EKİN ENDÜSTRİYEL
Isıtma-Soğutma San. Tic. Ltd. Şti.

Apartment and Local Heating Network Transfer Solutions

Apartment and Local Heating Network Transfer Stations

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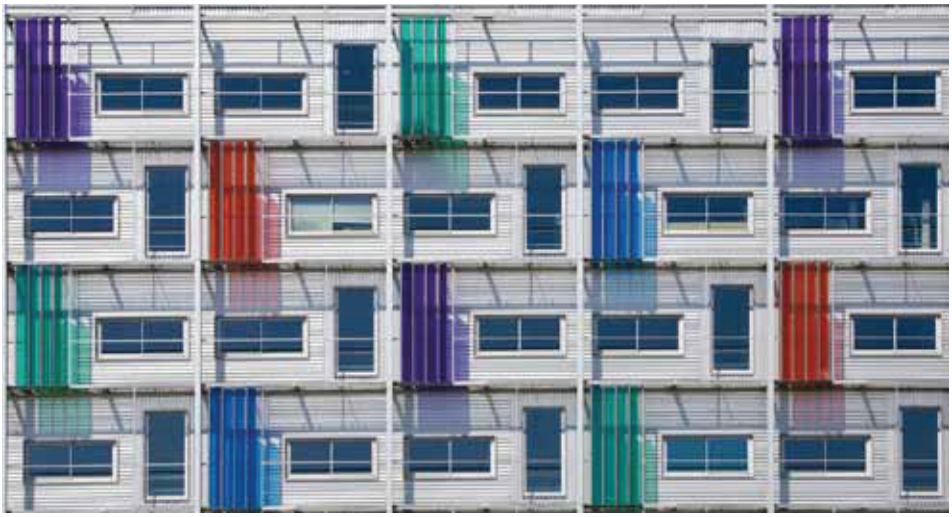
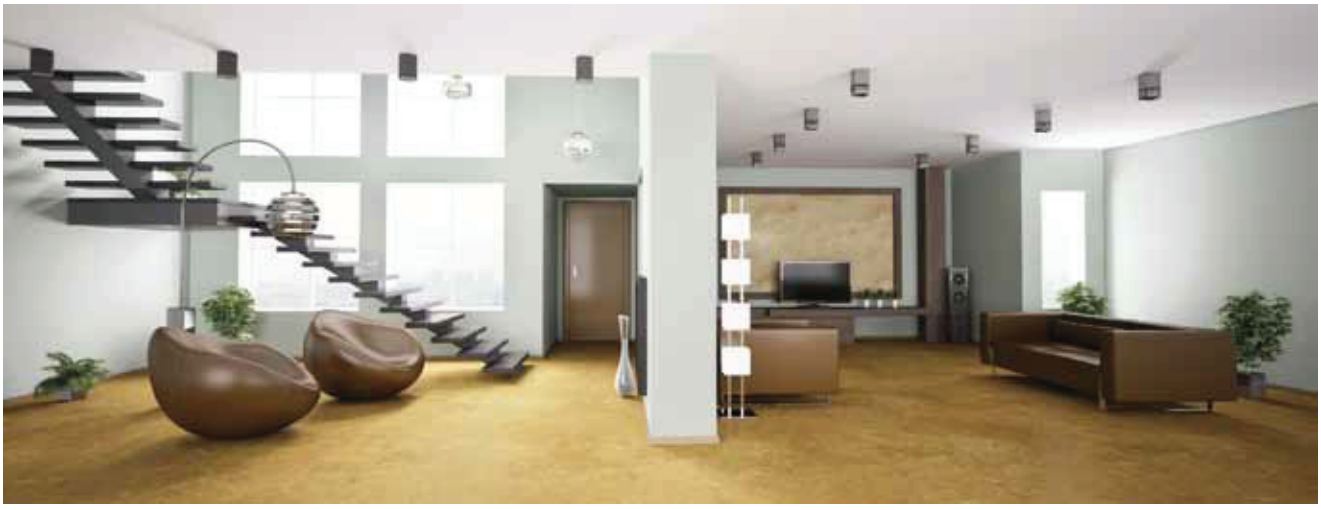
Apartment and Local Heating Network Transfer Stations

MIT Apartment and Local Heating Network Transfer Stations, combines the economy provided by central heating systems with the advantage of determining independently comfort conditions offered by individual systems. Thus, this system which significantly reduces energy consuptions, helps also to provide an individual sharing in central system fuel consumptions. Mounted in flat entrances, supplied directly with central hot water boiler, MIT Transfer Station prevent pressure differences in intra-apartmental heating installations as well as the problems which can emerge.

"Comfort and independent usage" era in central heating systems

The Building Energy Performance Regulation (BEP) obligated the use of a central heating system in residential buildings which have numerous independent parts. MIT Transfer Stations that enables sharing energy consumption costs for different usage choices and quantities of central systems with high energy efficiency; can be easily applied both in new built and existing buildings.
With its compact design, it occupies a small space and can be mounted to the wall. It is a charming solution which provides modern, energy efficiency, high comfort for central heating systems.





System Features

There is no boiler in boiler room, but instead of this, domestic hot water is produced in these units with exchanger at the flat entrances. These units involve the compact heat exchanger which instantly provides hot water and the differential pressure control valve that provides balance distribution of water between the radiators and the exchanger.

Different control courses can be pursued in apartment and local heating network transfer stations:

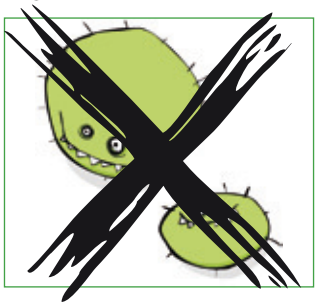
- Direct: Controls can only be made with differential pressure control elements and optionally, the help of control valves which are controlled by programmable thermostats.

Technical Parameters:

Nominal Pressure	: PN 16
Heating Line Temperature	: Max. 120°C
Min. Domestic Cold Water Pressure	: Pmin = 0,5 Bar
Exchanger Material	: AISI316 Stainless Steel
Pipes	: AISI316 Stainless Steel
Primary Circuit Pressure Loss	: 25-35 Kpa

The Advantages of Apartment and Local Heating Network Transfer Stations

- MIT apartment and local heating network transfer stations eliminate the disadvantages of the systems in which domestic hot water is obtained with central boiler. For instance it provides no need for hot water recirculation line, by saving boiler and pump spaces, to evaluate these spaces in a different way.
- It can be used with all kinds or combination of fuel used by central systems.
- It is adequate to install three pipe lines as heating delivery line, heating return line and cold water line.
- As the water is not stored and obtained in the time of need, it eliminates the risk of legionella.



- Thanks to thermostatic mixing valve, hot water is protected at the settled value.
- Thanks to thermostatic valve, overheating in exchanger is prevented.
- There is no risk of electricity short circuit and gas leaks.
- The room temperature can be controlled independently.
- As it does not require maintenance, service cost is low.
- Due to the calorimeter which can be integrated to the system, a fair billing between flats is provided.
- The risk of bacterial and lime formation is minimized.
- It can be specially designed and produced upon the individual need.

POINTS SAVED DURING THE INVESTMENT:

- There is no need for:
- Boilers and meters,
- Exchanger,
- The water meter, as the domestic and heating hot are fed from the same line,
- Sanitary pipes, circulation pumps and globe valves,
- Balancing valves and strainers as it takes place within the unit.
- Flue (architecturally important)

The Working Principle of Apartment and Local Heating Network Transfer Stations

Transfer Stations are units where one part of the water coming from the central boiler room provides heating, the other part heats the domestic water coming from the hydrophore by passing from exchanger.

As it operates on a “domestic hot water priority basis”, it offers a more comfortable hot water usage than boiler systems. Even in sudden and variable domestic hot water need, it provides water at intended flow and constant temperature.

The order followed during system design is as below:

- Flow for pump and pipe sizing
- The boiler or regional heating capacity
- The volume of reserve tank

The total flow relies on the speed of the heating system flow and determined through the primer feeding flow required for the exchanger. The maximum flow is seen in summer or winter depending on the parameters. When determining pipe diameters, equivalence factor and primary domestic hot water need in winter must be taken into consideration. If the domestic hot water control valve turns off mechanically the radiator/ floor thermal feeding system, 100 % need for domestic hot water need is apparent. If a valve that does not have mechanical balance feature is used in this line, it must be properly evaluated if domestic hot water will be of first priority or not.

The Components Which Compose Apartment and Local Heating Network Transfer Stations

HEAT EXCHANGER

The exchanger which is situated within the station, provides the domestic hot water obtained through passing the hot water coming from boiler room from the exchanger and heating city water.

Plate exchangers are devices that work based on generating heat transfer principle between two different fluids which have temperature difference. They are completely separated from each other with fluid plates which will heat and fluid plates which will be heated. Plate exchangers in transfer station applications; are the main equipments for domestic hot water.

THERMOSTATIC MIXING VALVE

Thermostatic valve provides the domestic hot water, obtained by heating the cold water coming from city line in the exchanger, to go to the taps at the constant temperature. Besides, as temperature value can be regulated to the preferred level, boiling because of overtemp water reached to the tap is prevented. Moreover, as in floor heating systems, hot water coming from the central boiler room is not wanted to go directly to the floor heating line, the temperature is fixed at the required value with thermostatic mixing valve.

THERMOSTATIC VALVE

Thermostatic valve provides the domestic hot water, obtained by heating the cold water coming from city line in the exchanger, to go to the taps at the constant temperature.
Besides, as temperature value can be regulated to the preferred level, boiling because of overtemp water reached to the tap is prevented. It provides proportional work without the need for an external energy.

DIFFERENTIAL PRESSURE (ΔP) CONTROL VALVE

It is used in order to control the differential pressure at the radiator line.

One of its functions is; through generating an extra pressure in the radiator line according to the exchanger line, to orient the heating water to the exchanger when consumption occurs in the domestic water line. Thanks to this ΔP controlled valve, a parallel work between radiator and exchanger is provided Thus, all the system is balanced and inter-floor pressure differences are prevented.

PM REGULATOR

When a usage in any flow at the mains line is subject, it orients the heating line to the exchanger in a proportional way according to the flow quantity. By controlling the pressure on the heating line, it performs sort of a balancing valve. When the use of hot water is ended, the flow from the central heating boiler room to the exchanger is interrupted and calcification in the exchanger is prevented.

The Components Which Compose Apartment and Local Heating Network Transfer Stations

IHPT THERMOSTATIC ROTARY VALVE

When a usage in any flow at the mains line is subject, it orients the heating line to the exchanger in a proportional way according to the flow quantity. Through its thermostatic control, it can fix domestic hot water at a constant tem Thus, legionella bacteria and boiling risks on the taps are prohibited.

CALORIMETER

It calculates the fair fuel consumption regarding each flat's usage quantity through calculating thermal loss of hot water coming from central boiler room in the exchanger and within the flat, and thanks to the M-BUS system, it is possible to monitoring, billing, even limiting the usage from a single center.

ROOM THERMOSTAT

The motorized valve within the station is controlled in such a way that provides comfort temperature in the flat thanks to the room thermostat, the flow rate of the hot water coming from the central boiler room is regulated proportionally with room thermostat control and extra saving and ease of use is provided in our economic system.

STANDARD UNIT COVERAGE

- Galvanized or stainless steel installation sheet
- Plate exchanger
- Thermostatic valve
- Differential pressure (dP) control valve
- Rotary valves
  - IHPT Thermostatic Rotary Valve
  - Accelerator
  - PM Regulator

TEMPERATURE LIMITING VALVE FOR RETURN WATER

It provides the hot water coming from the central boiler room rising at the constant temperature when it exists from the exchanger. Thus, high efficiency is provided thanks to the low return temperature. Moreover, it insures the exchanger to stay always hot by providing a standing flow within the exchanger.

COLD WATER METER

It calculates the use of the water coming from mains before being conducted directly to the exchanger and taps, and as there is no need for and extra space in the installation, space saving is provided and our heat station is made compact. Besides, consumption quantity can be read through the meter and it can be remotely read or billed with M-BUS system.

COLLECTOR GROUPS

Before the hot water coming from the central boiler room is conducted to the heating line, it can be separated with delivery and return collector in order to have equal pressure in all the radiators within the flat. Including collector groups within the heat station, beside providing space advantage, removes the crowd at the flat entrance installation.

EQUIPMENTS THAT CAN OPTIONALLY BE ADDED TO THE PROJECT:

- Cutting valve
- Strainer
- Strainer at the mains water inlet
- Collector groups
- Room thermostats
- Hot water recirculation line and pump
- Thermostatic three-way mixing valve for floor heating
- Frequency controlled pump
- Cooling line
- Calorimeter
- Cold water meter
- Closed cabinet

Types

MIT-FSD-001

EQUIPMENT LIST:

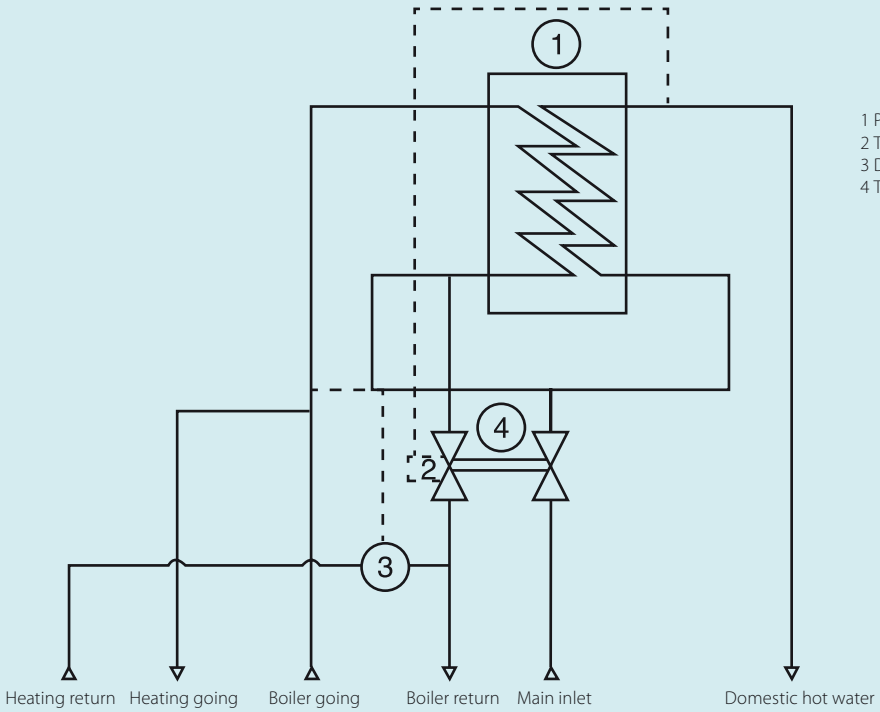
1) Exchanger Primer 70-50 / seconder 10-45

35 kW MIT MB-04-14 Plate Exchanger
45 kW MIT MB-04-16 Plate Exchanger
65 kW MIT MB-04-20 Plate Exchanger
80 kW MIT MB-04-24 Plate Exchanger

2) Thermostatic valve
3) Differential Pressure Valve
4) Thermostatic Rotary Valve

CAPACITY SAMPLES

Capacity (kW)	Primary Circuit Temperature (°C)	Secondary Circuit Temperature (°C)	Secondary Flow Rate (lt/min)
35	70-50	10-45	14,39
45	70-50	10-45	18,54
65	70-50	10-45	26,73
80	70-50	10-45	32,80



1 Plate Exchanger
2 Thermostatic valve
3 Differential Pressure Valve
4 Thermostatic Rotary Valve

MIT-FSE-001

EQUIPMENT LIST:

1) Exchanger Primer 70-50 / seconder 10-45

35 kW MIT MB-04-14 Plate Exchanger
45 kW MIT MB-04-16 Plate Exchanger
65 kW MIT MB-04-20 Plate Exchanger
80 kW MIT MB-04-24 Plate Exchanger

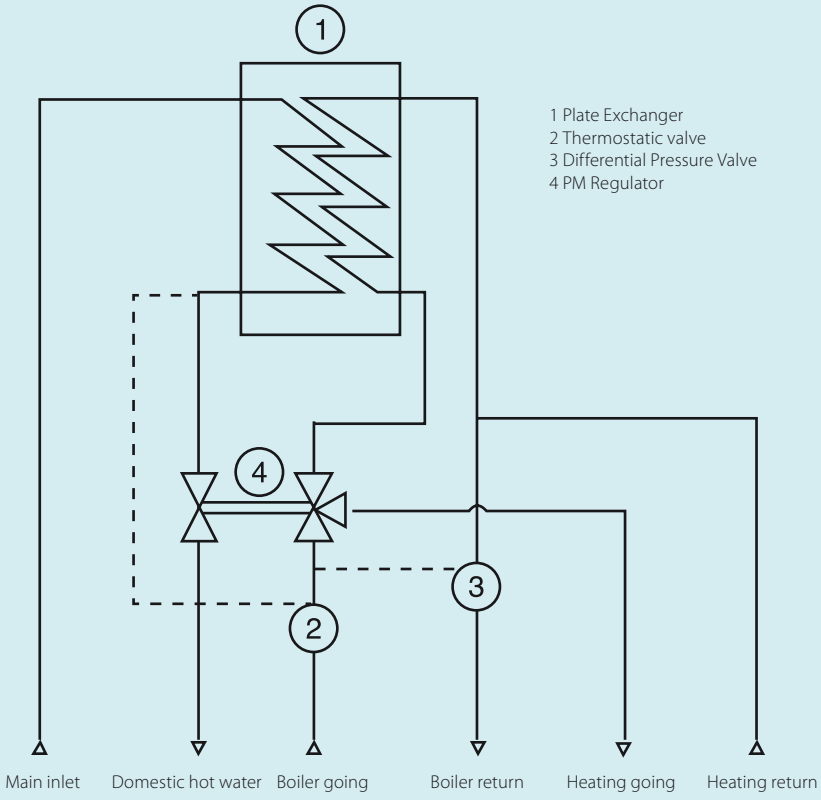
2) Thermostatic valve

3) Differential Pressure Valve

4) PM Regulator

CAPACITY SAMPLES

Capacity (kW)	Primary Circuit Temperature (°C)	Secondary Circuit Temperature (°C)	Secondary Flow Rate (lt/min)
35	70-50	10-45	14,39
45	70-50	10-45	18,54
65	70-50	10-45	26,73
80	70-50	10-45	32,80



1 Plate Exchanger
2 Thermostatic valve
3 Differential Pressure Valve
4 PM Regulator

Types

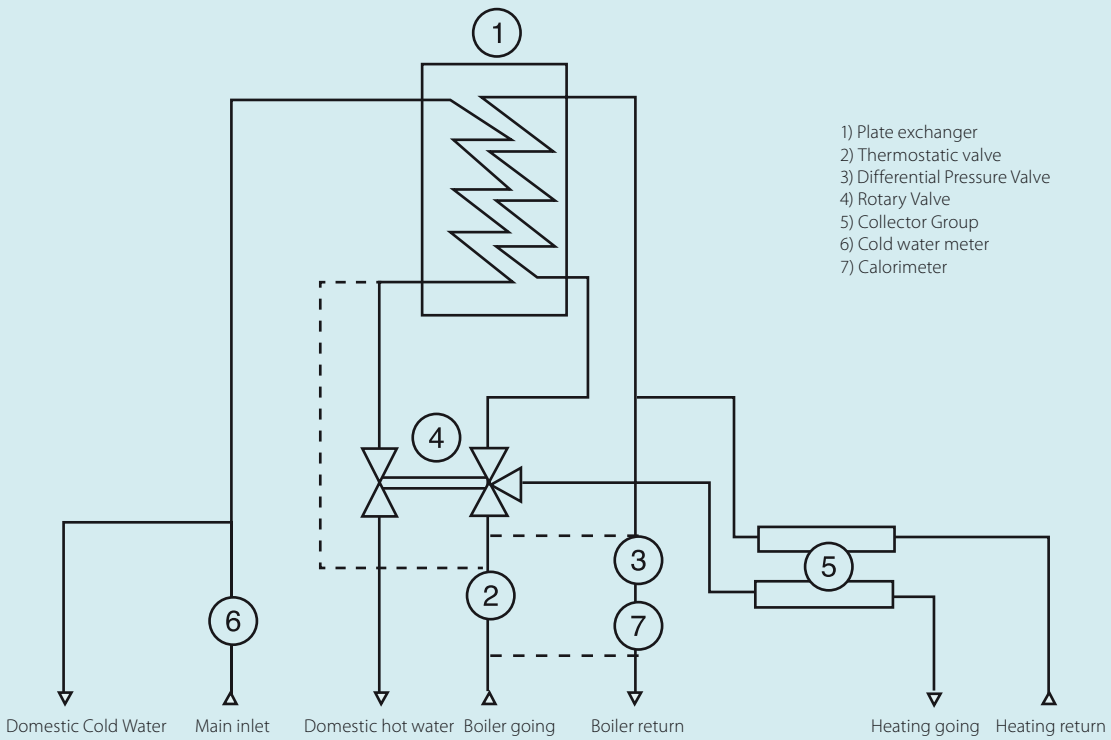
MIT-FSDH-007

EQUIPMENT LIST:

1) Exchanger Primer 70-50 / seconder 10-45
   35 kW MIT MB-04-14 Plate Exchanger
   45 kW MIT MB-04-16 Plate Exchanger
   65 kW MIT MB-04-20 Plate Exchanger
   80 kW MIT MB-04-24 Plate Exchanger
2) Thermostatic valve
3) Differential Pressure Valve
4) Rotary Valve
5) Collector Group
6) Cold Water meter
7) Calorimeter

CAPACITY SAMPLES

Capacity (kW)	Primary Circuit Temperature (°C)	Secondary Circuit Temperature (°C)	Secondary Flow Rate (lt/min)
35	70-50	10-45	14,39
45	70-50	10-45	18,54
65	70-50	10-45	26,73
80	70-50	10-45	32,80



1) Plate exchanger
2) Thermostatic valve
3) Differential Pressure Valve
4) Rotary Valve
5) Collector Group
6) Cold water meter
7) Calorimeter

MIT-FSED-001

EQUIPMENT LIST:

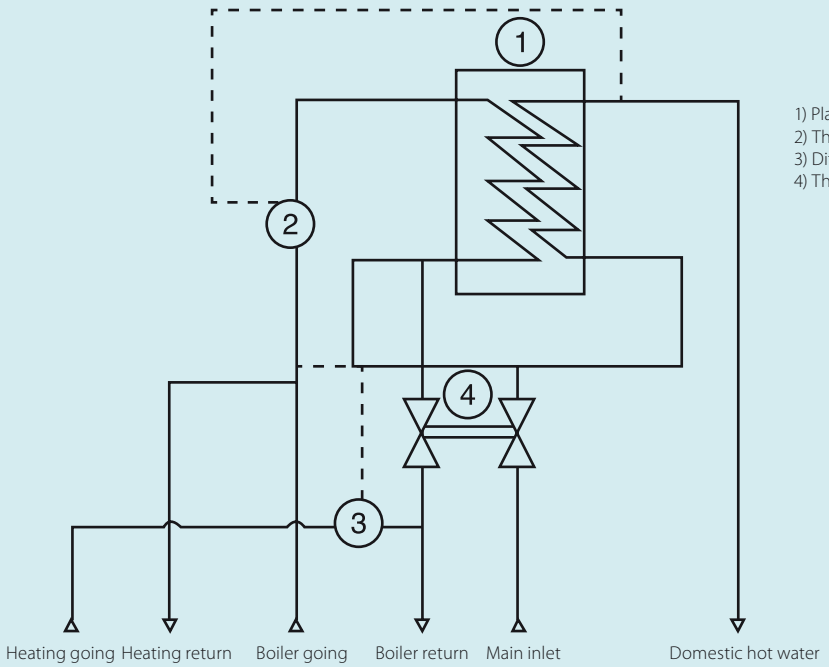
1) Exchanger Primer 70-50 / seconder 10-45

35 kW MIT MB-04-14 Plate Exchanger
45 kW MIT MB-04-16 Plate Exchanger
65 kW MIT MB-04-20 Plate Exchanger
80 kW MIT MB-04-24 Plate Exchanger

2) Thermostatic valve
3) Differential Pressure Valve
4) Thermostatic Rotary Valve

CAPACITY SAMPLES

Capacity (kW)	Primary Circuit Temperature (°C)	Secondary Circuit Temperature (°C)	Secondary Flow Rate (lt/min)
35	70-50	10-45	14,39
45	70-50	10-45	18,54
65	70-50	10-45	26,73
80	70-50	10-45	32,80



1) Plate Exchanger
2) Thermostatic Valve
3) Differential Pressure Valve
4) Thermostatic Rotary Valve

Types

MIT-FSE-009

EQUIPMENT LIST:

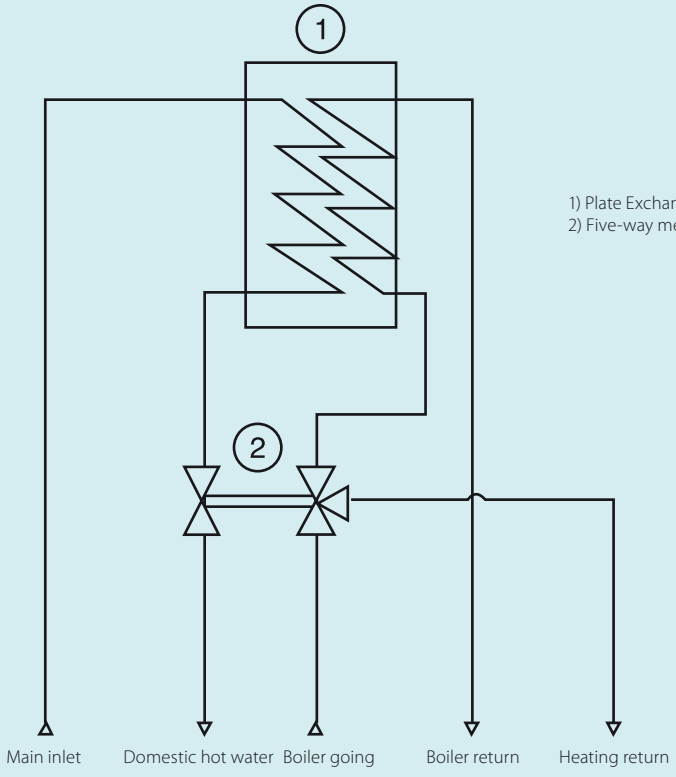
1) Exchanger Primer 70-50 / seconder 10-45

35 kW MIT MB-04-14 Plate Exchanger
45 kW MIT MB-04-16 Plate Exchanger
65 kW MIT MB-04-20 Plate Exchanger
80 kW MIT MB-04-24 Plate Exchanger

2) Five-way mechanic rotary valve

CAPACITY SAMPLES

Capacity (kW)	Primary Circuit Temperature (°C)	Secondary Circuit Temperature (°C)	Secondary Flow Rate (lt/min)
35	70-50	10-45	14,39
45	70-50	10-45	18,54
65	70-50	10-45	26,73
80	70-50	10-45	32,80



1) Plate Exchanger
2) Five-way mechanic rotary valve

MIT-FSE-020

EQUIPMENT LIST:

1) Exchanger Primer 70-50 / seconder 10-45
   35 kW MIT MB-04-14 Plate Exchanger
   45 kW MIT MB-04-16 Plate Exchanger
   65 kW MIT MB-04-20 Plate Exchanger
   80 kW MIT MB-04-24 Plate Exchanger
2) Thermostatic valve
3) Differential Pressure Valve
4) Rotary Valve
5) Collector Group
6) Cold water meter
7) Calorimeter

CAPACITY SAMPLES

Capacity (kW)	Primary Circuit Temperature (°C)	Secondary Circuit Temperature (°C)	Secondary Flow Rate (lt/min)
35	70-50	10-45	14,39
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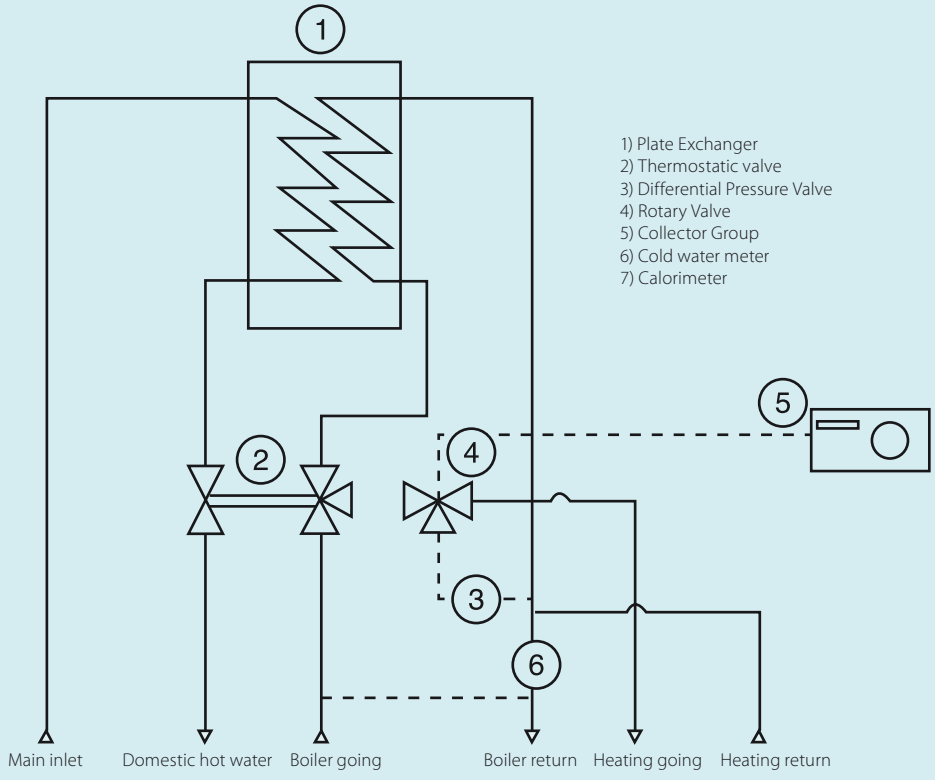
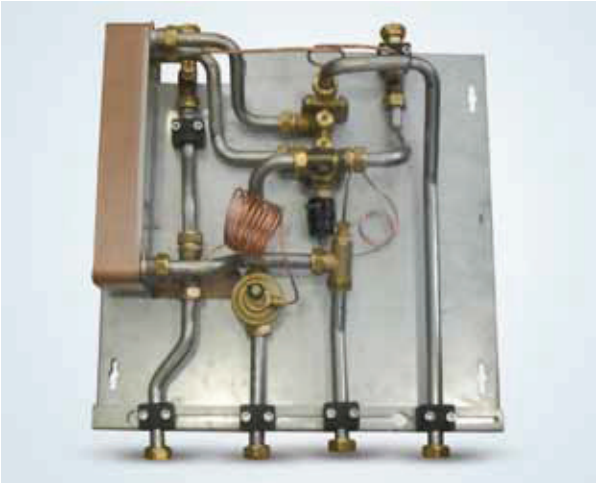


Heat Station Model List



Model Collector	Balancing Valve		Thermostatic Valve		Calorimeter		Cold water Meter	Mixing Valve	Circulation Pump	Group
	Dynamic	Static	Thermostatic PM Control	Thermostatic +PM Regulator	Ultrasonic	Mechanic				
MIT-FSD-001	●		●							
MIT-FSD-002	●		●			●				
MIT-FSD-003	●		●		●					
MIT-FSD-004	●		●			●	●	●	●	
MIT-FSD-005	●		●		●		●	●	●	
MIT-FSD-006	●		●			●	●			●
MIT-FSD-007	●		●		●		●			●

Model Collector	Balancing Valve		Thermostatic Valve		Calorimeter		Cold water Meter	Mixing Valve	Circulation Pump	Group
	Dynamic	Static	Thermostatic PM Control	Thermostatic +PM Regulator	Ultrasonic	Mechanic				
MIT-FSE-001	●			●						
MIT-FSE-002	●			●		●				
MIT-FSE-003	●			●	●					
MIT-FSE-004	●			●		●	●	●	●	
MIT-FSE-005	●			●	●		●	●	●	
MIT-FSE-006	●			●	●		●			●
MIT-FSE-007	●			●		●	●			●

Heat Station Model List

Model	Balancing Valve		Thermostatic Valve	PM Regulator	Five-way Mechanic Valve	Mechanic Calorimeter	Cold Water Meter	Room Thermostat	Circulation Pump
	Dynamic	Static							
MIT-FSE-008				●					
MIT-FSE-009					●				
MIT-FSE-010			●		●				
MIT-FSE-011			●	●					
MIT-FSE-012		●	●		●				
MIT-FSE-013		●	●	●					
MIT-FSE-014				●				●	
MIT-FSE-015					●			●	
MIT-FSE-016		●		●				●	
MIT-FSE-017		●			●			●	
MIT-FSE-018		●	●	●		●	●		
MIT-FSE-019		●		●		●	●	●	
MIT-FSE-020					●	●		●	
MIT-FSE-021				●		●		●	
MIT-FSE-022						●		●	●
MIT-FSE-023		●				●		●	●