

SATK20

heat interface unit



 **CALEFFI**
Hydronic Solutions



altecnic
Caleffi group

SATK20 heat interface unit



Introduction

The SATK20 heat interface unit is the latest 'intelligent' range of HIU from Altecnic.

The SATK20 units are two-way systems with modulating control of the heating medium (VFR - variable flow rate system) and are particularly suitable in combination with condensing boilers and district heating systems, thanks to their low return temperatures.

The SATK20 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, the SATK 20 can be set to modulate the heating flow circuit for greater efficiency and to compensate for changes in the external environment.

The SATK20 is supplied with a high efficiency pump for the heating circuit (except for the SATK20305).

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.

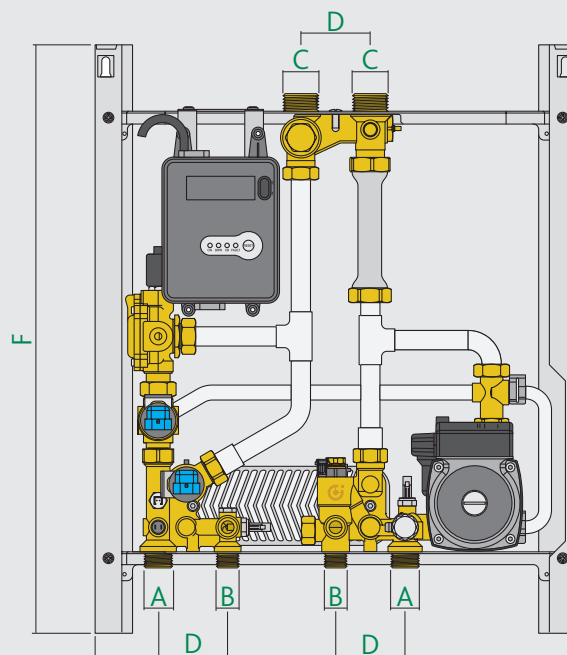
All models (except for the SATK20305) are supplied- with a pump bypass loop in case of complete radiator TRV shutdown.

The SATK 20 is extremely compact in design and lightweight, benefitting installers and architects alike.

The unit has a fully insulated cover, manufactured from expanded PPE fully insulating the unit and includes a sliding window to allow the tenant to access the integral heat meter (if installed).

The unit can be fitted with an optional isolation module that allows the DHW and heating circuits to be remotely isolated by the building owner/landlord etc. via a PC with internet access.

SATK103HE, SATK203HE, SATK20303HE and SATK20403HE Dimensions



Connection	A	B	C
Thread	G $\frac{3}{4}$ B	G $\frac{1}{2}$ B	G1B

D	E	F	Depth inc. Cover	kg
65	450	550	265	16

Technical Specification

Medium:	Water
Maximum percentage glycol:	30%
Maximum temperature:	85°C
Maximum static working pressure:	10 bar - primary 10 bar - secondary
Nominal DHW exchanger capacity:	50 kW
Max.recommended primary circuit flow rate:	20 l/m (0.33 l/s)
Domestic water max. flow rate:	18 l/m (0.3 l/s)
Minimum flow rate to activate domestic water meter:	2.7 l/m \pm 0.3
Maximum differential pressure on domestic water modulating valve:	Δ p 90 kPa
Maximum differential pressure on domestic water mixing or ON/OFF valve:	Δ p 90 kPa
Electrical supply:	230 V AC ,50 Hz
Max power consumption:	80 W
	SATK20303:
Protection class:	20W
Pump:	IP 40
Pump bypass setting:	UPM3 15-70
Actuators:	45 kPa
Probes:	stepper 24V
Safety thermostat setting:	NTC 10 k Ω 55°C \pm 3

Materials

Components:	brass BS EN 12165 CW617N
Pipes:	steel
Frame:	RAL 9010 painted steel
Protective shell:	EPP
Heat exchanger:	copper brazed stainless steel

SATK20 heat interface unit

SATK20103HE Low Temperature HUI with High-Efficiency Pump

Heating range 25 to 45°C

Set point regulation

DHW temperature range 42 to 60°C, up to 18 l/m.

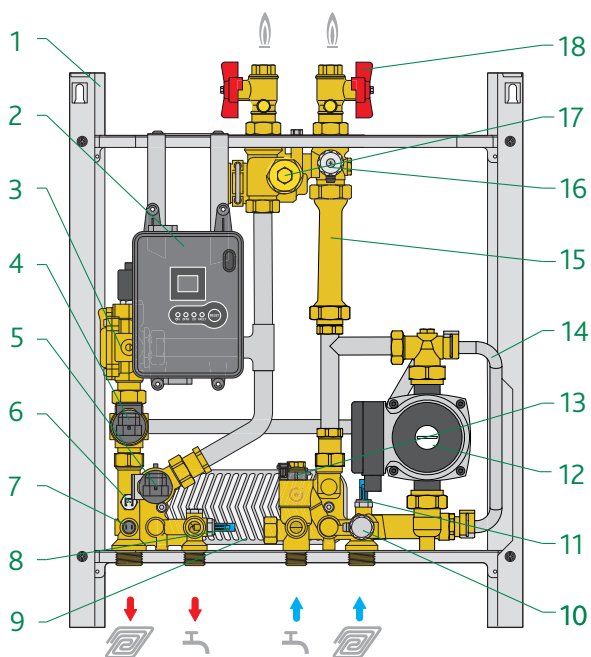
Optional functions:

Domestic water cycle: - domestic water preheating function

Heating cycle: - modulating regulation with compensated set point

- floor slab function

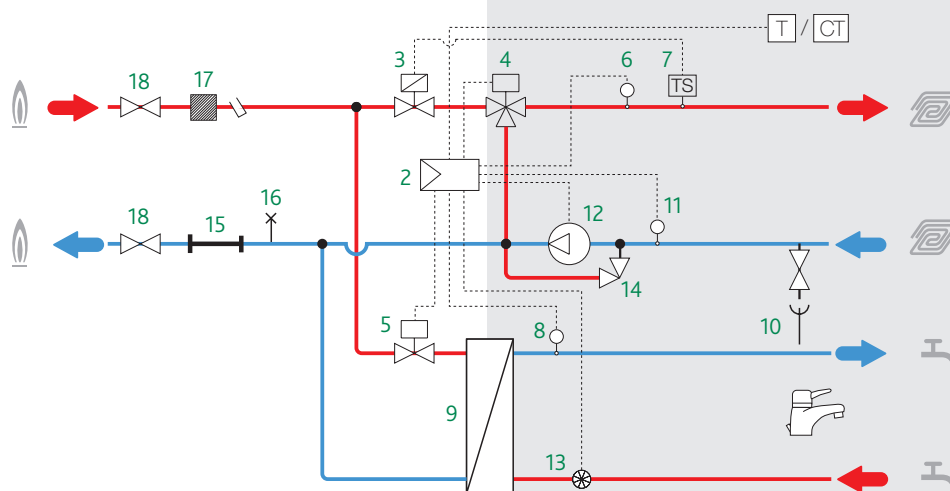
Components



Components

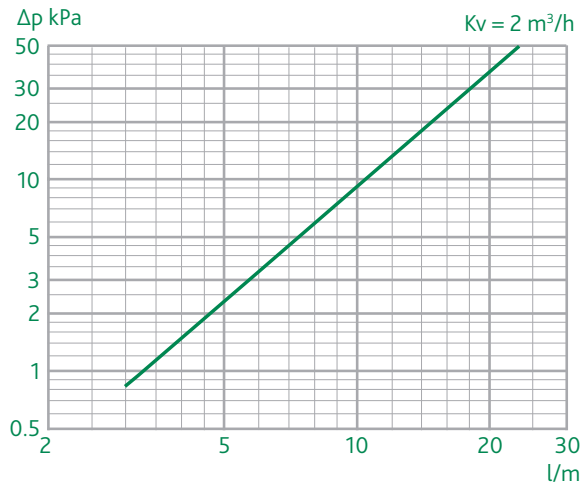
Item	Component
1	Frame
2	Electronic regulator
3	Thermal safety valve
4	Heating mixing valve
5	DHW modulating valve
6	Heating flow temperature probe
7	Safety thermostat
8	DHW temperature probe
9	DHW heat exchanger
10	Drain cock
11	Flow temperature compensation probe
12	Pump
13	DHW priority flow switch
14	Protective pump bypass
15	Heat meter spool piece
16	Air vent cock
17	Strainer/heat meter flow probe pocket
18	Primary circuit isolation valve (optional)

Schematic SATK20103HE

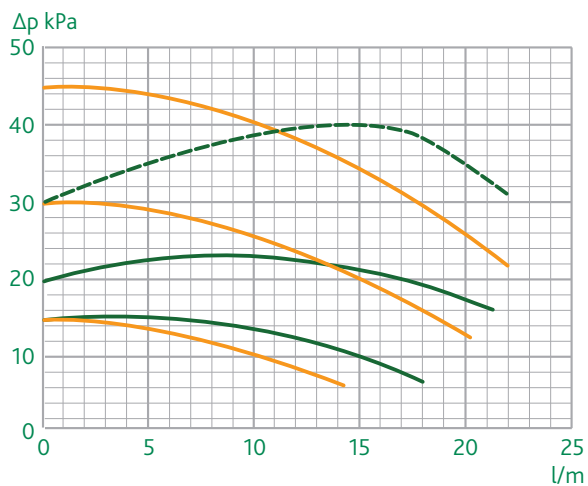


SATK20 heat interface unit

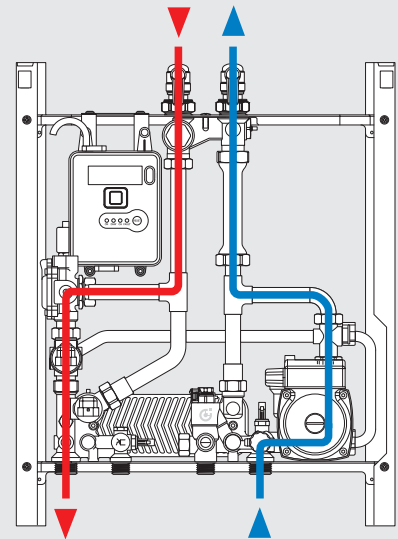
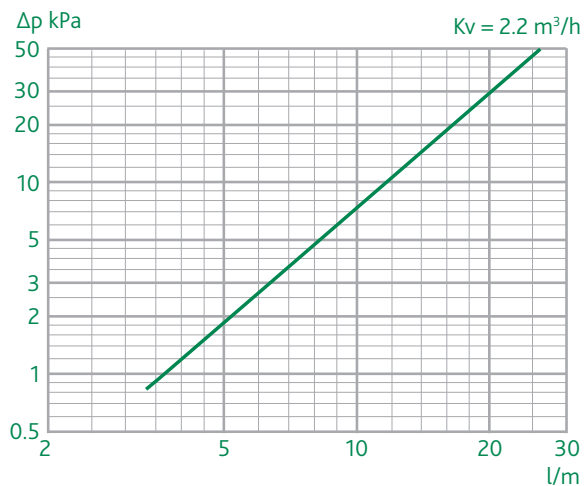
SATK20103HE - low temperature unit Hydraulic Characteristics - Heating Function



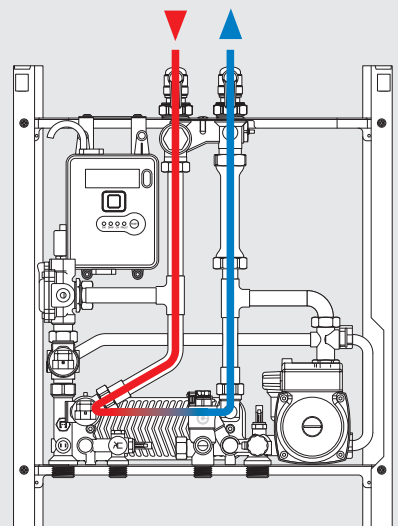
Head Available at Connections



Domestic Function - Primary Heat Exchanger



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



SATK20 heat interface unit

SATK20203HE Medium Temperature HUI with High-Efficiency Pump

Heating range 45 to 75°C

Set point regulation

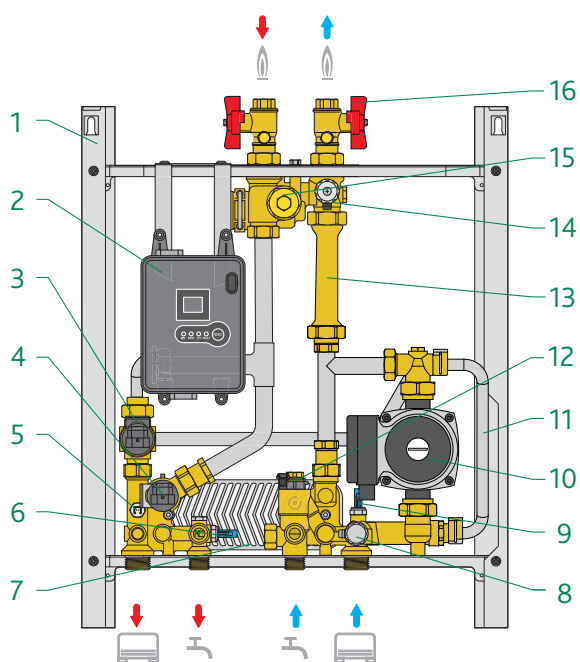
DHW temperature range 42 to 60°C, up to 18 l/m.

Optional functions:

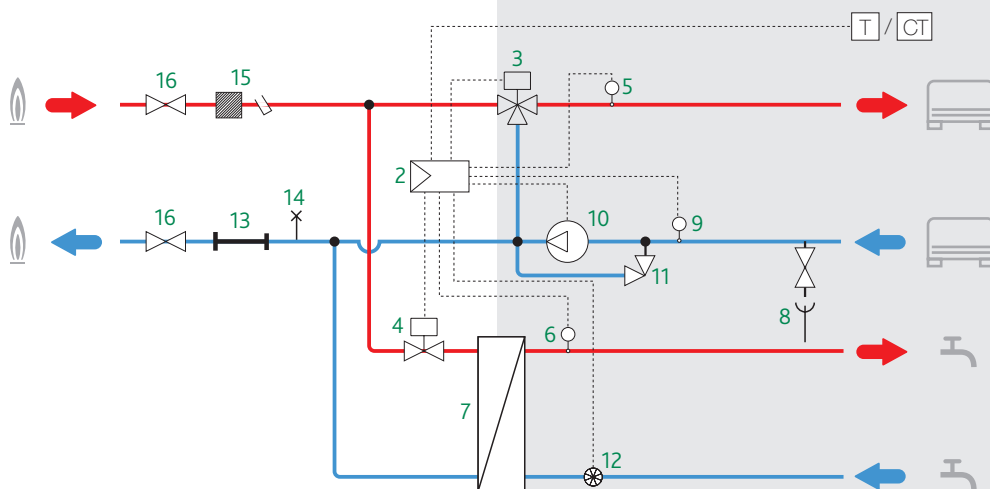
Domestic water cycle: - domestic water preheating function

Heating cycle: - modulating regulation with compensated set point

Components



Schematic SATK20203HE

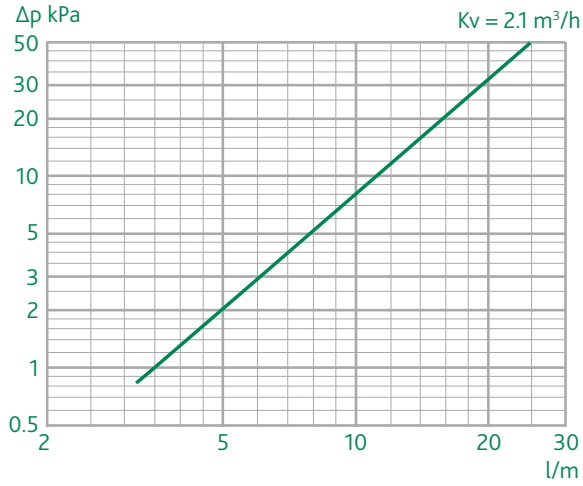


Components

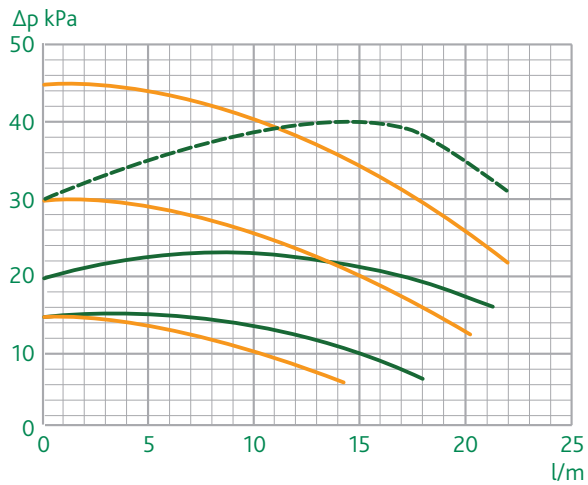
Item	Component
1	Frame
2	Electronic regulator
3	Heating mixing valve
4	DHW modulating valve
5	Heating flow temperature probe
6	DHW temperature probe
7	DHW heat exchanger
8	Drain cock
9	Flow temperature compensation probe
10	Pump
11	Protective pump bypass
12	DHW priority flow switch
13	Heat meter spool piece
14	Air vent cock
15	Strainer/heat meter flow probe pocket
16	Primary circuit isolation valve (optional)

SATK20 heat interface unit

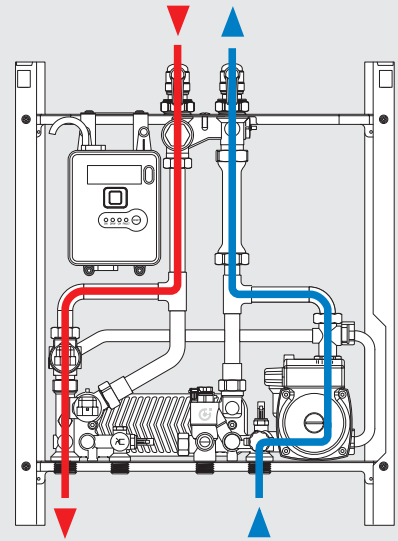
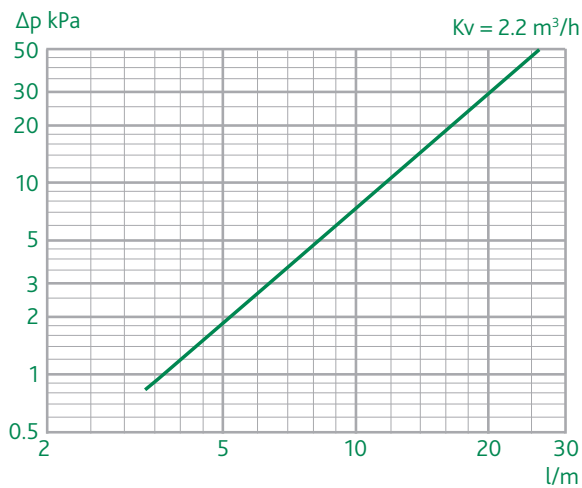
SATK20203HE - medium temperature unit Hydraulic Characteristics - Heating Function



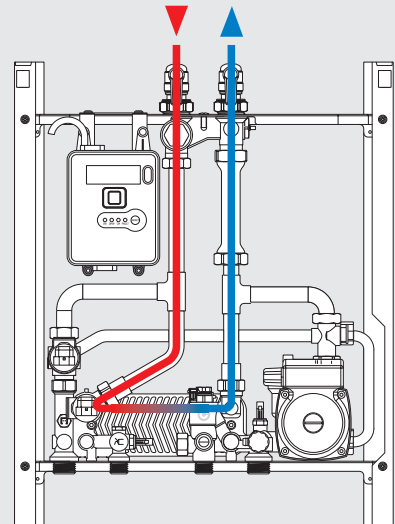
Head Available at Connections



Domestic Function - Primary Heat Exchanger



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



SATK20 heat interface unit

SATK20403HE High Temperature HUI with High-Efficiency Primary Pump

Max. heating temperature 85°C

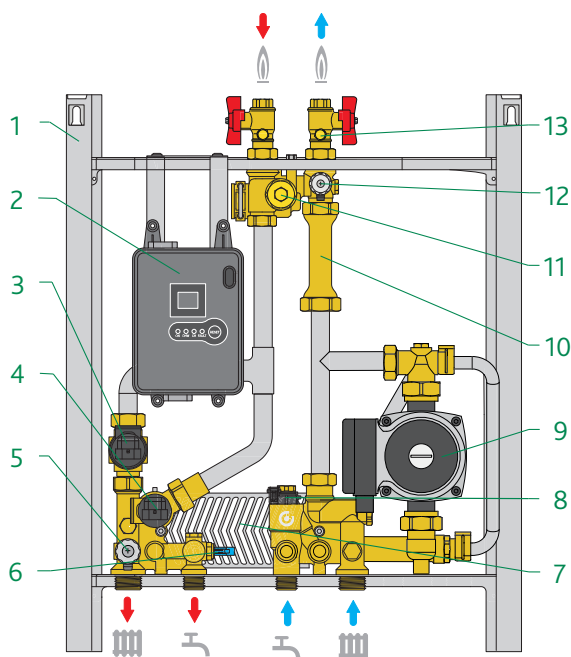
ON/OFF regulation

DHW temperature range 42 to 60°C, up to 18 l/m.

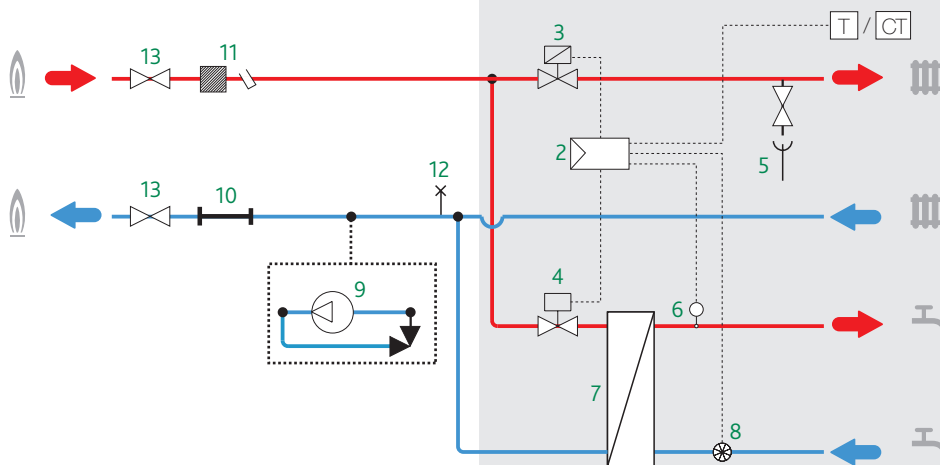
Optional functions:

Domestic water cycle: - domestic water preheating function

Components



Schematic SATK20403HE

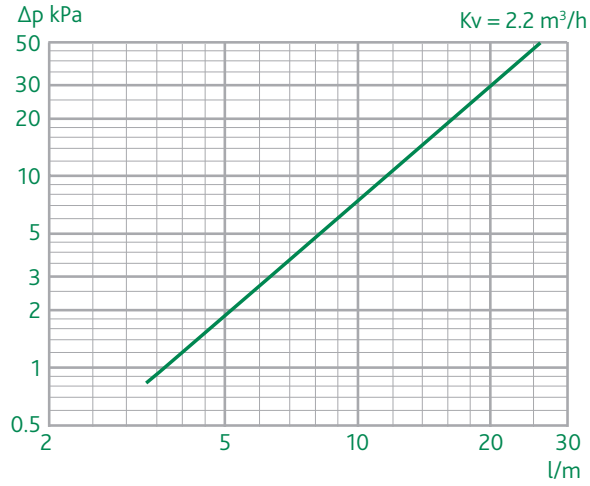


Components

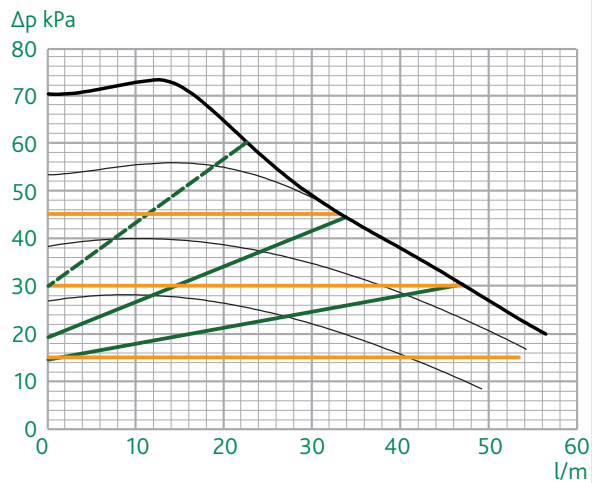
Item	Component
1	Frame
2	Electronic regulator
3	Heating ON/OFF valve
4	DHW modulating valve
5	Drain cock
6	DHW temperature probe
7	DHW heat exchanger
8	DHW priority flow switch
9	Pump with safety bypass
10	Heat meter spool piece
11	Strainer/heat meter flow probe pocket
12	Air vent cock
13	Primary circuit isolation valve (optional)

SATK20 heat interface unit

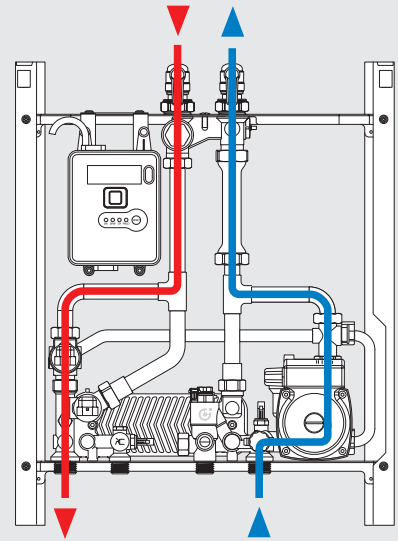
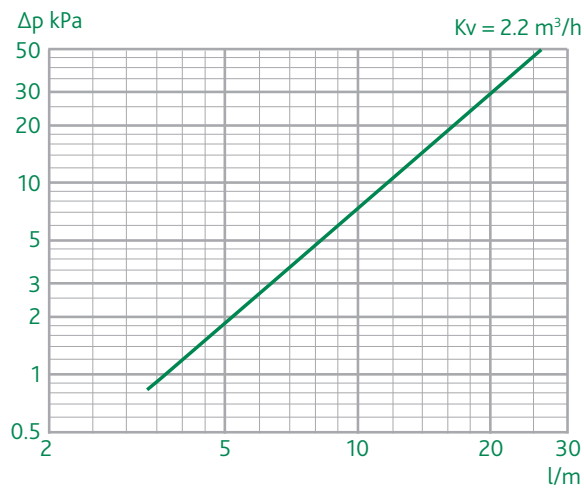
SATK20403HE - high temperature unit Hydraulic Characteristics - Heating Function



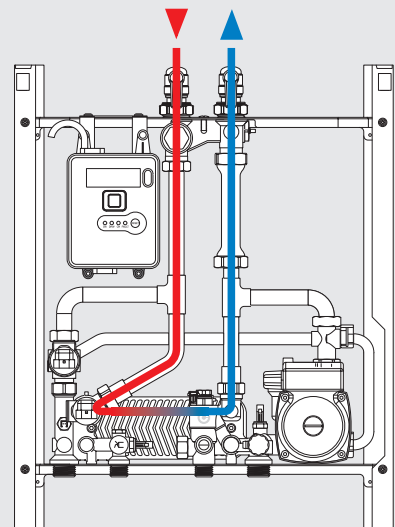
Head Available at Connections



Domestic Function - Primary Heat Exchanger



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



SATK20 heat interface unit

SATK20305 High Temperature HUI with High DHW Capacity

Max. heating temperature 85°C

ON/OFF regulation

DHW temperature range 42 to 60°C, up to 27 l/m.

Optional functions:

Domestic water cycle: - domestic water preheating function

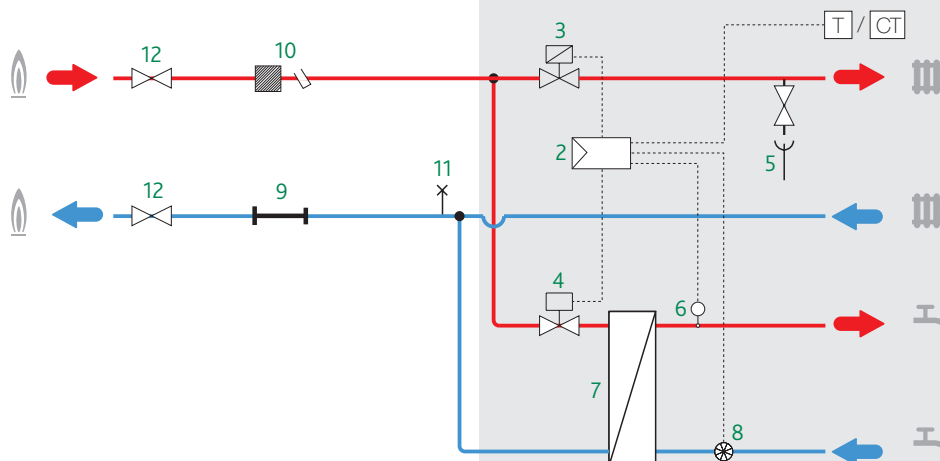
Technical Specification

Medium:	Water
Maximum percentage glycol:	30%
Maximum temperature:	85°C
Maximum static working pressure:	10 bar - primary 10 bar - secondary
Nominal DHW exchanger capacity:	75 kW
Max. recommended primary circuit flow rate:	20 l/m (0.33 l/s)
Domestic water max. flow rate:	27 l/m (0.45 l/s)
Minimum flow rate to activate domestic water meter:	2.7 l/m ±0.3
Maximum differential pressure on domestic water modulating valve:	Δp 90 kPa
Maximum differential pressure on domestic water mixing or ON/OFF valve:	Δp 90 kPa
Electrical supply:	230 V AC, 50 Hz
Max power consumption:	20 W
Protection class:	IP 40
Actuators:	stepper 24V
Probes:	NTC 10 kΩ
Safety thermostat setting:	55°C ±3

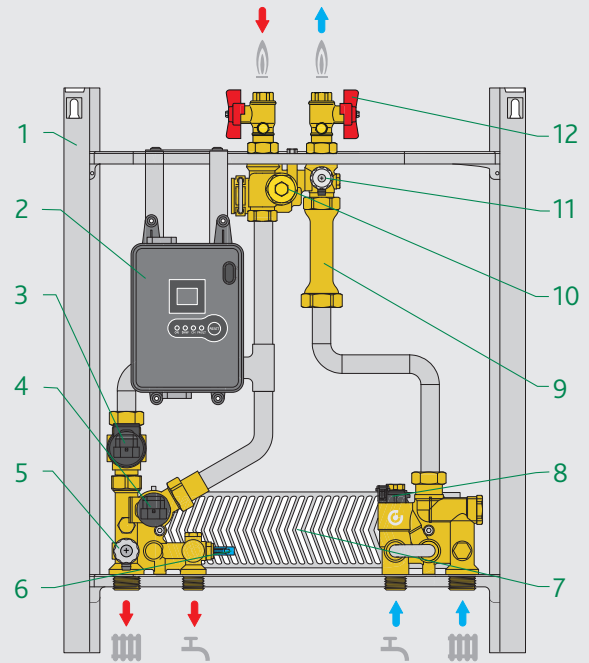
Materials

Components:	brass BS EN 12165 CW617N
Pipes:	steel
Frame:	RAL 9010 painted steel
Protective shell:	EPP
Heat exchanger:	copper brazed stainless steel

Schematic SATK20305



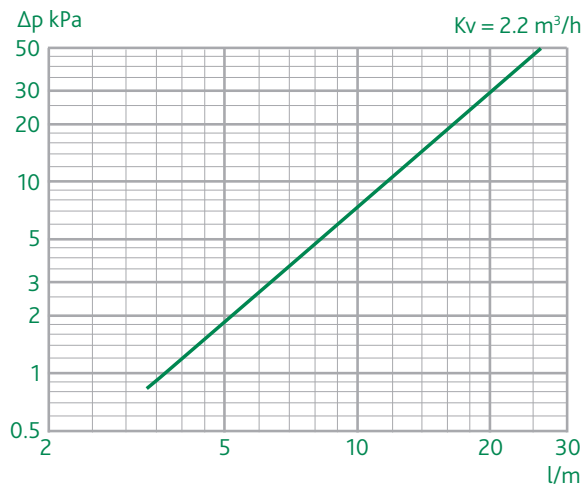
Components



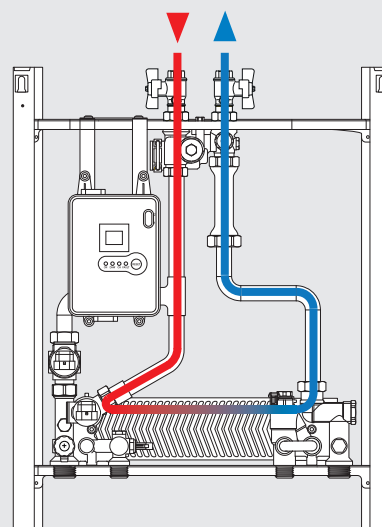
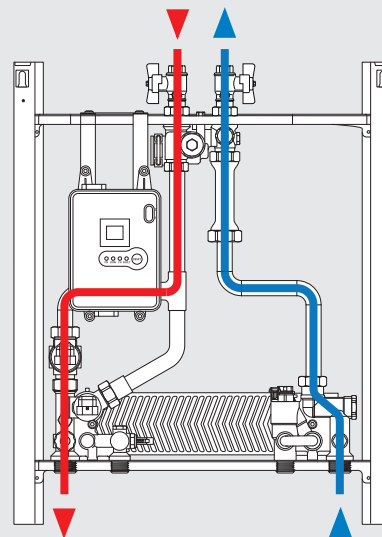
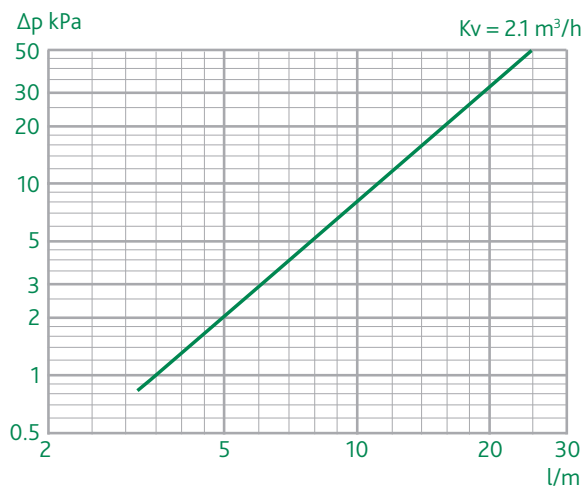
Item	Component
1	Frame
2	Electronic regulator
3	Heating ON/OFF valve
4	DHW modulating valve
5	Drain cock
6	DHW temperature probe
7	DHW heat exchanger
8	DHW priority flow switch
9	Heat meter spool piece
10	Strainer/heat meter flow probe pocket
11	Air vent cock
12	Primary circuit isolation valve (optional)

SATK20 heat interface unit

SATK20305 high temperature unit with high DHW capacity
Hydraulic Characteristics - Heating Function



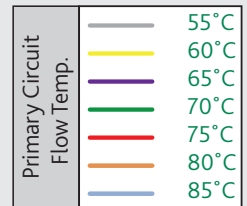
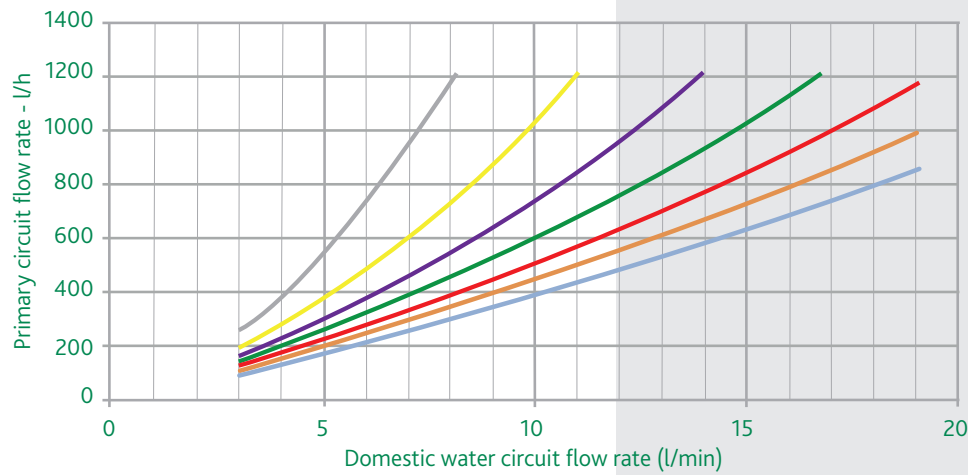
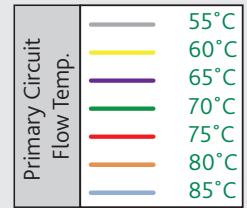
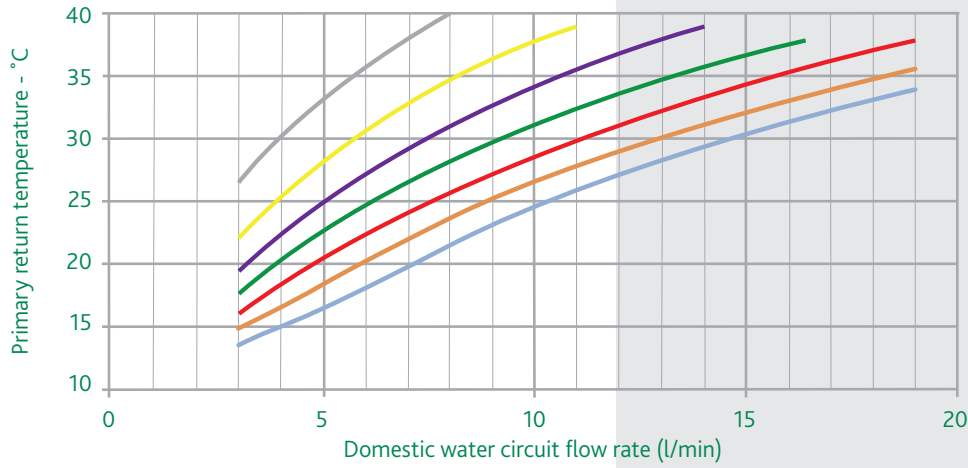
Domestic Function - Primary Heat Exchanger



SATK20 heat interface unit

SATK20103HE, 20203HE & 20403HE - DHW Performance Charts

DHW 10 to 48°C, maximum Δp 30 kPa



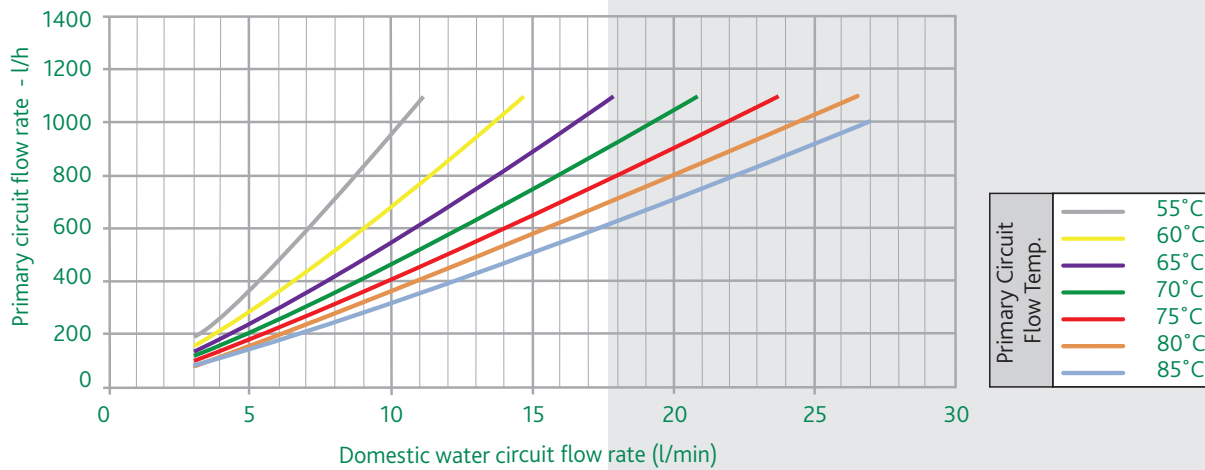
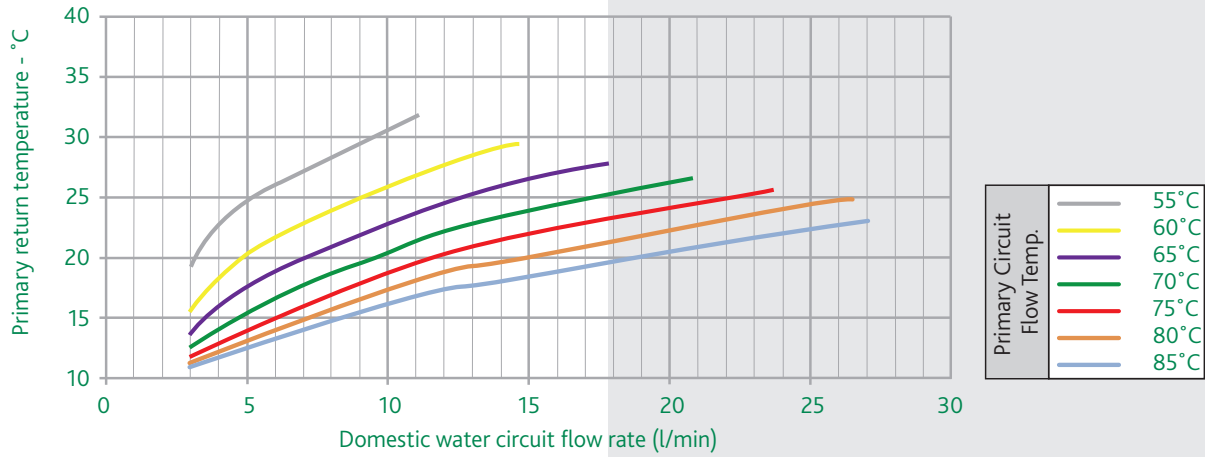
DHW Production Performance Table (Max. Primary Circuit Δp 30 kPa)

Primary circuit temperature °C	Domestic water flow rate l/m	Primary return temperature °C	Primary flow rate l/h	Power output kW
55	8.1	39.6	1,200	21.6
60	11.0	39.1	1,200	29.2
65	13.9	38.7	1,200	37.0
70	16.7	38.4	1,200	44.3
75	19.0	37.9	1,200	50.4
80	19.0	35.8	1,200	50.4
85	19.0	33.9	1,200	50.4

SATK20 heat interface unit

SATK20305 - DHW Performance Charts

DHW 10 to 48°C, maximum Δp 30 kPa



DHW Production Performance Table (Max. Primary Circuit Δp 30 kPa)

Primary circuit temperature °C	Domestic water flow rate l/m	Primary return temperature °C	Primary flow rate l/h	Power output kW
55	11.2	31.8	1,100	29.6
60	14.8	29.4	1,100	39.2
65	17.9	27.8	1,100	47.5
70	20.9	26.6	1,100	55.5
75	23.8	25.6	1,100	63.1
80	26.6	24.8	1,100	70.6
85	27.0	23.4	1,100	77.8

A design focused on minimising the temperature of the primary return medium is, in general, essential to guaranteeing maximum condensing boiler efficiency and reducing heat loss across the distribution network.

In modern housing units, the ever-increasing emphasis placed on energy performance tends to result in ever-decreasing space heating loads, while DHW production demand remains very high.

The application of an exchanger with a high thermal length on the domestic circuit allows a design aimed at achieving high temperature difference between primary flow and return, thereby reducing circulating flow rates and pipe diameters.