

Snow and Ice Melting On Ground Surfaces

GENERAL:

All ground surfaces exposed to winter conditions shall be fitted with a constant wattage snow and ice melting system, as shown on the design plans, manufacturer DEVI™ by Danfoss.

The system shall be complete with constant wattage heating cables, in fixed lengths or as a mat, as indicated in the specification, along with a dedicated energy saving controller and associated sensors.

All system components shall be covered by an Environmental Product Declaration (EPD) to transparently report and document the environmental impact based on a product life-cycle assessment (LCA), CE marked and certified according to the relevant IEC (EN) codes.

BIM families shall be provided.

GROUND SURFACE HEATING CABLES:

All ground surfaces, as shown on the design plans, shall be fitted with robust, fully screened, constant wattage heating cables to melt snow and ice. All designed specifically for the harsh installation environment and direct burial. All covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2.

[SELECT ONE OR MORE OPTIONS]

[1] Twin conductor, fixed length, constant wattage heating cables (DEVIflex™ 18T, 230 V):

The heating cable shall be the twin conductor DEVIflex™ 18T, manufacturer DEVI™ by Danfoss, with a power output of output 18W/m. To simplify the installation it is available in various fixed lengths and supplied pre-terminated with a 2.3m cold lead. Designed specifically for direct burying in concrete, it is covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2.

[2] Twin conductor, fixed length, constant wattage heating cables (DEVIsafe™ 20T, 230 V):

The heating cable shall be the twin conductor DEVIsafe™ 20T, manufacturer DEVI™ by Danfoss, with a power output of output 20W/m. To simplify the installation it is available in various fixed lengths and supplied pre-terminated with a 2.3m cold lead. Designed specifically for direct burying in concrete, it is covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2

[3] Twin conductor, fixed length, constant wattage heating cables (DEVIsnow™ 20/30T, 230 V and 400 V):

The heating cables shall be the twin conductor DEVIsnow™ 20T or 30T, manufacturer DEVI™ by Danfoss, with a power output of 20 or 30W/m respectively, all as shown on the design plans. To simplify the installation it is available in various fixed lengths, for 230 and 400 V power supplies, each supplied pre-terminated with a 2.3m cold lead. Designed specifically for direct burying in concrete, it is covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2

[4] Twin conductor, fixed length, constant wattage heating cables for asphalt (DEVLasphalt™ 30T, 400 V):

The heating cables shall be the twin conductor DEVLasphalt™ 30T, manufacturer DEVI™ by Danfoss, with a power output of 30W/m and suitable for 400 V power supply. Designed specifically for embedding in asphalt, it is available in various fixed lengths and supplied pre-terminated with a 10m cold lead. All covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2.

[5] Twin conductor, constant wattage heating mat (DEVIsnow™ 300T, 230 V and 400 V):

The ground surface heating system shall be in the form of heating mats pre-assembled from twin conductor cables, known as DEVIsnow™ 300T, manufacturer DEVI™ by Danfoss. The mats provide simple and fast ground installation and are designed specifically for direct burying in concrete. With a power output of 300W/m² they are suitable for 230 or 400 V power supplies, available in various sizes and supplied with 10m or 30m pre-terminated cold leads. DEVIsnow™ 300T is covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2

[6] Twin conductor, constant wattage heating mat for asphalt (DEVlasphalt™ 300T, 230 V and 400 V):

The ground surface heating system shall be in the form of heating mats pre-assembled from twin conductor cables, known as DEVlasphalt™ 300T, manufacturer DEVI™ by Danfoss. The mats provide simple and fast ground installation and are designed specifically for embedding in asphalt. With a power output of 300W/m² they are suitable for 230 or 400 V power supplies, available in various sizes and supplied with 10m or 30m pre-terminated cold leads. DEVlasphalt™ 300T is covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:2009 class M2

[7] Single conductor, fixed length, constant wattage heating cables (DEVlbasic™ 20S, 230 V and 400 V):

The heating cables shall be the single conductor DEVlbasic™ 20S, manufacturer DEVI™ by Danfoss, with a power output of output 20W/m. To simplify the installation it is available in various fixed lengths and supplied pre-terminated with two 3m length cold leads. Designed specifically for direct burying in concrete, it is covered by an Environmental Product Declaration (EPD), CE marked and tested to demonstrate compliance with IEC EN 60800:1992 class M2.

ENERGY EFFICIENT, CONTROL SYSTEM [SELECT ONE OR MORE OPTIONS]:

[1] Multi circuit programmable control and monitoring system (DEVlreg™ 850):

All ground surface heating circuits are controlled with a DIN rail mounted electronic programmable controller (DEVlreg™ 850) capable of independently operating two systems, areas or zones with maximum four sensors. To provide much improved energy efficiency, control is based on inputs from separate moisture and ambient sensors. For higher rates accuracy, the sensors are digital and the moisture sensor has a built in element for snow melting, priority setting is possible. The DEVlreg™ 850 controller is covered by an Environmental Product Declaration (EPD).

[2] Single circuit, single application electronic thermostat, surface mounted (DEVlreg™610)

All simple or low output ground surface heating circuits are controlled with a surface mounted electronic thermostat (DEVlreg™610) with a ground temperature sensor, all covered by an Environmental Product Declaration (EPD).

Design:

The manufacturer or operations partner shall be able to provide full design details including electrical schedules providing cable lengths, circuit breakers, circuit start up currents, operating currents and loads, line list summary and single line details; system layout and schematic drawings indicating power connections ; controller configuration listing and wiring diagrams.

EXECUTION:

Ground Surface Heating System Installation :

All ground surface heating cables shall be installed, tested and commissioned in strict accordance with the design plans and the DEVI Ground Surface Ice and Snow Melting Application Manual, within the defined maximum circuit lengths and using a 2500 V DCMegger.

[SELECT ONE OPTION]

[1] The system shall be installed, tested and commissioned by specialist installers trained by the manufacturer

[2] The system shall be installed, tested and commissioned under periodic supervision by the manufacturer or specialist installation partner

Electrical Connection:

Connections between the electrical supply, control panel and the ground surface heating circuits shall be installed by an approved electrical contractor and protected by MCB (BS EN 60898 type C or D) and RCD (30 mA sensitivity, tripping within 100ms).