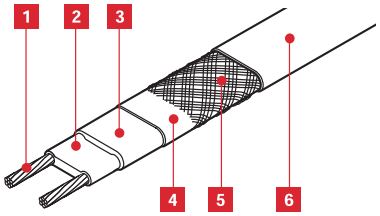
Design Guide, Control Units and Accessories

1 HEATING CABLE SELECTION

Optimum water temperature maintenance for single family houses, flats, offices, hotels, hospitals, convalescent homes, sports centres, ...

Heating cable type	HWAT-L	HWAT-M	HWAT-R
Power output	7W/m at 45°C	9 W/m at 55°C	12 W/m at 70°C
Max. exposure temperature	65°C	65°C	80°C
Outer jacket colour	yellow	orange	red
Control unit: HWAT-ECO	–	recommended for enhanced energy - efficiency	essential
Control unit: HWAT-T55	recommended	recommended	mandatory
Control Unit: SBS--HV-ECO control panel or ACS-30 system**	–	recommended (project size > 300m); see page 72	recommended (project size >300m); see page 72
Legionella prevention			Possibility of thermal legionella prevention up to the draw-off points

2 COMPOSITION OF THE HWAT-L/M/R HEATING CABLE



1. Copper conductor (1.2 mm²)
2. Self-regulating heating element
3. Modified polyolefin insulation
4. Aluminium foil wrap
5. Protective tinned copper braid
6. Modified polyolefin protective outer jacket

Technical data: see page 77

3 PIPE AND INSULATION THICKNESSES

Pipe size (mm)	15	22	28	35	42	54
Insulation thickness (mm)	20	20	25	30	40	50

Ambient temperature: 18°C
Thermal conductivity λ = 0.035 W/(m.K)
For other thermal conductivity insulation materials, contact your nVent representative.

Thermal losses in W/m, pipe 55°C in 18°C ambient temp.

Insulation	DN 15	DN 20	DN 32	DN 40	DN 50
15 mm	10	12	16	18	21
20 mm	9	10	14	15	18
30 mm	7	8	11	12	14
40 mm	6	7	9	10	12
50 mm	6	7	8	9	10
60 mm	5	6	8	8	9

Thermal losses in W/m, pipe 55°C in 5°C ambient temp.

Insulation	DN 15	DN 20	DN 32	DN 40	DN 50
15 mm	13	16	21	24	28
20 mm	12	13	18	20	23
30 mm	10	11	14	16	18
40 mm	8	10	12	13	15
50 mm	8	9	11	12	13
60 mm	7	8	10	11	12

Calculations with TraceCalc PRO for Buildings

- Maintain temperature 55°C
- Building interior
- Safety factor 10%
- Mineral wool, thermal conductivity at 40°C 0.041 W/mk

4 HEATING CABLE LENGTH

The heating cable is installed in a straight line on the pipework

The heating cable can be traced right up to the draw-off points

Total length of pipe to be traced
+ approx. 0.3 m per connection
+ approx. 1.0 m per T-connection
+ approx. 1.2 m per 4-way connection
= required heating cable length

5 ELECTRICAL PROTECTION

- The total length of heating cable determines the number and size of the circuit breakers.
- Residual current device (rcd) : 30 mA required
- Power cabling for the heating cables according to local regulations
- The power connection must be carried out by an approved electrical installer

CIRCUIT-BREAKER TO BSEN 60898 (TYPE C) : THE MAXIMUM LENGTH OF THE HEATING CIRCUIT IS BASED ON A MINIMUM START-UP TEMPERATURE OF +12°C, 230 VAC.

	HWAT-L	HWAT-M	HWAT-R
10 A	80 m	50 m	50 m
13 A	110 m	65 m	65 m
16 A	140 m	80 m	80 m
20 A	180 m	100 m	100 m

6 CHECKLIST FOR PLANNING THE INSTALLATION

The system design should take into account:

- Pipe diameter and material
- Insulation type and thickness
- Ambient temperature
- Circuits should divide the plumbing into logical segments
- Don't exceed the maximum circuit length
- Show connection locations on the drawings
- Locate power connections near the electrical panel
- Locate T-connections in accessible areas