted in the cool room wall and used to maintain normal atmospheric pressure allowing air to enter or exhaust as required. They typically comprise a box section with moving vanes which must not become frozen. Heating cable is spiraled around the box section at approximately 80mm centers and preferably insulated.

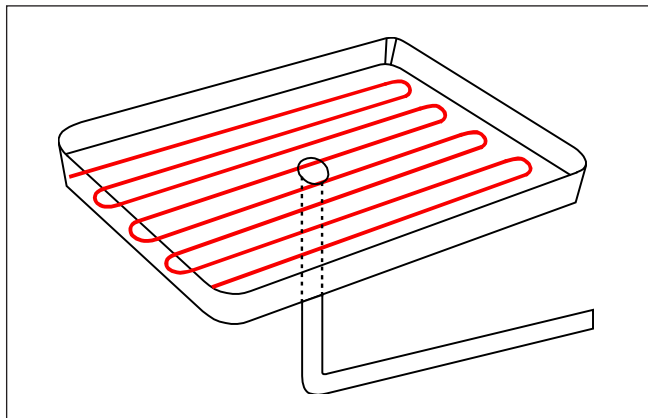
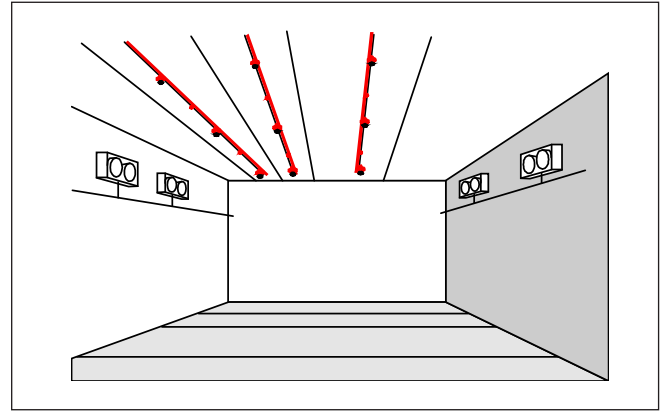
Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable



Fire Protection Sprinklers

Where these are installed in cool rooms trace heating will be required to prevent freezing on exposed pipe work and fittings. The heating cable rating will depend on the cool room temperature, pipe size, and insulation thickness.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable



Drip Trays

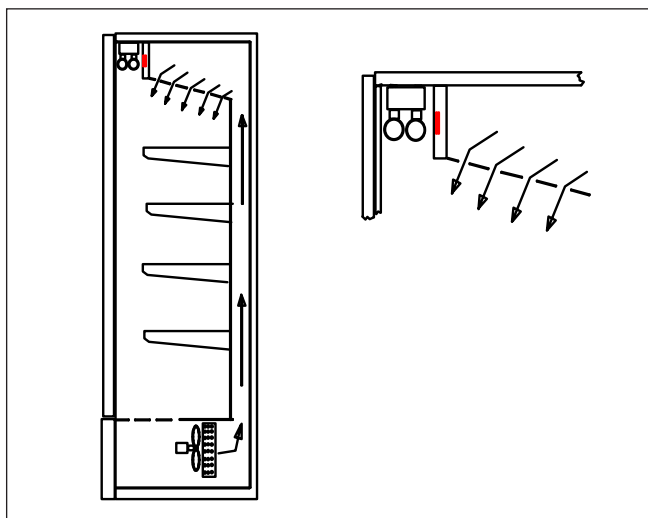
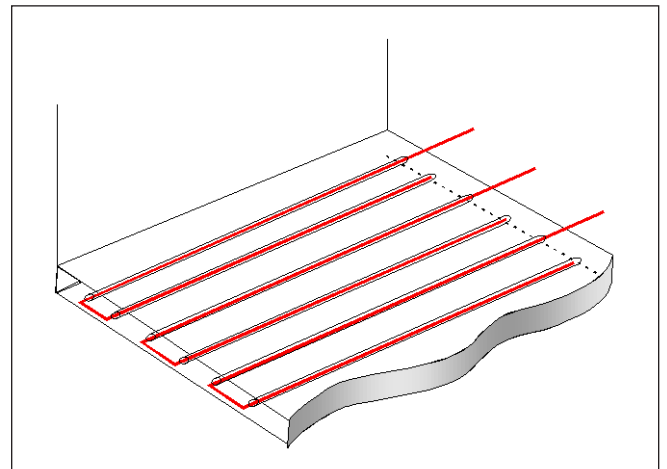
Drip trays are required to collect water droplets from the evaporator coils during defrost cycles. Formation of ice may be prevented by laying a heating cable in the tray, alternatively, attached under the tray. The spiral pitch should be 150-200mm, and the underside of the tray should have a minimum of 25mm insulation.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable

Frost Heave Prevention

The substrata of freezer floors will withstand cold temperatures for a period of time, however the ground temperature will eventually drop below freezing. At that point where the water freezes the substrata frost heave of the freezer floor will occur. If severe, this will damage the foundation slab with the formation of cracks. Design and installation guides are available for these applications and Thermon staff is available to assist with the design process

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable



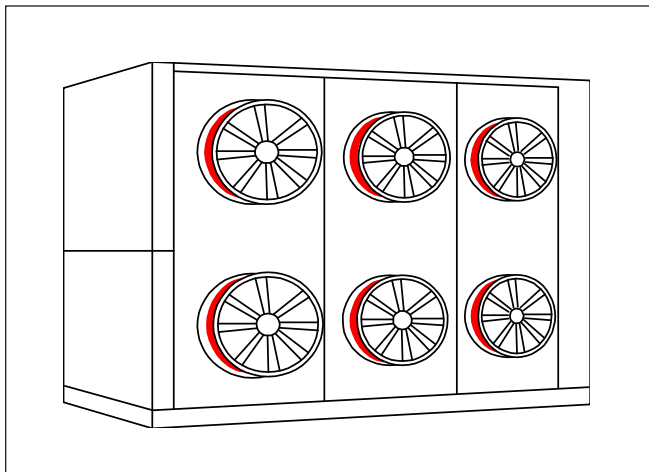
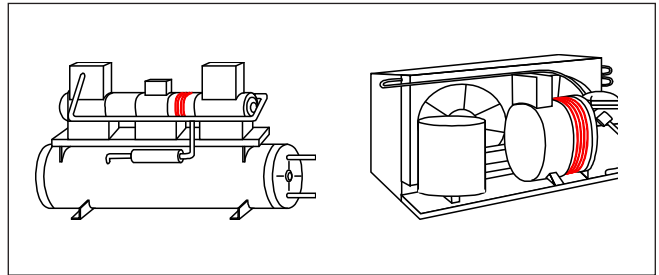
Supermarket Frozen Food Cabinets

Wherever warm air is in contact with cold surfaces such as the 'frost-line' or rail on open chest freezers then condensation will occur. Similarly with display cabinets, around doors and light fittings. Trace heaters, or 'anti-sweat' heaters successfully overcome these problems. Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable or **TESH Low Voltage Heating** cable

Air Or Water Cooled Condensers

Where these are installed outdoors in cold climates a trace heater may be required to prevent freeze-up. Insulation should be applied over the heater

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable



Fan Cowlings

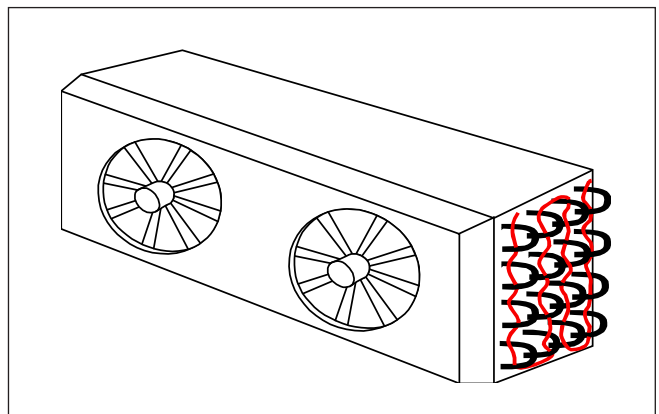
Fan cowlings on evaporator-blowers may 'ice up' and cause fan seizure. This may be avoided by spiraling heating cable around the cowling at 50-80mm centers. Aluminum foil tape and insulation over the heater would assist.

Heating cable; **Thermon FLX and DLX** Self Regulating Heating cable

Evaporator Bends

Defrost heaters in evaporators may not always extend to the bends, and therefore these may be traced with heating cables to assist the defrost operation.

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