

# Diatech LF

Metering, heating and production of domestic hot water for condensation plants

## DESCRIPTION

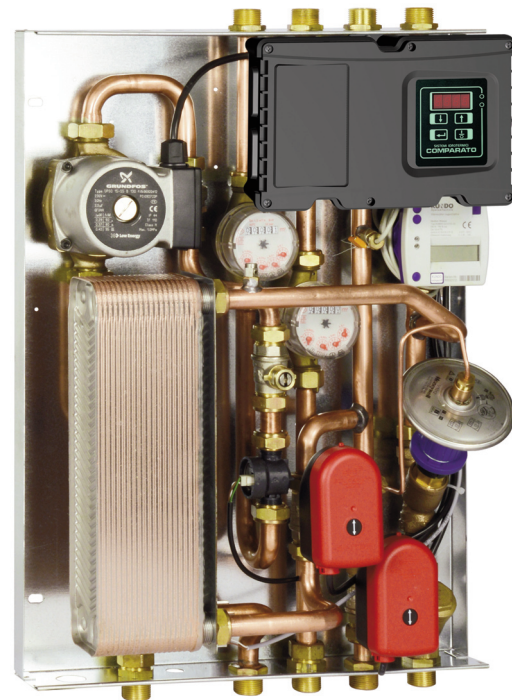
**DIATECH LF** is a hydraulic interface unit (HIU) for the management and direct calculation in centralised heating systems with instant production of domestic hot water by means of a plate heat exchanger.

**DIATECH LF** is designed to maximize efficiency in plants equipped with a condensation generator. The installation can be wall-mounted, with or without a shell, or built-into-wall with a template case. The plant connections are opposed: the upper ones towards the centralised system and the lower ones towards the housing unit.

**This unit is supplied with stub pieces.**

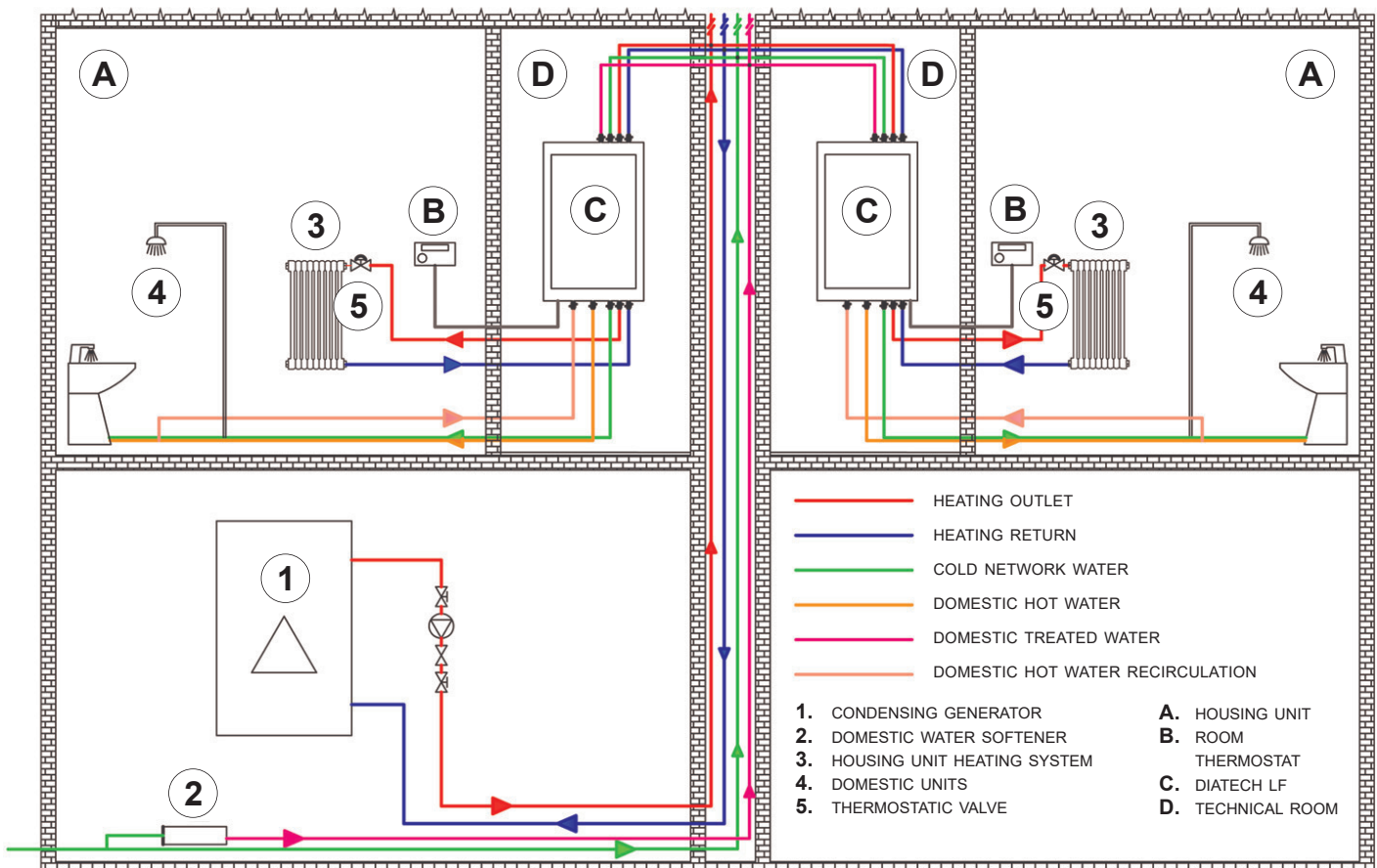
**DIATECH LF** is able to use the pre-heated domestic water coming from a solar heating system, supplying only the necessary amount of energy.

- Domestic hot water production
- Plants with condensation boilers
- Management independence
- Costs breakdown according to real consumptions
- Total security
- Energy saving



Illustrative image

## EXAMPLE OF USE

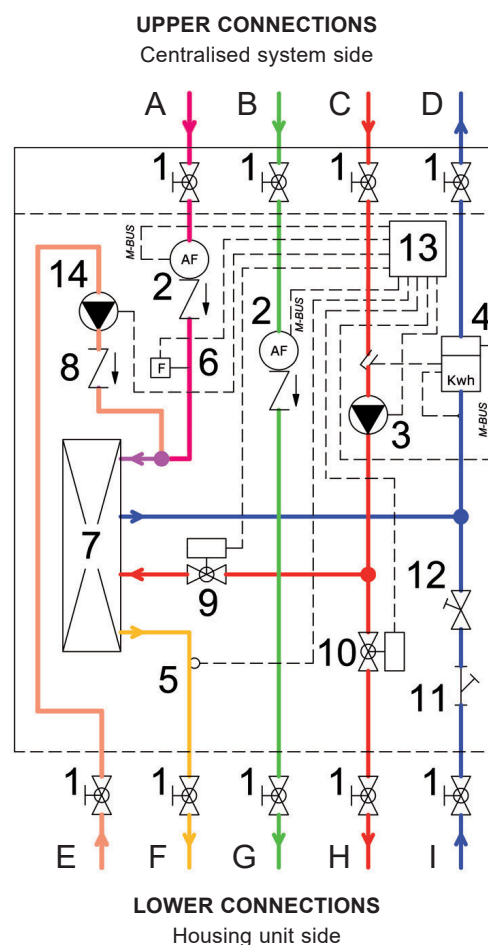


## COMPONENTS AND FLOWS

- A** : Treated and/or pre-heated domestic water inlet (optional)  
**B** : Domestic cold water inlet  
**C** : Outlet from centralised system  
**D** : Return to centralised system  
**E** : Domestic recirculation (optional)  
**F** : Domestic hot water outlet  
**G** : Domestic cold water outlet  
**H** : Heating outlet  
**I** : Heating return

- 1** : Manual shut-off valve (version with template housing)  
**2** : MID-approved impulsive volumetric domestic water meter \* (accessory)  
**3** : Pump unit (optional)  
**4** : MID-approved M-bus energy counter \* (accessory)  
**5** : Temperature probe for domestic hot water  
**6** : Flow meter  
**7** : Braze welded plate exchanger  
**8** : Built-in check valve  
**9** : 2-way modulating **SINTESI** motorised valve, domestic water  
**10** : 2-way ON/OFF **SINTESI** motorised valve, heating  
**11** : Y-strainer  
**12** : Balance valve (static / dynamic / DPCV / electronic option)  
**13** : Control panel  
**14** : Domestic hot water recirculation pump (optional)

\* the module is supplied with plastic stub pieces that temporarily replace the energy meter and domestic water meters to allow the system to flow before components are installed.

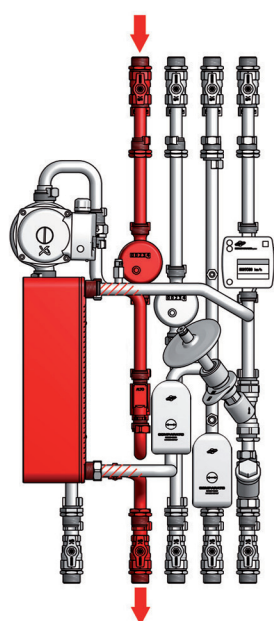


## HYDRAULIC FEATURES

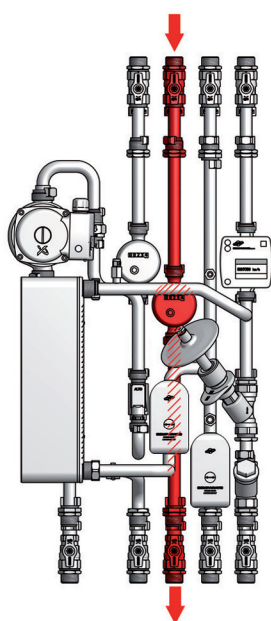
kv = flow coefficient [m³/h]

Q = flow rate [m³/h]

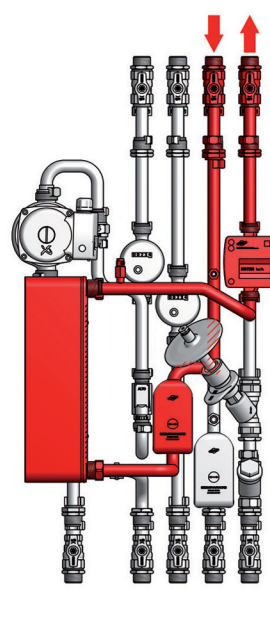
$\Delta p$  = pressure drop =  $Q^2 / kv^2$  [bar]



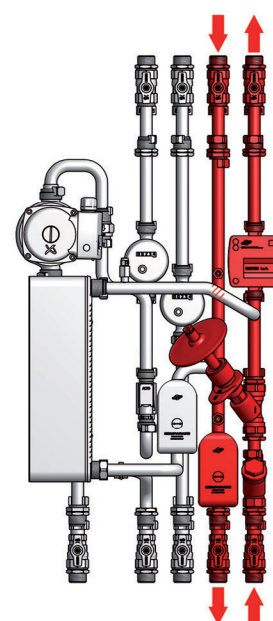
kv = 1,25 m³/h



kv = 1,64 m³/h



kv = 1,53 m³/h



kv = 2,32 m³/h  
(with static balance)

## FUNCTION

### HEATING FUNCTION:

During heating operation, the control of the return temperature is entrusted to the thermostatic devices of the system: the **DIATECH LF** unit allows the fluid to be shut off by means of a 2-way ON/OFF **SINTESI** motorised valve controlled by a room thermostat (not included) and adjust the flow rate with the balance valve. Valves are available for static balance, dynamic balance and differential pressure control or electronic flow control (Modflow).

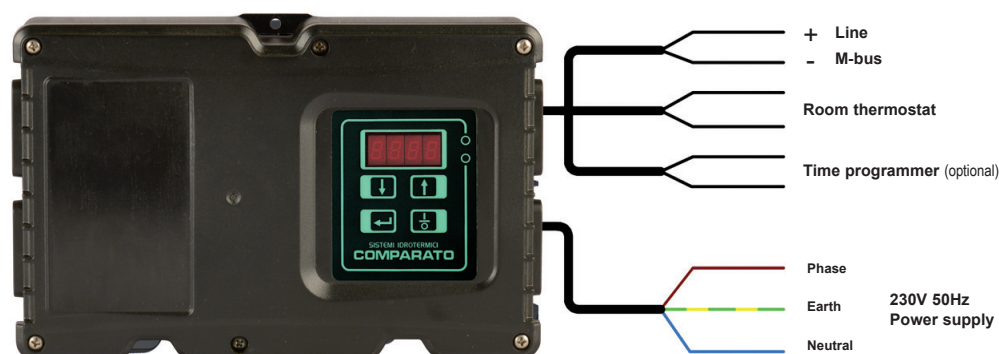
### DOMESTIC HOT WATER PRODUCTION:

The **DIATECH LF** unit are equipped with a high-surface heat exchanger which, combined with the modulation system, reduces the flow rate on the primary circuit, increasing the thermal jump between flow and return. This guarantees low return temperatures to the centralised plant, also for the domestic production, maximizing the efficiency of the condensation boiler. The domestic hot water supply temperature can be set via keyboard and display.

### MAIN CHARACTERISTICS:

- Priority to the domestic water production;
- Pre-set PID type electronic control of the domestic hot water supply temperature;
- **SINTESI** motorised valve with equi-percentage characteristic curve;
- Plate heat exchanger with high thermal exchange surface;
- Hot exchanger function (immediacy of hot water tapping, bypassing for hot column maintenance) which can be activated by a keyboard and display;
- Electronic protection against domestic hot water overtemperature;
- Protection against involuntary drawing of domestic hot water;
- Optional domestic recirculation line with pump;
- Electronic flow control for optimum balance (Modflow, optional).

## ELECTRICAL CONNECTIONS



### M-bus line

- 2 x 1,5 mm<sup>2</sup> twisted unshielded cable (connecting the shunt nodes to the individual HIU).
- 2 x 2,5 mm<sup>2</sup> twisted unshielded cable for the back line sections coming out of the concentrator nodes towards the data acquisition unit.

### Room thermostat (TA)

- Clean contact, i.e. voltage free contact.
- 2 x 0,75 mm<sup>2</sup> cable (cable length not exceeding 30 m).

### Power supply

Cable 3 x 1,5 mm<sup>2</sup>

- phase;
- neutral (blue);
- ground (yellow/green).

### Time programmer (optional)

- Clean contact, i.e. voltage free contact.
- Cavo 2 x 0,75 mm<sup>2</sup> cable (cable length not exceeding 30 m).



## TECHNICAL FEATURES

### ENERGY METER (accessory)

Type	mechanical (1)
Flow rate Qp	1,5 m³/h
Minimum flow	0,015 m³/h
Maximum flow	3,0 m³/h
DN	15
PN	16
Power supply	lithium battery
Class protection	IP54
Interface	M-bus (2)
Certification	MID



code CFCENM34B  
(hot / cold)

### VOLUMETRIC METER FOR DOMESTIC WATER (accessory)

Type	mechanical
Permanent flow rate Q	2,5 m³/h
Minimum flow	0,03 m³/h
Maximum flow	3,0 m³/h
DN	15
PN	16
Interface	pulse output
Certification	MID
Maximum water temperature	30°C • for DCW 90°C • for DHW



code CFCACSI15  
(hot)



code CFCAFSI15  
(cold)

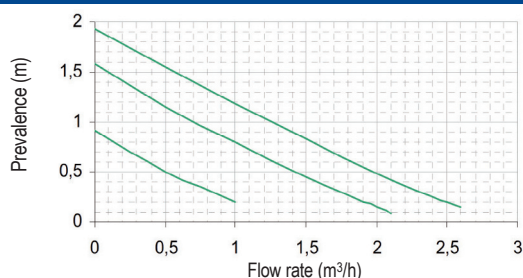
### MOTORISED VALVES

Type ON/OFF (90°)	heating - 15 sec
Modulating type (90°)	domestic - 15 sec

### DHW ELECTRONIC CONTROL SYSTEM

Type	PID algorithm
Dead band	±1°C
Display approximation	1°C
Adjustment range	40-60°C

### DHW RECIRCULATION PUMP



### HEATING – PRIMARY CIRCUIT OF THE EXCHANGER

Fluid type	non-glycolate water - VDI 2035 (3)
Max temperature	90°C
Max operating pressure	6 bar (4)

### DOMESTIC HOT WATER PRODUCTION

Fluid type	water (5)
Max temperature	80°C
Max operating pressure	6 bar (4)
DHW activation flow rate	2,5 l/min
DHW deactivation flow rate	1,5 l/min
Maximum flow	31 l/min

### PIPING

Material	copper
Size	Ø 18 mm

### HYDRAULIC CONNECTIONS

Material	brass
Size	G3/4" M ISO228/1

### HYDRAULIC HOLDER / TEMPLATE CASE

Material	galvanised sheet 10/10
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### SHELL / FRAME AND DOOR

Material	galvanised sheet 10/10
Colour	RAL 9010

### POWER SUPPLY

Voltage	230V ± 10%
Frequency	50 Hz
Max power consumption	10W (6)

### USE

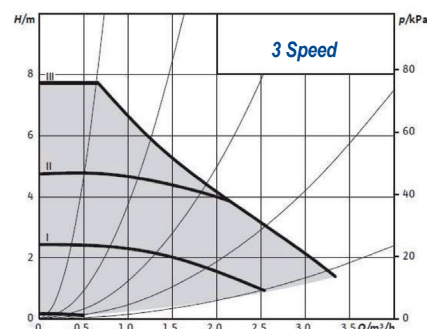
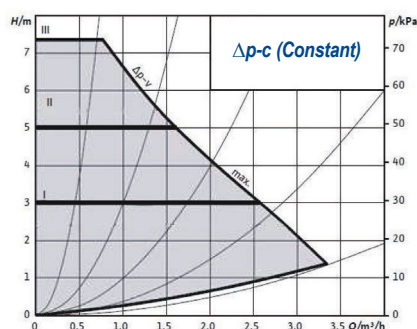
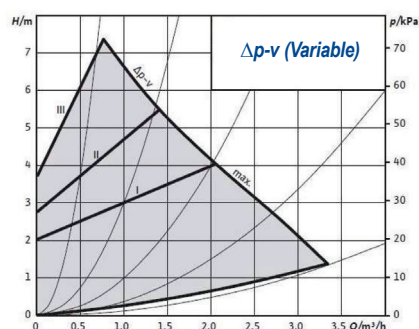
Installation	indoor environments
Room temperature	5 - 55°C
Environment humidity	25 - 85%

### WEIGHT

Wall unit for technical case	15 kg
Built-into-wall	27 kg
Wall unit with shell	23 kg

- 1 Ultrasonic upon request.
- 2 Impulsive / Wireless M-bus on request.
- 3 For glycol solutions please contact the Technical Office.
- 4 For higher pressures please contact the Technical Office.
- 5 If the water has a hardness higher than 15°F the use of water softeners is recommended.
- 6 70W with pump unit and recirculation pump.

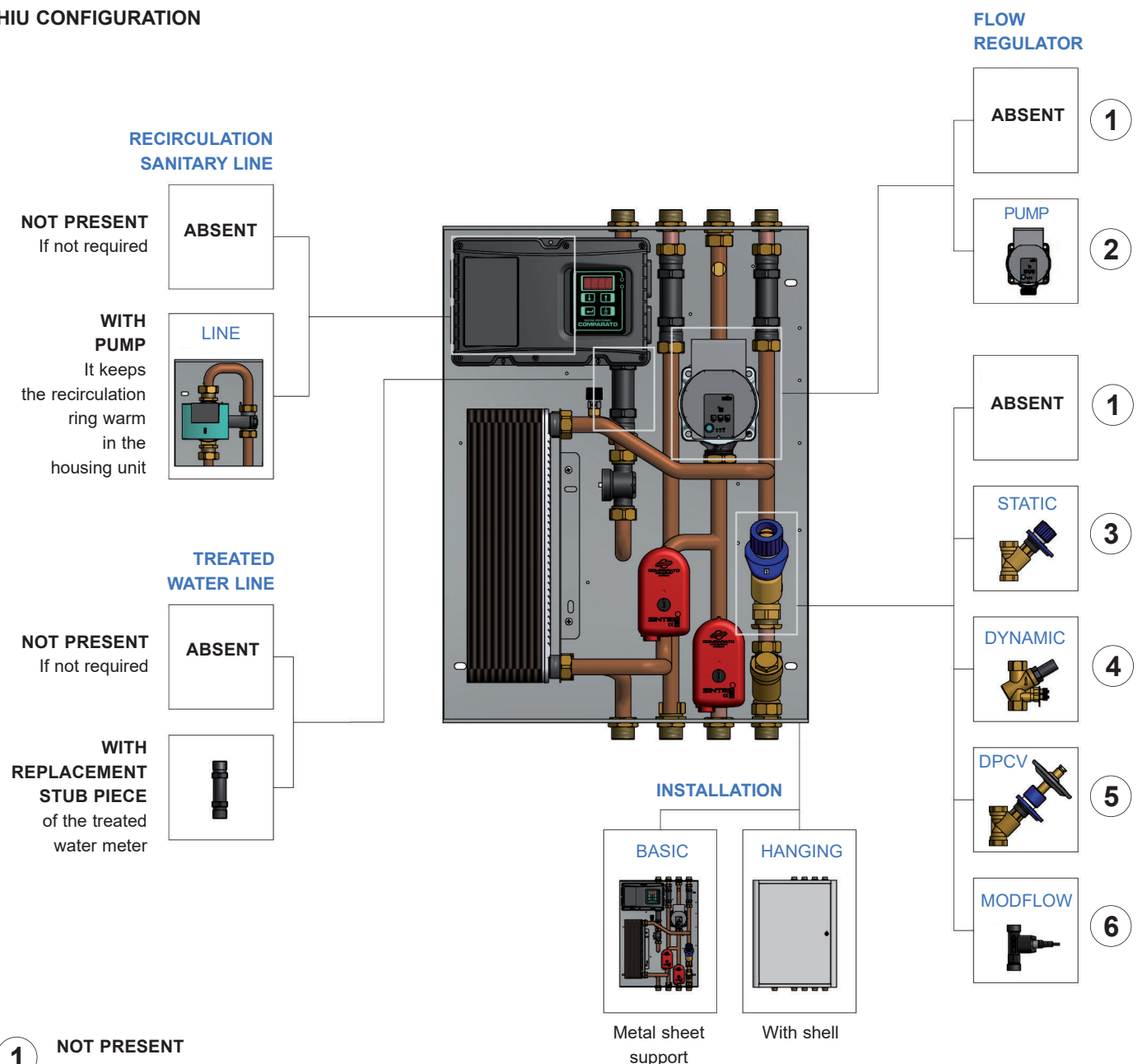
### PRIMARY PUMP



### Features thermal-gradient exchanger DHW 10°C ÷ 45°C

PRIMARY INLET TEMPERATURE	DOMESTIC HOT WATER FLOW RATE	PRIMARY CIRCUIT FLOW RATE	PRIMARY OUTLET TEMPERATURE	POWER
°C	l/min	m³/h	°C	kW
75 °C	10	0,43	18,5	28
	14	0,63	20,5	39
	18	0,83	22,0	50
70 °C	10	0,49	20,0	28
	14	0,72	22,5	39
	18	0,96	24,5	50
65 °C	10	0,57	22,6	28
	14	0,85	25,0	39
	18	1,16	27,0	50

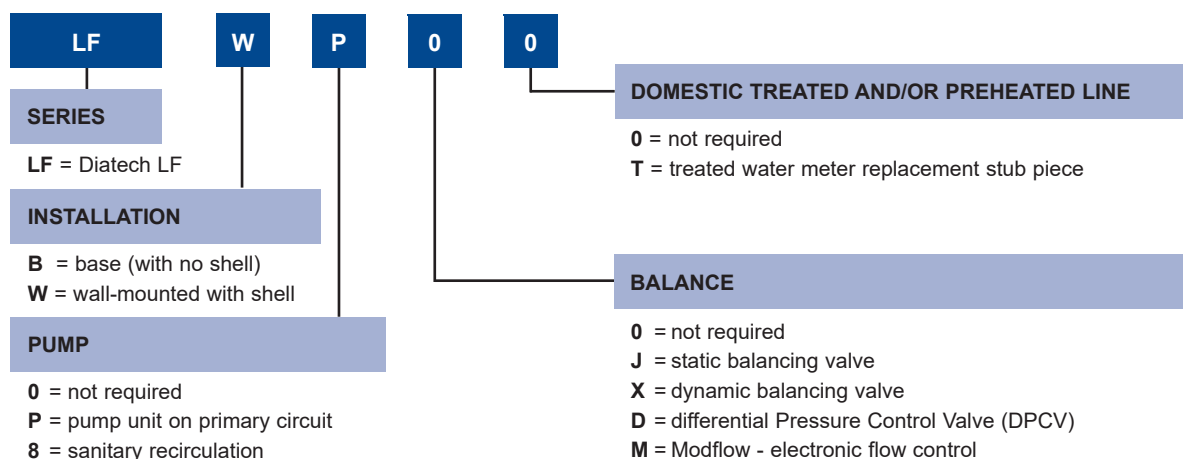
## HIU CONFIGURATION



- 1** **NOT PRESENT**  
If not necessary
- 2** **PUMP**  
It allows the relaunch of the primary fluid in the apartment
- 3** **STATIC BALANCING VALVE**  
It allows the flow rates to be manually balanced using a calibrated knob until they reach the design values necessary for the good operation of the system
- 4** **DYNAMIC BALANCING VALVE**  
Automatically keeps the flow constant at a given value
- 5** **DIFFERENTIAL PRESSURE CONTROL VALVE (DPCV)**  
Automatically maintains the pressure difference between flow and return constantly on a predefined value
- 6** **ELECTRONIC FLOW CONTROL (MODFLOW)**  
Automatically keeps the flow constant at a value that can be set via the HIU display

## VERSIONS AND CODE BUILDER

E.g.: Wall-mounted DIATECH LF with shell and pump unit on primary circuit



## INSTALLATION

The **DIATECH LF** HIU is designed for the indoor installation in frost-protected rooms. The unit is supplied with plastic stub pieces that temporarily replace the energy meter and domestic water meters to allow the system “flushing” before the components are installed. In all cases the **DIATECH LF** unit must be installed vertically. Hydraulic connections (upper - centralised system side, lower - housing unit side). When choosing the installation position, please refer to the following instructions:

### BASIC VERSION

Option with no shell, which must be placed in technical rooms accessible to authorised personnel only. This version must be fixed with #4 Ø8 mm dowels (not included).



### WALL-MOUNTED VERSION WITH SHELL

Option with painted RAL 9010 skirt, also suitable for installation inside the housing unit.



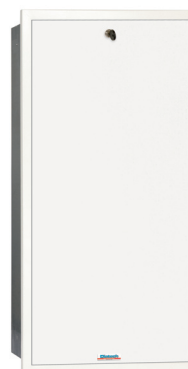
## FLUSH-MOUNTED INSTALLATION SYSTEM

### TEMPLATE CASE WITH WASHING PIPELINES

### BASIC VERSION



### BUILT-INTO-WALL VERSION WITH TEMPLATE AND FRAME AND DOOR



Flush-mounted option, suitable for installation inside the housing unit or in a stairwell, thanks to the addition of the painted RAL 9010 cladding. The installation in stairwells is facilitated by the management electronics that electrically separates the supply voltage and the room thermostat.

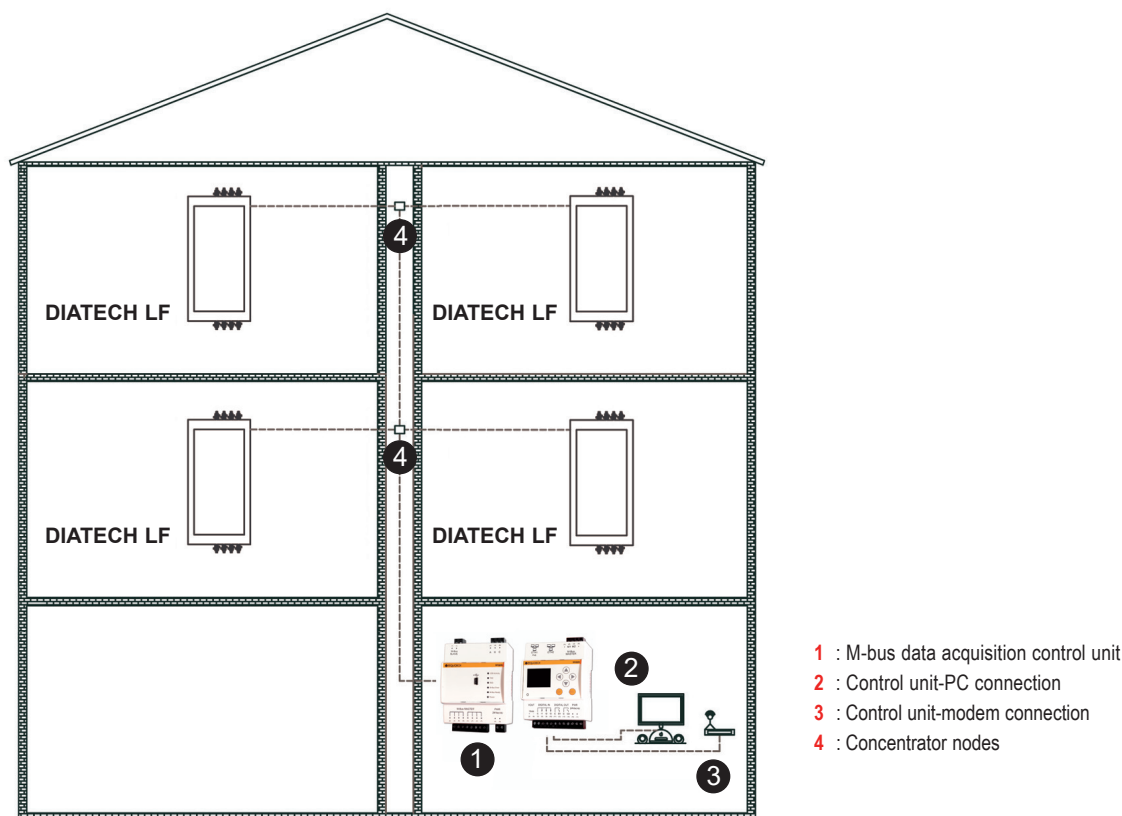
## INSTALLATION WARNING

It is advisable to use flexible hydraulic connection in order to compensate for any thermal expansion and possible misalignment between the system connections.

## WARRANTY AND FIRST START-UP

The warranty becomes effective on the date of testing, if required, and shall last for 24 months. If testing is not required, the warranty will become effective on the date of purchase.

## M-BUS SYSTEM



The M-bus system represents a cabled means of communication among the peripheral metering units and a remote control unit which collects the consumption data registered by each peripheral unit.

The consumption data can be read directly on the control unit display or by means of a PC connected to the control unit; moreover, it is possible to interface the control unit with a modem in order to be able to query the control unit from a remote position.

For further information please contact our Technical Office.

## CERTIFICATIONS

### CE Machinery Directive

2006/42/CE.

### CE Low Voltage Directive

2014/35/ue: 26/04/2014

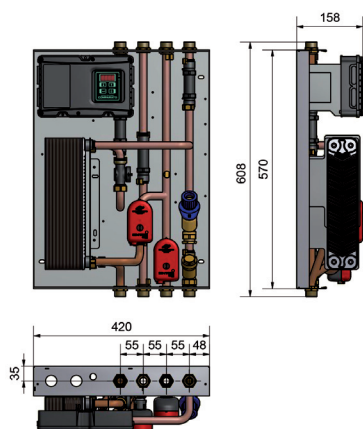
### CE Electromagnetic Compatibility Directive

2014/30/UE

## OVERALL SIZE

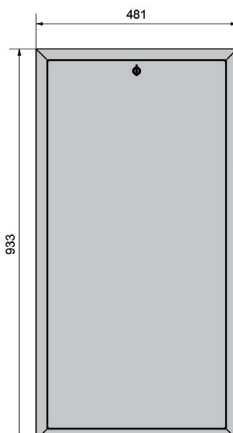
### WALL-MOUNTED

version with **NO SHELL**



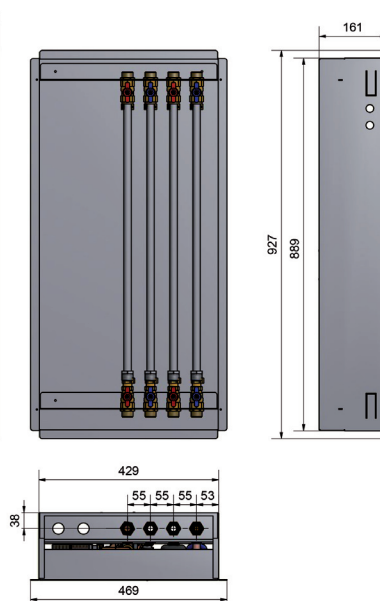
### FRAME

and **DOOR**



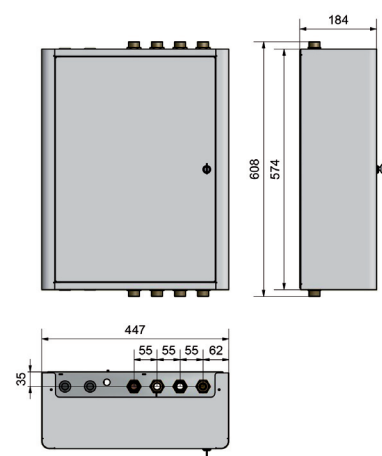
### TEMPLATE CASE

for **FLUSH-MOUNTED** version



### WALL-MOUNTED

version with **SHELL**



## EXAMPLE OF SPECIFICATIONS

**Diatech LF HYDRAULIC INTERFACE UNIT** for the management and direct metering in centralised heating systems with instant production of domestic hot water by means of a plate heat exchanger. Domestic hot water production controlled by a pre-set three-action electronic regulation system (PID) and a motorised regulation valve on the primary circuit of the exchanger. Main components: • Replacement stub piece for domestic water meter • Replacement stub piece for energy meter • Y-strainer • Flow meter • Plate heat exchanger • 2-way modulating **SINTESI** motorised valve on primary exchanger circuit • 2-way ON/OFF **SINTESI** motorised valve • Static balancing valve • DHW supply temperature probe • Control panel with electronic management board and digital display. Ø18 copper pipe-lines, G3/4" M opposed hydraulic connections (upper - centralised system side, lower - housing unit side), as per ISO 228/1 standard. Maximum pressure 6 bar, maximum temperature 90°C. Nominal power 50 kW, nominal flow rate of primary circuit 0,83 m³/h and secondary circuit 1,08 m³/h, primary thermal jump 75/22°C and secondary circuit 10/50°C. DHW supply temperature adjustable between 40°C and 60°C. Electrical connections: electrical power supply, room thermostat and M-bus line. Power supply: 230V - 50Hz, maximum power consumption 10 W. Flush-mounted installation with template case.

Brand: **COMPARATO** • Code: **LFB0J0**

**Diatech LF TEMPLATE CASE** with seven hydraulic connections, complete with washing tubes, temporary cover and manual shut-off valves. Dimensions (HxWxD): 890x429x161 mm.

Brand: **COMPARATO** • Code: **DIMA7D**

**FRAME AND DOOR** complete with custom lock, epoxy painted RAL 9010.

Brand: **COMPARATO** • Code: **DSCS**

M-bus heating **ENERGY METER**, DN15, nominal capacity Qp 1,5 m³/h, MID-approved. Size: 3/4"x110mm.

Brand: **COMPARATO** • Code: **CFCENM34B**

**VOLUMETRIC METER DCW** impulsive (10 litres/pulse), DN15, permanent flow rate Q 2,5 m³/h, MID-approved. Size: 3/4"x110mm.

Brand: **COMPARATO** • Code: **CFCAFS15**

## UPDATED DATA SHEETS AVAILABLE AT [www.comparato.com](http://www.comparato.com)

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