

ModuSat® Single Plate Cooling (SP-C)

The Evinox ModuSat® SP cooling interface unit has been designed to provide cooling for dwellings served by a communal or district system. The unit is supplied via primary chilled water, which is provided by centralised plant.

The unit consists of a single plate heat exchanger, combined with electronic PID control using Pressure Independent Control Valve (PICV) for differential pressure control and flow rate regulation.



Application

The ModuSat® SP Cooling unit is designed to operate with Evinox SmartTalk® two-way communication system for remote metering and diagnostics.

Cooling

The Cooling circuit consists of a plate heat exchanger (PHE), safety relief valve, manometer, flow and return temperature sensors, variable speed pump and expansion vessel. The cooling circuit flow temperature is controlled by the modulation of the primary flow rate with the integrated PICV actuator.

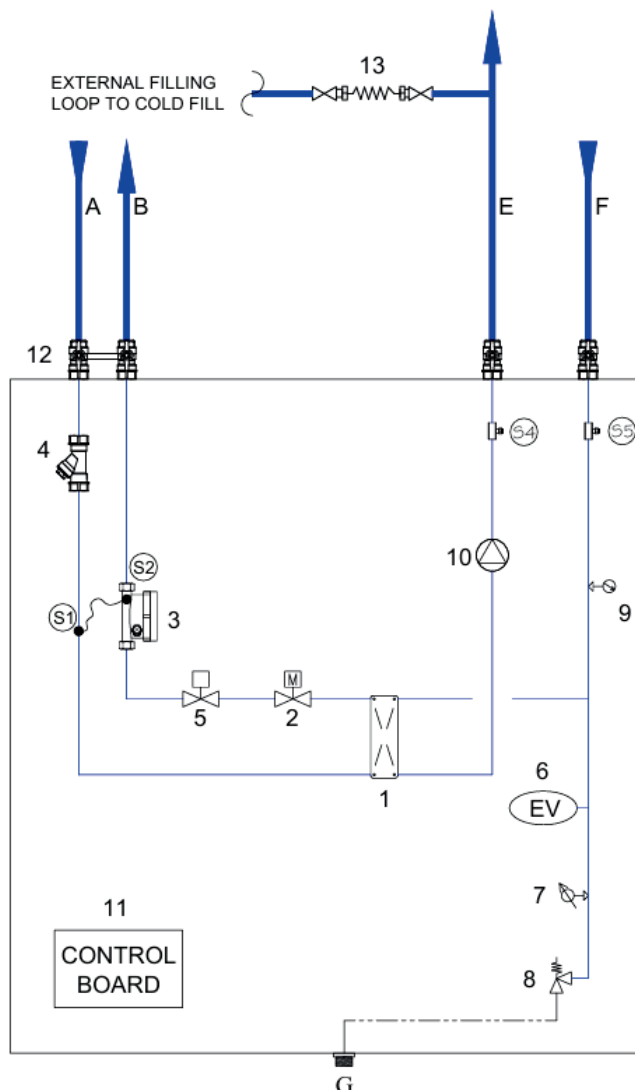
Available in a range of plate sizes and connection configurations, the SP Cooling Interface Unit is suitable for many different types of installation.

- ✓ **Very compact design** with minimum space required for installation.
- ✓ **Electronically controlled PICV** for primary flow rate modulation to match the demand, differential pressure control and energy shut-off.
- ✓ **Integrated PaySmart®** technology ready for pre-payment billing upgrade (activated anytime remotely).
- ✓ **Excellent thermal efficiency** achieved using the latest technology and efficient brazed stainless steel PHE's.
- ✓ **BSRIA tested to BTS 2/2015.**
- ✓ **Billing app** for use on smart phones and tablets.
- ✓ **Integrated ultrasonic heat meter** MID approved and class 2 accuracy (BS EN 1434). Also capable of reading Electrical Meter, Cold Water Meter, Cooling Meter (Optional extras)

Features & Benefits

- Each component is fully insulated including pipework and case
- External filling loop (Optional)
- SmartTalk two-way communication
- Remote monitoring, alarms, and diagnostics
- Variable speed pump
- **kiwa** Approved
- Includes inbuilt TCP/IP technology to operate on an Ethernet network if required
- Capable of reading an electricity meter (Option for ENE3)
- Flushing bypass kit enables the primary side of the system to be flushed and cleaned without damage to the unit

Typical ModuSat® SP Cooling Unit Unit 20R - 60R
Supplied with a removable 3/4" flushing by-pass kit



HYDRAULIC DIAGRAM

Components

- A.** Primary flow
- B.** Primary return
- E.** Secondary flow
- F.** Secondary return
- G.** Connection for safety discharge

Primary Circuit

- 1** Plate heat exchanger
- 2** Pressure Independent Control Valve with actuator
- 3** Heat Meter
- 4** Strainer
- 5** Shut-off valve (optional)

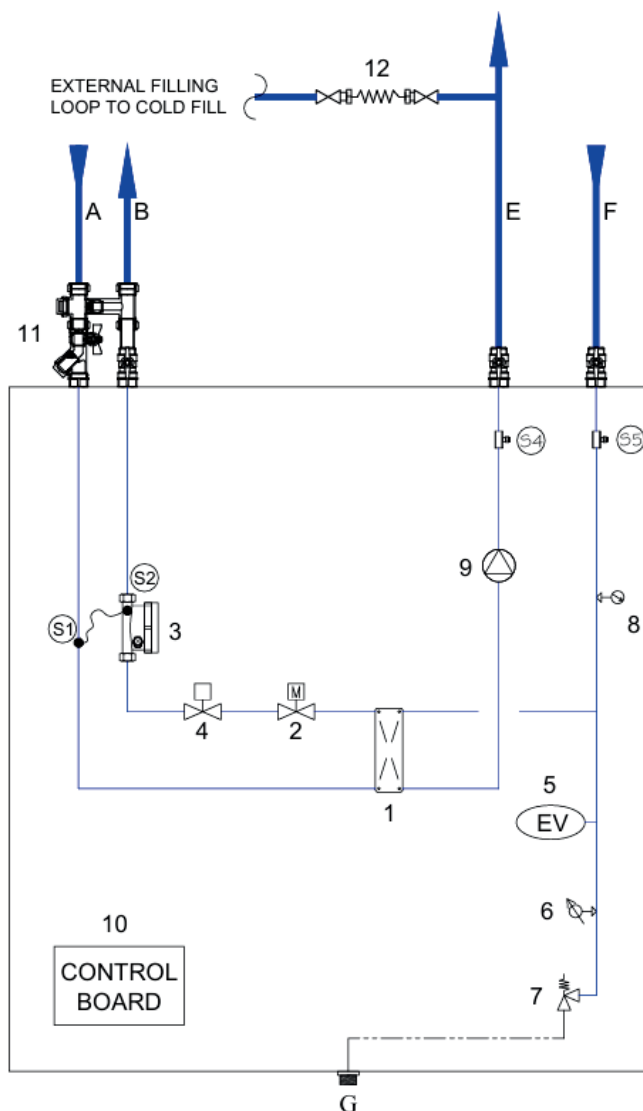
Secondary Circuit

- 6** Expansion vessel
- 7** Pressure sensor
- 8** Pressure relief valve
- 9** Pressure gauge
- 10** Pump

Controls & Other Items

- 11** Electronic Control board
- 12** Removable flushing by-pass valve set (optional)
- 13** External filling loop
- S1, S2** Heat meter temperature sensors
- S4** Secondary flow temperature sensor
- S5** Secondary return temperature sensor

Typical ModuSat® SP Cooling Unit Unit 70R - 40B
Supplied with a 1" flushing by-pass kit



HYDRAULIC DIAGRAM

Components

- A.** Primary flow
- B.** Primary return
- E.** Secondary flow
- F.** Secondary return
- G.** Connection for safety discharge

Primary Circuit

- 1** Plate heat exchanger
- 2** Pressure Independent Control Valve with actuator
- 3** Heat Meter
- 4** Shut-off valve (optional)

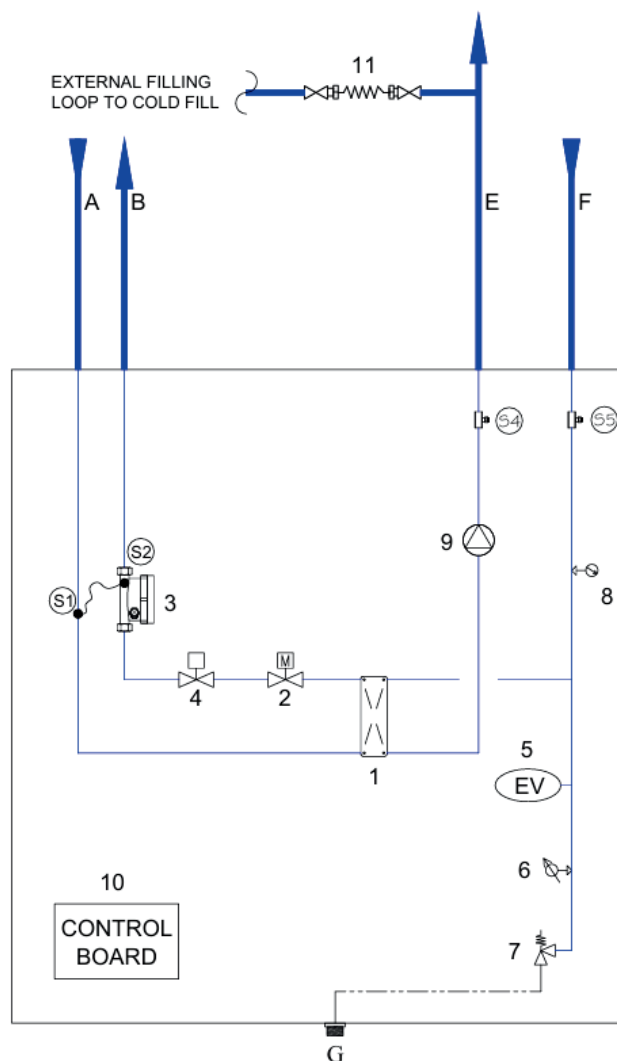
Secondary Circuit

- 5** Expansion vessel
- 6** Pressure sensor
- 7** Pressure relief valve
- 8** Pressure gauge
- 9** Pump

Controls & Other Items

- 10** Electronic Control board
- 11** Flushing by-pass valve set
- 12** External filling loop
- S1, S2** Heat meter temperature sensors
- S4** Secondary flow temperature sensor
- S5** Secondary return temperature sensor

Typical ModuSat[®] SP Cooling Unit 50B – 70B – 70C



HYDRAULIC DIAGRAM

Components

- A.** Primary flow
- B.** Primary return
- E.** Secondary flow
- F.** Secondary return
- G.** Connection for safety discharge

Primary Circuit

- 1** Plate heat exchanger
- 2** Pressure Independent Control Valve with actuator
- 3** Heat Meter
- 4** Shut-off valve (optional)

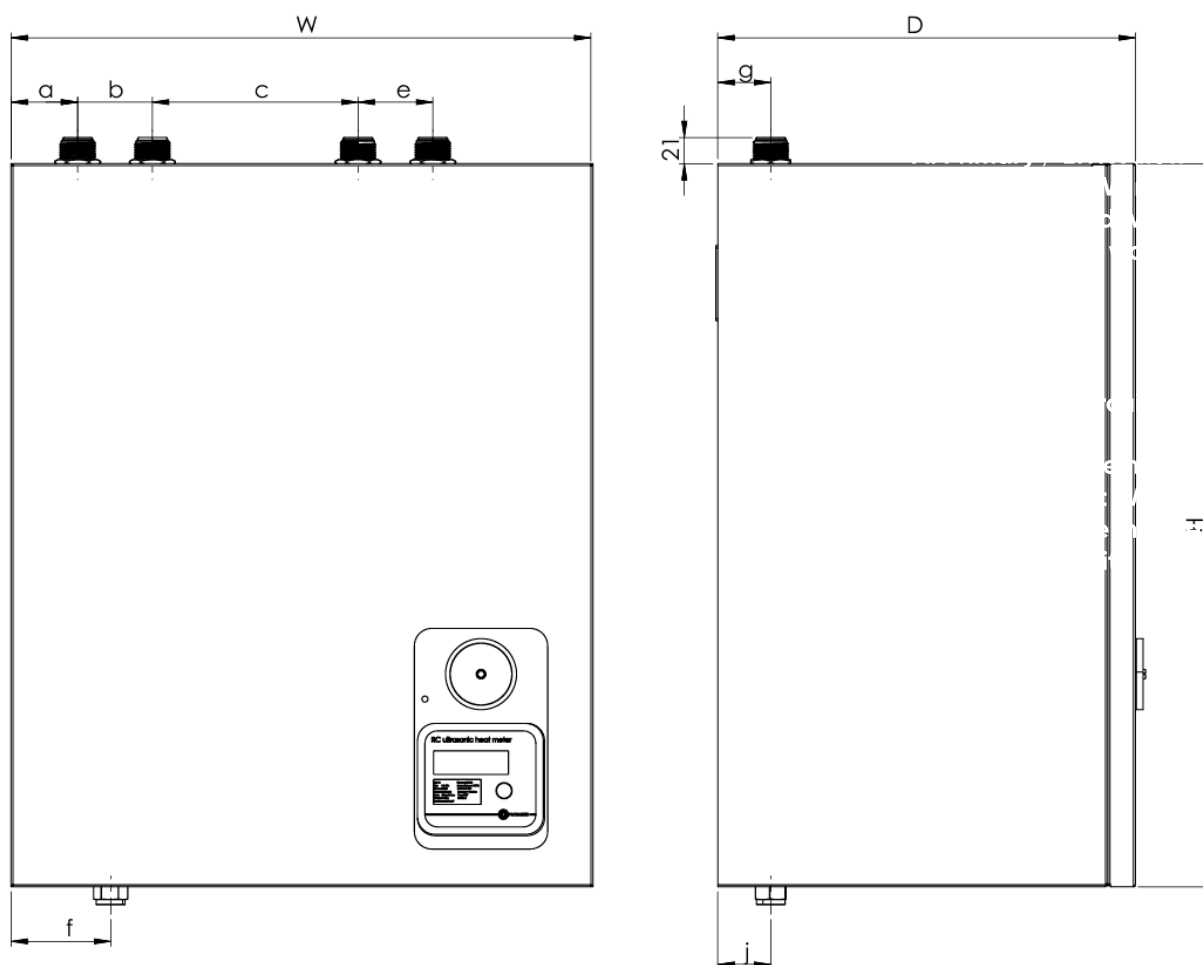
Secondary Circuit

- 5** Expansion vessel
- 6** Pressure sensor
- 7** Pressure relief valve
- 8** Pressure gauge
- 9** Pump

Controls & Other Items

- 10** Electronic Control board
- 11** External filling loop
- S1, S2** Heat meter temperature sensors
- S4** Secondary flow temperature sensor
- S5** Secondary return temperature sensor

Typical ModuSat® SP Cooling Unit



Dimensions (in mm)

CIU Model	W	D	H	a	b, e	c	f	g	J
SPC-R20	467	335	580	53.5	60	165	80	42.5	42.5
SPC-R30	467	335	580	53.5	60	165	80	42.5	42.5
SPC-R40	467	335	580	53.5	60	165	80	42.5	42.5
SPC-R60	467	335	580	53.5	60	165	80	42.5	42.5
SPC-R70	467	335	580	53.5	90	185	80	42.5	42.5
SPC-B40	474	335	685	54.5	90	185	133.5	42.5	42.5
SPC-B50	560	370	685	60	120	195	104	57.5	42.5
SPC-B70	560	370	685	60	120	195	104	57.5	42.5
SPC-C70	700	470	790	80	120	300	140	57.5	46
SPC-C120	900	520	790	80	120	300	140	57.5	46
SPC-C120L	900	520	790	80	120	300	140	57.5	46

Connections

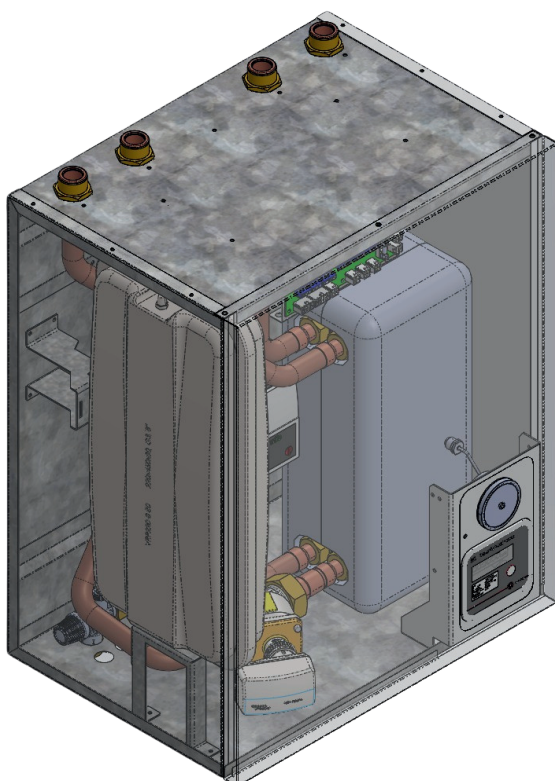
SPC	PF, PR, SF, SR	DR
SPC-R20	3/4"	1/2
SPC-R30	3/4"	1/2
SPC-R40	3/4"	1/2
SPC-R60	3/4"	1/2"
SPC-R70	1"	1/2"
SPC-B40	1"	1/2"
SPC-B50	1 1/4"	1/2"
SPC-B70	1 1/4"	1/2"
SPC-C70	1 1/4"	1/2"
SPC-C120	1 1/2"	1/2"
SPC-C120L	1 1/2"	1/2"

Typical Cooling Performances

	ModuSat® SPC R20	ModuSat® SPC R30	ModuSat® SPC R40	ModuSat® SPC R60	ModuSat® SPC R70	ModuSat® SPC B40	ModuSat® SPC B50	ModuSat® SPC B70
Cooling performance (kW)	2.5	3.5	5	6.5	8.5	13	19	23
Cooling flow rate (kg/s)	0.100	0.140	0.199	0.259	0.339	0.518	0.758	0.917
Cooling flow/return (°C)	8 / 14	8 / 14	8 / 14	8 / 14	8 / 14	8 / 14	8 / 14	8 / 14
Primary flow/return (°C)	6 / 12.4	6 / 12.5	6 / 12.5	6 / 12.7	6 / 12.6	6 / 12.5	0.712	6 / 12.5
Primary flow (kg/s)	0.094	0.128	0.183	0.231	0.307	0.479	6 / 12.4	0.841
Residual pump head (kPa)	54.7	53.8	48.9	38.2	52.1	43.9	80.1	54.7
Primary pressure drop (kPa)	50	50	53	52	51	53	50	51

Bespoke Cooling Performances

	ModuSat® SPC-C70	ModuSat® SPC-C120	ModuSat® SPC-C120L
Cooling performance (kW)	50	87	87
Cooling flow rate (kg/s)	1.407	2.449	2.449
Cooling flow/return (°C)	8 / 16.5	8 / 16.5	8 / 16.5
Primary flow/return (°C)	6.5 / 14.8	6.5 / 14.8	6.5 / 14.8
Primary flow (kg/s)	1.442	2.513	2.513
Residual pump head (kPa)	78	109.9	79.9
Primary pressure drop (kPa)	60	70	70



Technical Features

- Max working pressure: 16 bar
- Power supply voltage: 220/240 Volt (AC) 50 Hz
- Minimum Supply Temperature 4°C
- Heating expansion vessel: 8L
- Max allowable primary pressure drop: 4 bar