

SATK 50

recess mounted
heat interface unit



 **CALEFFI**
Hydronic Solutions



altecnic
Caleffi group

SATK 50 recess mounted heat interface unit



Introduction

The SATK 50 heat interface unit is the latest 'intelligent' range of HIU from Altecnic.

The SATK 50 is the complete solution for instantaneous hot water production and space heating control.

Design

The single plate design hydraulically separates the domestic water with the space heating supplied directly from the central primary supply.

The on-board electronic control unit ensures maximum efficiency and control but crucially also enables additional important features.

Similar to the indirect version (SATK 60), the SATK 50 can be set to modulate the heating flow circuit for greater efficiency and to compensate for changes in the external environment.

The low temperature heating version, for UFH, includes a heating pump, bypass and safety thermostat, allowing the space heating circuit temperature to be set and controlled as required.

All models with a pump feature a pump bypass to protect the pump in case of complete radiator TRV shutdown, for a limited amount of time.

The SATK 50 is recess mounted, extremely compact in design and lightweight, benefitting installers and architects alike.

The unit is also compatible with prepayment systems, allowing the heating and hot water to be shut down remotely (utilising an additional prepayment system).

This compatibility removes the need for additional motorised valves to be installed and is simply and easily retrofitable.

Note: Some prepayment system may need an additional relay (Altecnic 789835).

Operating Cycles

Domestic water cycle

This cycle always takes priority over the heating cycle.

When Domestic Hot Water (DHW) is requested, when a tap or shower is turned on (detected by the domestic water flow meter), the electronic controller opens the modulating valve, quickly adjusting the temperature detected by the domestic water probe to the selected set point value.

When the tap or shower is turned off, the modulating valve is fully closed.

The active domestic water cycle is signalled by the yellow DHW LED which illuminates.

The set point temperature value of the domestic water cycle can be set using the P1 trimmer to a value within the range of 42 to 60°C and shown on the display.

Heating cycle

Set point regulation.

SATK 50103 - LOW temperature

SATK 50203 - MEDIUM temperature

When space heating is requested by the room thermostat, the circulation pump is powered while the related mixing valve is opened gradually until the set point temperature is reached.

At the end of the heating cycle, the circulation pump is switched off and the mixing valve is closed.

The active heating cycle is signalled by the yellow CH LED which illuminates.

The heating cycle temperature set point can be set using trimmer P2 and shown on the display.

Heating cycle

ON/OFF regulation

SATK50303 - HIGH temperature

When space heating is requested by the room thermostat this start the heating cycle, the related valve is opened completely in such a way as to allow the primary heating medium to circulate through the apartment circuit at the temperature supplied by the central heating system (ON-OFF regulation).

The valve is closed on completion of the heating cycle.

The active heating cycle is signalled by the yellow CH LED which illuminates.

Safety and alarms

Error codes associated with faults are signalled by the illumination of the FAULT LED also shown on the display (see instruction manual).

SATK 50 recess mounted heat interface unit

Optional functions

Domestic water cycle

DHW preheating function

The function is enabled by setting DIP switch 5 to the ON position.

During periods when domestic hot water is not required, if the DHW probe detects a temperature 10°C below the SET value, the controller partially opens the domestic water modulating valve for the time required (max. 5 mins) to bring the temperature detected up to a value 5°C below the set point value.

The active domestic water cycle is signalled by the flashing yellow DHW LED. This function is less of a priority than any domestic water or heating cycles.

Heating cycle

Modulating temperature regulation with compensated set point.

SATK 50103 - LOW temp. / SATK 50203 - MEDIUM temp.

The function is enabled by setting DIP switch 1 to the OFF position.

When the function is enabled, the flow temperature is modified according to the temperature detected by the compensation probe (located on the user return pipe).

This keeps the actual thermal output of the slab - and therefore the ambient thermal load - under control. The thermal response time of the system is thus minimised.

Floor slab heating function

SATK50103 – LOW temperature

This facilitates the laying of underfloor heating systems at low temperatures.

This function can only be activated and executed if there are no faults. The function is activated by pressing and holding the RESET button for 8 seconds.

The yellow CH LED blinks while the floor slab heating function is in operation. The function has a duration of 240 hours, and is carried out by simulating a request to run in heating mode starting from a set point of 25°C and rising in regular intervals to a temperature of 45°C.

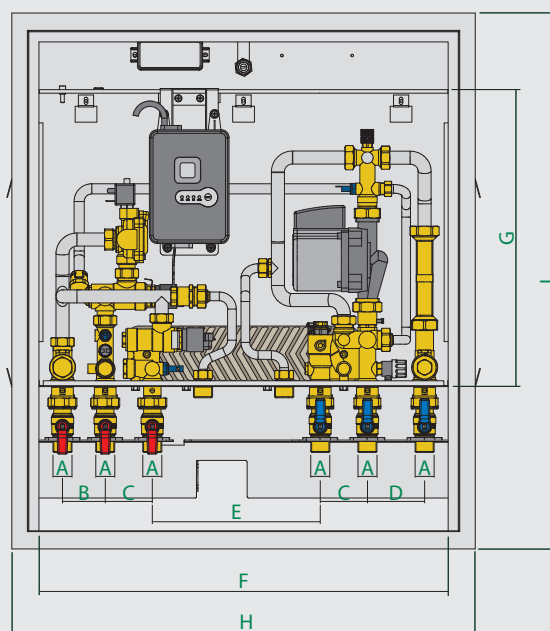
Once the maximum set point has been reached, the process is reversed following the same procedures (from the maximum set point to the minimum set point).

This function has priority over heating and hot water cycles, and can be suspended at any time by pressing and holding the RESET button for 8 seconds.

Products

Product Code	Description
SATK 50103HE	Recess mounted, heat interface unit for LOW temperature heating and instantaneous domestic hot water.
SATK 50203HE	Recess mounted, heat interface unit for MEDIUM temperature heating and instantaneous domestic hot water.
SATK 50303	Recess mounted, heat interface unit for HIGH temperature heating and instantaneous domestic hot water.
794950	First fix jig
794540	Template for cold water meter

Dimensions



Code	A	B	C	D	E
SATK 50	G1B	59	65	79	232

Code	F	G	H	J	kg
SATK 50	570	410	600	700	

Technical Specification

Component

Component	Materials
Frame:	Painted steel RAL 9010
Components:	Brass EN12165 CW617N
Connecting pipework:	Steel
Heat exchanger:	Brazed stainless steel

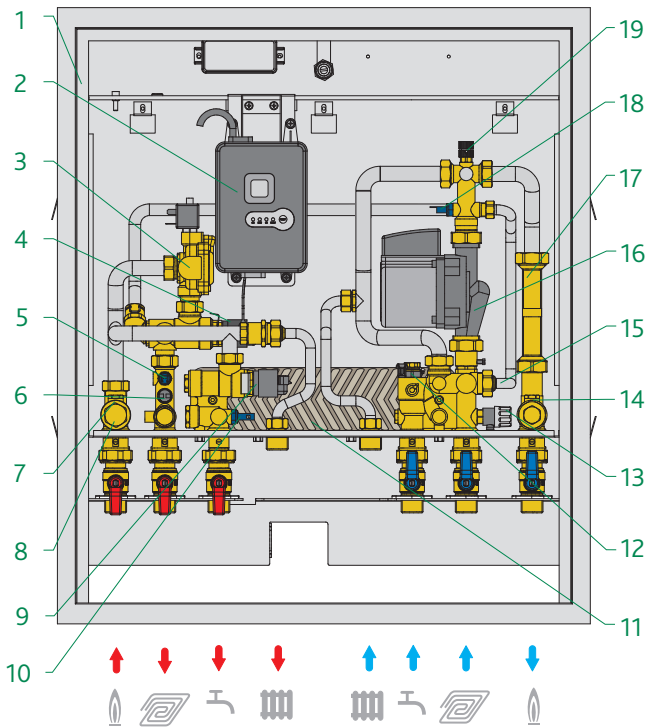
Performance

Medium:	Water
Max. percentage of glycol:	30%
Maximum temperature:	85°C
Maximum static working pressure:	10 bar - primary 10 bar - secondary
Nom. DHW exchanger capacity:	50 kW (prim. 80°C)
Max. recommended primary flow rate:	1.2 m³/h
DHW circuit max. flow rate:	20 l/m (prim. 80°C)
Min. flow to activate domestic flow meter:	2.7 l/m ±0.3
Max. differential pressure on domestic water modulating valve (Δp)	0.9 bar
Min. differential pressure:	0.35 bar
Electrical supply:	230 V (ac) ±10% 50Hz
Pump:	UPM3 15-70
Max. power consumption:	80W
Protection class:	IP 40
Pump bypass setting:	0.45 bar
Actuators:	stepper 24 V
Probes:	NTC 10 kΩ
Safety thermostat:	55°C ±3

SATK 50 recess mounted heat interface unit

SATK 50103HE Low Temperature Heat Interface Unit

Components - SATK 50103HE



Components

Item	Component
1	Template box - code 794950
2	Electronic control unit
3	Thermal safety relief valve
4	Heating mixing valve
5	Heating flow temperature probe
6	Thermal safety thermostat
7	Heat meter flow temperature probe pocket
8	Strainer - primary system
9	DHW modulating valve
10	DHW temperature probe
11	DHW heat exchanger
12	DHW priority flow switch
13	Drain cock
14	Heating meter return temperature probe pocket
15	Protective pump bypass
16	Pump
17	Heat meter spool piece
18	Flow temperature compensation return probe
19	Manual air vent
20*	AUTOFLOW® flow regulator
21*	Isolation valve

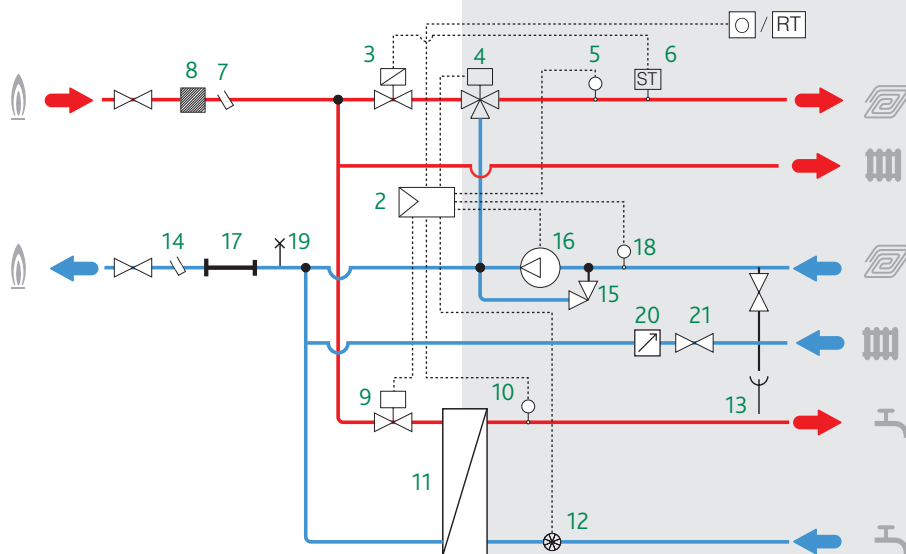
Performance

- Heating range: 25 to 45°C
- Set point regulation: 42 to 60°C
- DHW range: 42 to 60°C

Settable Optional Functions

- Domestic water cycle: ~ DHW exchanger preheating
- Heating cycle: ~ modulating temperature regulation with compensated set point
- ~ floor slab heating function

Schematic SATK 50103HE



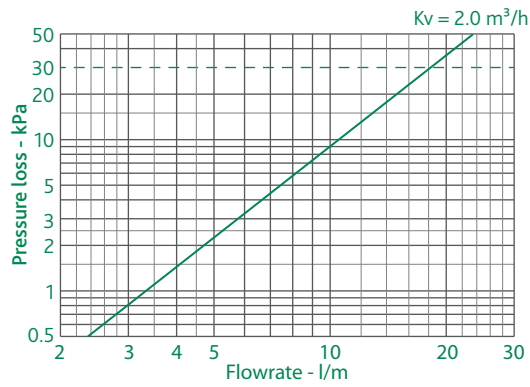
* NOTE: We recommend installing an AUTOFLOW® flow regulator (20) and a isolation valve (21) on the circuit serving high temperature heat emitters that must be equipped with temperature control devices.

SATK 50 recess mounted heat interface unit

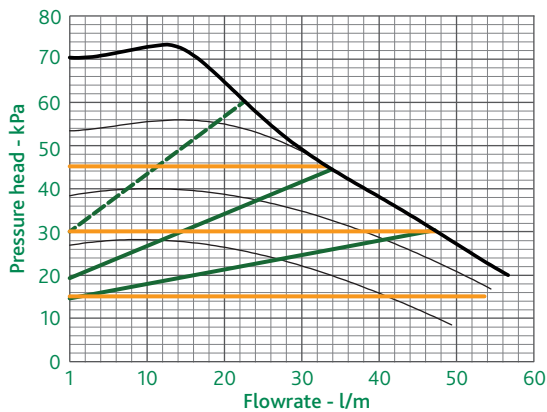
SATK 50103HE Low Temperature Heat Interface Unit

Hydraulic Characteristics - SATK 50103

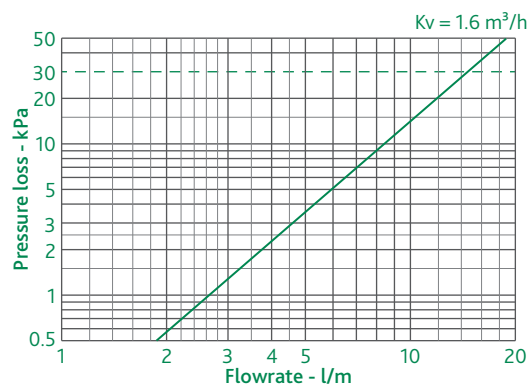
Heating function - primary (high temperature circuit closed)



Pump characteristics - UPM3 15-70

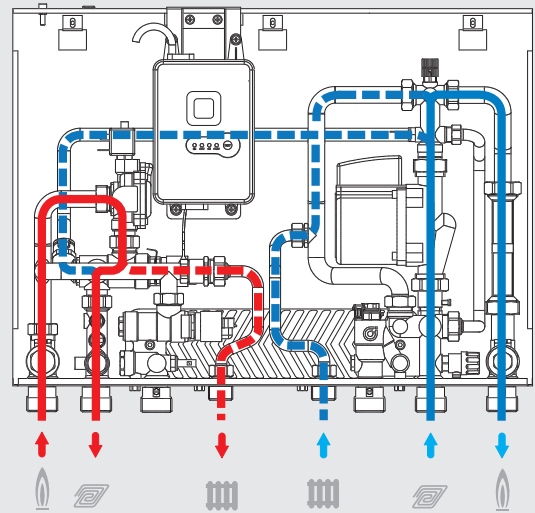


DHW - primary side (high temperature circuit closed)

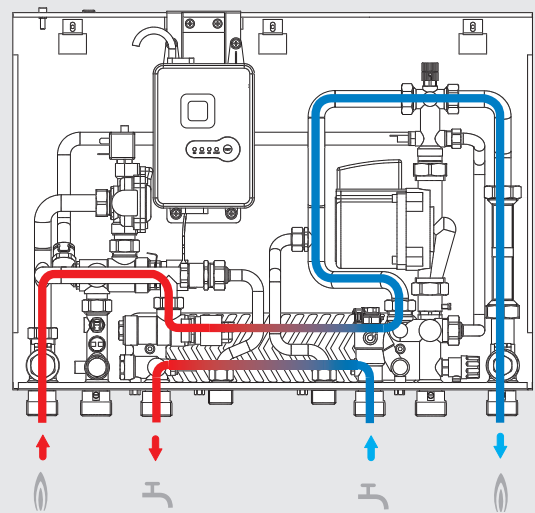


Flow Path

SATK 50103 - low temperature unit



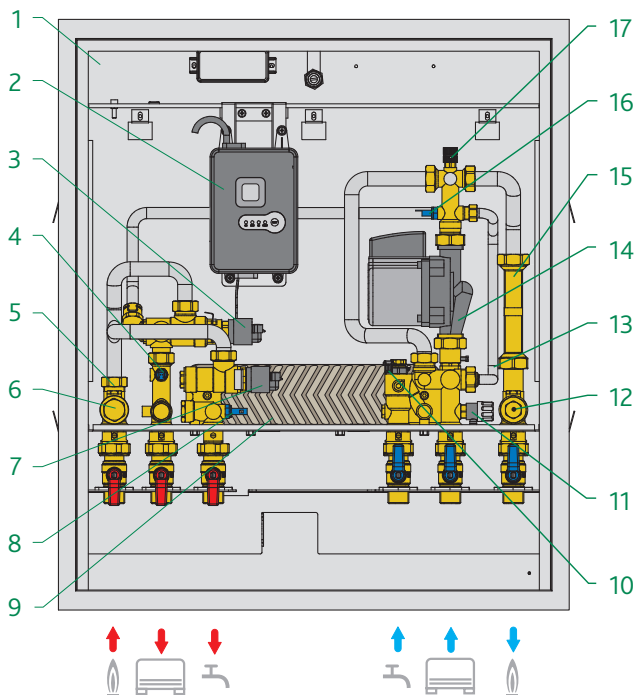
- Proportional head characteristics
- - - Factory setting
- Constant head characteristics
- Constant speed characteristics



SATK 50 recess mounted heat interface unit

SATK 50203HE Medium Temperature Heat Interface Unit

Components - SATK 50203HE



Components

Item	Component
1	Template box - code 794950
2	Electronic control unit
3	Heating mixing valve
4	Heating flow temperature probe
5	Heat meter flow temperature probe pocket
6	Strainer - primary system
7	DHW modulating valve
8	DHW temperature probe
9	DHW heat exchanger
10	DHW priority flow switch
11	Drain cock
12	Heating meter return temperature probe pocket
13	Protective pump bypass
14	Pump
15	Heat meter spool piece
16	Flow temperature compensation return probe
17	Manual air vent

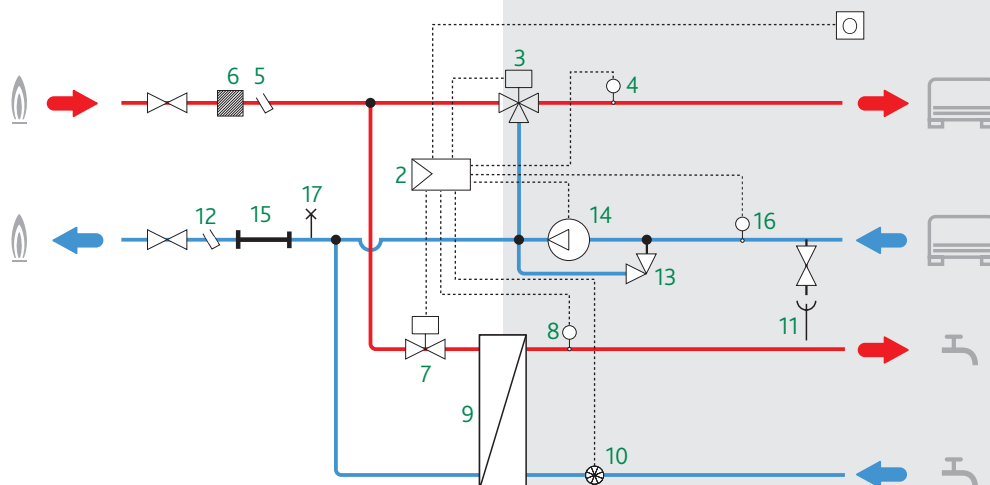
Performance

- Heating range: 45 to 75°C
- Set point regulation:
- DHW range: 42 to 60°C

Settable Optional Functions

- Domestic water cycle: ~ DHW exchanger preheating
- Heating cycle: ~ modulating temperature regulation with compensated set point

Schematic SATK 50203HE

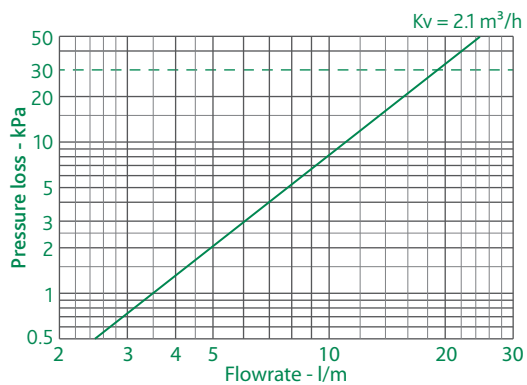


SATK 50 recess mounted heat interface unit

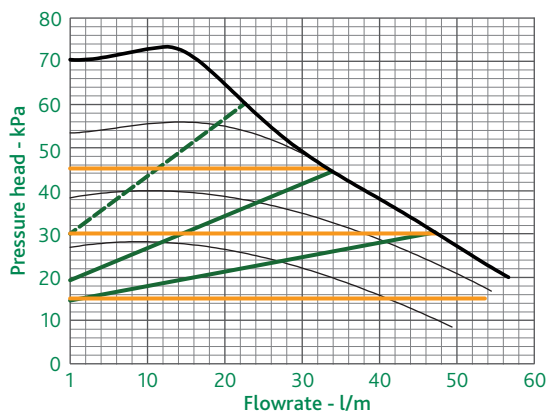
SATK 50203HE Medium Temperature Heat Interface Unit

Hydraulic Characteristics - SATK 50203

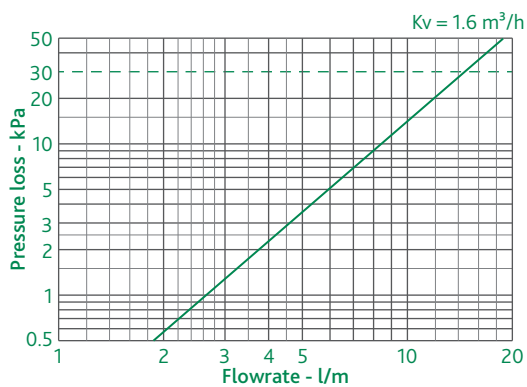
Heating function - primary



Pump characteristics - UPM3 15-70

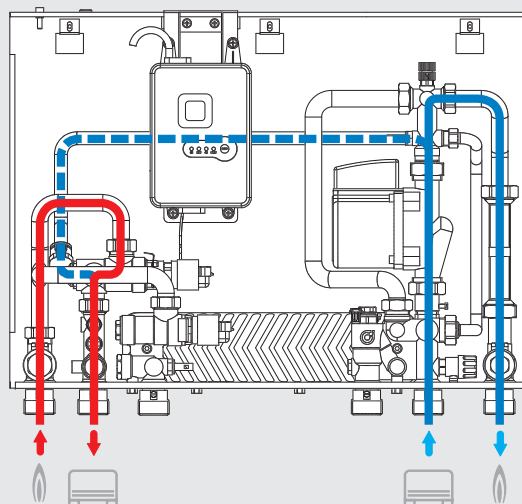


DHW - primary side (high temperature circuit closed)

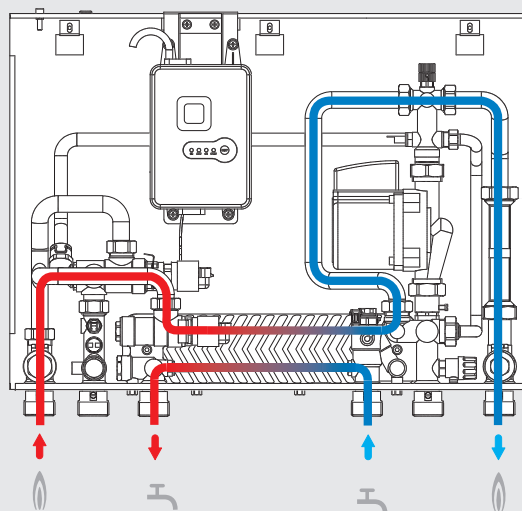


Flow Path

SATK 50203 - medium temperature unit



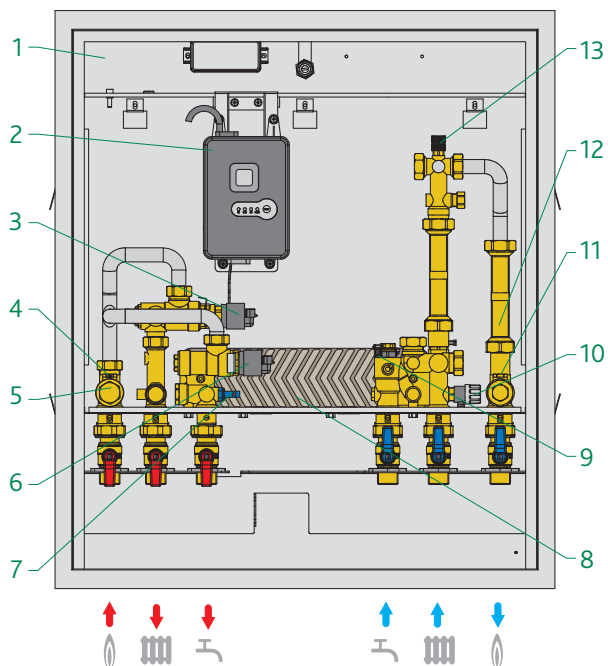
- Proportional head characteristics
- - - Factory setting
- Constant head characteristics
- Constant speed characteristics



SATK 50 recess mounted heat interface unit

SATK 50303 High Temperature Heat Interface Unit

Components - SATK 50303



Components

Item	Component
1	Template box - code 794950
2	Electronic control unit
3	Heating ON/OFF valve
4	Heat meter flow temperature probe pocket
5	Strainer - primary system
6	DHW modulating valve
7	DHW temperature probe
8	DHW heat exchanger
9	DHW priority flow switch
10	Drain cock
11	Heating meter return temperature probe pocket
12	Heat meter spool piece
13	Manual air vent

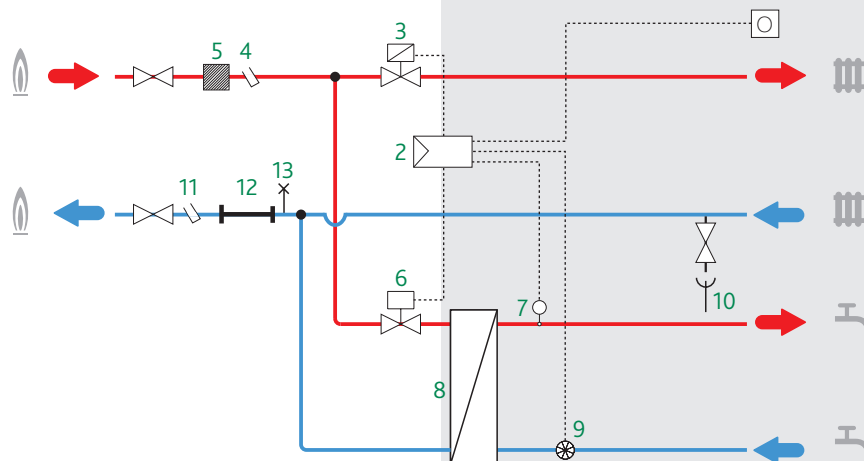
Performance

- Maximum heating temperature: 85°C
- ON/OFF regulation:
- DHW range: 42 to 60°C

Settable Optional Functions

Domestic water cycle: ~ DHW exchanger preheating

Schematic SATK 50303

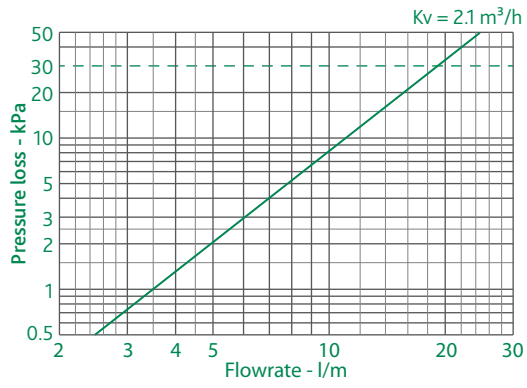


SATK 50 recess mounted heat interface unit

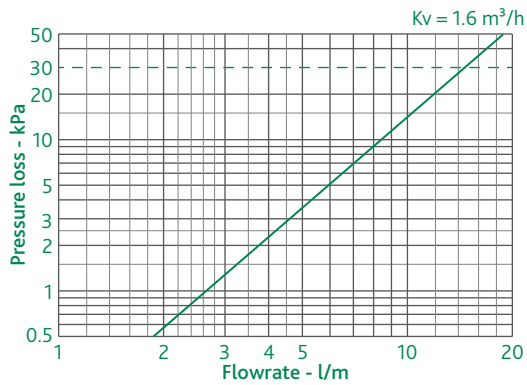
SATK 50303 High Temperature Heat Interface Unit

Hydraulic Characteristics - SATK 50303

Heating function - primary

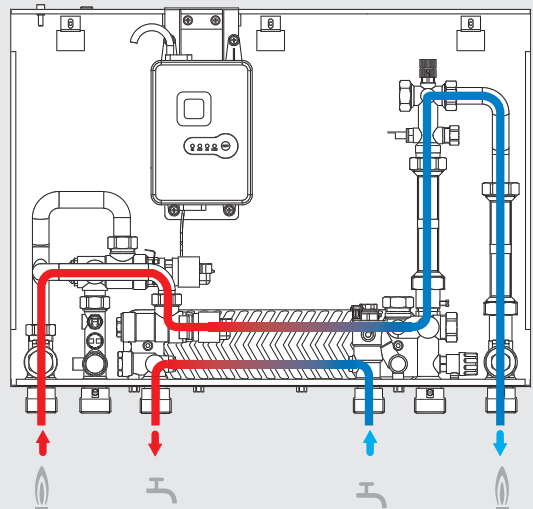
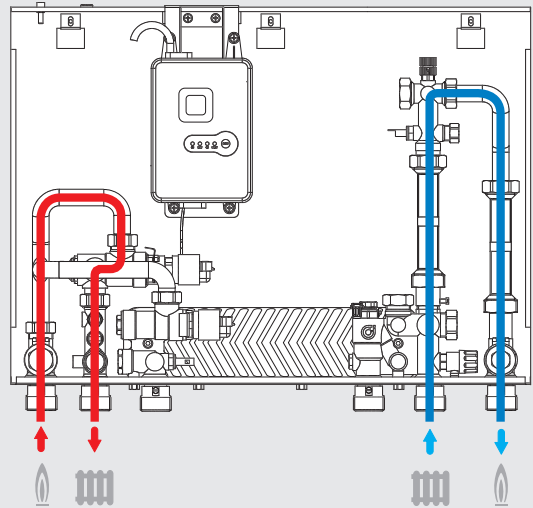


DHW - primary side (high temperature circuit closed)



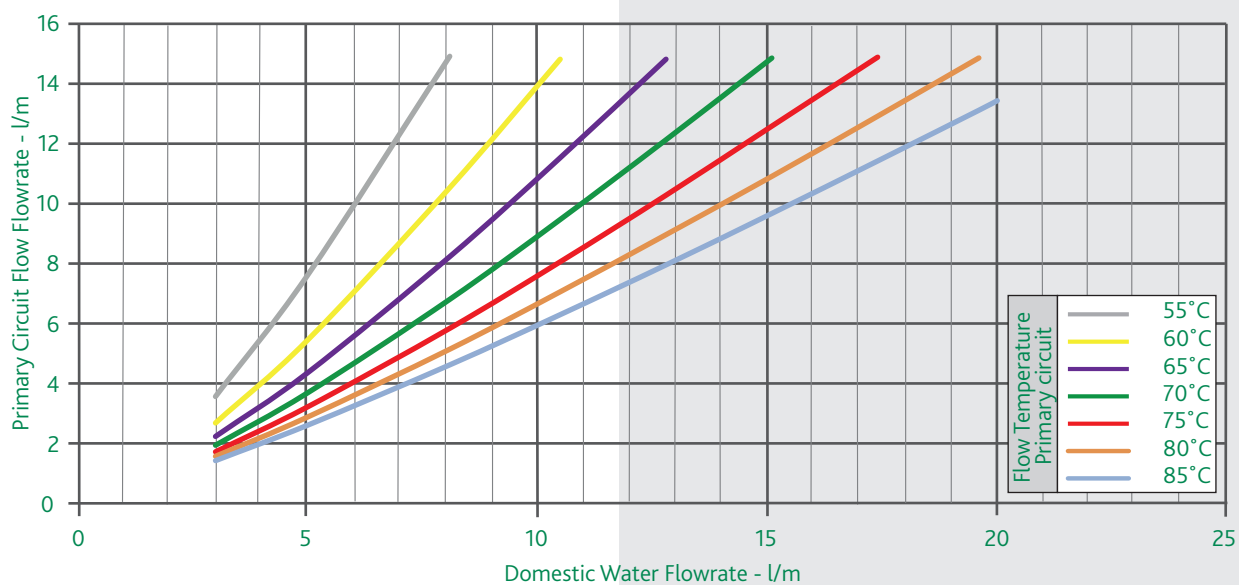
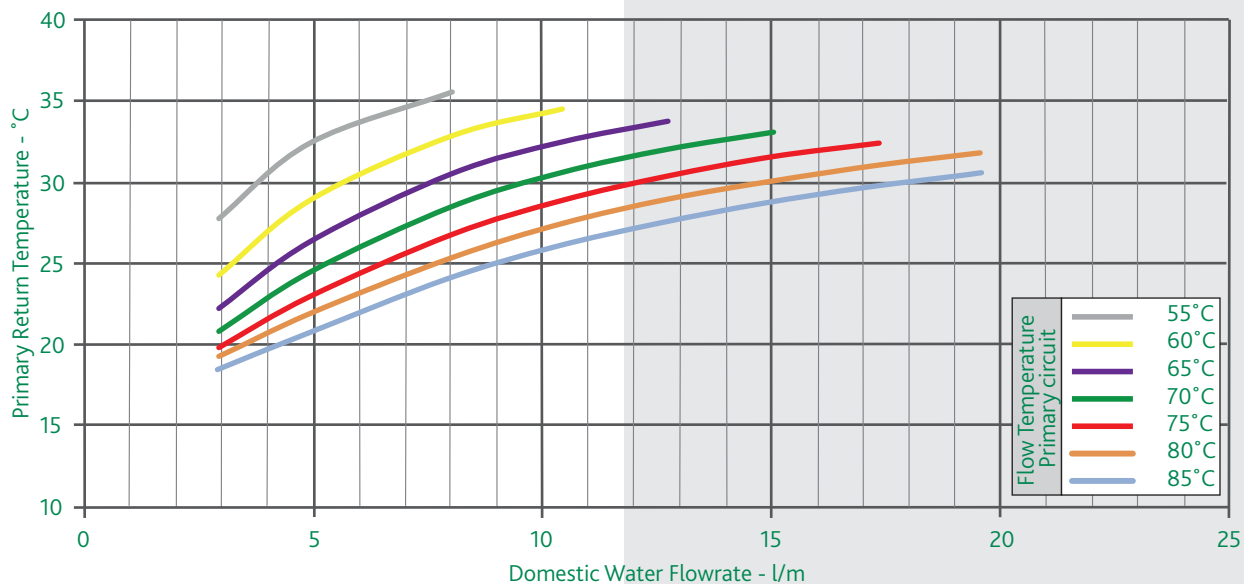
Flow Path

SATK 50303 - high temperature unit



SATK 50 recess mounted heat interface unit

SATK 50 Series Domestic Hot Water Performance Charts
 DHW 10 to 48°C, maximum Δp 30 kPa



SATK 50 Series Domestic Hot Water Performance at 48°C
 DHW 10 to 48°C, maximum Δp 30 kPa

Primary circuit temperature °C	Domestic water flowrate l/m	Primary return temperature °C	Primary flowrate l/m	Power kW
55°C	8.1	34.0	14.6	21.5
60°C	10.5	32.6	14.6	27.8
65°C	12.8	31.6	14.6	33.9
70°C	15.1	30.7	14.6	40.0
75°C	17.4	29.8	14.6	46.1
80°C	19.6	29.0	14.6	52.0
85°C	21.9	28.1	14.6	58.1

SATK 50 recess mounted heat interface unit

Heat Interface Units



SATK 50103HE



SATK 50203HE



SATK 50303

Accessories

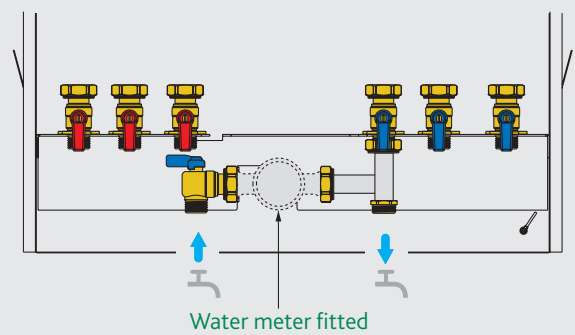
Template for Cold Water Meter



Code 794540 - 1/2"

Domestic hot water template consisting of a BALL STOP shut-off ball valve with check valve and flushing pipe.

Application Diagram



SATK 50 recess mounted heat interface unit

Notes:

E & O.E
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AL 242 03-02-17

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