DANFOSS GX CONSTANT WATTAGE HEATING CABLE SPECIFICATION FOR SNOW AND ICE MELTING

1.0 GENERAL

Supply and install a complete system of heating cables, accessories and controls for snow melting in ramps, slabs, sidewalks, paths, etc.

2.0 MATERIAL

2.1 Shall be Danfoss GX dual conductor heating cable.

2.2 Conductor: Copper or copper alloy with nickel coating.

2.3 Insulation: FEP DuPont with an average thickness not less than 0.25mm and than layer of XLPE.

2.4 Shield: Tin coated drain wire combined with 0.050 mm aluminium foil coated with 0.012 PBT, 100% coverage.

2.5 Jacket: PVC with an average thickness not less than 0.75 mm.

2.6 Lead free ¼" round heating cable that is both flexible and UV protected.

2.7 Shall include 20' cold lead, single point connection.

2.8 Rated temperature: 220°F (105°C), maximum voltage 600V, up to 12 W/ft (40W/m) .

2.9 Shall be approved to applicable UL and CSA standards.

2.10 Heating cable circuit shall be protected by a ground fault device in accordance per NEC article 426 and 427.

3.0 SYSTEM CONTROLS

Option 1: Automatic Snow Controller

The system shall be controlled by Danfoss GX850 dual zone control panel with external digital temperature and moisture ground sensors either directly or through an appropriate contactor.

Option 2: Snow Switch Control

The system shall be controlled by Danfoss DS-2B / DS-5 pole- or wall-mounted temperature and moisture sensor either directly or through an appropriate contactor.

Option 3: Thermostat

The system shall be controlled by an ambient sensing thermostat Danfoss 088L3422 either directly or through an appropriate contactor.

3.1 Automatic Snow Controller shall be microprocessor-based to provide effective, economical, automatic control.

3.2 Automatic Snow Controller shall have dual zone capability.

3.3 Automatic Snow Controller shall have an adjustable timer providing up to ten hours of system operation after snowfall ceases for complete melting.

3.4 Automatic Snow Controller shall have the following modes

a. Automatic

b. Constant OFF

b. Constant ON (manual timer)

3.5 Automatic Snow Controller shall have adjustable parameters

a. Melting temperature   (33.8°F to 49°F)

b. Moisture sensibility   5 to 95 (5 being the most sensitive to moisture)

b. Standby (slab) temperature   (-4 °F to 32 °F)

3.6 Automatic Snow Controller shall be able to indicate the actual temperature and moisture levels for sensors.

3.7 Automatic Snow Controller shall have an info-button for help/information.

3.8 Automatic Snow Controller shall have self-diagnosis program, which will detect faults and give an alarm.

3.9 Automatic Snow Controller shall have individual LEDs to provide a visual indication of alarm and heater operation.

3.10 Automatic Snow Controller shall be capable of accepting four ground sensors.

3.11 Automatic Snow Controller shall have multi-language capabilities (English, Spanish and French).

3.12 Sensors shall include 50' lead.

4.0 EXECUTION

    4.1 Installation

        a. System must be installed per manufacturer's recommendation using method described in installation guide.

        b. Place the heating mats and sensors in the surface material as per the installation guide.

        c. Secure the heating mat/cable to the rebar or ground.

        d. Maker plaque must indicate presence of embedded heating cables as per NEC 426-13.

        e. Inspect the cable and controls upon receiving the shipment. Note any damage and ensure materials received match the order and shipping documents.

    4.2 Tests

        a. Refer to the manufacturer's literature for requirements for testing and documenting cable resistance and insulation-to-ground readings.

        b. Take tests as outlined in the Installation Manual.

        c. If problems are discovered, consult the manufacturer.

        d. If unable to correct problems notify the engineer before proceeding with installation.

        e. Keep record of all readings for inspection by the engineer or for submittal to the manufacturer to ensure a valid warranty.

5.0 WARRANTY

    5.1 Manufacturer shall offer a 10-year, non-prorated warranty.