

Roof and Gutter Protection

GENERAL:

All gutters, downpipes and roof edges shall be fitted with an energy efficient self regulating heating system to prevent winter damage and icicle formation, as shown on the design plans, known as DEVliceguard™ 18, manufacturer DEVI™ by Danfoss.

The roof and gutter heating system shall be complete with self-regulating trace heating cables, advanced energy efficient controller and cold applied components.

The system saves energy by using a programmable control unit that uses a combination of moisture and ambient sensors plus a self regulating heating cable that increases its heat output only when in snow or ice and automatically reduces it in dry surroundings. The advanced control unit and use of dual sensors ensures no energy is consumed in cold dry weather.

All roof and gutter heating cables shall demonstrate extended maximum circuit length capability

Environmental Product Declarations (EPD) shall be provided for all system components, to transparently report and document the environmental impact based on a product life-cycle assessment (LCA).

All system components shall be CE marked and certified according to the relevant IEC (EN) codes.

BIM families shall be provided.

SELF-REGULATING HEATING CABLES:

The self-regulating trace heating cables shall be designed specifically for roof and gutter protection and qualified for a useful lifetime in excess of 25 years.

The cables shall be CE marked, covered by an Environmental Product Declaration and tested to demonstrate compliance with IEC EN 62395-1:2013 and SS 424 24 11: 1992.

The cables shall consist of a conductive polymer core, modified low electrical insulation (radiation cross-linked to ensure long life expectancy), tinned copper braid and over jacket (printed with cable type, batch number and metre marks).

The roof and gutter protection cables shall be DEVliceguard™ 18, manufacturer DEVI™ by Danfoss.

All gutters, downpipes and roof edges shall be fitted with DEVliceguard™ 18 as shown on the design plans. All shall be installed within their defined maximum circuit length, namely 97m on a 20 A MCB assuming 0°C icy water switch on.

INTERCONNECTION AND TERMINATION COMPONENTS:

Interconnection and end terminations shall be made with high performance, cold applied insulation displacement connectors and gel filled end seals. All shall be UV resistant, IP66 and 85°C rated and suitable for 2500 V DC insulation resistance test. The components shall be DEVI™-Connecto The manufacturer is DEVI™ by Danfoss and covered by an Environmental Product Declaration.

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

[1] Multi circuit programmable control and monitoring system:

All roof and gutter trace 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. BMS interface through relay contacts. The DEVlreg™ 850 controller is covered by an Environmental Product Declaration (EPD).

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

All roof and gutter trace heating circuits are controlled with a surface mounted electronic thermostat (DEVlreg™610) 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, tees and end seals; controller configuration listing and wiring diagrams.

EXECUTION:

Roof and Gutter Heating Installation:

All roof and gutter heating cables shall be installed, tested and commissioned in strict accordance with the design plans and the DEVI Roof and Gutter Application Manual, within the defined maximum circuit lengths and using a 2500 V DCMegger. Installation is possible on virtually any type of roof, gutter and down pipe, however do not place in direct contact with bitumen. PE-foil shall be used as an intermediate layer between the bitumen and the heating cable.

[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 pipe freeze protection 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).