Mini ECO

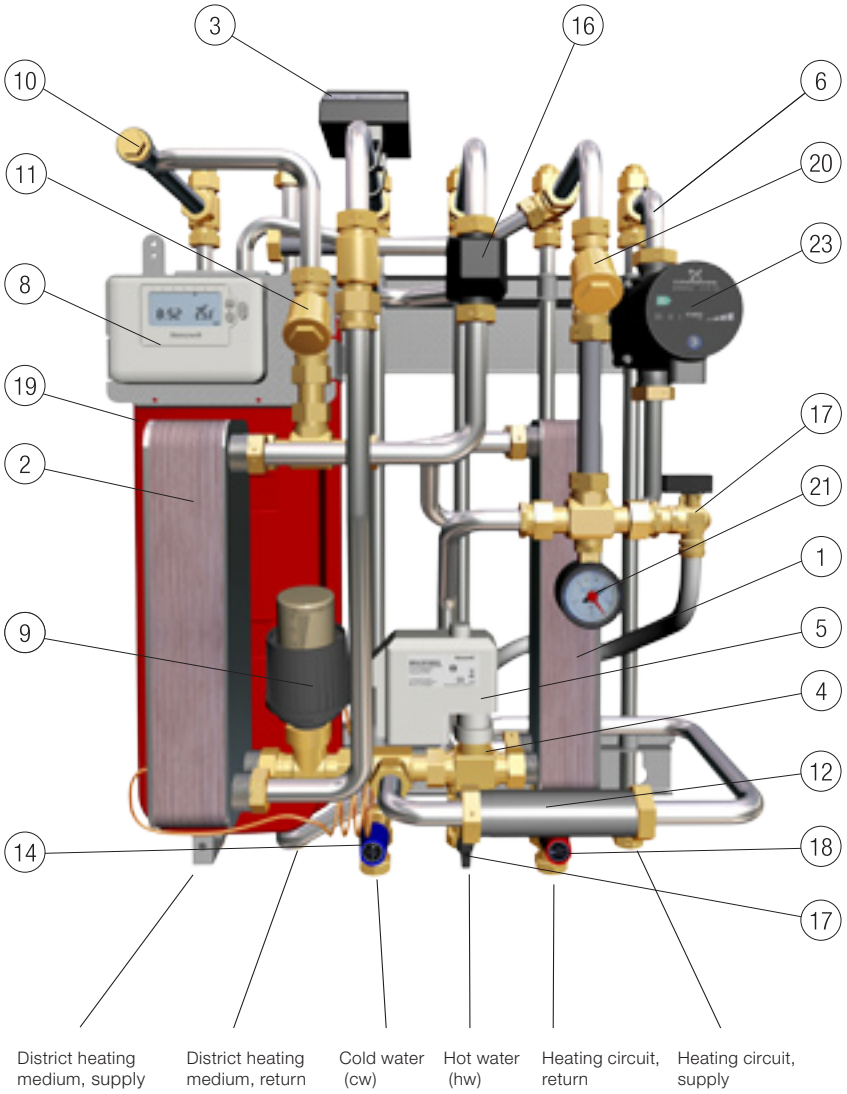
District heating substation for single-family houses

The Mini ECO district heating substation is ready for installation to meet the complete central heating and hot water requirements. It is suitable for apartments and single-family houses that are connected to a heating network. Alfa Laval has many years of experience in district heating technology, which is put to expert use in the Mini ECO, resulting in its practical function and ease of use. All components are easily accessible for inspection and future servicing when required.

High comfort
The Mini ECO has fully automatic individual temperature setting for central heating and hot water. Heat is automatically regulated, depending on outdoor temperature and/or the temperature desired inside the dwelling. Domestic hot water is heated completely separately in a high-capacity heat exchanger; thus ensuring that the hot water is always as fresh as the incoming cold water mains supply.

Simple installation
Compact dimensions, lightweight, well planned pipe runs and factory installed interior electrical routing all makes installation very simple. In addition, the pipes can be connected up or down depending on the layout of the building. The pre-programmed control device and plug connection make life even simpler in that the system can be activated immediately.

Long-term security
The Mini ECO represents the most modern technology, and provides the answer to stringent demands for long term performance. The heat exchanger plates and all piping are manufactured in acid-resistant stainless steel. All components are closely matched and carefully tested for function in accordance with Alfa Laval's quality assurance system ISO 9001:2008. The Mini ECO is CE and P marked.



Components

1. Heat exchanger for heating
2. Heat exchanger for hot water
3. Connection box for electric power and sensors, heating circuit
4. Control valve, heating circuit
5. Actuator, heating circuit
6. Supply temperature sensor, heating circuit
7. Outdoor temperature sensor
8. Room thermostat/control panel
9. Temperature regulator, hot water
10. Temperature sensor connection, district heating supply
11. Filter for district heating supply
12. Adapter for energy meter
13. Non. return valve for cold water
14. Safety valve, domestic hot water
15. Flow switch for tap water priority (option)
16. Safety temperature limiter, domestic hot water (option)
17. Valve to top up the heating circuit
18. Safety valve, heating circuit
19. Expansion vessel, heating circuit, 12 litres
20. Filter for heating circuit
21. Pressure gauge, heating circuit
22. Floor heating thermostat (option)
23. Circulation pump, heating circuit
24. Shut. off valves (6 pcs)

Brass components are dezincification resistant quality. All connections, DN20, internal threading. The pipes can be connected up and/or down. Shut-off valves are included and come with the delivery.

District heating – an excellent heating method

District heating is an efficient technology that meets the need for central heating and hot water in a simple, convenient and secure way. The expansion of district heating to its current level has reduced emission of greenhouse gases from heating by about 20%. The economics of district heating are very competitive compared with other forms of heating.

Operation

The incoming hot medium from the district heating underground network is at very high pressure and temperature. Therefore, only the heat from this is used; the district heating medium does not mix with the water in the dwelling's heating and hot water system.

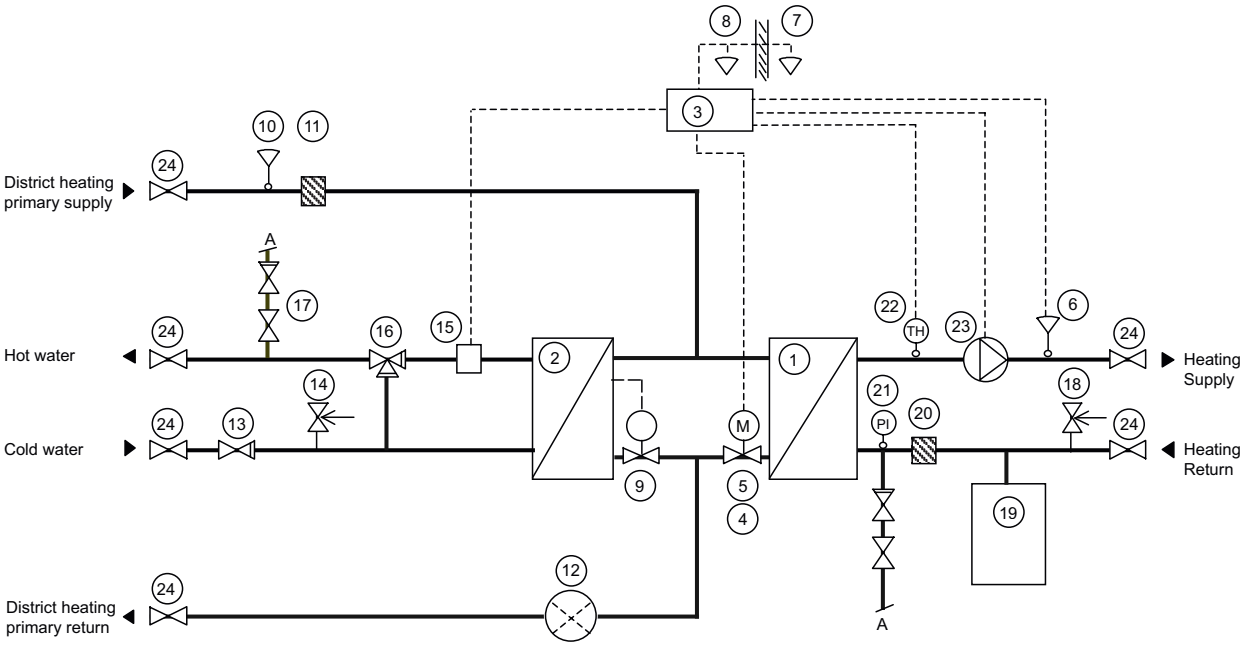
Heat exchangers are used to transfer heat from the district heating medium to the water in the dwelling's central heating and hot water system. Heat is transferred through a package of thin acid-resistant, stainless steel plates, which keep the district heating medium completely separate from the dwelling's own system.

Mini ECO has automatic temperature control for central heating and hot water. The heating circuit is adjusted in relation to the outdoor temperature and the required indoor temperature via a thermostatic control, outdoor sensor and/or indoor sensor. When no heating flow is required, the heating circulation pump stops automatically, but is run occasionally to prevent seizing up due to standing still for a long time. H737 has an easy to use interface and built in energy saving functions.

A self-sensing temperature regulator controls the hot water temperature. This measures the temperature of the hot water in the heat exchanger and automatically adjusts the outgoing flow. This patented, in-house Alfa Laval design gives a constant hot water temperature irrespective of volume and pressure flow.

The district heating utility company registers energy consumption. Measurement is done by recording the flow of district heating medium through the system, and by measuring the temperature difference between the medium's supply and return flow.

Diagramatic flowchart for Mini ECO



For under floor heating systems
Under floor heating systems normally require a high-capacity circulation pump, preferably electronically controlled. An under floor water flow greater than 0,40 l/s use underfloor heating version. If combined with radiator circuits, the under floor heating circuit must be separately controlled. The instructions of the under floor heating supplier must also be checked.

An easily manageable, economical and durable source of heat.
The Mini ECO uses the hot district heating medium for heating the domestic hot water (providing an uninterrupted supply) as well as the water in the central heating system. The Mini ECO is a wall-hung unit and is very compact. Substations may generate sounds during operation caused by pumps, regulators systems, flow etc. The unit is discreet and to minimize transmission of operational sounds, we recommend to install it on well insulated walls or on walls of concrete. Mini ECO requires no attendance or maintenance and has a very long operational life. In the event of requiring service or component exchange at some future date, all parts are easily accessible and individually replaceable.

Operating data

	District heating network	Heating circuit	Hot water circuit
Design pressure, Mpa	1,6	0,6	1,0
Design temperature, °C	120	100	100
Opening pressure, safety valve, Mpa	-	0,25	0,9
Volume, l	0,55/0,45	0,59	0,48

Performance at available primary differential pressure 100-600 kPa

Designed temperature programme (°C)	Capacity (kW)	Primary flow (l/s)	Actual return temp. (°C)	Secondary flow (l/s)
Hot water circuit				
80-22/10-55	75	0,31	22	0,40
70-25/10-58	49	0,26	25	0,24
65-22/10-50	54	0,30	22	0,32
Heating circuit				
115-65/60-80	40	0,18	63	0,48
100-63/60-80	21	0,14	63	0,25
100-43/40-60	37	0,16	43	0,44
100-33/30-37	16	0,05	31	0,55

Underfloor heating version

115-33/30-37	23	0,06	31	0,79
100-33/30-37	23	0,08	31	0,79

Other information

Electrical data: 230 V, 1-phase, 100 W

Dimensions: Cover, width 577 mm x depth 458 mm x height 770 mm

Weight: 31 kg, cover 5 kg

For transport: Total weight 40 kg, volume 0.23 m^3

Connections	Screws
District heating supply	G3/4"
District heating return	G3/4"
Heating supply	G3/4"
Heating return	G3/4"
Cold water	G3/4"
Hot water	G3/4"

ISO 9001:2008