



Cetetherm Mini IS

District heating substation for single-family houses



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

High comfort

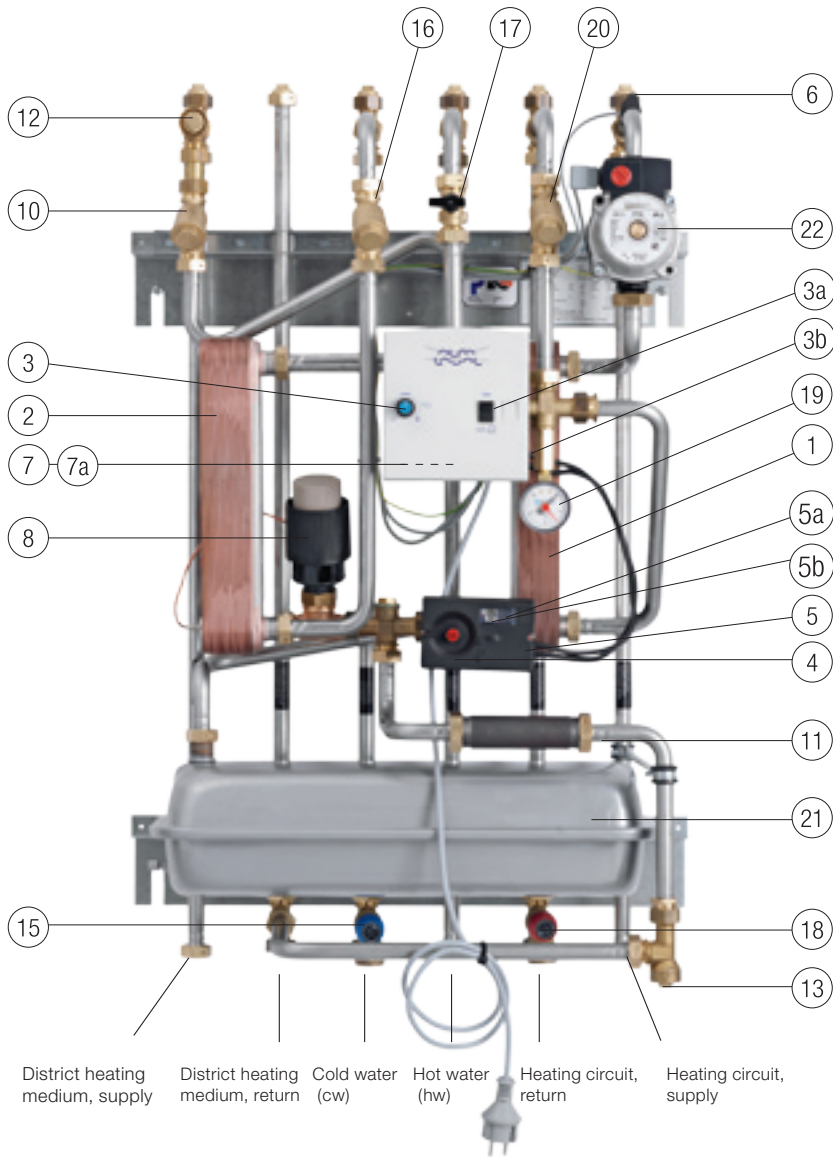
The Cetetherm Mini IS has fully automatic individual temperature setting for central heating and hot water. Heat is automatically regulated, depending on outdoor temperature and the temperature desired inside the dwelling. Domestic hot water is heated completely separately in a high-capacity heat exchanger;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

Simple installation

Compact dimensions, light weight, well arranged plumbing and factory-complete internal wiring all make installation very simple. Moreover, the plumbing can be connected from the top or bottom depending on the layout on site. Pre-programmed control unit and a power cable already provided with a plug make things even simpler to allow immediate start-up.

Long-term security

The Cetetherm Mini IS 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 9001:2000. The Cetetherm Mini IS 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.
- 3a. Switch Auto/forced heating
- 3b. Switch Auto/Manual operation (on the back of the connection box)
4. Control valve for heating circuit
5. Actuator with controller, heating circuit
- 5a. Cover
- 5b. DIP-switch
6. Flow temperature sensor, heating circuit
7. Outside temperature
- 7a. Terminals for outside temperature sensor (on the back of the connection box)
8. Temperature controller for hot water
9. Differential pressure controller (option)
10. Filter for district heating medium
11. Adapter for energy meter
12. Temperature sensor connection, district heating medium supply
13. Temperature sensor connection, district heating medium return
14. Check valve for cold water
15. Safety valve for domestic hot water
16. Filter for cold water
17. Valve to top up the heating circuit
18. Safety valve for heating circuit
19. Pressure gauge for heating circuit
20. Filter for heating circuit
21. Expansion vessel, heating circuit, 12 litres
22. Circulation pump for heating circuit
23. Shutoff valves (six)

Brass parts are hardened against dezincification. All connectors, DN20, internal threaded. Plumbing connections up or down. Shut off valves are included, separately packed.

District heating – a good source of heat

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. Today, more than half of Sweden's dwellings are already heated by district heating systems.

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.

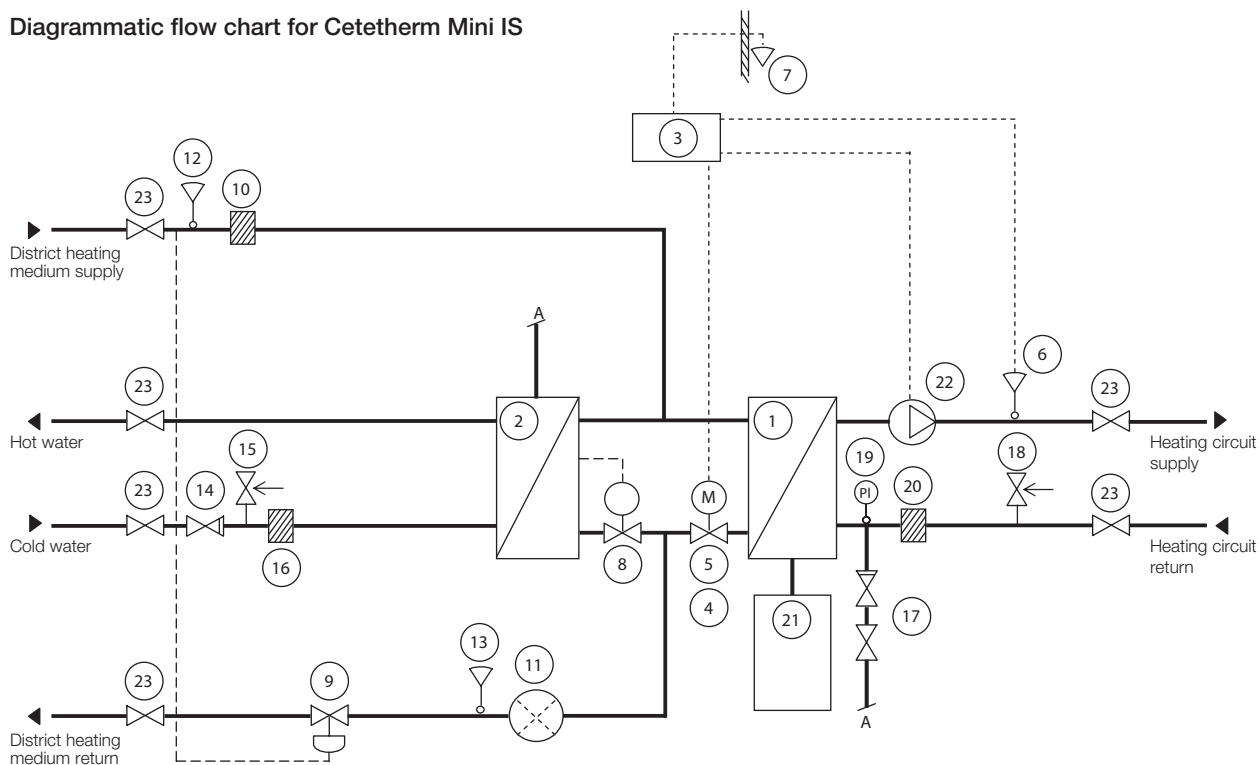
Heat exchangers are used to transfer heat from the district heating medium to the water in the dwelling's central heating and hot water system. Heat is transferred through a package of thin acid-resistant, stainless steel plates, which keep the district heating medium completely separate from the dwelling's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

Cetetherm Mini IS 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, incoming heat sensor and outdoor sensor. When no heating flow is required, the heating circuit circulation pump stops automatically, but is run occasionally to prevent seizing up due to standing still for a long time. If you need to disconnect this function, eg, for heating a basement, it can easily be done via switch 3a.

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.

Diagrammatic flow chart for Cetetherm Mini IS



For underfloor heating systems

Underfloor heating systems normally require a high-capacity circulation pump, preferably electronically controlled. An underfloor water flow greater than 0,30 l/s requires a special underfloor heating accessory. If combined with radiator circuits, the underfloor heating circuit must be separately controlled. The instructions of the underfloor heating supplier must also be checked.

An easily manageable, economical and durable source of heat

The Cetetherm Mini IS 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 Cetetherm Mini IS is a wall-hung unit and is very compact. Wherever the unit is located, it is quiet and discreet, 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 medium	Heating circuit	Hot water circuit
Design pressure, MPa	1,6	0,6	1,0
Design temperature, °C	120	100	100
Relief valve opening pressure, MPa	–	0,25	0,9
Volume, l	0,4/0,6	0,4	0,6

Performance at primary working 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				
65-25/10-50	58	0,35	22	0,35
Heating circuit (standard design)				
100-63/60-80	23	0,14	61	0,28
100-43/40-60	23	0,09	41	0,28
Heating circuit (standard design, but with electronically controlled pump)				
100-63/60-80	26	0,16	62	0,31
100-43/40-60	26	0,10	41	0,31

Other information

Electrical data: 230 V, single phase, 100 W
 Dimensions: Casing 600 mm wide x 470 mm deep x 1000 mm high
 Weight: 31 kg, casing 8 kg.
 Transport particulars: Total weight 56 kg, volume 0,4 m³.

Connections	Screws
District heating supply	G 3/4
District heating return	G 3/4
Heating supply	G 3/4
Heating return	G 3/4
Cold water	G 3/4
Hot Water	G 3/4

