

ModuSat® XR Combined Heating, Domestic Hot Water and Cooling Interface

The ModuSat® combined heating and cooling unit provides heating, cooling and the instantaneous production of hot water. Designed to simplify apartment installations where cooling and heating is required; the CHHC unit features a small footprint that minimises required cupboard space, with easy access for service and maintenance.

The heating, domestic hot water and cooling plate heat exchangers are housed within a single cased unit with high quality fully insulated separation between the hot and chilled zones. The unit can be provided in either floor standing or wall mounted orientations making them suitable for a wide range of installation configurations.

Heating

The heating circuit consists of a plate heat exchanger (PHE), safety relief valve, manometer, flow and return temperature sensors, Wilo PWM circulation pump and expansion vessel. The heating circuit flow temperature is controlled by the modulation of the primary flow rate with the integrated PICV actuator. Weather compensation is applied to the set heating temperature using SmartTalk® 2-way communication. Suitable for radiators, underfloor heating or fan coil units.

Domestic Hot Water

Domestic hot water is heated via a separate plate heat exchanger and the temperature is regulated by the modulation of primary flow rate with the integrated PICV actuator.

Mobile billing app for smart phones and tablets.

ViewSmart room controller with optional upgrade to provide ENE3 compliant smart metering.

Excellent thermal efficiency achieved using the latest technology and efficient brazed stainless steel PHE's.

Fast & Responsive Hot Water

The unit delivers fast and responsive domestic hot water performance, providing high levels of user comfort and convenience.

Fully programmable hot water "Keep-warm" function, for energy saving

Electronically controlled PICVs for primary flow rate modulation to match the demand, differential pressure control and energy shut-off.

Cooling

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

The ModuSat® CHHC is available with a number of plate size options to meet a range of cooling, heating and DHW requirements and is supplied complete with a ViewSmart room controller.



Integrated Heat Meters for Heating & Cooling - MID approved and class 2 accuracy (BS EN 1434)

Features & Benefits

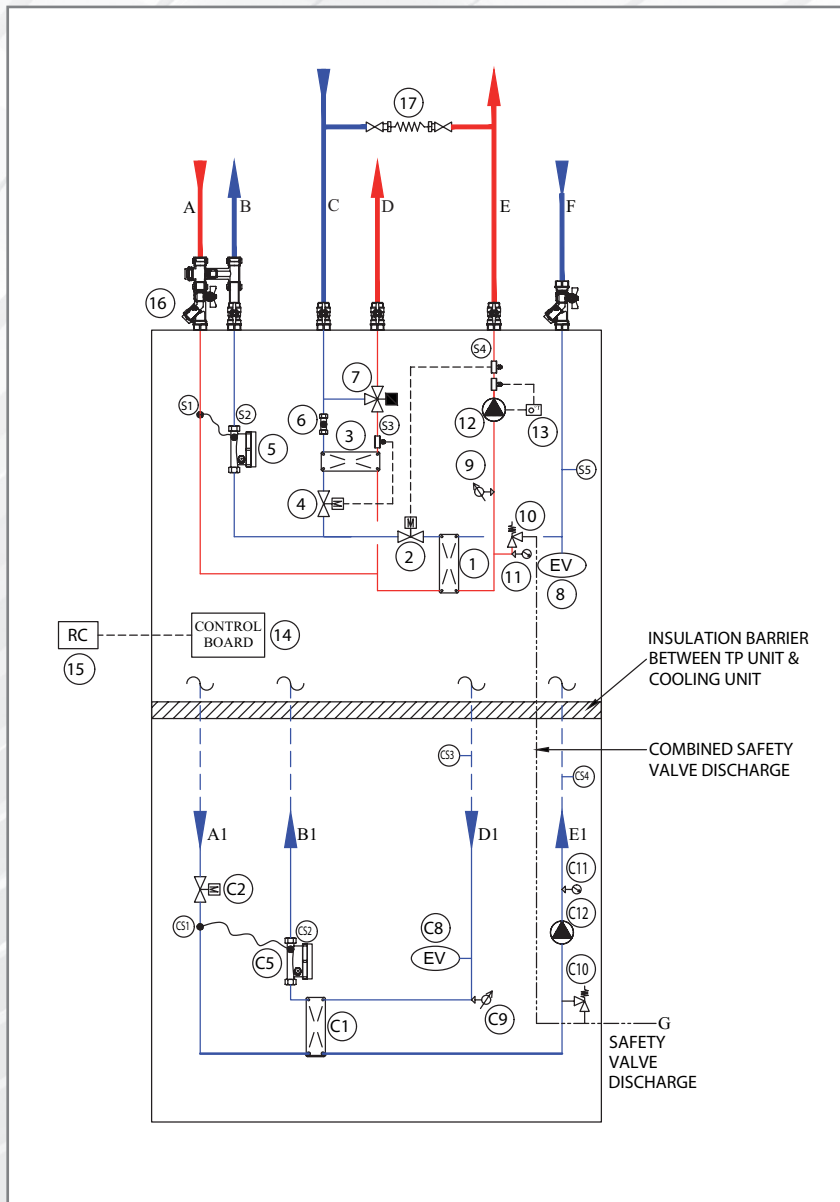
- Units suitable for single and multi-family homes
- Compact design, with minimum space required for installation
- Unit insulation – EPDM 75-0 thickness: 5mm 15mm insulation between heating and cooling parts of unit
- Integrated PaySmart® technology ready for pre-payment billing upgrade.
- Option of floor standing or wall mounted unit
- External filling loop (Optional)
- SmartTalk two-way communication
- Remote monitoring, alarms, and diagnostics
- Wilo PWM Pump – Provides compliance with EU ErP Directive 2015
- 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

Circuit diagram

ModuSat® XR CHHC

Combined Heating, Domestic Hot Water and Cooling

Typical Floor Standing or Wall Mounted CHHC Unit with Top Connections



Components

TP Unit (HTG / DHW)

- A Primary / DH flow
- B Primary / DH return
- C Domestic cold water Inlet
- D Domestic hot water outlet
- E Secondary / Apartment heating flow
- F Secondary / Apartment heating return
- G Connection for safety discharge

Cooling Unit

- A1 Primary flow
- B1 Primary return
- D1 Secondary return
- E1 Secondary flow

Primary Cooling Circuit

- C1 Cooling PHE
- C2 Cooling Pressure Independent Control Valve with actuator
- C5 Cooling meter

Secondary Cooling Circuit

- C8 Cooling expansion vessel
- C9 Pressure sensor
- C10 Safety relief valve
- C11 Pressure gauge
- C12 Cooling circulation pump

Controls

- CS1 Primary flow temperature
- CS2 Primary return temperature
- CS3 Secondary / Apartment return
- CS4 Secondary / Apartment flow

Components

Primary Circuit Side

- 1 Insulated plate heat exchanger (Heating)
- 2 Heating Pressure Independent Control Valve with actuator
- 3 Insulated plate heat exchanger (Domestic Hot Water)
- 4 DHW Pressure Independent Control Valve with actuator
- 5 Heat meter

DHW Secondary Side Circuit

- 6 Flow sensor
- 7 Blending valve

Heating Secondary Side Circuit

- 8 Heating expansion vessel
- 9 Low pressure switch
- 10 Safety relief valve
- 11 Pressure gauge
- 12 Heating circulation pump
- 13 Safety thermostat (Optional)

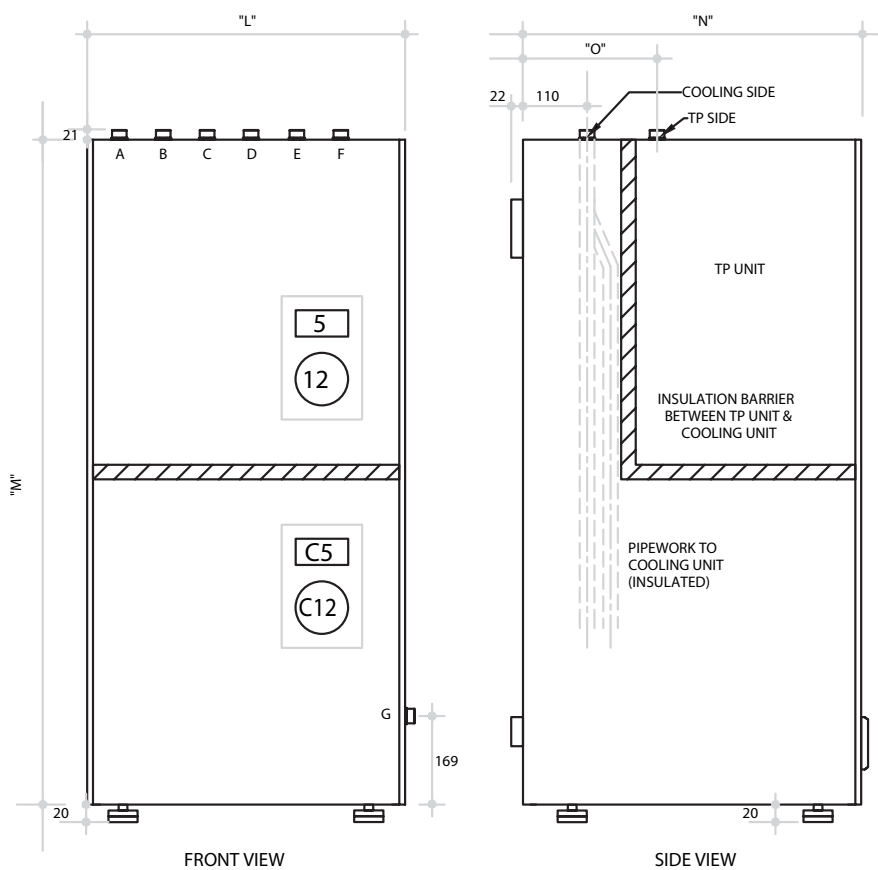
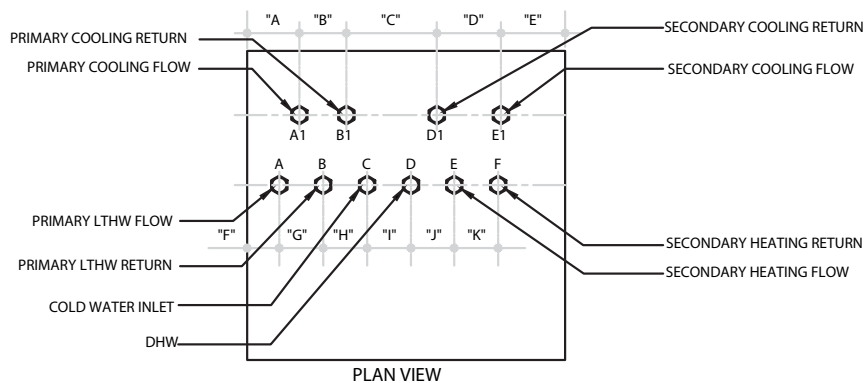
Controls & Other Items

- 14 Electronic control board
- 15 ViewSmart Controller
- 16 Flushing by-pass
- 17 Filling loop (External)

Dimensions

ModuSat® XR CHHC

Combined Heating, Domestic Hot Water and Cooling



Dimension Details	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"	"L"	"M"	"N"	"O"
XR-ECO CHHC 55-10R-R40	91.5	60	193	110	91.5	56.5	60	60	60	120	60	546	1240	532	230
XR-ECO CHHC 70-10A-R70	91.5	90	163	110	91.5	56.5	60	60	60	120	60	546	1240	532	230
XR CHHC 100-30R-B70	75.5	160	160	160	90.5	76.5	90	90	90	90	90	646	1420	532	255

Connection Details (Inch)	A	B	C	D	E	F	A1	B1	C1	D1	G
XR-ECO CHHC 55-10R-R40	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1/2"
XR-ECO CHHC 70-10A-R70	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"	1/2"
XR CHHC 100-30R-B70	1"	1"	1"	1"	3/4"	3/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1/2"

Technical Details

ModuSat® XR CHHC

Combined Heating, Domestic Hot Water and Cooling

ModuSat Selection	ModuSat® XR-ECO CHHC 55-10R-R40	ModuSat® XR-ECO CHHC 70-10A-R70	ModuSat® XR CHHC 100-30R-B70
Domestic Hot Water Performance (kW)	50	62	85
Domestic hot water flow rate (kg/s)	0.27	0.33	0.45
Domestic hot water flow/cold inlet temp (°C)	55 / 10	55 / 10	55 / 10
Primary flow/return temp (°C)	70 / 20.1	70 / 18.3	70 / 26.3
Primary flow (kg/s)	0.24	0.29	0.47
Primary pressure drop (kPa)	50	50	50
Heating Performance (kW)	5	8	17
Heating flow rate (kg/s)	0.060	0.191	0.203
Heating flow/return temp (°C)	60 / 40	45 / 35	60 / 40
Primary flow/return temp (°C)	70 / 43.8	70 / 38.3	70 / 43.1
Primary flow (kg/s)	0.046	0.060	0.151
Residual pump head (kPa)	54	44	45
Cooling Performance (kW)	4	9	23
Cooling flow rate (kg/s)	0.16	0.36	0.92
Cooling flow/return temp (°C)	8 / 14	8 / 14	8 / 14
Primary flow/return temp (°C)	6 / 12.9	6 / 12.7	6 / 12.6
Primary flow (kg/s)	0.14	0.32	0.83
Residual pump head (kPa)	54	53	90

Other unit sizes are available to suit project parameters. Please contact our Technical team on 01372 722277 for details.



Technical features

- Nominal pressure: 16 bar
- Power supply voltage: 220/240 Volt (AC) 50 Hz
- Max supply temperature (Primary): 95 °C
- Min DCW static pressure: 1 bar
- Brazing material: Copper
- Heating expansion vessel: 8L
- Cooling expansion vessel: 5L to 8L
- Max allowable primary pressure drop: 4 bar