

Welcome to eltherm world...

“Your Reliable Electrical Heat Tracing Solution Provider”

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innovations in heat tracing
Eltherm Asia-Pacific Pte Ltd

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WATER COMFORT SYSTEM

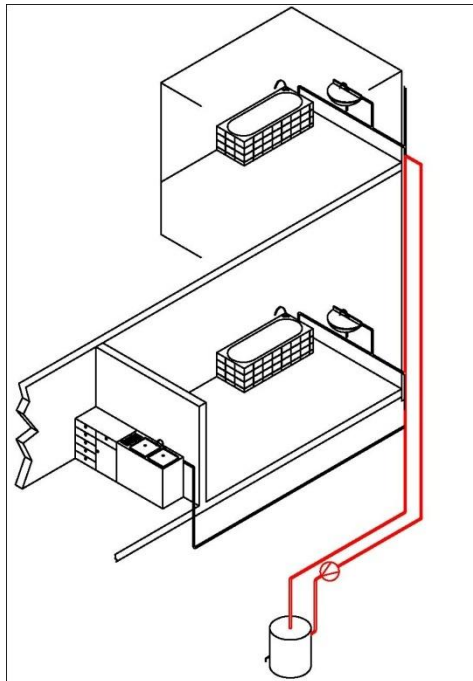
Types of Warm Water Heating

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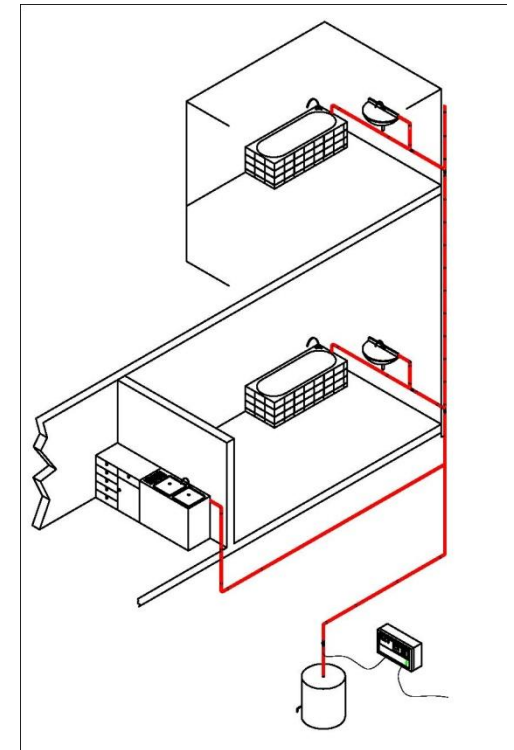
Warm water circulation system

This system consists of the warm water boiler, warm water pipe, pump, valves, fittings, and a circulation pipe that is used for temperature maintenance. The pipes are soldered or pressed together using fittings.



Warm water electrical heat tracing system

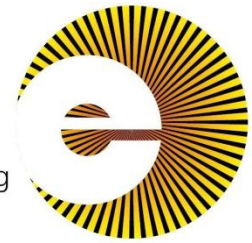
This system uses the same principle as the warm water circulation system but does not require a circulation pipe pumps, valves and fitting associated with the circulation pipe. Instead a self-regulating heating cable is used for temperature maintenance.



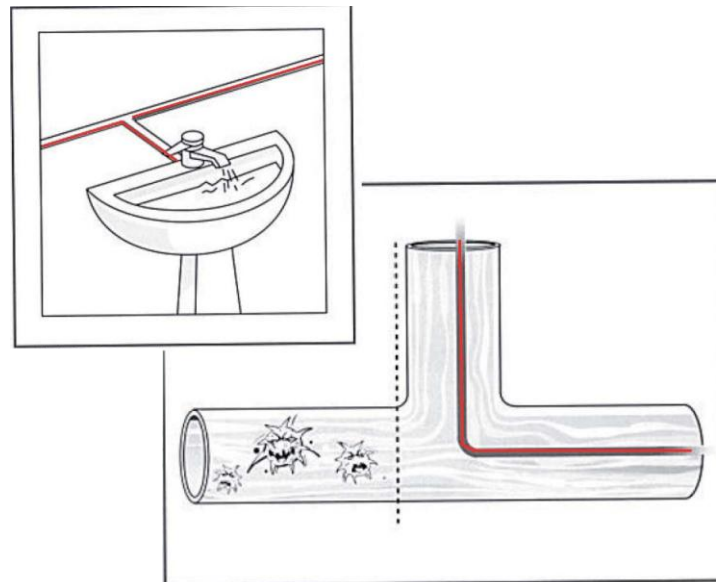
WATER COMFORT SYSTEM

Purpose of Warm Water Heating

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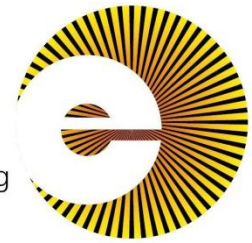
Not only does a circulation pipe or electrical heat tracing provide hot water at outlets throughout a building, but is also used to combat the building of Legionellen Bacteria within the warm water system. This is done by heating the system to over 60°C one time per day (usually during the sleeping hours) for a short period of time.



WATER COMFORT SYSTEM

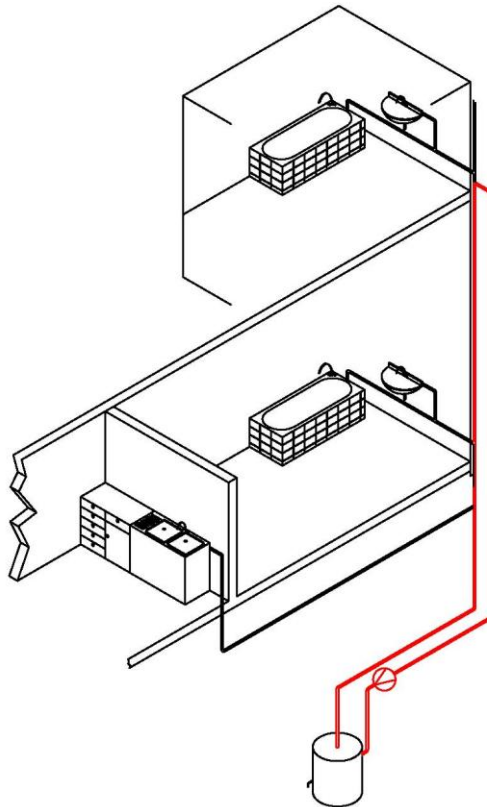
Comparison – Circulation Pipe vs. Electrical Heat Tracing

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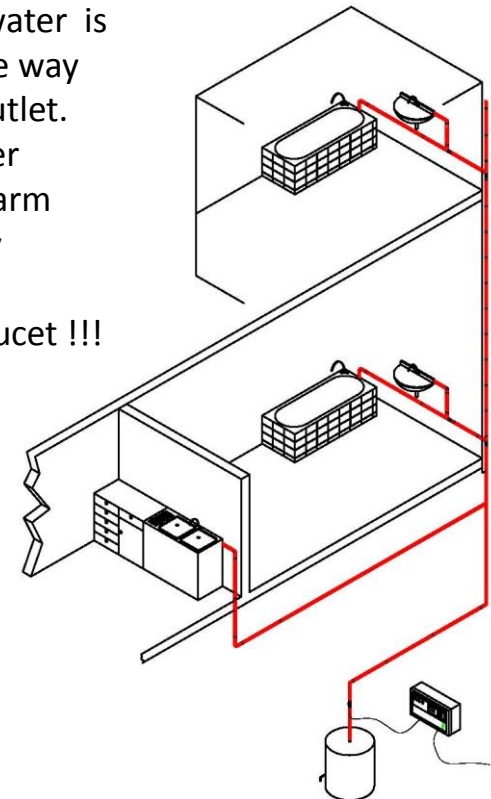
Circulation Pipe

A circulation pipe does not provide warm water all the way to the water outlet. A waste of water takes place because the user must wait until the cold water has left the pipe before the warm water comes out.



Electrical Heat Tracing

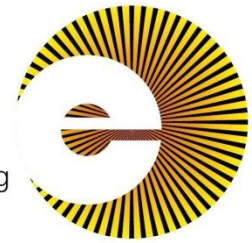
With electrical heat tracing warm water is provided all the way to the water outlet. This saves water because the warm water is readily available when opening the faucet !!!



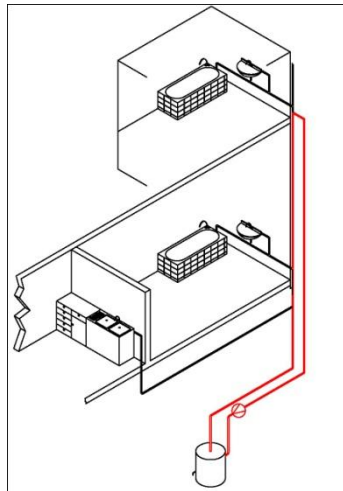
WATER COMFORT SYSTEM

Comparison – Circulation Pipe vs. Electrical Heat Tracing

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Circulation pipe



A circulation pipe requires more room for installation.

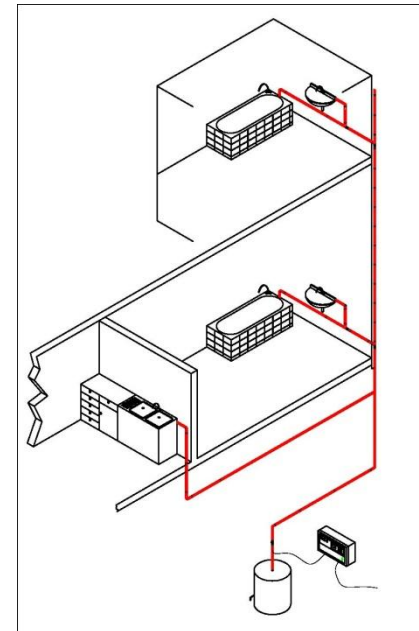
More expensive to install

(e.g. cutting the pipe to length, soldering of fittings, more time = paying installers, etc)

Requires Maintenance .

(e.g. Valves or their seals, and pumps need replacement)

Electrical Heat Tracing



Requires less room because the heating cable is placed directly on the warm water pipe.

Less expensive to install

Does not require maintenance

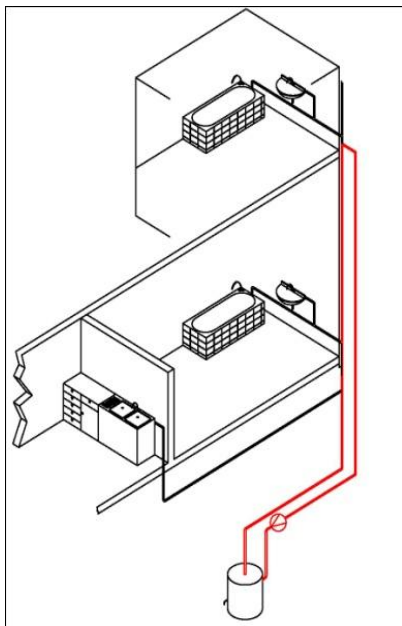
WATER COMFORT SYSTEM

Comparison – Circulation Pipe vs. Electrical Heat Tracing

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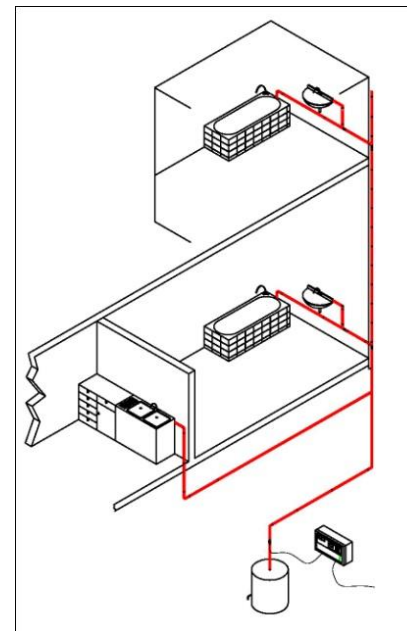


Circulation pipe



Operation of a circulation pipe requires more energy.
In average, circulation pumps consume around 23.56 Wh/m when compared to self-regulating heating cables.

Electrical Heat Tracing

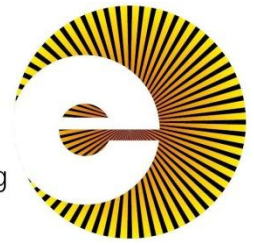


Requires less energy.
ELSR-W-65-2-BO would use 13 Wh/m @ 65 degC and
ELSR-W-55-2-BO would use 9 Wh/m @ 55degC

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Advantages of the Eltherm Water Comfort System

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- ❖ Complicated calculations to balance the warm water system are not necessary
- ❖ An automatic operating mode ensures Legionella Bacteria prevention even if the system is not adjusted individually.
- ❖ System will not be over-heated as there will be heat maintenance with the use of Self-Regulating Cables.
- ❖ The moisture proof heating tape ensures longer durability.
- ❖ The heating tape is available in two nominal outputs.
- ❖ The length of the heating tape can be varied freely as it is cut to length from reel.
- ❖ An additional power output for frost protection when used with a self-regulating heating tape as it prevents freezing of an additional cold water pipe.

WATER COMFORT SYSTEM

Advantages of the Eltherm Water Comfort System

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- ❖ Cost saving as circulation system is no longer needed.
- ❖ Energy saving due to its optimized temperature gradation.
- ❖ An additional temperature sensor on the boiler enables a balanced temperature maintenance between the boiler and the water pipes.
- ❖ Matching accessories enable an individual design based on requirements => the possibility of having a plug-and-play version (EL-Clic)
- ❖ The system fulfils international standards for legionella prevention (e.g. Arbeitsblatt W 551 of DVGW in Germany)
- ❖ The system is approved by VDE and fulfils the Flicker-standard.*

*The IEC flicker standard states that the Equipment Under Test has to be operated during the test in a way which is the worst case state with respect to flicker fluctuations in the voltage of the power supply.

WATER COMFORT SYSTEM

Eltherm Water Comfort System

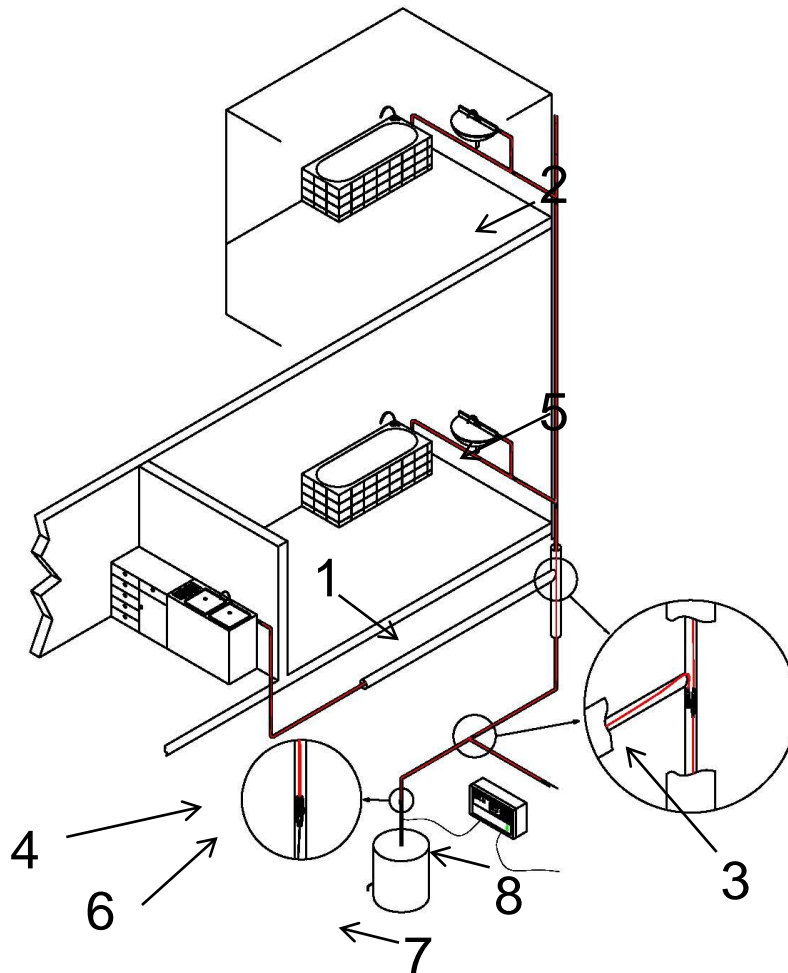
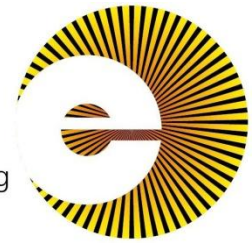
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WATER COMFORT SYSTEM

Electrical Heat Tracing for Warm Water Applications

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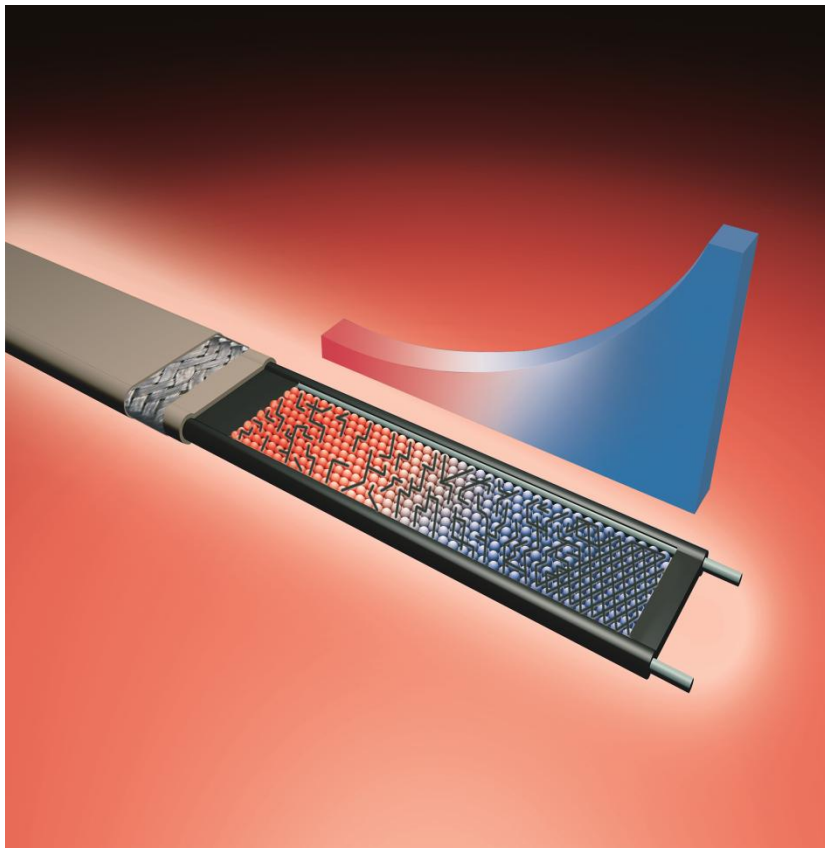
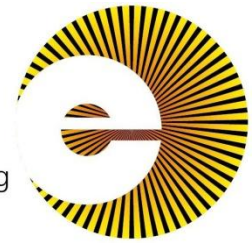
- 1 - Insulation (by Customer)
- 2 - Water pipe (by Customer)
- 3 - EL-Clic T-junction
- 4 - Self-regulating heating cable (ELSR-W)
- 5 - Self-adhesive aluminum foil
- 6 - EL-Clic fast connector system
- 7 - Water boiler (by Customer)
- 8 - Controller

WATER COMFORT SYSTEM

Electrical Heat Tracing for Warm Water

Applications – Self Regulating Heating Cables

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Self-regulating heating cables consist of two parallel bus wires embedded in a networked plastic heating element with surrounding carbon particles.

If the temperature increases during operation, the distances between the carbon particles increases. This causes the resistance to increase and then the power output drops.

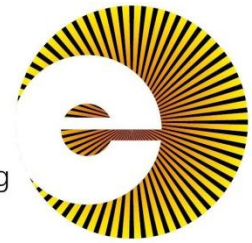
When it cools down, this process is reversed and output increases. These types of heating cables are cut-to-length from the reel.

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Electrical Heat Tracing for Warm Water

Applications – Self Regulating Heating Cables

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ELSR-W Self-Regulating Heating cable



Technical data:

Outer jacket TPE-O
Bus wire Cu nickel-plated
Maximum exposure
temperature (deenergised) . . 100 °C
Maximum exposure
temperature (energised) . . . 80 °C
Nominal voltage 230 V
Bending radius minimum . . . 20 mm
Minimum installation
temperature – 20 °C

WATER COMFORT SYSTEM

Electrical Heat Tracing for Warm Water Applications – Self Regulating Heating Cables

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ELSR-W Self-Regulating Heating cable



| Type | Nominal output | Dimensions approx. (mm) | Weight approx. (g/m) | Item number |
|----------------|-----------------|-------------------------|----------------------|-------------|
| ELSR-W-55-2-AO | 21 W/m at 10 °C | 12.9 x 5.0 | 86 | 0200360 |
| ELSR-W-55-2-BO | 21 W/m at 10 °C | 12.9 x 5.0 | 105 | 0200350 |
| ELSR-W-65-2-AO | 28 W/m at 10 °C | 12.9 x 5.0 | 86 | 0200455 |
| ELSR-W-65-2-BO | 28 W/m at 10 °C | 12.9 x 5.0 | 105 | 0200450 |

Heating circuit lengths ELSR-W

considering

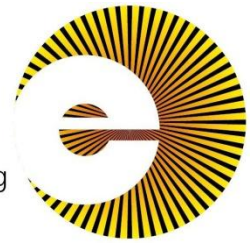
- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

| Switch-on temperature (°C) | Nominal cut-out value (A) | Heating circuit length (m) for | |
|----------------------------|---------------------------|--------------------------------|-----------|
| | | ELSR-W-55 | ELSR-W-65 |
| 50 | 16 | 158.0 | 110.0 |
| | 20 | 225.0 | 137.0 |
| | 25 | 285.0 | 171.0 |
| 20 | 16 | 121.0 | 76.0 |
| | 20 | 150.0 | 95.0 |
| | 25 | 189.0 | 118.0 |
| 0 | 16 | 106.0 | 63.0 |
| | 20 | 130.0 | 78.0 |
| | 25 | 166.0 | 98.0 |
| -20 | 16 | 96.0 | 54.0 |
| | 20 | 120.0 | 67.0 |
| | 25 | 150.0 | 84.0 |

WATER COMFORT SYSTEM

Electrical Heat Tracing for Warm Water
Applications – EL-Clic Fast Connector System

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El-Clic[®]



Junction



Set: End cap & glue



Cable & plug

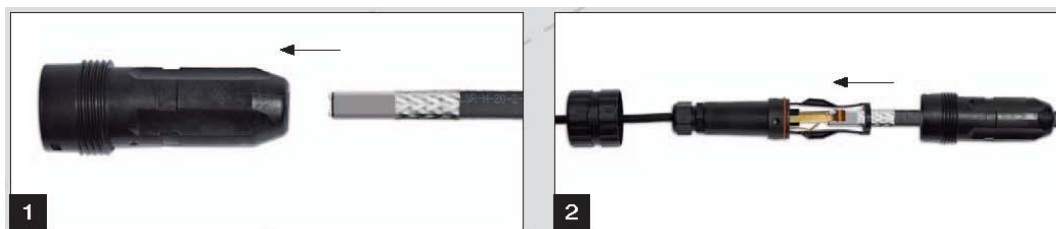
WATER COMFORT SYSTEM

Electrical Heat Tracing for Warm Water Applications – EL-Clic Fast Connector System



Advantages

- ❖ There are only 4 modules to provide all possible combinations, this greatly simplifies warehouse storage
- ❖ Assembly in less than 60 seconds – no other system is that fast.
- ❖ All small parts of the system are firmly integrated and cannot be lost.
- ❖ Incorrect installation is ruled out – assembly is dead easy.
- ❖ Safe contacts due to embracing the conductor (not only point contact)
- ❖ Reliable termination of bus wires.
- ❖ Temperature range down to -40°C
- ❖ EL-Clic is factory pre-assembled, and therefore terminated is possible without specific training.
- ❖ Beside a knife, no other tools are required for the assembly.



Cut heating cable to length, strip outerjacket, fold back braid, insert cable into the EL-Clic® and fit the two parts together.

