

## ModuSat® Floor Standing Heat Interface Units

The Evinox ModuSat® FS heat interface unit has been designed to provide apartments and communal housing developments with high efficiency heating and independent fast recovery hot water.

Consisting of a fast recovery hot water tank and a plate heat exchanger, combined with electronic PID control using Pressure Independent Control Valve (PICV) with modulating actuator achieving a low primary return temperature as well as providing differential pressure control and flow rate regulation.



### Application

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

### Heating

The heating circuit consists of a plate heat exchanger (PHE), safety relief valve, pressure gauge, 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.

## Features & Benefits

- Global warming potential (GWP) of the cylinder insulation = 0
- Ultrasonic heat meter MID approved and class 2 accuracy (BS EN 1434)
- Simple to install due to factory assembled pipe work, internal wiring and integrated heat meter
- Integrates readily with renewable energy sources
- Excellent thermal efficiency achieved using the latest technology and efficient brazed stainless steel PHE's
- Integrated PaySmart® technology ready for prepayment billing upgrade (activated remotely at any time)
- Billing app for use on smartphones and tablets
- Integrated hot water storage within the ModuSat reduces central plant peak load
- Fully integrated unvented kit
- Easy access for servicing
- Minimal maintenance requirements
- External filling loop (Optional)
- SmartTalk® two-way communication
- Wilo PWM Pump – Provides compliance with EU ErP Directive 2015
- Electronically controlled PICV's for primary flow rate modulation to match demand, differential pressure control and energy shut-off
- Hot water blending valve for additional DHW temperature safety
- Electric immersion heater (Optional)
- Includes inbuilt TCP/IP technology to operate on an Ethernet network if required
- ViewSmart room controller with optional upgrade to provide ENE3 compliant Energy Display Device
- Remote monitoring, alarms and diagnostics
- No annual gas appliance inspections required
- Capable of reading an electricity meter (Option for ENE3)

### Domestic Hot Water

Domestic hot water is generated in an unvented cylinder via a high efficiency coil. The primary heat network flows through the heat exchanger coil and transfers the thermal energy to the potable water in the tank.

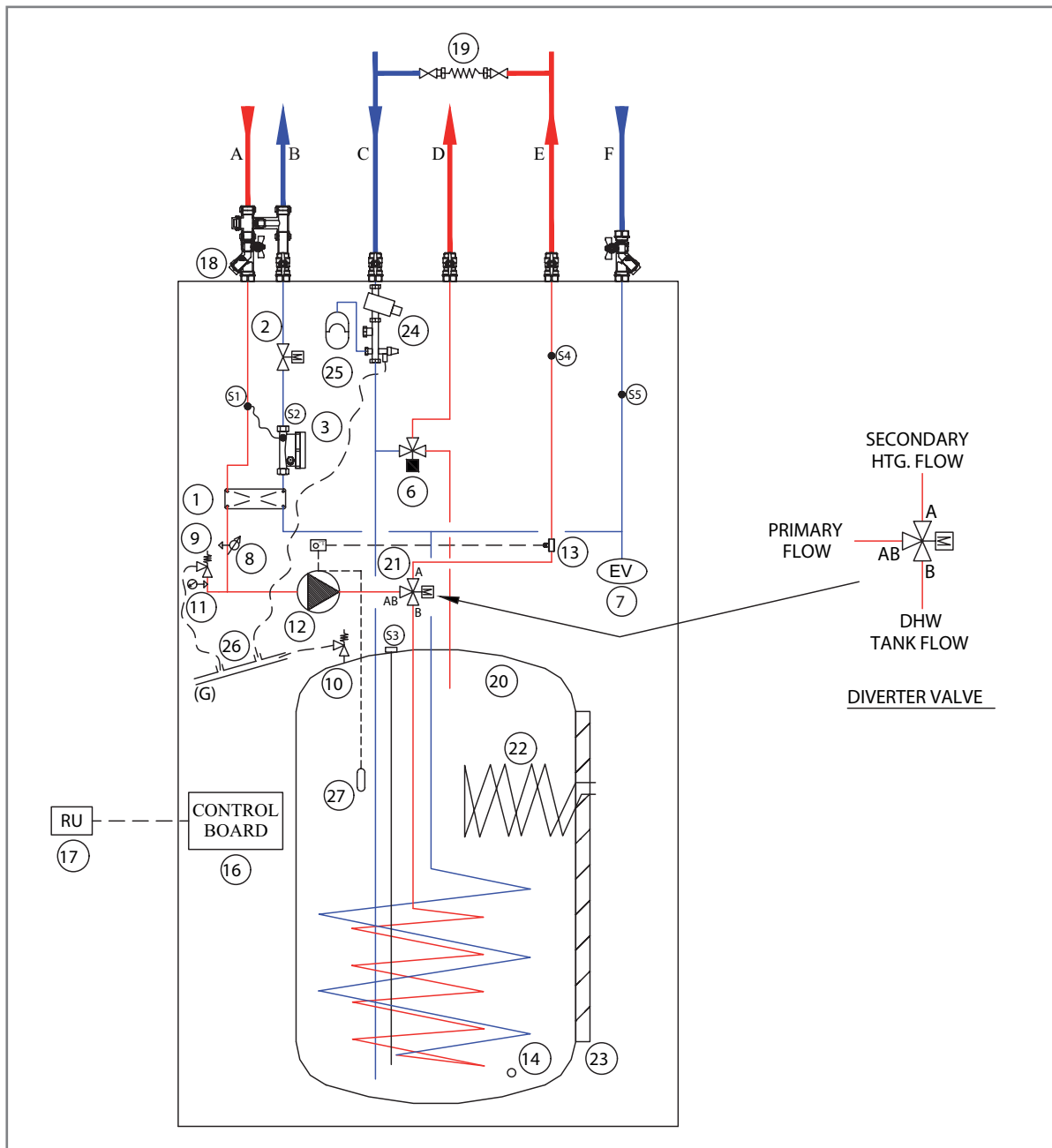
General industry guidelines recommend heating the full volume of the cylinder up to 60C for at least one hour per day. This programme can be set up using our ViewSmart or selected third part thermostat suppliers.

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS 80 & 150 Circuit Diagram



### Components

- A Primary / LTHW flow
- B Primary / LTHW 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

### Primary Circuit Side

- 1 Insulated plate heat exchanger (Heating)
- 2 Pressure independent control valve (PICV) with actuator
- 3 Heat meter

### Secondary Side Circuit

- 6 Blending valve
- 7 Heating expansion vessel
- 8 Pressure sensor
- 9 Safety relief valve
- 10 P&T Safety relief discharge
- 11 Pressure gauge
- 12 Circulation pump
- 13 Safety thermostat external (Optional)
- 14 Drain point

### Controls & Other Items

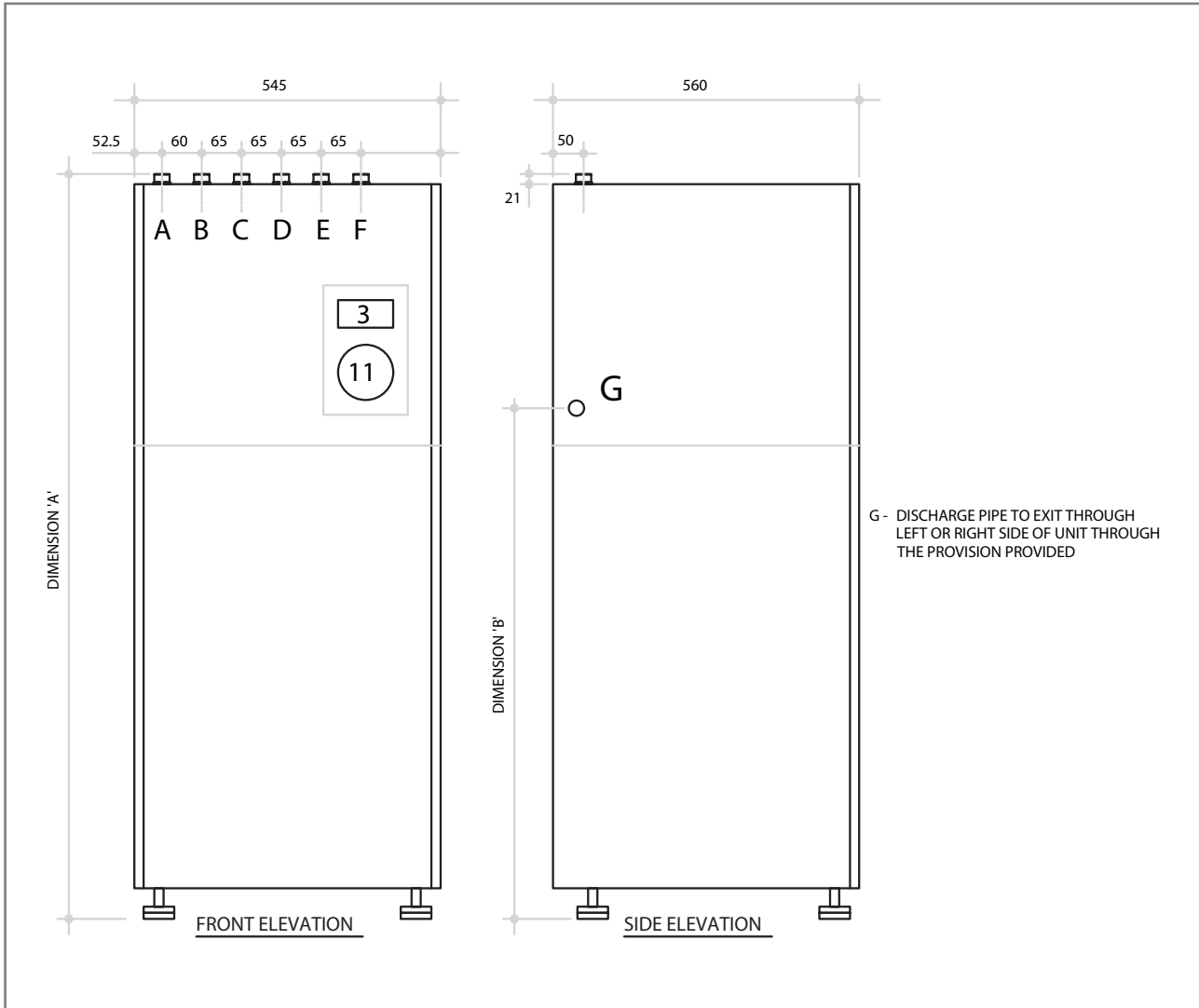
- 16 Electronic control board
- 17 Room control unit
- 18 Flushing bypass
- 19 Filling loop (External)
- 20 DHW storage tank with heating coil
- 21 Motorised diverter valve
- 22 Electric immersion heater (Optional)
- 23 Tank insulation
- 24 Unvented kit (With balanced cold feed)
- 25 Potable expansion vessel
- 26 Multi directional discharge
- 27 Tank safety thermostat

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS 80 & 150 Dimensions



|             |    | FS 80 | FS 150 |
|-------------|----|-------|--------|
| Dimension A | mm | 1370  | 1720   |
| Dimension B | mm | 849   | 1199   |

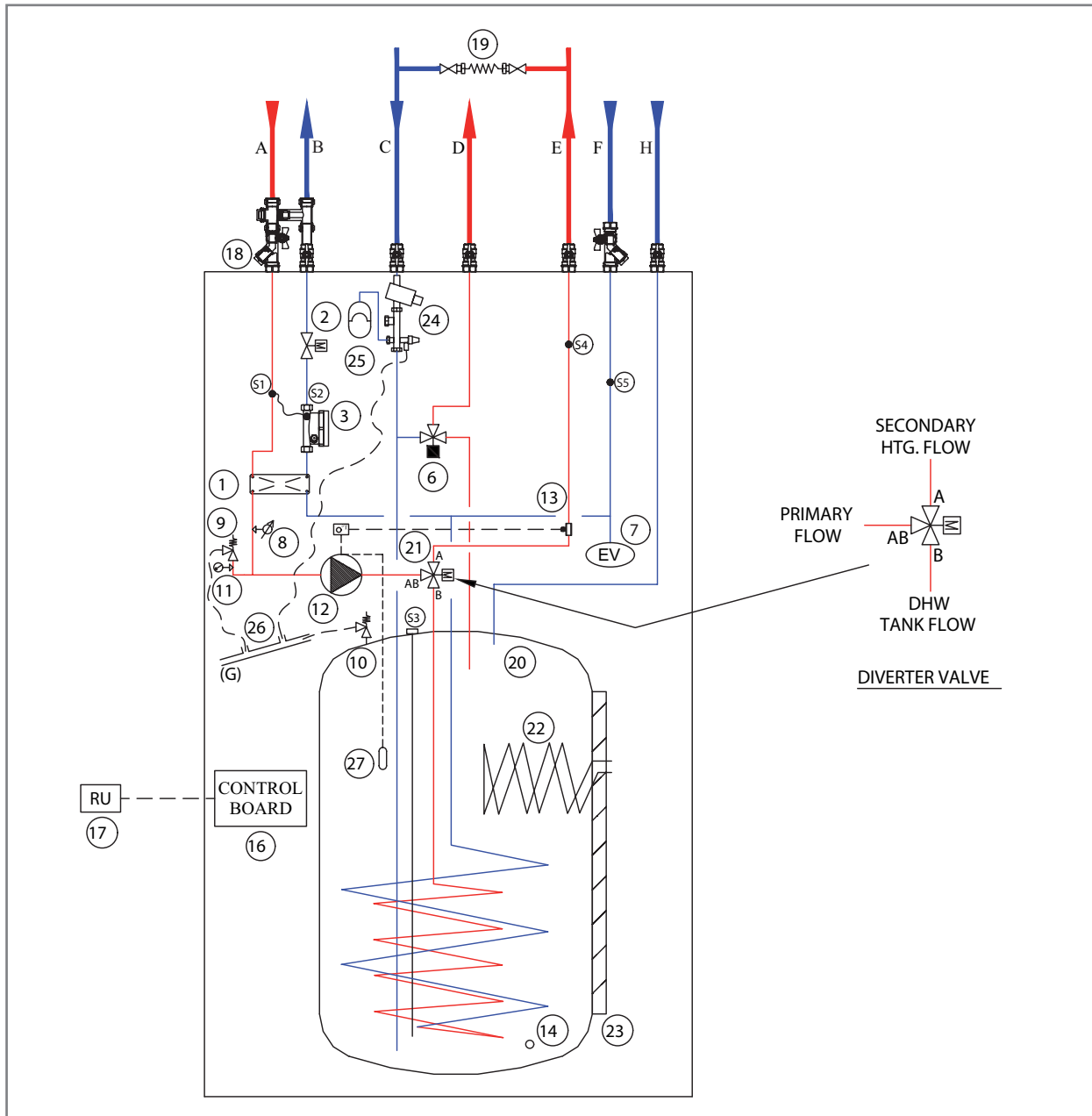
|                  | Connection Details |        |
|------------------|--------------------|--------|
|                  | FS 80              | FS 150 |
| A, B, C, D, E, F | 3/4"               | 3/4"   |

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS 200 Circuit Diagram



### Components

- 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
- H DHW secondary return connection

### Primary Circuit Side

- 1 Insulated plate heat exchanger (Heating)
- 2 Pressure independent control valve (PICV) with actuator - Heating
- 3 Heat meter

### Secondary Side Circuit

- 6 Blending valve
- 7 Heating expansion vessel
- 8 Pressure sensor
- 9 Safety relief valve
- 10 P&T Safety relief discharge
- 11 Pressure gauge
- 12 Circulation pump
- 13 Safety thermostat external (Optional)
- 14 Drain point

### Controls & Other Items

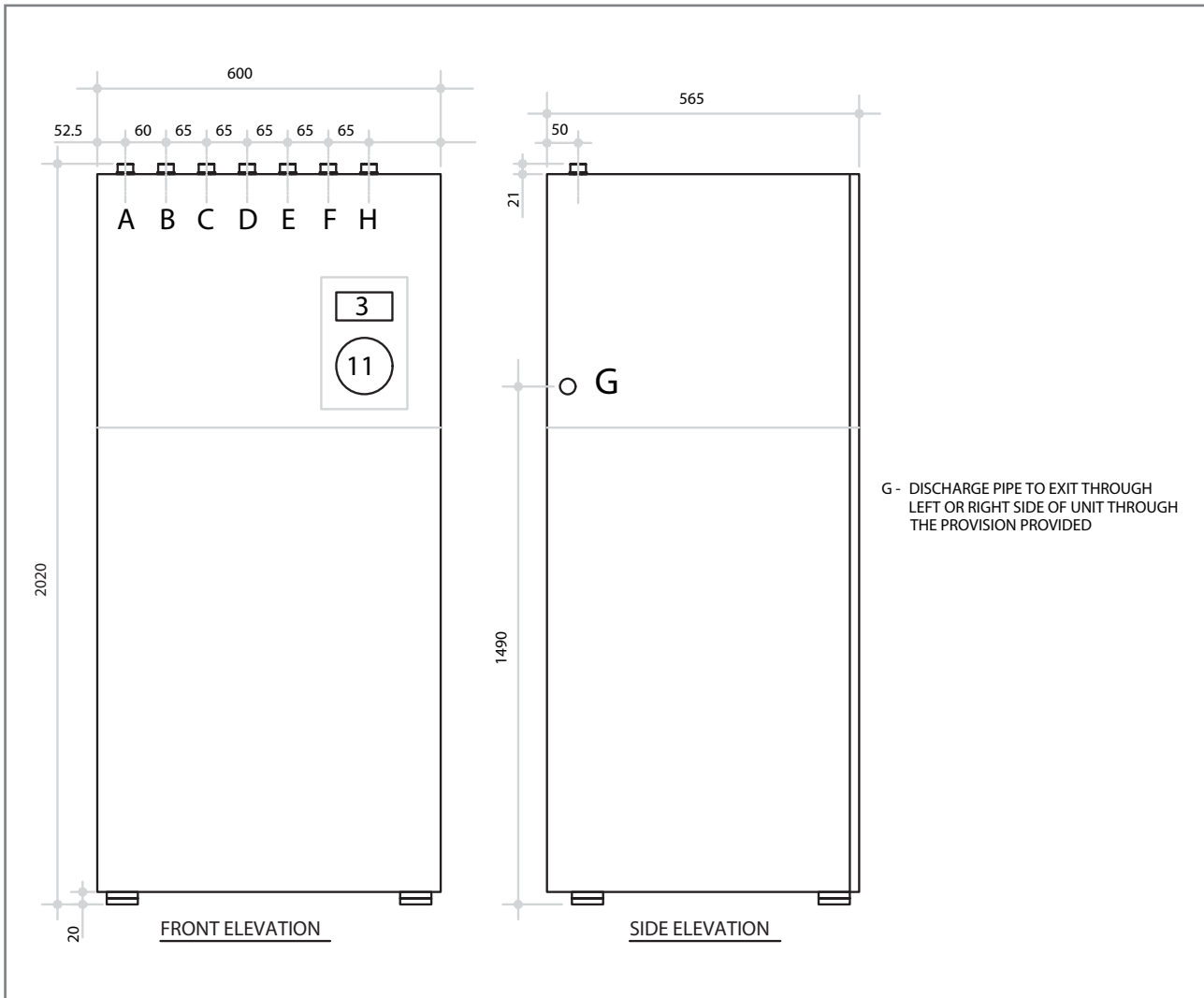
- 16 Electronic control board
- 17 Room control unit
- 18 Flushing bypass
- 19 Filling loop (External)
- 20 DHW storage tank with heating coil
- 21 Motorised diverter valve
- 22 Electric immersion heater (Optional)
- 23 Tank insulation
- 24 Unvented kit (With balanced cold feed)
- 25 Potable expansion vessel
- 26 Multi directional discharge
- 27 Tank safety thermostat

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS 200 Dimensions



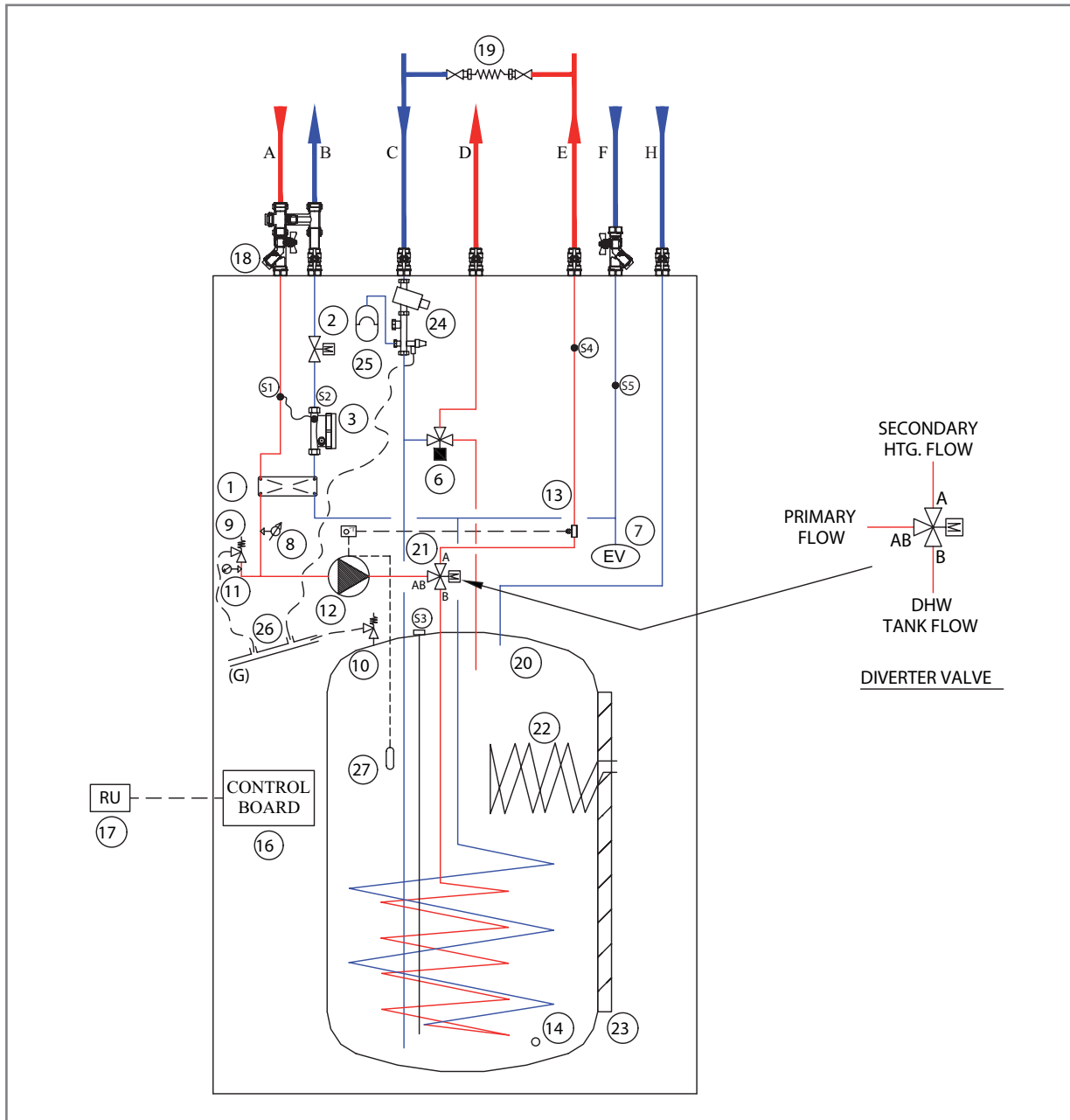
| Connection Details  |        |
|---------------------|--------|
|                     | FS 200 |
| A, B, C, D, E, F, H | 3/4"   |

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS 300 & 400 Circuit Diagram



### Components

- 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
- H DHW secondary return connection

### Primary Circuit Side

- 1 Insulated plate heat exchanger (Heating)
- 2 Pressure independent control valve (PICV) with actuator - Heating
- 3 Heat meter

### Secondary Side Circuit

- 6 Blending valve
- 7 Heating expansion vessel
- 8 Pressure sensor
- 9 Safety relief valve
- 10 P&T Safety relief discharge
- 11 Pressure gauge
- 12 Circulation pump
- 13 Safety thermostat external (Optional)
- 14 Drain point

### Controls & Other Items

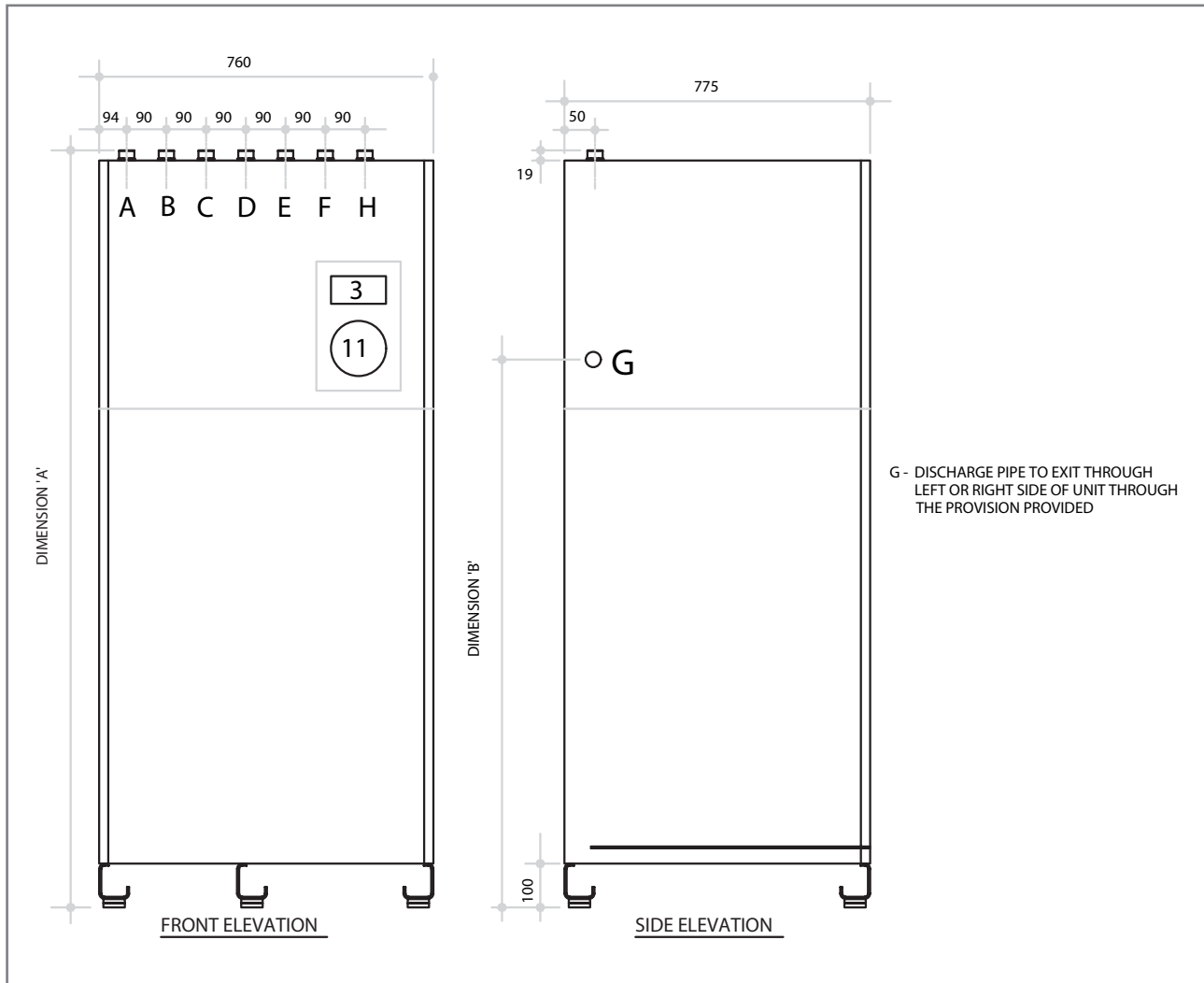
- 16 Electronic control board
- 17 Room control unit
- 18 Flushing bypass
- 19 Filling loop (External)
- 20 DHW storage tank with heating coil
- 21 Motorised diverter valve
- 22 Electric immersion heater (Optional)
- 23 Tank insulation
- 24 Unvented kit (With balanced cold feed)
- 25 Potable expansion vessel
- 26 Multi directional discharge
- 27 Tank safety thermostat

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS 300 & 400 Dimensions



|             |    | FS 300 | FS 400 |
|-------------|----|--------|--------|
| Dimension A | mm | 2070   | 2320   |
| Dimension B | mm | 1491   | 1741   |

|                  | Connection Details |        |
|------------------|--------------------|--------|
|                  | FS 300             | FS 400 |
| A, B, C, D, E, F | 1"                 | 1"     |
| H                | 3/4"               | 3/4"   |

# Technical Details

# ModuSat® FS

HIU with Integrated Tank

## ModuSat® FS Storage Range - Technical Data

|  |        | ModuSat® 80 |     | ModuSat® 150 |     | ModuSat® 200 |      | ModuSat® 300 |      | ModuSat® 400 |      |
|--|--------|-------------|-----|--------------|-----|--------------|------|--------------|------|--------------|------|
| Water Capacity                                     | Litres | 80          |     | 150          |     | 200          |      | 300          |      | 400          |      |
| Primary flow rate at 80°C Nom / Max                | l/h    | 720         | 850 | 720          | 900 | 800          | 1000 | 1300         | 1600 | 1500         | 1900 |
| Exchanger power Nom / Max                          | kW     | 12          | 24  | 15           | 32  | 20           | 42   | 30           | 54   | 40           | 65   |
| Continuous DHW Flow rate at 45 °C                  | l/m    | 5           | 10  | 6            | 13  | 8            | 17   | 12           | 22   | 16           | 26   |
| Pre-Heat Times from 10 °C to 60 °C                 | mins   | 23          | 12  | 35           | 16  | 35           | 16   | 35           | 19   | 35           | 21   |
| Re-Heat Time to 60°C after 70% of volume drawn off | mins   | 16          | 8   | 24           | 11  | 24           | 11   | 24           | 13   | 24           | 15   |
| Flow at 45°C for 10 min (Storage at 60°C)          | l/m    | 11          |     | 21           |     | 28           |      | 42           |      | 57           |      |
| Flow at 45°C for 12 min (Storage at 60°C)          | l/m    | 9           |     | 18           |     | 24           |      | 36           |      | 47           |      |

Cold water temperature assumed to be at 10°C

Please note - The above figures are based on nominal / typical primary parameter. The DHW tank coil outputs can be improved subject to primary system performance. For further information please contact the Evinox Technical Department on 01372 722277.

### Technical features

- Maximum Primary Operating Pressure: 10 bar (Optional 16 bar)
- Power Supply Voltage: 220/240 Volt (AC) 50 Hz
- Maximum Absorbed Electrical Power: 0.6 Amp
- Max Supply Temperature (Primary): 90°C
- DHW Maximum Temperature: 60°C
- DHW Maximum Pressure: 7 Bar
- DHW Operating Pressure: 3.5 Bar



### Expansion Vessel Sizes

| Circuit                    | Heating secondary side circuit | DCW   |
|----------------------------|--------------------------------|---|
| <b>Floor Standing Unit</b> | <b>Heating</b>                 | <b>Cold (Potable Water) Expansion Vessel Capacity</b> |
| ModuSat® FS 80             | 8 Litre                        | 8 Litre   |
| ModuSat® FS 150            | 8 Litre                        | 12 Litre  |
| ModuSat® FS 200            | 10 Litre                       | 18 Litre  |
| ModuSat® FS 300            | 14 Litre                       | 24 Litre  |
| ModuSat® FS 400            | 14 Litre                       | 36 Litre  |

### Weights

|                 | Shipping Weight |
|-----------------|-----------------|
| ModuSat® FS 80  | 97.5 Kg         |
| ModuSat® FS 150 | 120.0 Kg        |
| ModuSat® FS 200 | 130.5 Kg        |
| ModuSat® FS 300 | 241.0 Kg        |
| ModuSat® FS 400 | 285.0 Kg        |