HWAT STANDARD SYSTEM

nVent RAYCHEM

SPECIFICATION GUIDELINE FOR SINGLE PIPE HOT WATER TEMPERATURE MAINTENANCE

GENERAL

The domestic hot water supply has been designed as a single pipe system, no return pipes or recirculation pumps shall be fitted and no hydraulic balancing is required. To compensate for heat losses and to maintain pipe temperatures, all hot water supply pipes shall be fitted with an energy efficient self-regulating heating cable system, known as nVent RAYCHEM HWAT, manufactured by nVent.

The system shall be complete with self-regulating temperature maintenance cables, advanced energy efficient controller and cold applied components for interconnection and termination.

The temperature maintenance cables, controls and system components shall be CE marked and certified according to EN codes by BSI, VDE, CSTB, SEV, ÖVE and fulfil the hygiene requirements of DGVW and SVGW.

The manufacturer shall offer an extended warranty of 10 years for temperature maintenance cables and components and 2 years for controllers, subject to the system being designed, installed, tested and commissioned strictly to their requirements. The warranty shall be extended to 12 years on temperature maintenance cables/components and 6 years on controls when installed by the manufacturer or by a trained installer recognised by them. All subject to the completion of the online warranty registration.

Document submittal shall include all of the following: data sheets (for temperature maintenance cables, components and controller), system design guide, typical system schematic drawings, controller wiring diagrams, installation and operation manual.

SELF-REGULATING TEMPERATURE MAINTENANCE CABLES

The self-regulating temperature maintenance cables shall be specifically designed for this application, tested and approved to IEC 62395 and IEEE 515.1, suitable for use with 20A circuit breakers, with a minimum bend radius less than or equal to 10mm, qualified and tested to demonstrate a useful lifetime in excess of 40 years.

The construction of the self-regulating temperature maintenance cable shall include a conductive polymer core, modified polyolefin electrical insulation (radiation cross-linked to ensure long life expectancy), laminated aluminium foil layer, tinned copper braid (minimum 70% coverage) and modified polyolefin over jacket.

[Select One Option]

[Option 1]

HWAT R to provide pipe maintained temperatures in the range 50-65°C

[Option 2]

HWAT M to provide pipe maintained temperatures in the range 50-55°C

INTERCONNECTION AND TERMINATION COMPONENTS

Interconnection and termination shall be with cold applied insulation displacement connectors and gel type end seals that are UV resistant, IP68/65°C rated, suitable for 2500Vdc insulation resistance test, with Torx head fittings for ease of installation and both audible & visual installation confirmation, known as RayClic, manufactured by nVent.

THERMAL INSULATION

Insulation selection and thickness shall be strictly in accordance with the self-regulating temperature maintenance cable system design guide.

ENERGY EFFICIENT, CONTROL SYSTEM

[Select One Option]

[Option 1]

Multi-Circuit, Multi-Application Distributed Digital Control System

All hot water temperature maintenance circuits shall be controlled and monitored using a centralised control system with distributed power and control modules, complete with touch screen user interface terminal (for central programming), power connection modules (to provide distributed power, circuit protection, control & monitoring), remote monitoring modules (for additional temperature measurement), integrated energy saving programmable controller (to provide adjustable maintained temperatures in the range 50-65°C, water heater sensor and integrated 7 day power off timer) and ProtoNode high performance protocol gateway to allow translation from native ModBus to BacNet protocols. The system shall be RAYCHEM ACS-30, as manufactured by nVent.

[Option 2]

Multi-Circuit, Single Application Controller, Panel Mounted

All hot water temperature maintenance circuits shall be controlled and monitored using an energy saving, programmable, electrically protected, multi-circuit control panel system complete with integrated energy saving programmable controller (to provide adjustable maintained temperatures in the range 50-65°C, water heater sensor and integrated 7 day power off timer), phased switch on capability, integrated time-shift duty cycle control, integrated power load management and volt free alarm contact to indicate RCD/MCB failure, loss of power and controller or sensor error. The system shall be SBS-xx-HV-EC0-10, as manufactured by nVent.

[Option 3]

Single Circuit, Single Application Controller

All hot water temperature maintenance circuits shall be controlled using a programmable, energy saving, single circuit local controller to provide adjustable maintained temperatures in the range 50-65°C, water heater sensor and alarm, integrated power off timer function with 7 day programmable capability and 0-10V DC input to allow BMS temperature change. The system shall be HWAT ECO, as manufactured by nVent.

EXECUTION

Design Deliverables

The manufacturer shall be able to provide heat loss calculations, system layout and schematic drawings indicating power connections/tees/end seals, electrical schedules indicating cable length and circuit protection, controller configuration listing and wiring diagrams.

Installation Deliverables

The self-regulating temperature maintenance cables shall be installed in accordance with the design plans, 'straight traced'within the manufacturers defined maximum circuit lengths, tested and commissioned strictly in accordance with the manufacturer's instructions. Installation of thermal insulation shall be closely coordinated with the responsible sub-contractors.

[Select One Option]

[Option 1]

The system shall be installed, tested and commissioned by the manufacturer.

[Option 2]

The system shall be installed and tested by installers trained and recognised by the manufacturer and then commissioned by the manufacturer.

[Option 3]

The system shall be installed, tested and commissioned by installers trained and recognised by the manufacturer.

[Option 4]

The system shall be installed, tested and commissioned under periodic supervision by the manufacturer.

Electrical Connection

All connections between the electrical supply, control panel and self-regulating temperature maintenance cable 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).

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