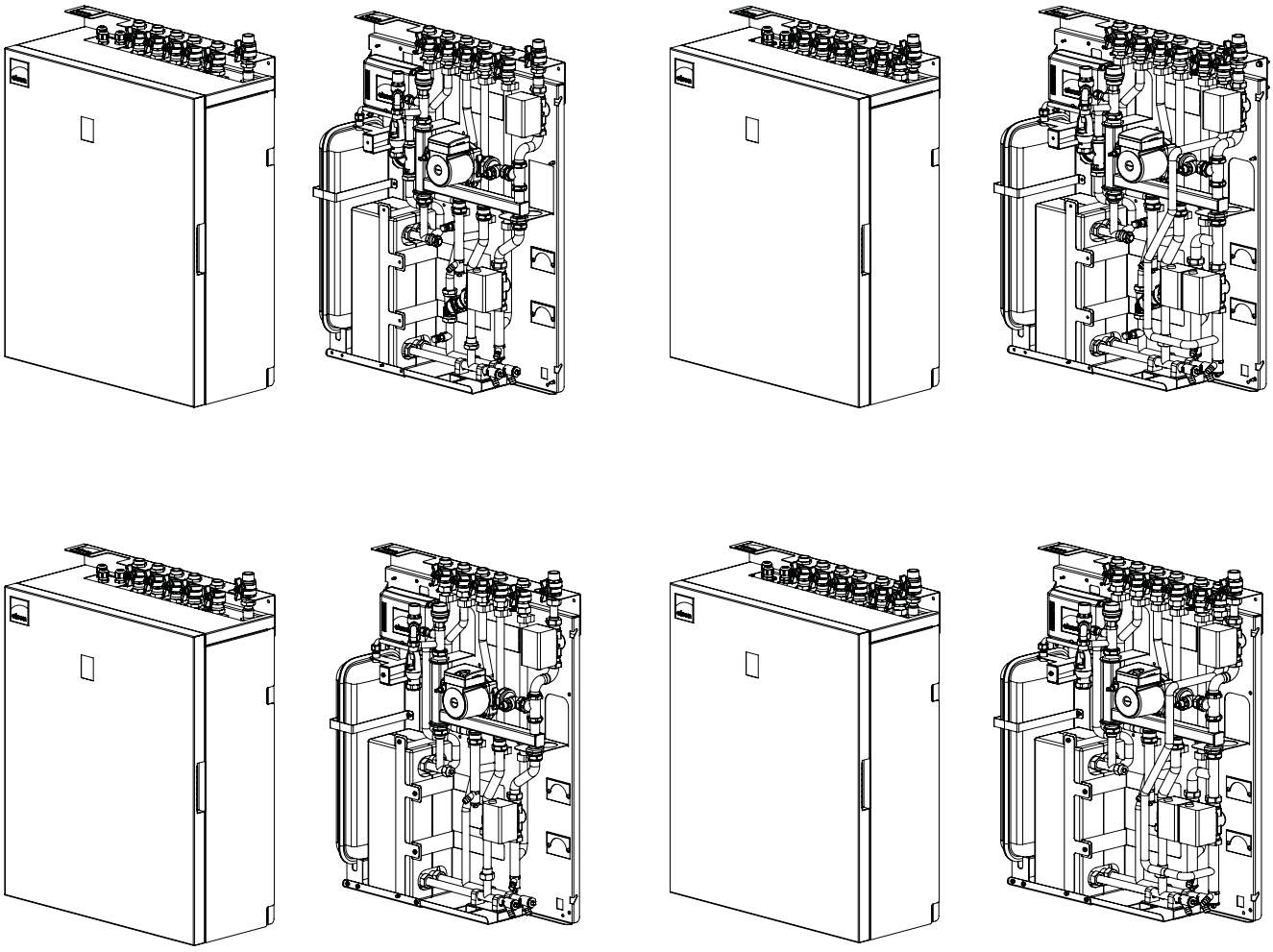
CB Heat Interface Unit Manual

Wall Mounted Heat Interface Units for Community Heating Systems

Installation & Servicing Instructions



IMPORTANT

Please read & understand these instructions along with the instructions for the heating controller, unvented cylinder / thermal store before commencing installation.
Please leave this manual with the user for future reference.

CONTENTS

INTRODUCTION.....3

GENERAL REQUIREMENTS.....3

PRODUCT SPECIFICATION.....3

PRODUCT FEATURES.....4

DIMENSIONS AND WEIGHT.....12

INSTALLATION 13

WIRING.....16

WIRING DIAGRAMS.....17

HYDRAULIC DIAGRAMS.....21

HYDRAULIC DIAGRAMS LEGEND.....26

CONTROL STRATEGY.....27

MAJOR COMPONENTS.....29

COMMISSIONING.....36

SERVICE.....37

FAULT FINDING.....38

SPARES.....39

SALES AND SUPPORT.....44

INTRODUCTION

The heating and hot water to your home are provided by the CB heat interface unit and unvented cylinder or thermal store package.

Heat is supplied to the CB heat interface unit from the central boiler(s) installed elsewhere in the building. The central boiler will provide heat to your CB unit for your central heating and domestic hot water.

The CB heat interface unit is a heat only unit and works in conjunction with an indirect domestic hot water cylinder or thermal store to provide hot water to your taps. As such you must read these instructions in conjunction with those for the cylinder / thermal store.

The CB heat interface unit can be fitted within a cylinder frame. The cylinder frame arrangement permits the cylinder / thermal store to sit above a washing machine or shelves for storage. This space saving design is particularly advantageous for apartments with open plan living areas, as this allows the washing machine to be positioned in the airing cupboard (not detailed in these instructions).
Alternatively the CB heat interface unit is suitable for wall mounting and can be supplied with a first fix rail for ease of installation. For wall mounted versions an optional set of casings is available on request.

The CB unit is supplied complete with all the necessary safety and control devices needed to allow connection to the community heating system and the apartment's central heating system.

The CB heat interface unit can provide space heating via a radiator or underfloor heating system.

This appliance complies with the requirements of the CE marking directive.

The following instructions are offered as a guide to installation which must be carried out by a competent plumbing and electrical installer in accordance with Building, Electrical and Water Regulations.

NOTE: Prior to installation, the unit should be stored in an area free from excessive dampness or humidity.

GENERAL REQUIREMENTS

IMPORTANT:

THIS APPLIANCE CAN BE USED BY CHILDREN AGED FROM 8 YEARS AND ABOVE AND PERSONS WITH REDUCED PHYSICAL SENSORY OR MENTAL CAPABILITIES OR LACK OF EXPERIENCE AND KNOWLEDGE IF THEY HAVE BEEN GIVEN SUPERVISORY OR INSTRUCTION CONCERNING USE OF THE APPLIANCE IN A SAFE WAY AND UNDERSTAND THE HAZARDS INVOLVED. CHILDREN SHALL NOT PLAY WITH THE APPLIANCE. CLEANING AND USER MAINTENANCE SHALL NOT BE MADE BY CHILDREN WITHOUT SUPERVISION.

Safety Valve

WATER MAY DRIP FROM THE DISCHARGE PIPE OF THE PRESSURE RELIEF VALVE. THE TUNDISH PROVIDED ALLOWS THE DISCHARGE PIPE TO ALWAYS BE OPEN TO THE ATMOSPHERE. AS PART OF THE MAINTENANCE REGIME FOR THE PRODUCT REGULARLY OPERATE THE SAFETY VALVE TO ENSURE IT IS NOT BLOCKED.

PRODUCT SPECIFICATION

Maximum Working Pressure:

Primary Side (Community / District Heating):	10 bar g
Secondary Side (Apartment Heating):	3 bar g

Maximum Working Temperature:

Primary Side (Community / District Heating):	90 deg C
Secondary Side (Apartment Heating):	85 deg C
Primary Side Pressure drop	30 kPa

As previously stated, the CB heat interface unit is a versatile unit suitable for wall mounting or fitting within a purpose made frame.
The CB heat interface unit includes the following components:

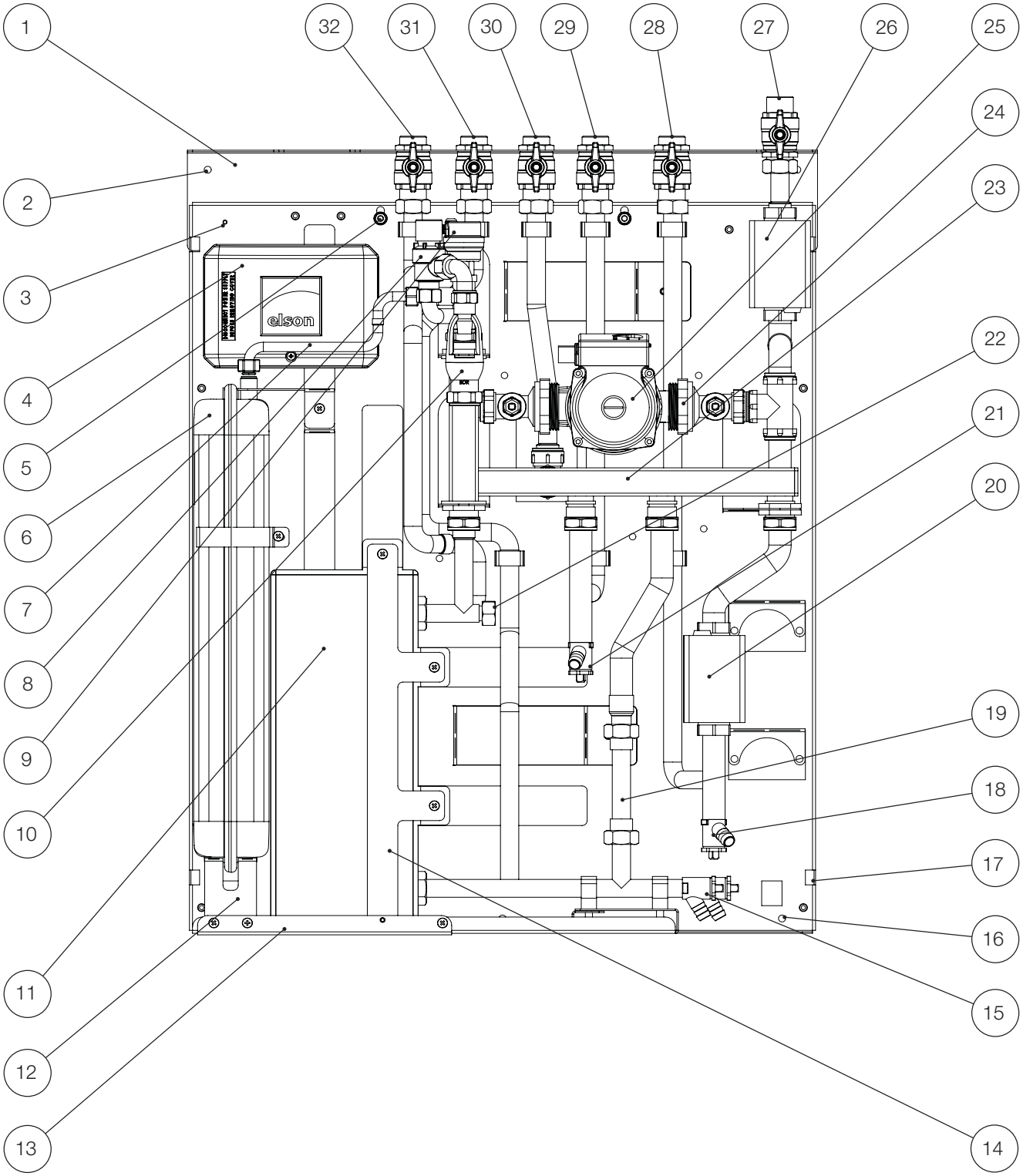
- an apartment central heating pump,
- pump isolation valves,
- steel central heating manifold with built-in central heating bypass,
- standard S plan or S plan plus control system
- either 2 or 3 No. two port motorized zone valves,
- an 8 litre sealed system expansion vessel,
- central heating pressure relief valve with tundish,
- Automatic air vent with anti-suction valve and shut off valve for ease of maintenance,
- brazed stainless steel plate heat-exchanger to provide a pressure break between the community (district) heating system and the apartment's central heating system,
- provision for a heat meter in the apartment's system,
- community (district) heating 2-port pressure independent balancing and control valve,
- district heating in-line strainer,
- all mounted on a powder coated steel back plate.

Filling Loop and Pressure Gauge

The system filling loop and associated pressure gauge are supplied as part of the cylinder / thermal store primary pipework kit, as these need to be installed adjacent to both the central heating system and cold water mains pipework. Where the cylinder / thermal store is supplied by a third party, these components will be deemed outside the Elson scope of supply / responsibility.

PRODUCT FEATURES

Fig 1 Product Features and Components for the CB-1Z (Single Heating Zone)



PRODUCT FEATURES

(1) First fix rail bracket

(2) 4 No. Fixing holes for first fix rail (7mm)

(3) Earth stud (M4)

(4) Wiring Centre

(5) HIU mounting studs (M6) x 2 on 1st fix rail

(6) 8 litre expansion vessel with 3/8”bsp system connection

(7) Expansion vessel pipe

(8) 15mm central heating system safety valve 3 bar g

(9) 3/8” automatic air vent complete with shut off valve and anti-suction valve

(10) 15mm x 22mm compression tundish

(11) Brazed stainless steel plate heat exchanger with EPP moulded insulation cover

(12) Expansion vessel support bracket

(13) Plate heat exchanger support rail

(14) Plate heat exchanger support bracket

(15) Unit drain valves (Primary and secondary circuits)

(16) Wall mounting bottom fixing holes (3 No.)

(17) Frame fixing slots

(18) Apartment heating zone drain valve

(19) Volume flow meter (for heat meter) stool piece 3/4”bsp x 110mm centres EN1434

(20) Apartment heating 2 port zone valve

(21) Common central heating return drain valve

(22) Position of 1/2”bsp heat meter flow sensor pocket (supplied by heat meter company)

(23) Elson central heating system manifold

(24) Pump isolation unions

(25 Central heating pump

(26) HWS primary 2 port zone valve

(27) HWS primary flow connection - 3/4”bsp male

(28) Central heating flow (zone 1) connection - 3/4”bsp male

(29) Common central heating return connection - 3/4”bsp male

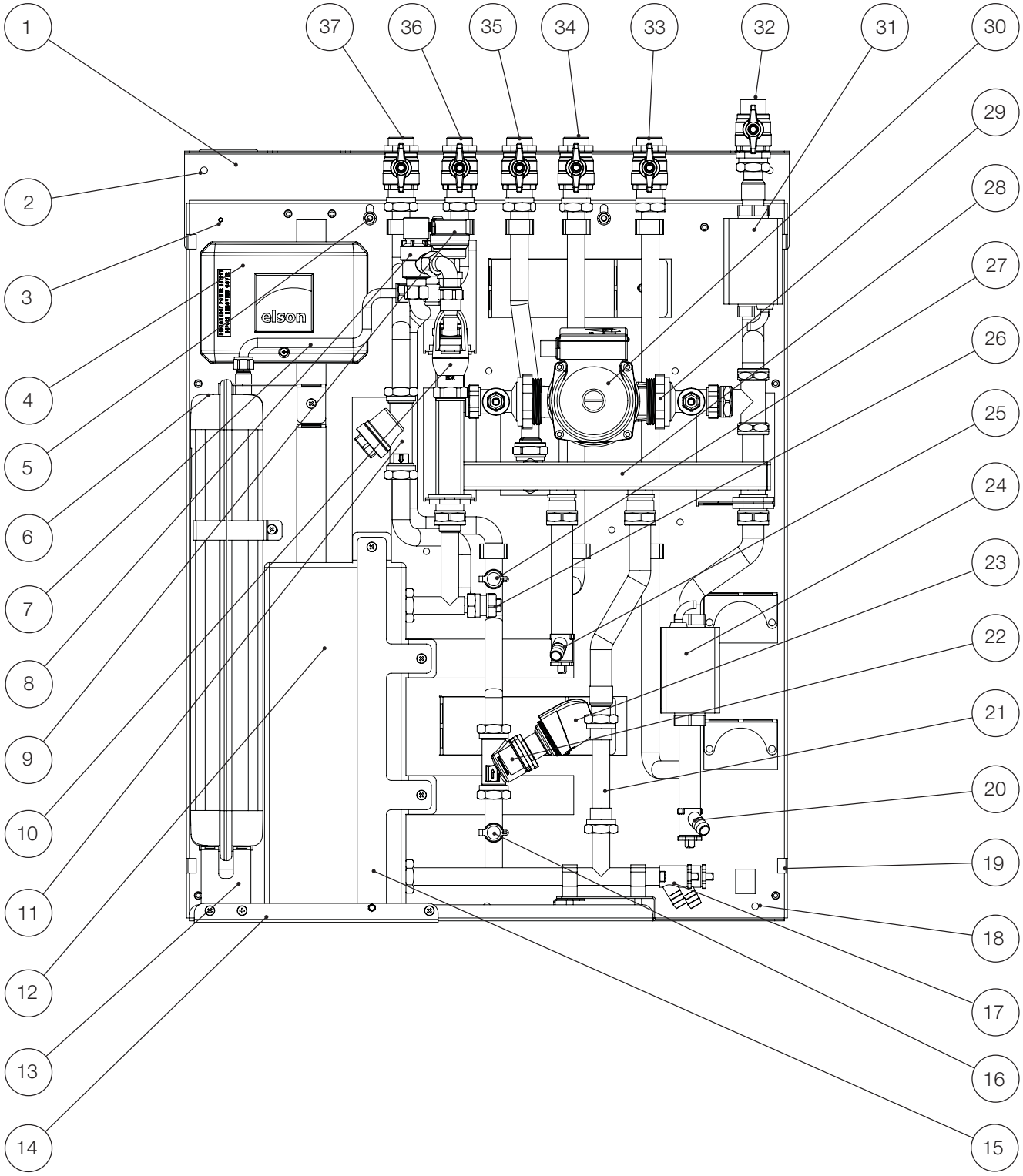
(30) HWS primary return connection - 3/4”bsp male

(31) Community (district) heating return - 3/4”bsp male

(32) Community (district) heating flow - 3/4”bsp male

PRODUCT FEATURES

Fig 2 Product Features and Components for the CB-1Z-DC (Single Heating Zone with District Control Valve)



PRODUCT FEATURES

(1) First fix rail bracket

(2) 4 No. Fixing holes for first fix rail (7mm)

(3) Earth stud (M4)

(4) Wiring Centre

(5) HIU mounting studs (M6) x 2 on first fix rail

(6) 8 litre expansion vessel with 3/8”bsp system connection

(7) Expansion vessel pipe

(8) 15mm central heating system safety valve 3 bar g

(9) 3/8” automatic air vent complete with shut off valve and anti-suction valve

(10) 15mm x 22mm compression tundish

(11) 3/4”bsp male Y strainer

(12) Brazed stainless steel plate heat exchanger with EPP moulded insulation cover

(13) Expansion vessel support bracket

(14) Plate heat exchanger support rail

(15) Plate heat exchanger support bracket

(16) Test point (red) to measure the pressure drop across the district control valve

(17) Unit drain valves (Primary and secondary circuits)

(18) Wall mounting bottom fixing holes (3 No.)

(19) Frame fixing slots

(20) Apartment heating zone drain valve

(21) Volume flow meter (for heat meter) stool piece 3/4”bsp x 110mm centres EN1434

(22) DN 15 Frese Optima Compact pressure independent balancing and control valve

(23) 230V on/off thermo actuator

(24) Apartment heating 2 port zone valve

(25) Common central heating return drain valve

(26) Position of 1/2”bsp heat meter flow sensor pocket (supplied by heat meter company)

(27) Test point (blue) to measure the pressure drop across the district control valve

(28) Elson central heating system manifold

(29) Pump isolation unions

(30) Central heating pump

(31) HWS primary 2 port zone valve

(32) HWS primary flow connection - 3/4”bsp male

(33) Central heating flow (zone 1) connection - 3/4”bsp male

(34) Common central heating return connection - 3/4”bsp male

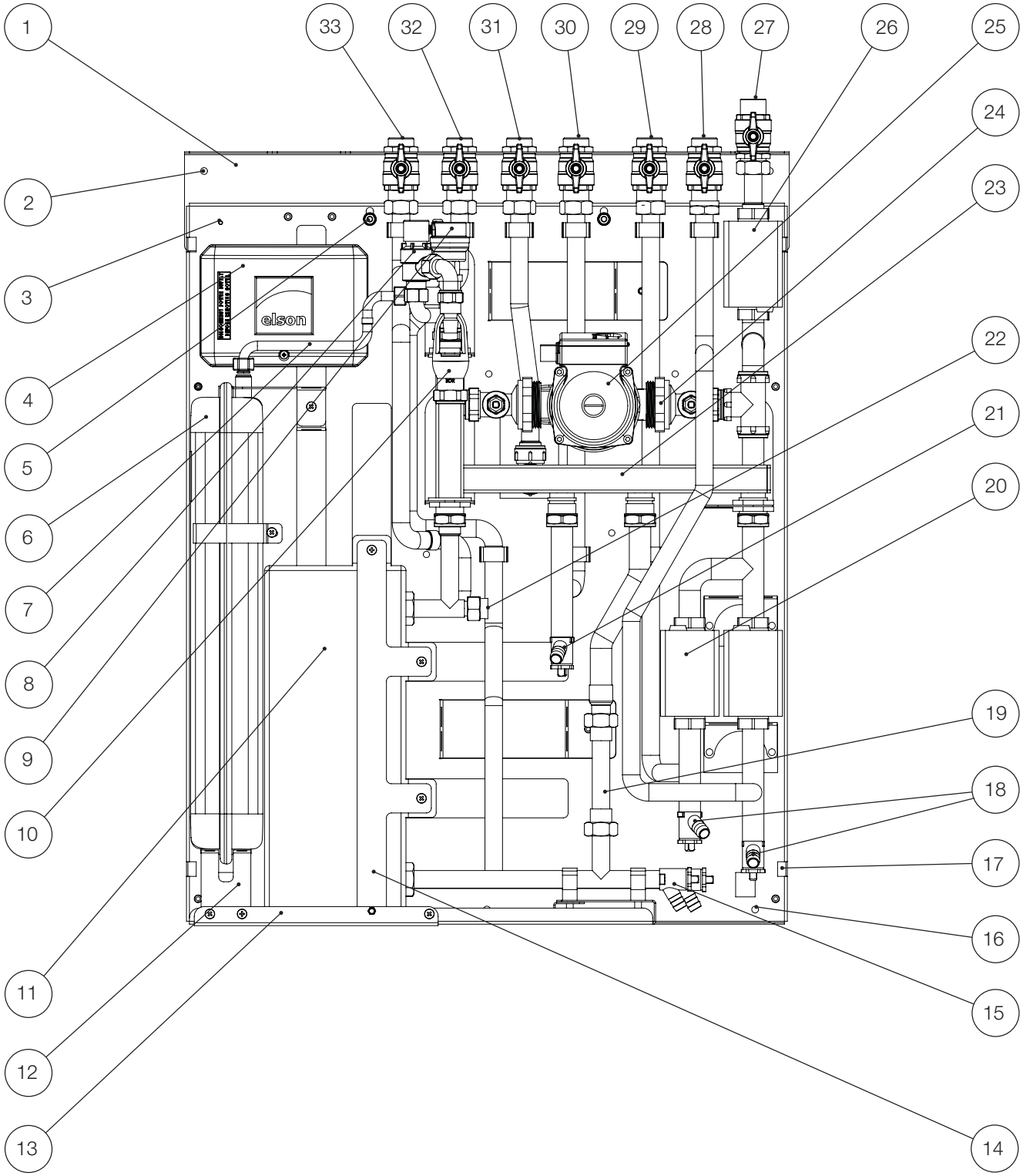
(35) HWS primary return connection - 3/4”bsp male

(36) Community (district) heating return - 3/4”bsp male

(37) Community (district) heating flow - 3/4”bsp male

PRODUCT FEATURES

Fig 3 Product Features and Components for the CB-2Z (Two Heating Zones)



PRODUCT FEATURES

(1) First fix rail bracket

(2) 4 No. Fixing holes for first fix rail (7mm)

(3) Earth stud (M4)

(4) Wiring Centre

(5) HIU mounting studs (M6) x 2 on 1st fix rail

(6) 8 litre expansion vessel with 3/8”bsp system connection

(7) Expansion vessel pipe

(8) 15mm central heating system safety valve 3 bar g

(9) 3/8” automatic air vent complete with shut off valve and anti-suction valve

(10) 15mm x 22mm compression tundish

(11) Brazed stainless steel plate heat exchanger with EPP moulded insulation cover

(12) Expansion vessel support bracket

(13) Plate heat exchanger support rail

(14) Plate heat exchanger support bracket

(15) Unit drain valves (primary and secondary circuits)

(16) Wall mounting bottom fixing holes (3 No.)

(17) Frame fixing slots

(18) Apartment heating zones drain valve

(19) Volume flow meter (for heat meter) stool piece 3/4”bsp x 110mm centres EN1434

(20) Apartment heating 2 port zone valves

(21) Common central heating return drain valve

(22) Position of 1/2”bsp heat meter flow sensor pocket (supplied by heat meter company)

(23) Elson central heating system manifold

(24) Pump isolation unions

(25) Central heating pump

(26) HWS primary 2 port zone valve

(27) HWS primary flow connection - 3/4”bsp male

(28) Central heating flow (zone 2) connection - 3/4”bsp male

(29) Central heating flow (zone 1) connection - 3/4”bsp male

(30) Common central heating return connection - 3/4”bsp male

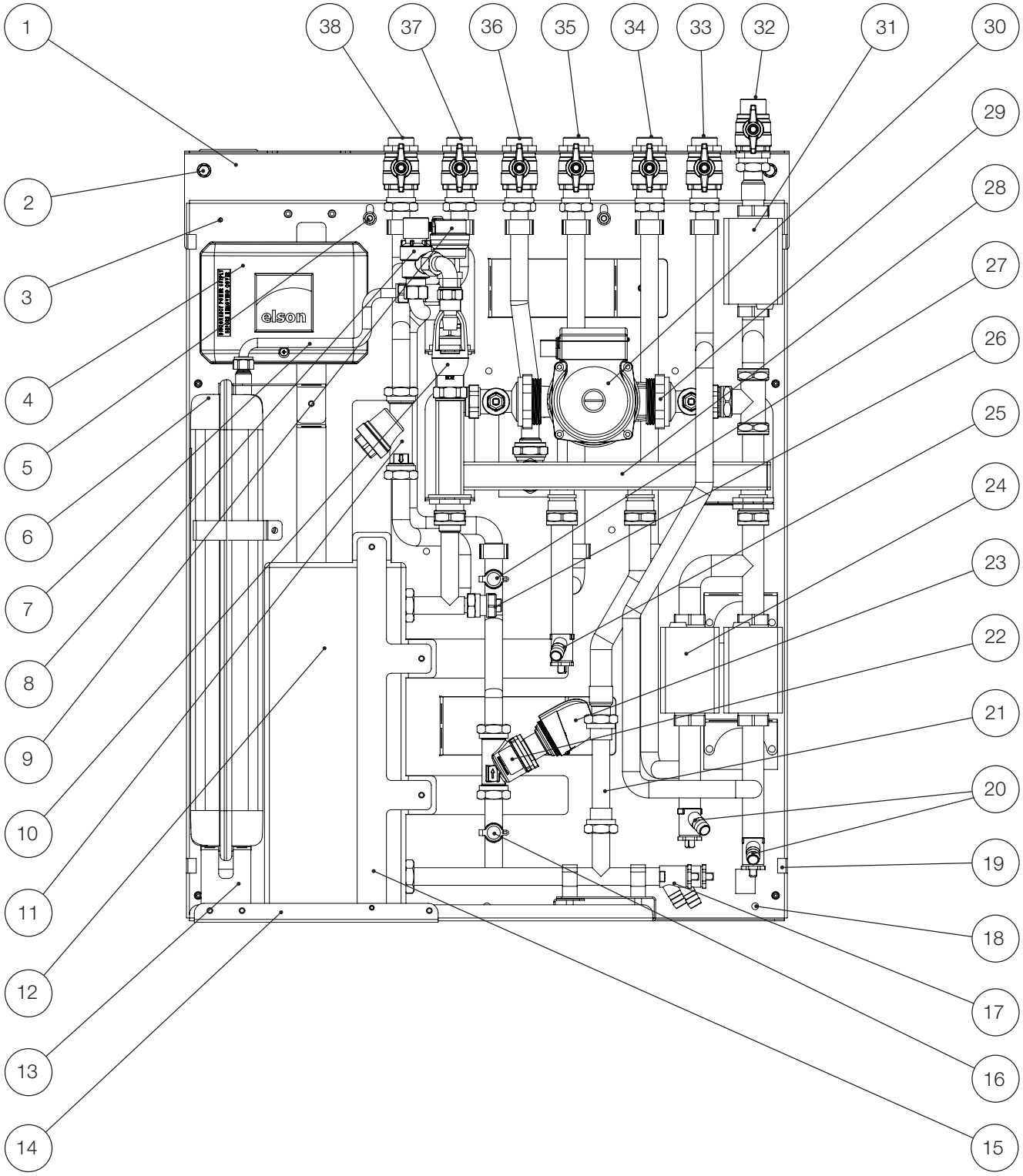
(31) HWS primary return connection - 3/4”bsp male

(32) Community (district) heating return - 3/4”bsp male

(33) Community (district) heating flow - 3/4”bsp male

PRODUCT FEATURES

Fig 4 Product Features and Components for the CB-2Z-DC (Two Heating Zones with District Control Valve)



PRODUCT FEATURES

(1) First fix rail bracket

(2) 4 No. Fixing holes for first fix rail (7mm)

(3) Earth stud (M4)

(4) Wiring Centre

(5) HIU mounting studs (M6) x 2 on first fix rail

(6) 8 litre expansion vessel with 3/8”bsp system connection

(7) Expansion vessel pipe

(8) 15mm central heating system safety valve 3 bar g

(9) 3/8” automatic air vent complete with shut off valve and anti-suction valve

(10) 15mm x 22mm compression tundish

(11) 3/4”bsp male Y strainer

(12) Brazed stainless steel plate heat exchanger with EPP moulded insulation cover

(13) Expansion vessel support bracket

(14) Plate heat exchanger support rail

(15) Plate heat exchanger support bracket

(16) Test point (red) to measure the pressure drop across the district control valve

(17) Unit drain valves (primary and secondary circuits)

(18) Wall mounting bottom fixing holes (3 No.)

(19) Frame fixing slots

(20) Apartment heating zones drain valve

(21) Volume flow meter (for heat meter) stool piece 3/4”bsp x 110mm centres EN1434

(22) DN 15 Frese Optima Compact pressure independent balancing and control valve

(23) 230V on/off thermo actuator

(24) Apartment heating 2 port zone valves

(25) Common central heating return drain valve

(26) Position of 1/2”bsp heat meter flow sensor pocket (supplied by heat meter company)

(27) Test point (blue) to measure the pressure drop across the district control valve

(28) Elson central heating system manifold

(29) Pump isolation unions

(30) Central heating pump

(31) HWS primary 2 port zone valve

(32) HWS primary flow connection - 3/4”bsp male

(33) Central heating flow (zone 2) connection - 3/4”bsp male

(34) Central heating flow (zone 1) connection - 3/4”bsp male

(35) Common central heating return connection - 3/4”bsp male

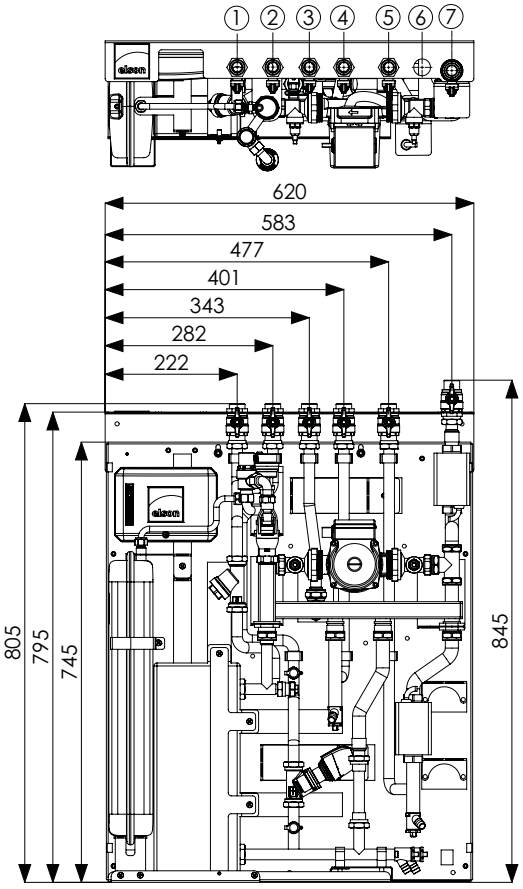
(36) HWS primary return connection - 3/4”bsp male

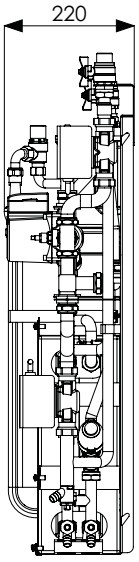
(37) Community (district) heating return - 3/4”bsp male

(38) Community (district) heating flow - 3/4”bsp male

DIMENSIONS AND WEIGHT

Fig 5 CB-1Z and CB-1Z-DC Heat Interface Unit - 1 Heating Zone



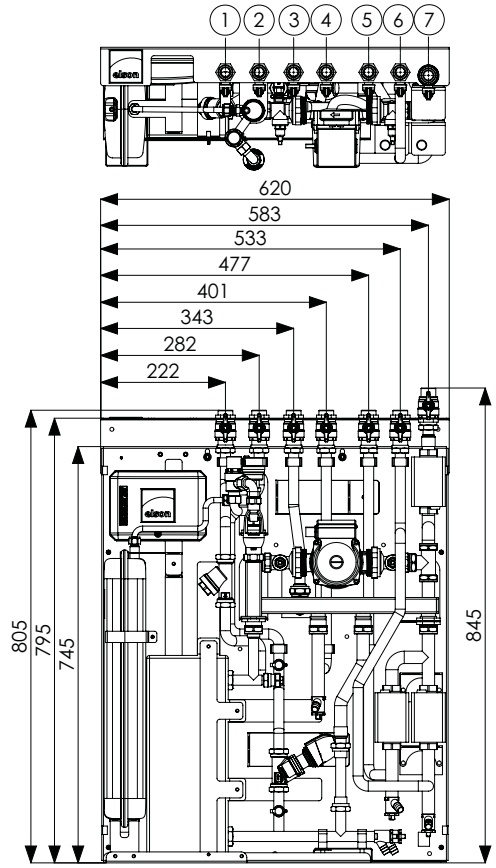


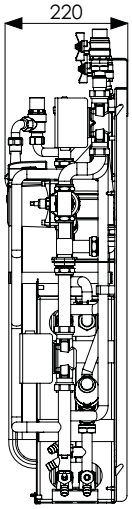
CB-1Z-DC unit detailed.

(1) Community (district) heating flow - 3/4”bsp male
(2) Community (district) heating return - 3/4”bsp male
(3) HWS primary return connection - 3/4”bsp male
(4) Common central heating return connection - 3/4”bsp male
(5) Central heating flow (zone 1) connection - 3/4”bsp male
(6) N/A
(7) HWS primary flow connection - 3/4”bsp male

Unit	Dry Weight (kg)
6 valve 1st fix rail	2.5
CB-1Z	25.0
CB-1Z-DC	26.0

Fig 6 CB-2Z and CB-2Z-DC Heat Interface Unit - 2 Heating Zones





CB-2Z-DC unit detailed.

(1) Community (district) heating flow - 3/4”bsp male
(2) Community (district) heating return - 3/4”bsp male
(3) HWS primary return connection - 3/4”bsp male
(4) Common central heating return connection - 3/4”bsp male
(5) Central heating flow (zone 1) connection - 3/4”bsp male
(6) Central heating flow (zone 2) connection - 3/4”bsp male
(7) HWS primary flow connection - 3/4”bsp male

Unit	Dry Weight (kg)
7 valve 1st fix rail	2.8
CB-2Z	27.0
CB-2Z-DC	28.0

Note: All dimensions are for reference only.

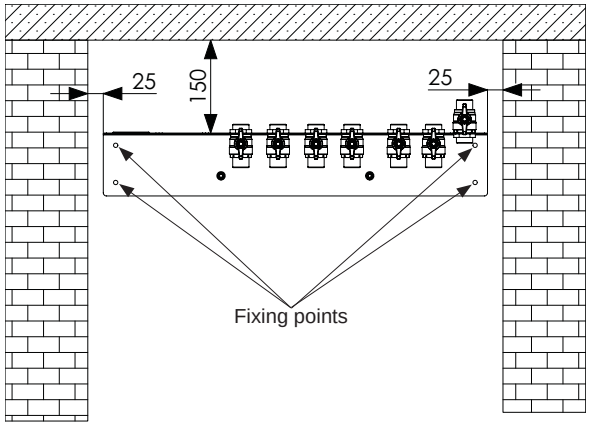
INSTALLATION

Access

The CB unit must be vertically mounted, either on a supporting wall or within the cylinder frame provided for the frame mounted variant. Although location is not critical, the following points should be considered:

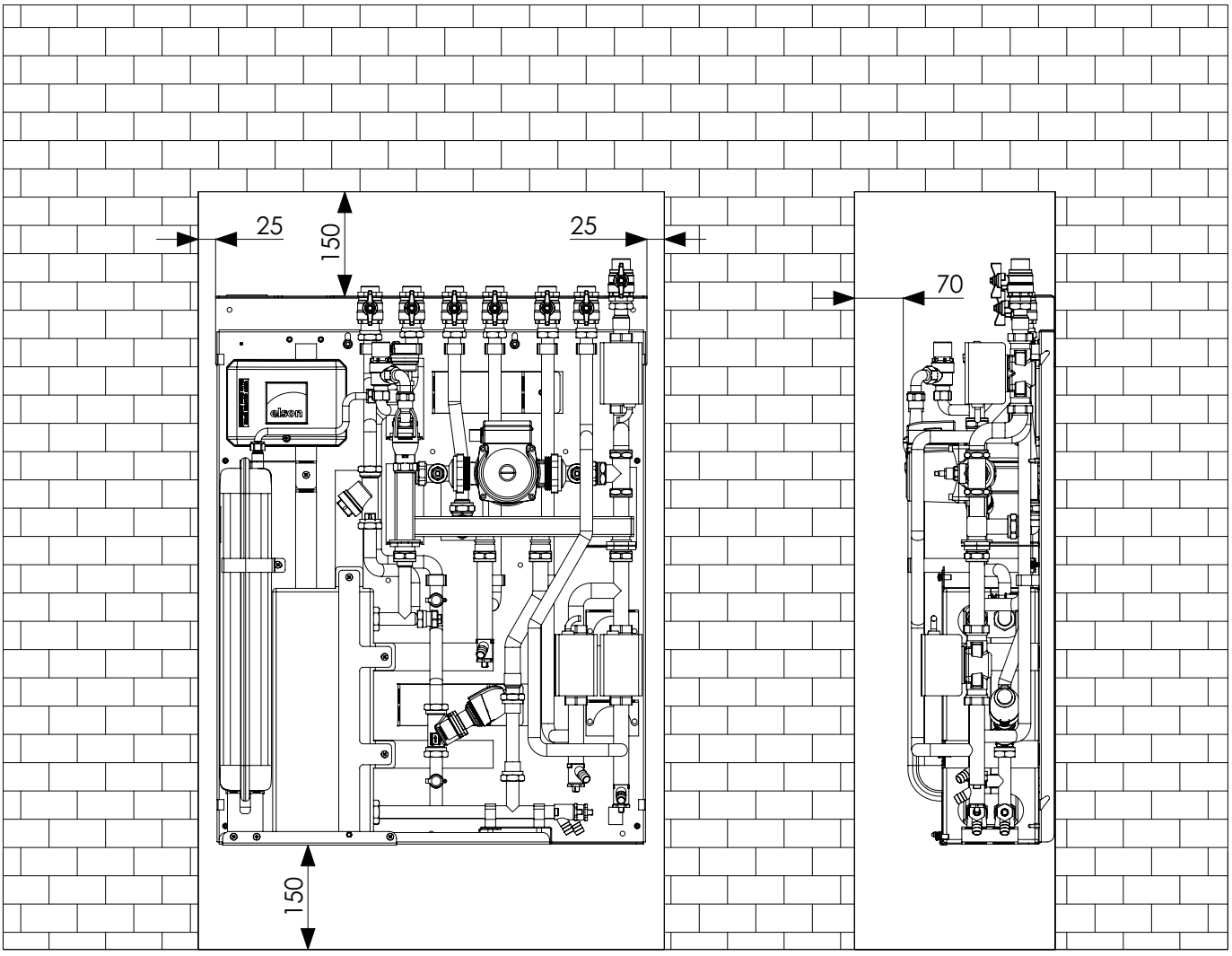
- Avoid siting where extreme cold temperatures will be experienced. All exposed pipe work should be insulated.
- The discharge pipework from the safety valves must have minimum fall of 1:200 from the unit and terminate in a safe and visible position.
- Access to associated controls and components must be available to provide for the servicing and maintenance of the system. Please refer to Fig 7 and Fig 8 for minimum clearance requirements.
- Ensure the first fix rail is installed horizontally, check using a spirit level.

Fig 7 Fitting the first fix rail



Note: 7 valve rail detailed.

Fig 8 Minimum Clearances



Note: CB-2Z-DC detailed.

Please note that the clearance dimension detailed above are for guidance. In installations where available space to site the unit is less than these recommendations please seek advice from Elson Technical on 0844 335 8819.

INSTALLATION

Wall Fixing

The CB unit can be supplied with a first fix rail for ease of installation. The rail allows the plumber to pipe up and test the pipework to and from the heat interface unit without the need to have the heat interface unit on site.

- Ensure that the access requirements detailed in Fig 7 and Fig 8 have been met.
- Ensure the surface to be used will sustain the weight of the unit when full of water.
- Fix the 1st fix rail to the wall using suitable fixings and ensure the rail is level (Fig. 9).
- Slide the two studs provided on the 1st fix rail through the slotted holes in the CB unit back plate and secure loosely with the M6 nuts provided (Fig 10).
- Insert the washers supplied onto the tops of the pipe faces on the CB unit and slide the CB unit upwards until the washers come in contact with the isolation valves on the 1st fix rail and tighten nuts.
- Mark out and drill the bottom fixing points and use suitable fixings for the mounting surface (see Fig 11).

Fig 9. First fix rail mounting details

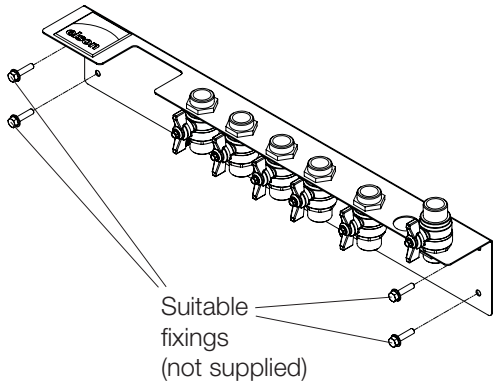
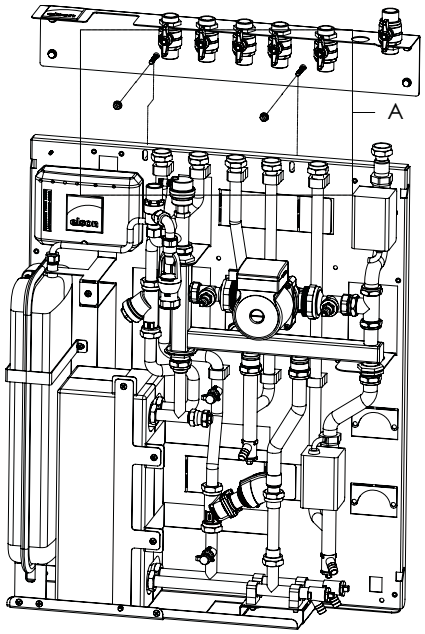
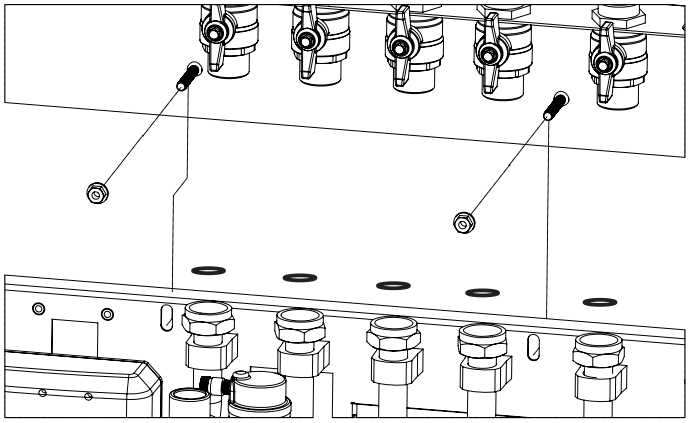


Fig 10. CB Heat Interface Unit - Mounting on the 1st fix rail

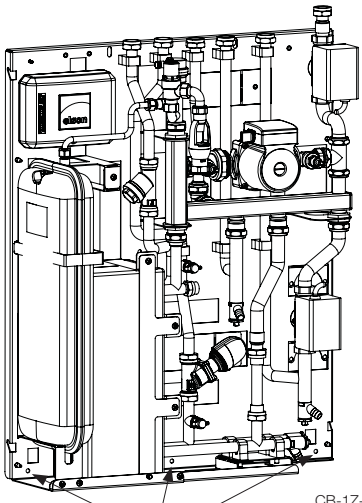




DETAIL A

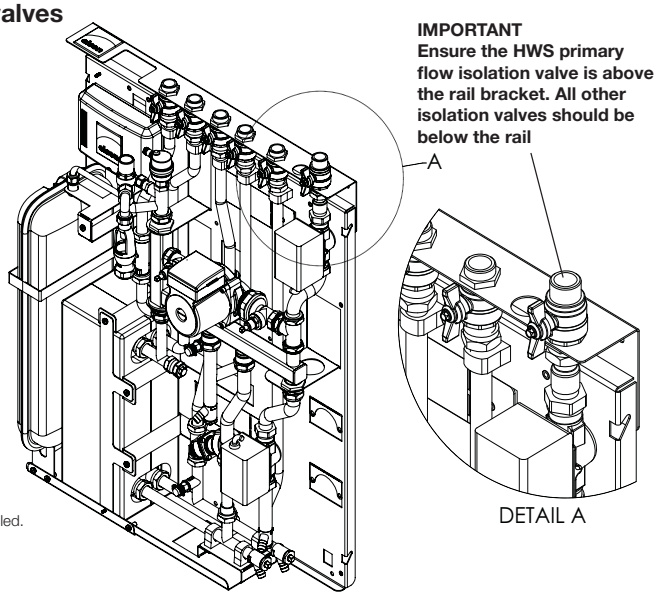
CB-1Z-DC Single heating zone unit detailed.

Fig 11 CB Heat Interface Unit - Bottom Support Fixing Points



CB-1Z-DC Single heating zone unit detailed.

Fig 12 CB Heat Interface Unit - 1st fix rail isolation valves



INSTALLATION

TRVs, Room Thermostats and Automatic Bypass:
The room thermostat should be installed in the coldest room in the house where the only heat source is a radiator without TRV. The radiator should be fitted with lock shield valves to avoid it being inadvertently isolated. It will then act as a system bypass and heat dissipater for the system.

Access for Servicing:
When installing the equipment within a confined space / cupboard consideration should be given to future servicing and maintenance of the CB unit. Therefore adequate access should be given to pumps, valves and accessories. Please see Fig 7 and Fig 8.

System Filling:
The heating system filling loop is intended for temporary connection to the system only. When this is not in use for filling / topping up, the filling loop must be disconnected in accordance with local water bylaws.

System Venting:
Automatic air vents should be used where practicable at system high points.
In the case of pipework at high level which is not accessible (i.e. on district systems within apartments and similar) a line size automatic separator should be fitted.

Pipe Jointing and Cleaning:
All joints which are to be soldered should be made using a flux that is sparingly applied and any residue to be flushed out of the system before commissioning using a chemical cleanser if necessary. All as per British Gas specification for domestic wet central heating systems.

Pipework Insulation:
Elson system packages are supplied without pipe insulation to allow the installer to ensure all joints are still sound after installation. It is recommended that these pipes are insulated.
District heating flow and return pipes should be insulated to avoid stray heat losses in the apartment.
All pipes in unheated areas must be insulated in accordance with local and national regulations.

Flushing bypass arrangement:
It is recommended that a flushing bypass arrangement is installed to allow the CB heat interface unit to be isolated from the district heating system during flushing and filling of the distribution network.

District heating piping arrangement:
Where the CB unit is fitted with a two port on/off district heating control valve, all branches within the distribution pipework should be fitted with a reduced flow bypass valve to ensure water flows through these pipes at all times. It is recommended that this valve is sized and set to pass 5% of the design flow rate for each branch. Details of this arrangement are shown in Fig 24.

Two channel programmable room thermostat:
The CB heat interface unit can be supplied with a Danfoss TP9000 2 channel controller (available as an accessory). The controller has an in built room thermostat to control one heating zone and also comes with a separate room sensor should you wish to install the controller in a cupboard or the kitchen for example.
On systems where there are two heating zones, an additional programmable room thermostat, such as the TP5000 is required (available as an accessory).

Treatment of water in the central heating system
All re-circulatory water systems will be subject to corrosion unless they are flushed and an appropriate water treatment is applied. To prevent this, follow the guidelines given in BS 7593 ‘Treatment of Water in Domestic Hot Water Central Heating Systems’ and the treatment manufacturer’s instructions.
Treatment must involve the use of a proprietary cleanser, such as Sentinel X300 or X400, or Fernox F3 and an inhibitor such as Sentinel X100 or Fernox MB-1.
Full instructions are supplied with the products. For further information contact Sentinel or Fernox.
Failure to flush and add inhibitor to the system will invalidate the appliance warranty.

It is important to check the inhibitor concentration after installation, system modification and at every service in accordance with the inhibitor manufacturer’s instructions. (Test kits are available from inhibitor stockists.)
For information or advice regarding any of the above contact Technical Enquiries 0844 335 8819.

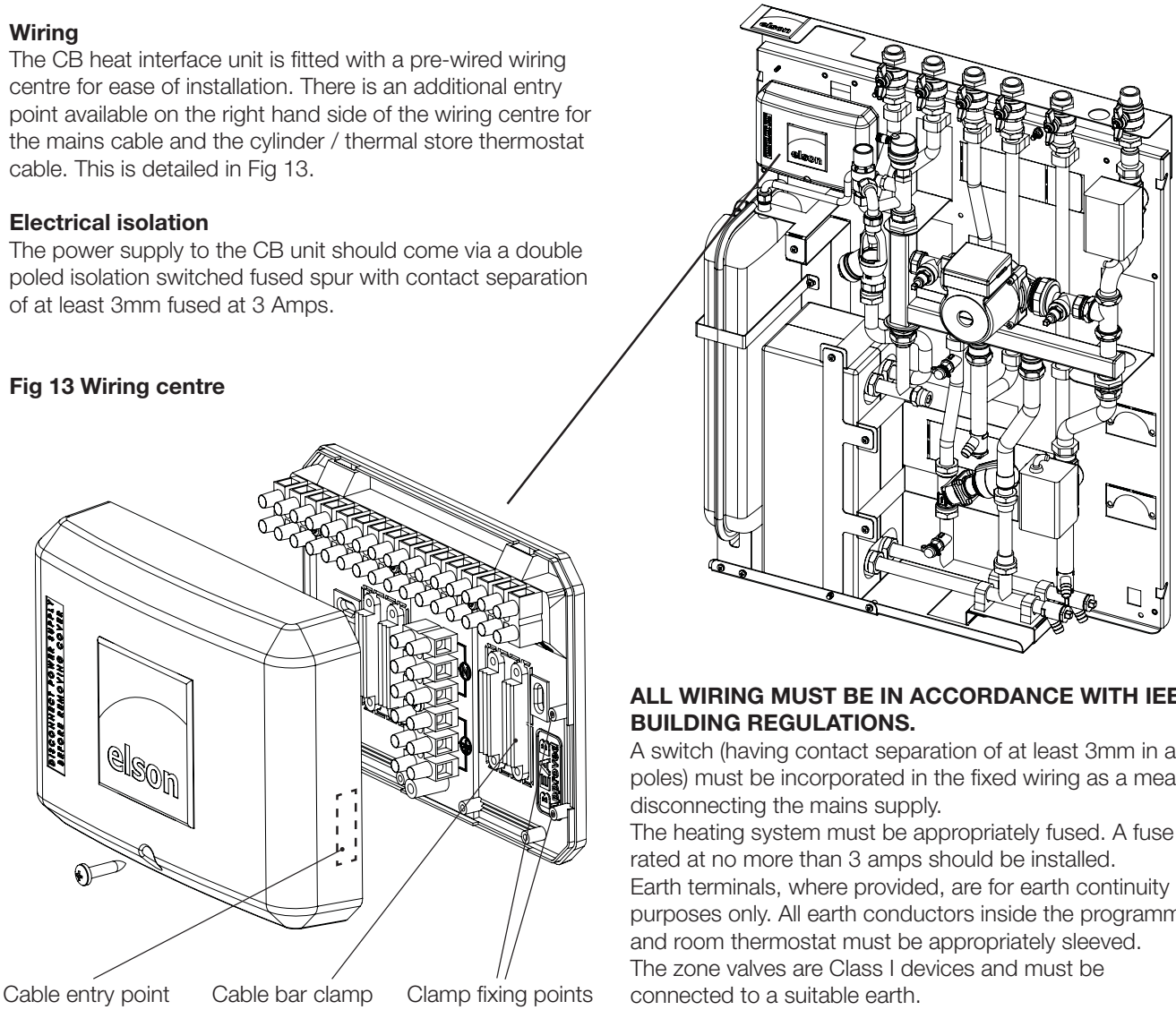
Earth Bonding
Ensure the installation is earth bonded in accordance with BS EN 7671:2008.

WIRING

Wiring
The CB heat interface unit is fitted with a pre-wired wiring centre for ease of installation. There is an additional entry point available on the right hand side of the wiring centre for the mains cable and the cylinder / thermal store thermostat cable. This is detailed in Fig 13.

Electrical isolation
The power supply to the CB unit should come via a double poled isolation switched fused spur with contact separation of at least 3mm fused at 3 Amps.

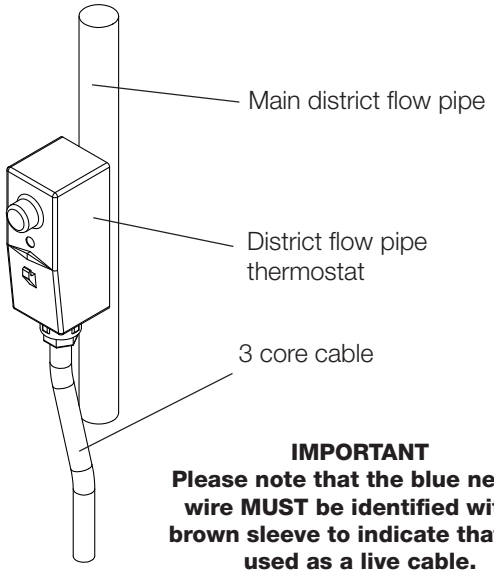
Fig 13 Wiring centre



ALL WIRING MUST BE IN ACCORDANCE WITH IEE & BUILDING REGULATIONS.
A switch (having contact separation of at least 3mm in all poles) must be incorporated in the fixed wiring as a means of disconnecting the mains supply.
The heating system must be appropriately fused. A fuse rated at no more than 3 amps should be installed.
Earth terminals, where provided, are for earth continuity purposes only. All earth conductors inside the programmer and room thermostat must be appropriately sleeved.
The zone valves are Class I devices and must be connected to a suitable earth.
The unit should be earthed throughout and cross bonded.

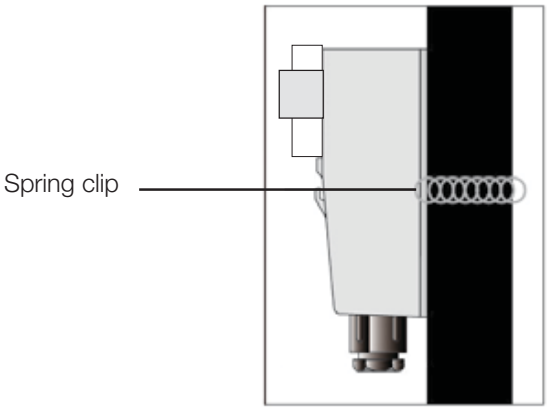
Fig 14 District Heating flow pipe thermostat

When the district heating system has a set back temperature regime a district heating flow pipe thermostat can be supplied to prevent the thermal store from being charged during the set back temperature periods.



IMPORTANT
Please note that the blue neutral wire MUST be identified with a brown sleeve to indicate that it is used as a live cable.

Fig 15 Fitting the thermostat to the flow pipe



IMPORTANT
The pipe thermostat must be fitted to the main flow pipe prior to the flow pipe leg entering the apartment. This will ensure the thermostat witnesses the temperature within the district heating flow at all times.
The thermostat is set around a mean temperature of 70 deg C and wired across terminals 1 and 3 to make contact on temperature rise. Thus allowing the cylinder to be charged during district heating boost periods.

WIRING DIAGRAM

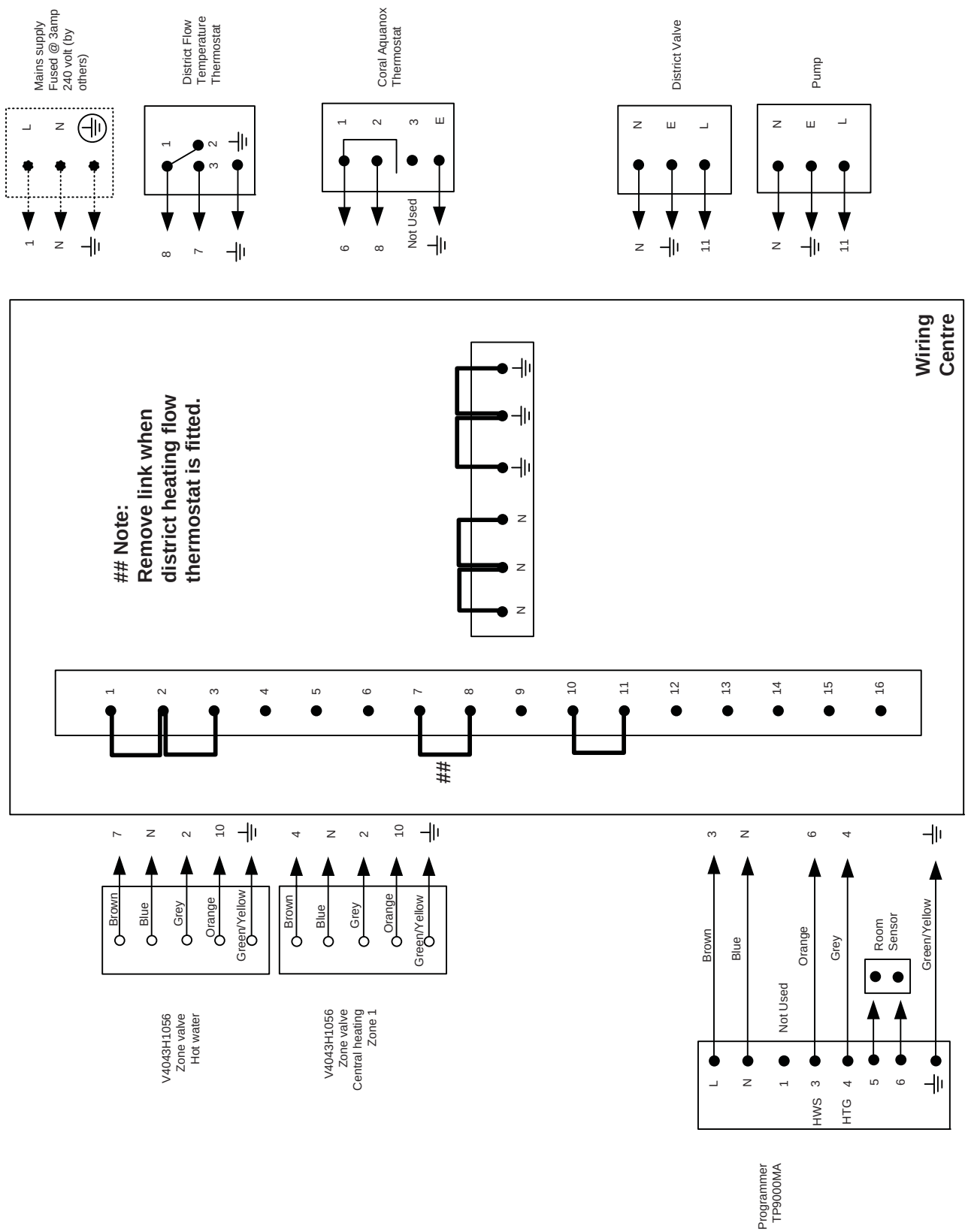


Fig 16 Wiring diagram for CB-1Z and CB-1Z-DC heat interface unit with 1 heating zone, an Elson Coral Aquanox thermal store and a district flow temperature thermostat

Fig 17 Wiring diagram for CB-2Z and CB-2Z-DC heat interface unit with 2 heating zones, an Elson Coral Aquanox thermal store and a district flow temperature thermostat

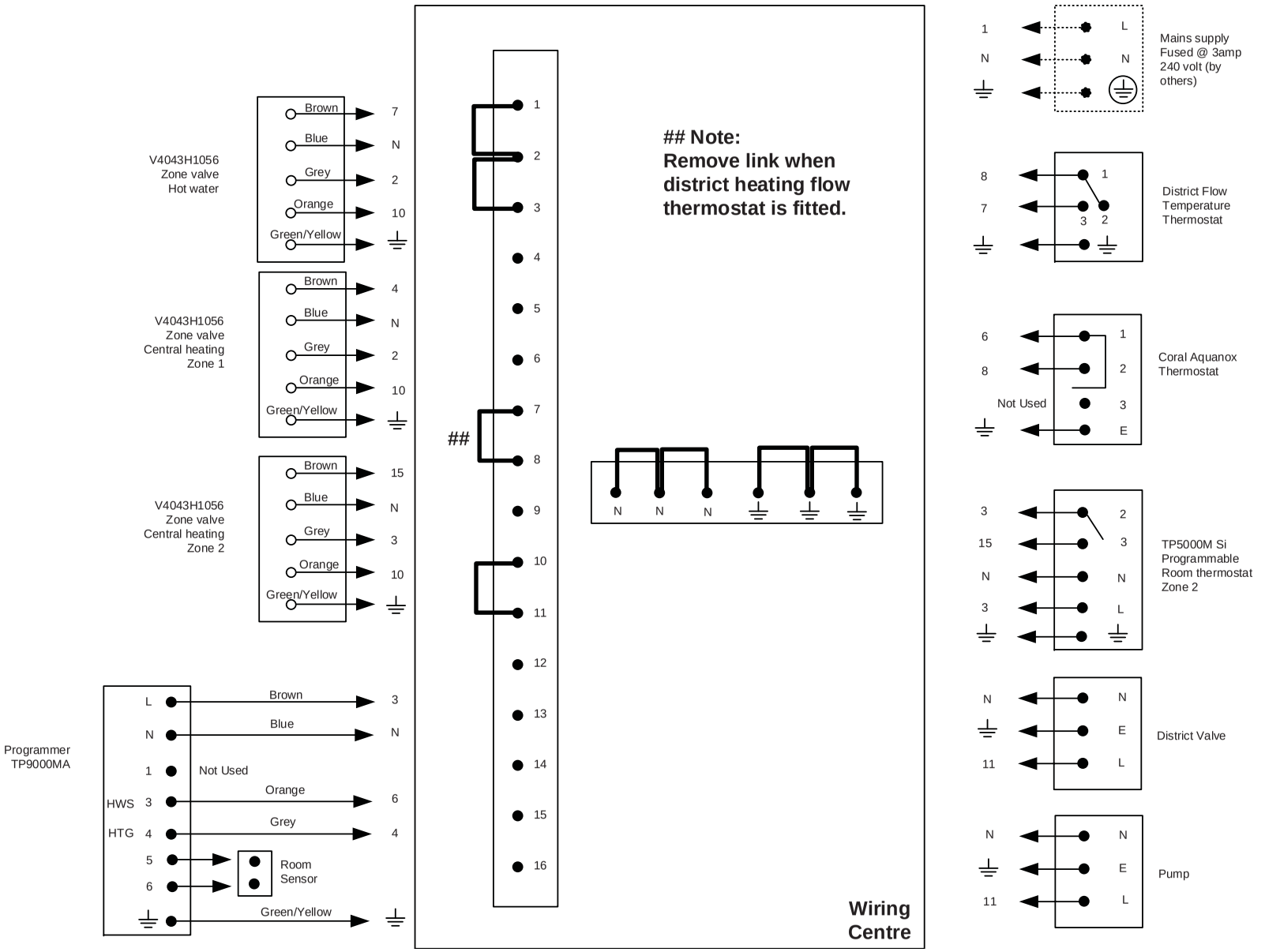
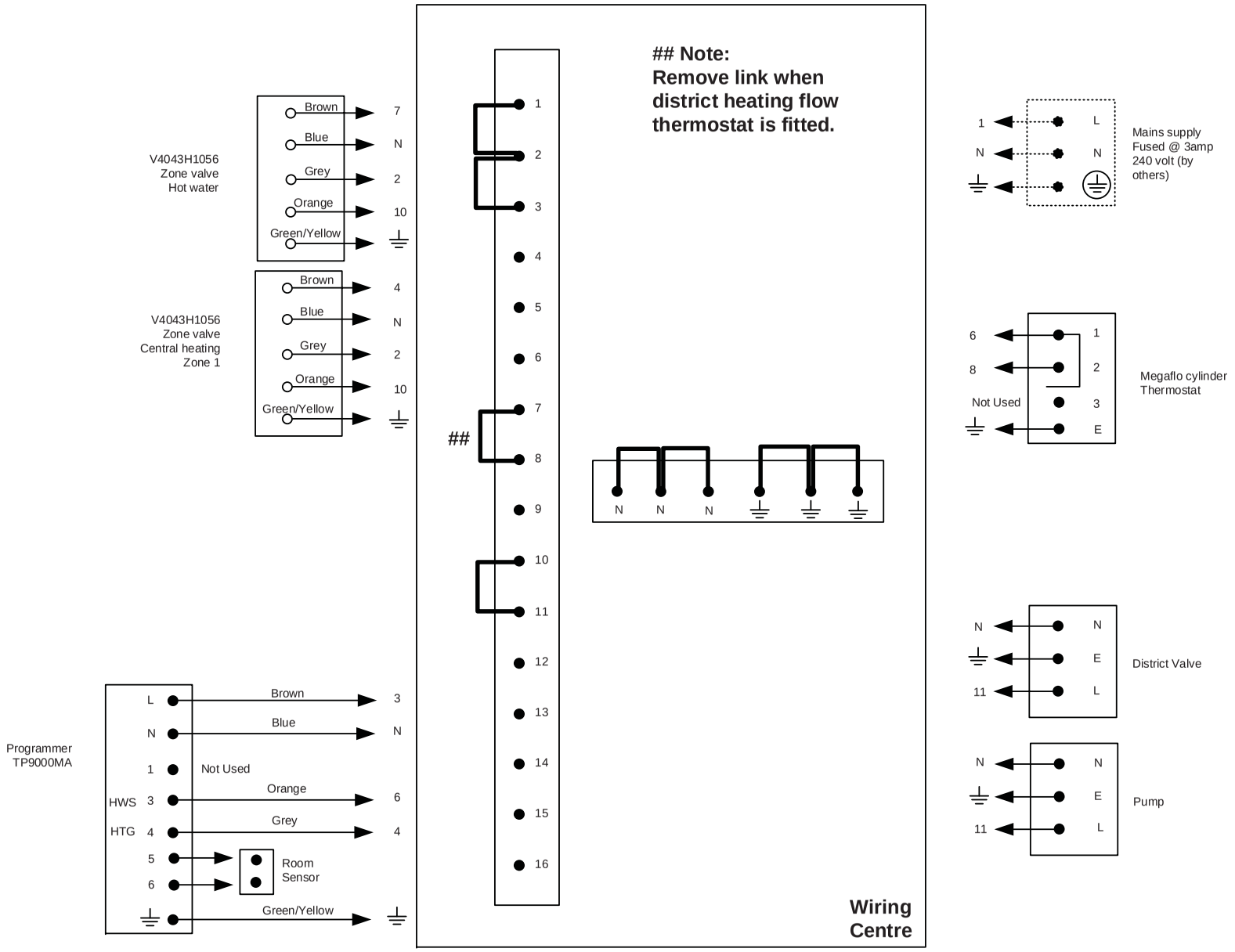


Fig 18 Wiring diagram for CB-1Z and CB-1Z-DC heat interface unit with 1 heating zone and a Megaflo eco unvented cylinder



WIRING DIAGRAM

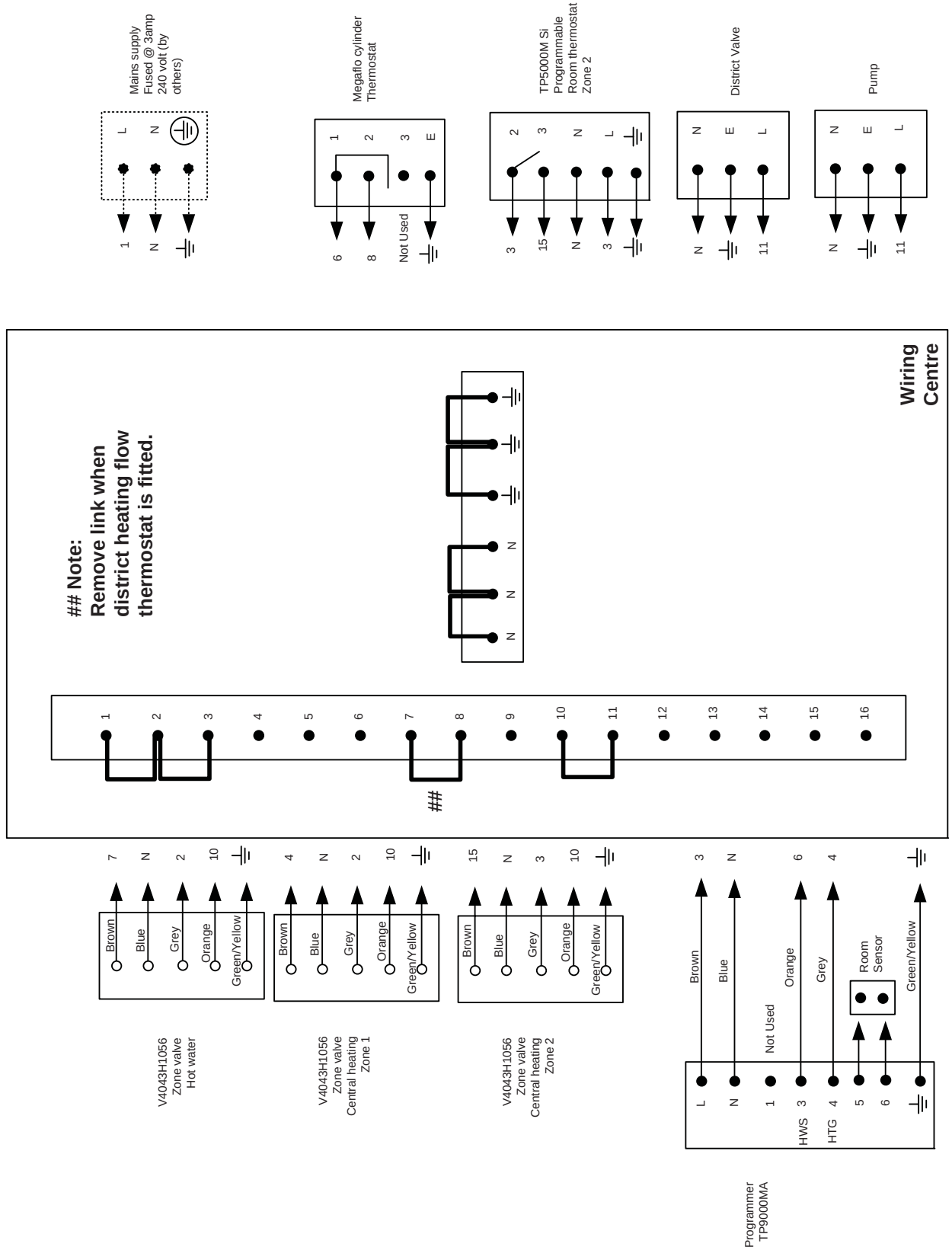
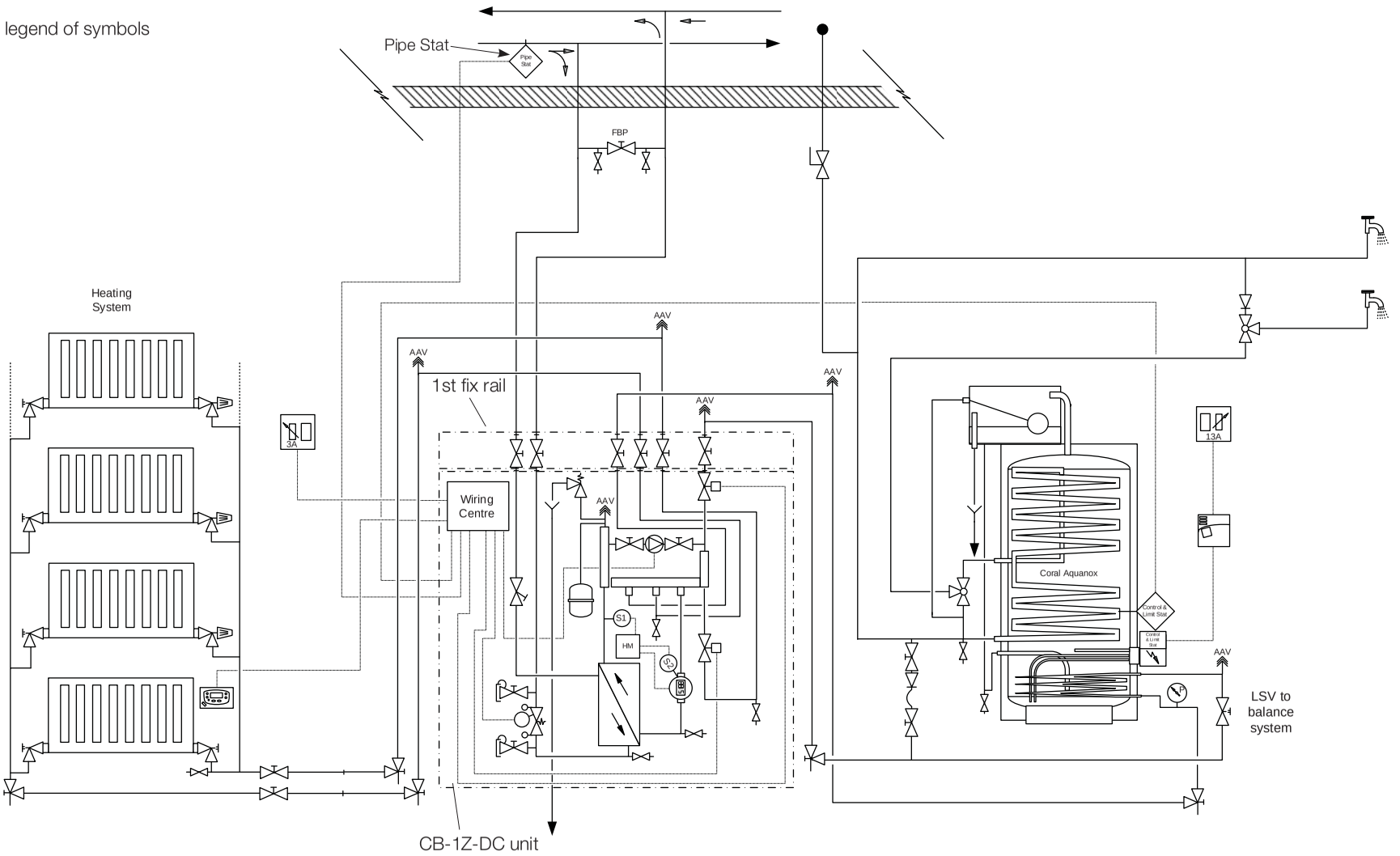


Fig 19 Wiring diagram for CB-2Z and CB-2Z-DC heat interface unit with 2 heating zones and a Megaflo eco unvented cylinder

Fig 20 CB-1Z-DC Heat Interface Unit with 1 heating zone and an Elson Coral Aquanox thermal store

See Page 26 for a legend of symbols



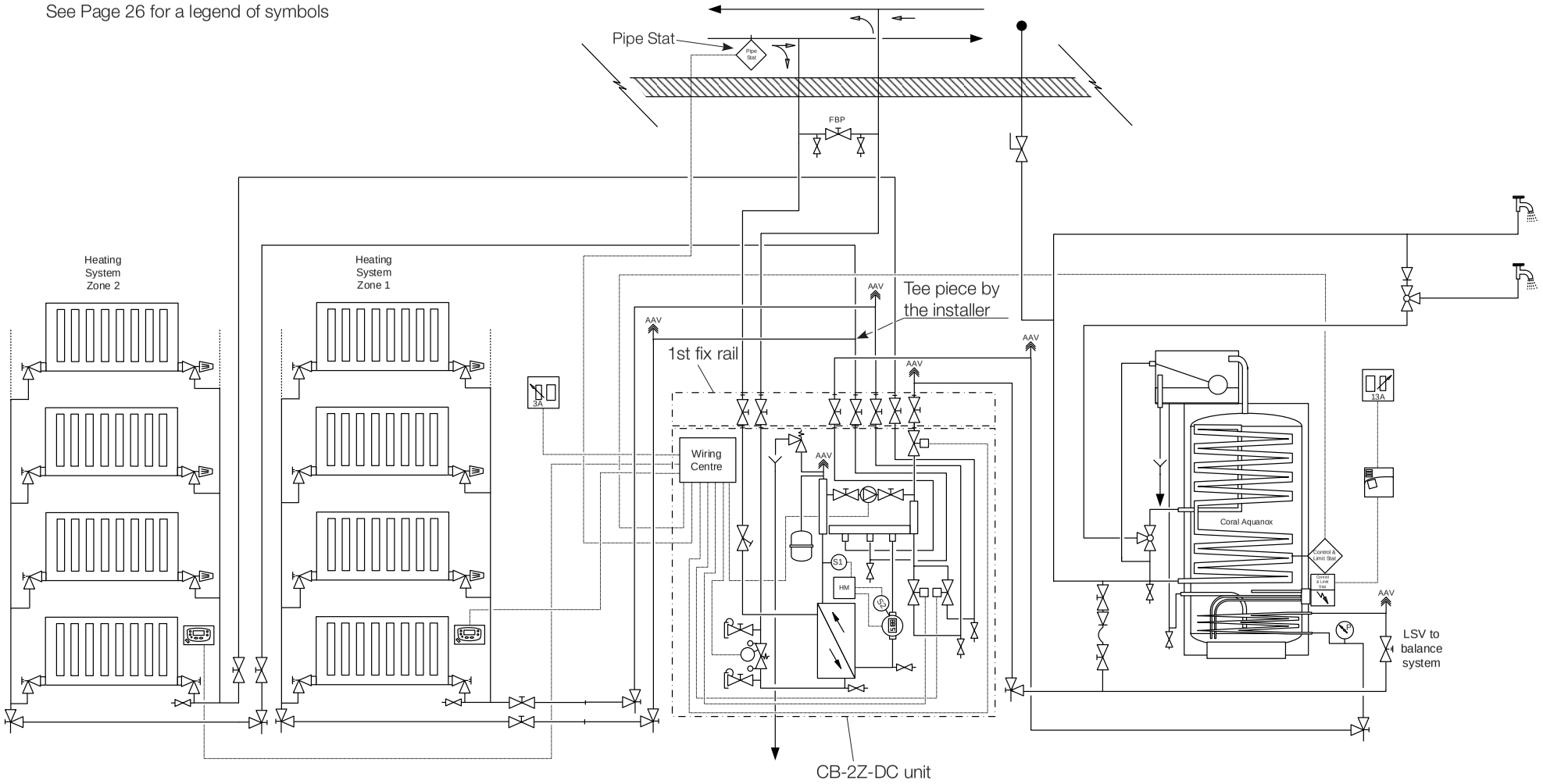
Index branch

The CB unit is fitted with an on/off district heating control valve. To ensure there is a continuous flow of water through each branch, a reduced flow bypass valve should be fitted at the end of each run between the index branch flow and return pipes.

To allow the district heating pumps to throttle down on their inverter, the reduced flow bypass valve should be sized and set to 5% of the index branch design flow rate. See Fig 24 for details.

Fig 21 CB-2Z-DC Heat Interface Unit with 2 heating zones and an Elson Coral Aquanox thermal store

See Page 26 for a legend of symbols



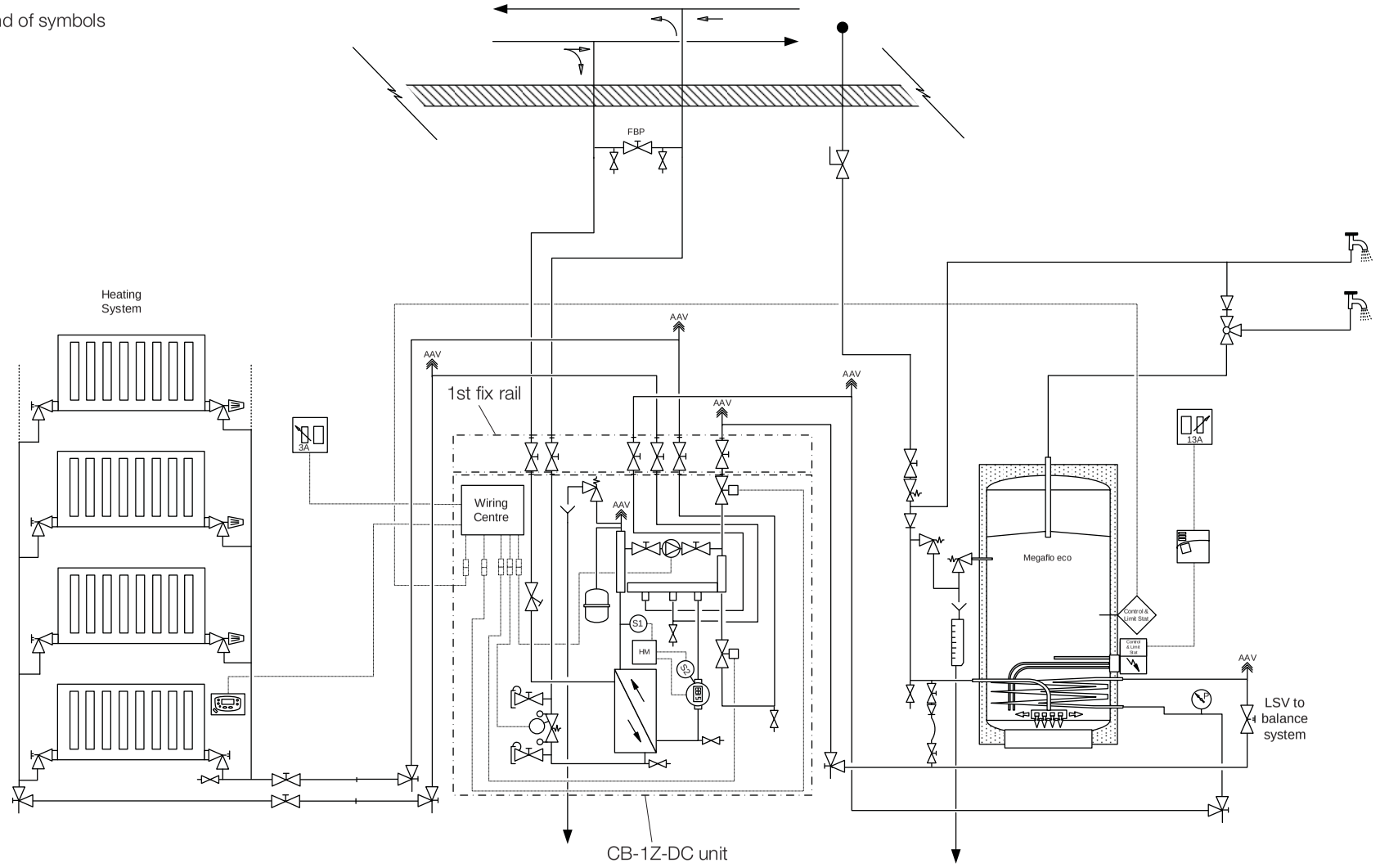
Index branch

The CB unit is fitted with an on/off district heating control valve. To ensure there is a continuous flow of water through each branch, a reduced flow bypass valve should be fitted at the end of each run between the index branch flow and return pipes.

To allow the district heating pumps to throttle down on their inverter, the reduced flow bypass valve should be sized and set to 5% of the index branch design flow rate. See Fig 24 for details.

Fig 22 CB-1Z-DC Heat Interface Unit with 1 heating zone and a Megaflo eco unvented cylinder

See Page 26 for a legend of symbols



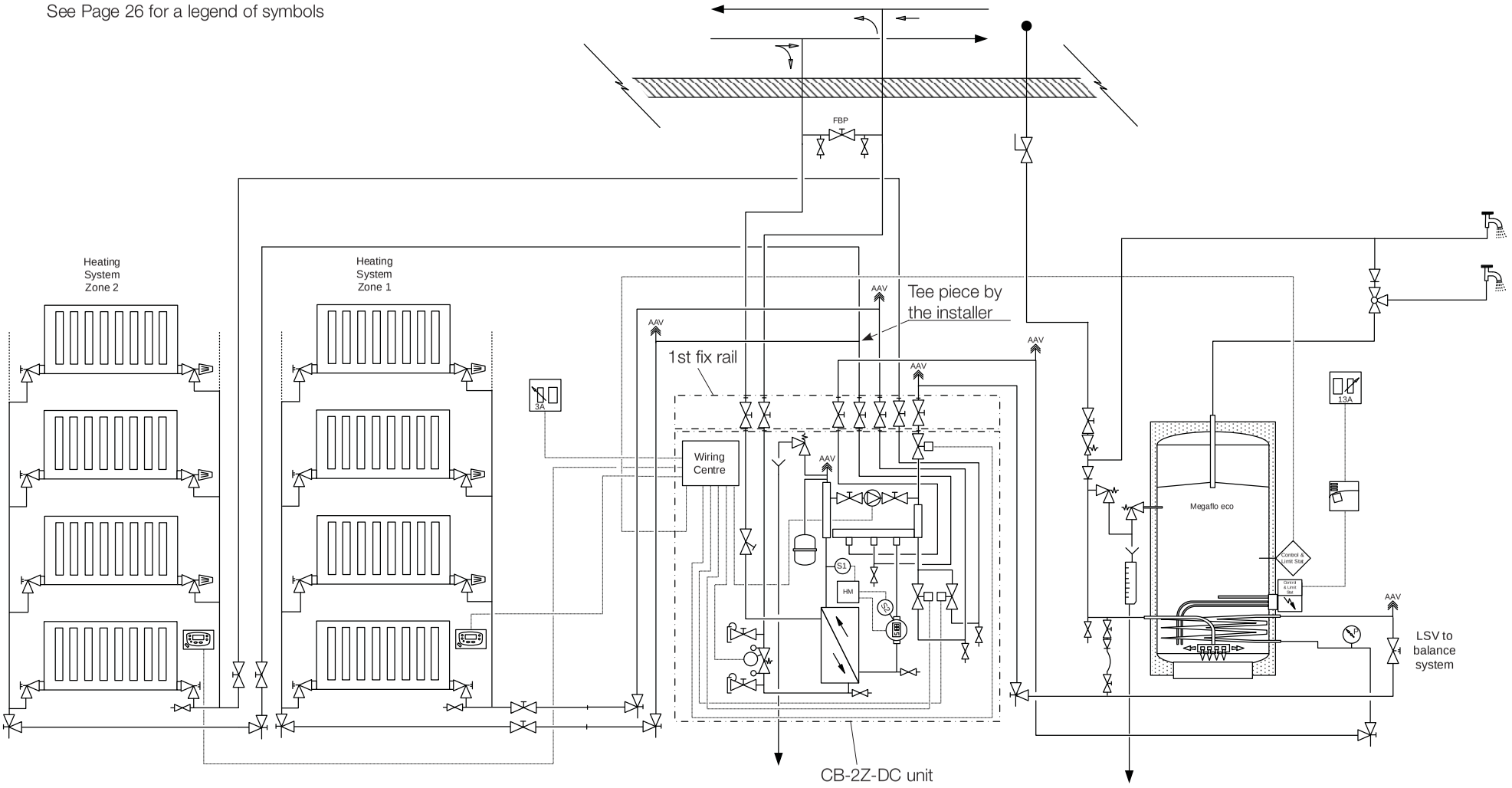
Index branch

The CB unit is fitted with an on/off district heating control valve. To ensure there is a continuous flow of water through each branch, a reduced flow bypass valve should be fitted at the end of each run between the index branch flow and return pipes.

To allow the district heating pumps to throttle down on their inverter, the reduced flow bypass valve should be sized and set to 5% of the index branch design flow rate. See Fig 24 for details.

Fig 23 CB-2Z-DC Heat Interface Unit with 2 heating zones and a Megaflo eco unvented cylinder

See Page 26 for a legend of symbols



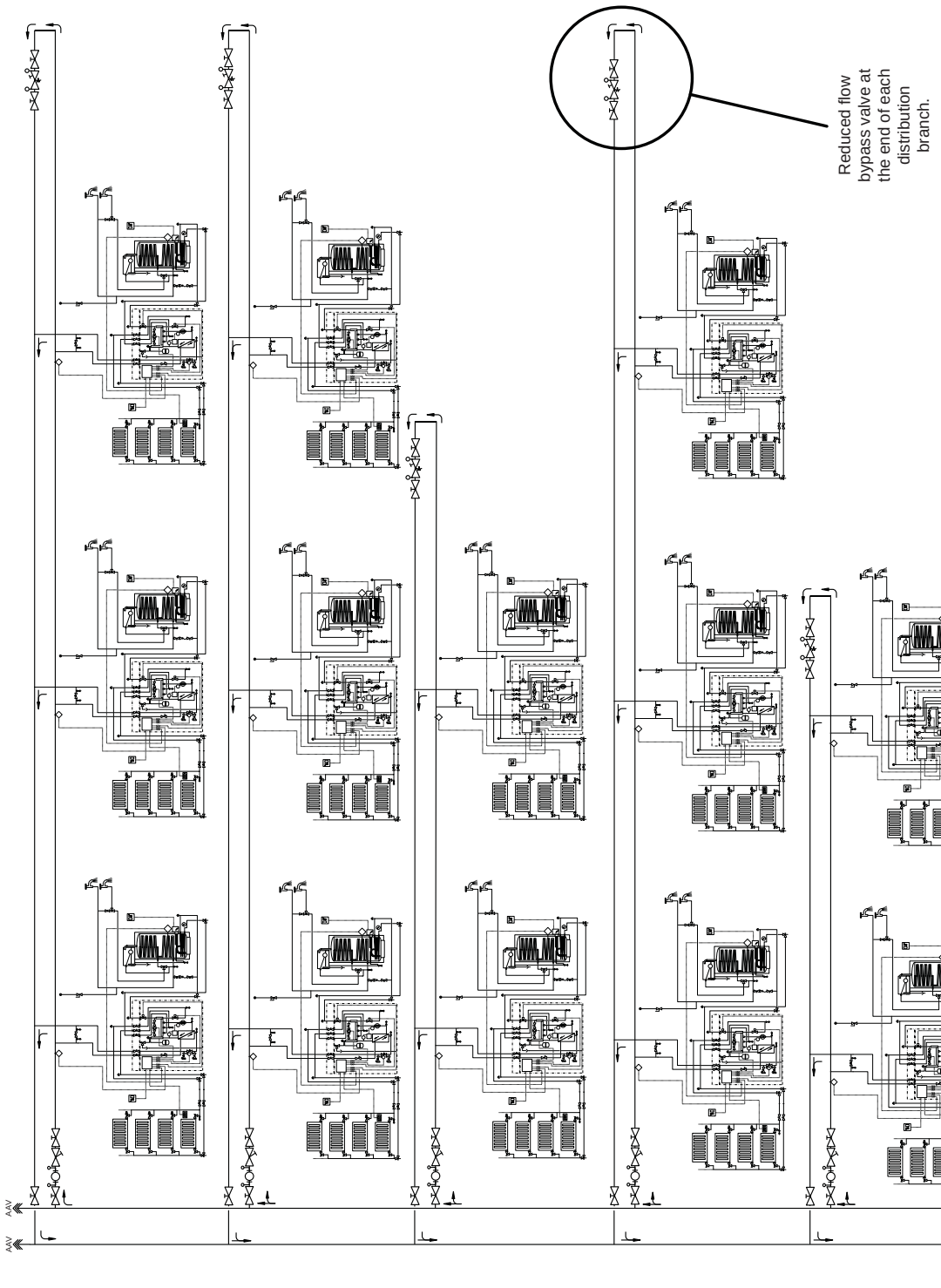
Index branch

The CB unit is fitted with an on/off district heating control valve. To ensure there is a continuous flow of water through each branch, a reduced flow bypass valve should be fitted at the end of each run between the index branch flow and return pipes.

To allow the district heating pumps to throttle down on their inverter, the reduced flow bypass valve should be sized and set to 5% of the index branch design flow rate. See Fig 24 for details.

HYDRAULIC DIAGRAMS

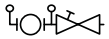
Fig 24 Typical district heating system with reduced flow valves at the end of each distribution branch.



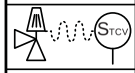
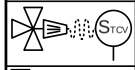
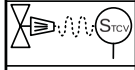
Index branch
The CB unit is fitted with an on/off district heating control valve. To ensure there is a continuous flow of water through each branch, a reduced flow bypass valve should be fitted at the end of each run between the index branch flow and return pipes.
To allow the district heating pumps to throttle down on their inverter, the reduced flow bypass valve should be sized and set to 5% of the index branch design flow rate.

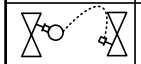
See Page 26 for a legend of symbols

HYDRAULIC DIAGRAMS LEGEND

Symbol	Description
	Centrifugal fan
	Air intake
	Pump
	Compressor
	Pressure Reducing Valve
	Isolation Valve
	Lock Shield Valve
	Non Return Valve
	Strainer
	Double Reg. Valve
	Orifice Plate
	Commissioning Station
	Flow Setter
	Automatic Bypass Valve
	Safety Valve
	T & P Valve
	3 Port Motorised Valve
	2 Port Motorised Valve

Symbol	Description
	Thermostatic Mixing Valve
	Combi TMV
	Drain Cock
	Angle pattern Drain Cock
	Expansion Vessel
	Automatic Air Vent
	Air Separator
	Pressure Gauge Assembly
	Thermometer
	Tundish
	Temperature Sensor
	Temperature Sensor
	Temperature Sensor
	Temperature Sensor
	Temperature Sensor
	Temperature Sensor
	Immersion Heater

Symbol	Description
	Thermostatic Radiator Valve
	Radiator Lock Shield Valve
	Needle Valve
	Filling Loop
	Flexible Connection
	Aqua Stat
	Thermostat
	Flow Switch
	Flow Meter
	Heat Meter
	Room Stat
	Angle Pattern 2 Port Zone Thermostatic Control Valve
	3 Port Bypass Thermostatic Control Valve
	2 Port Zone Thermostatic Control Valve
	Thermostatic Control Valve Sensor
	Smartfit room unit
	Run Back Timer
	Pre Payment Unit

Symbol	Description
	Air Separator
	Combined Isolation & Check Valve with Thermometer
	Safety Discharge Vessel
	Auto Balancing Valve
	Dynamic Balancing Valve
	Hep$_v$O dry trap
	Double Check Valve
	Flushing and Filling Points
	Pressure independent control & balancing valve
	Honeywell SMILE controller
	STW10WE Room Stat
	Gas Stop Cock
	Smartfit Wiring Centre
	Frese EVA dynamic balancing & zone valve
	Relay

CONTROL STRATEGY

Fig 25. Controls Logic
CB-1Z and CB-1Z-DC heat interface unit with unvented cylinder and 1 heating zone

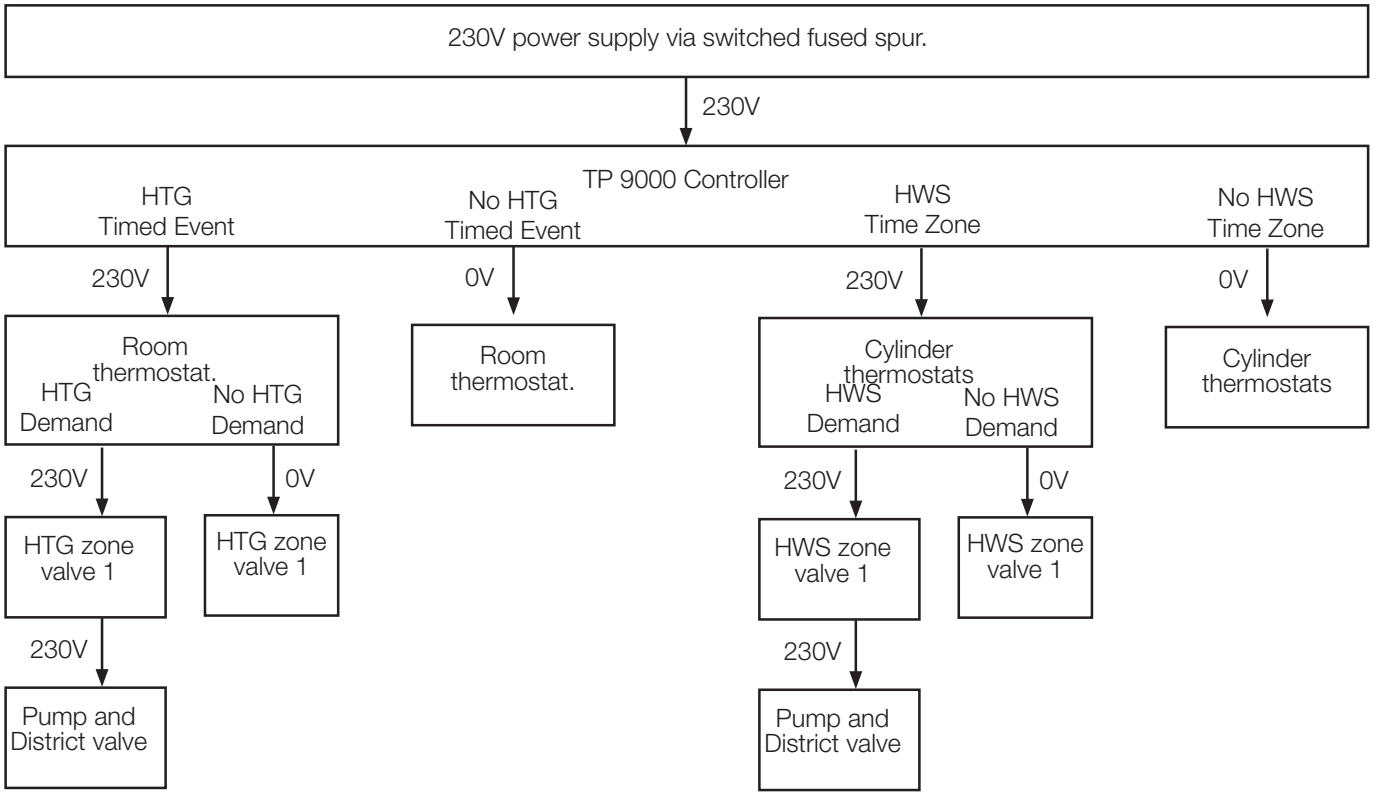
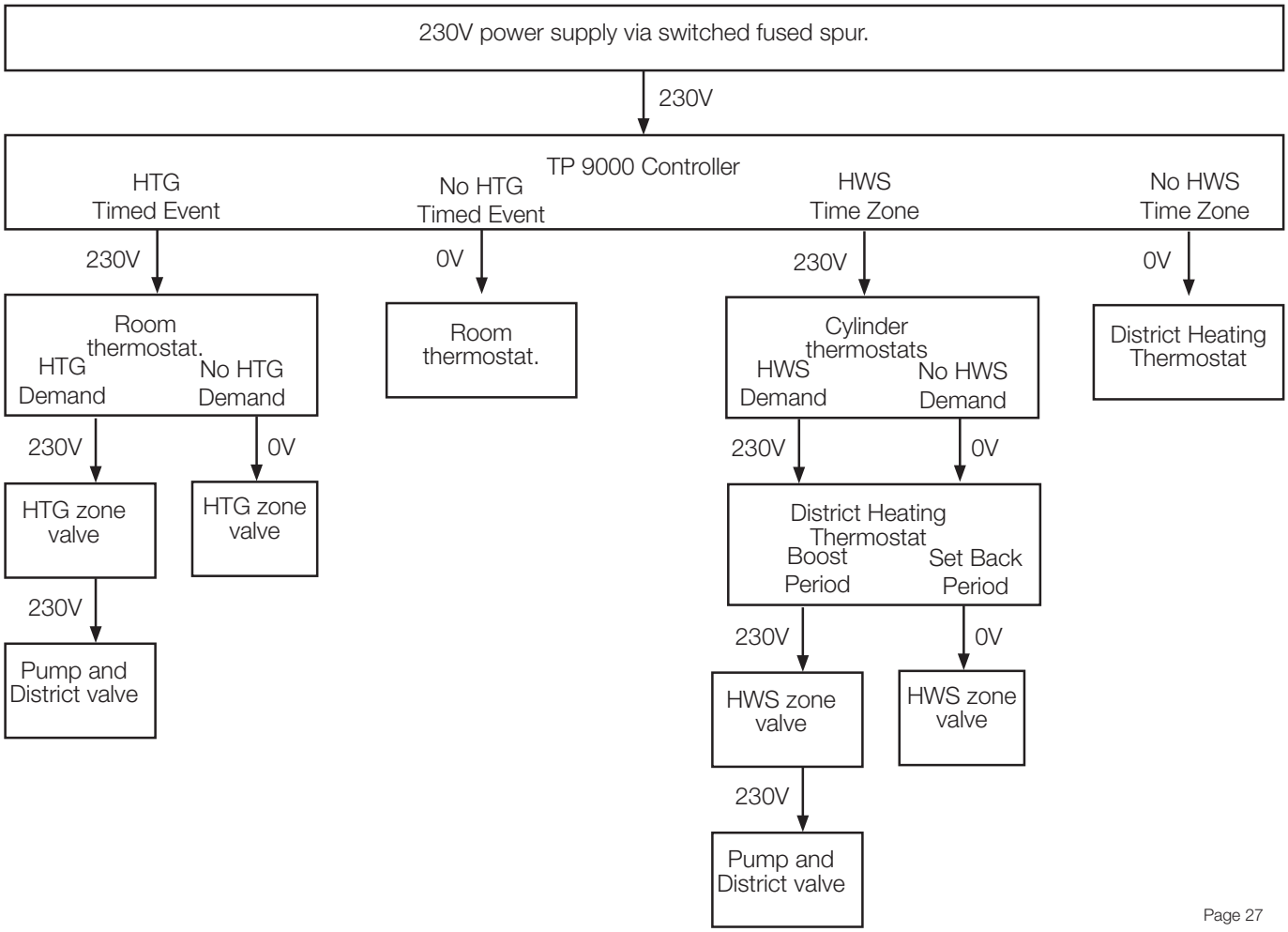


Fig 26. Controls Logic
CB-1Z and CB-1Z-DC heat interface unit with thermal store and district heating control thermostat and 1 heating zone



CONTROL STRATEGY

Fig 27. Controls Logic
CB-2Z and CB-2Z-DC heat interface unit with unvented cylinder and 2 heating zones

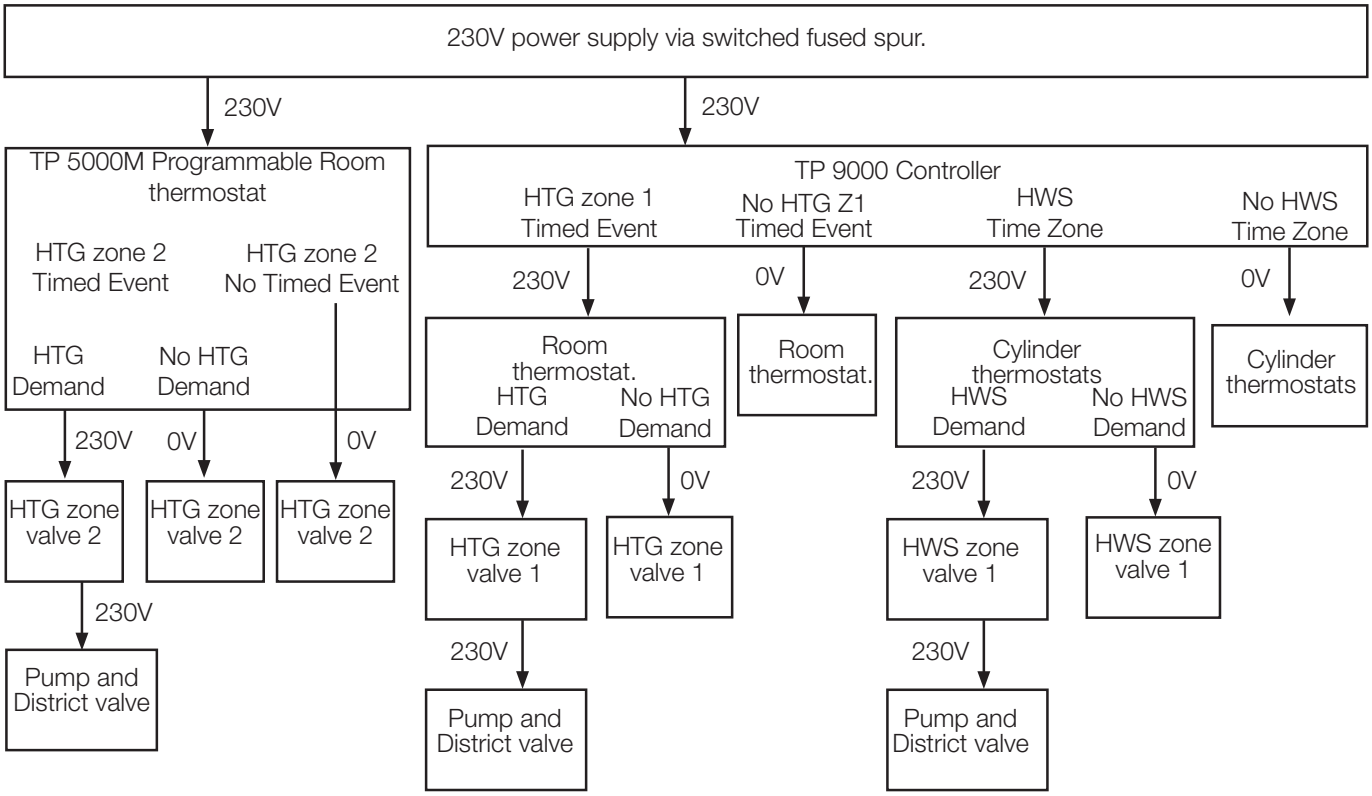
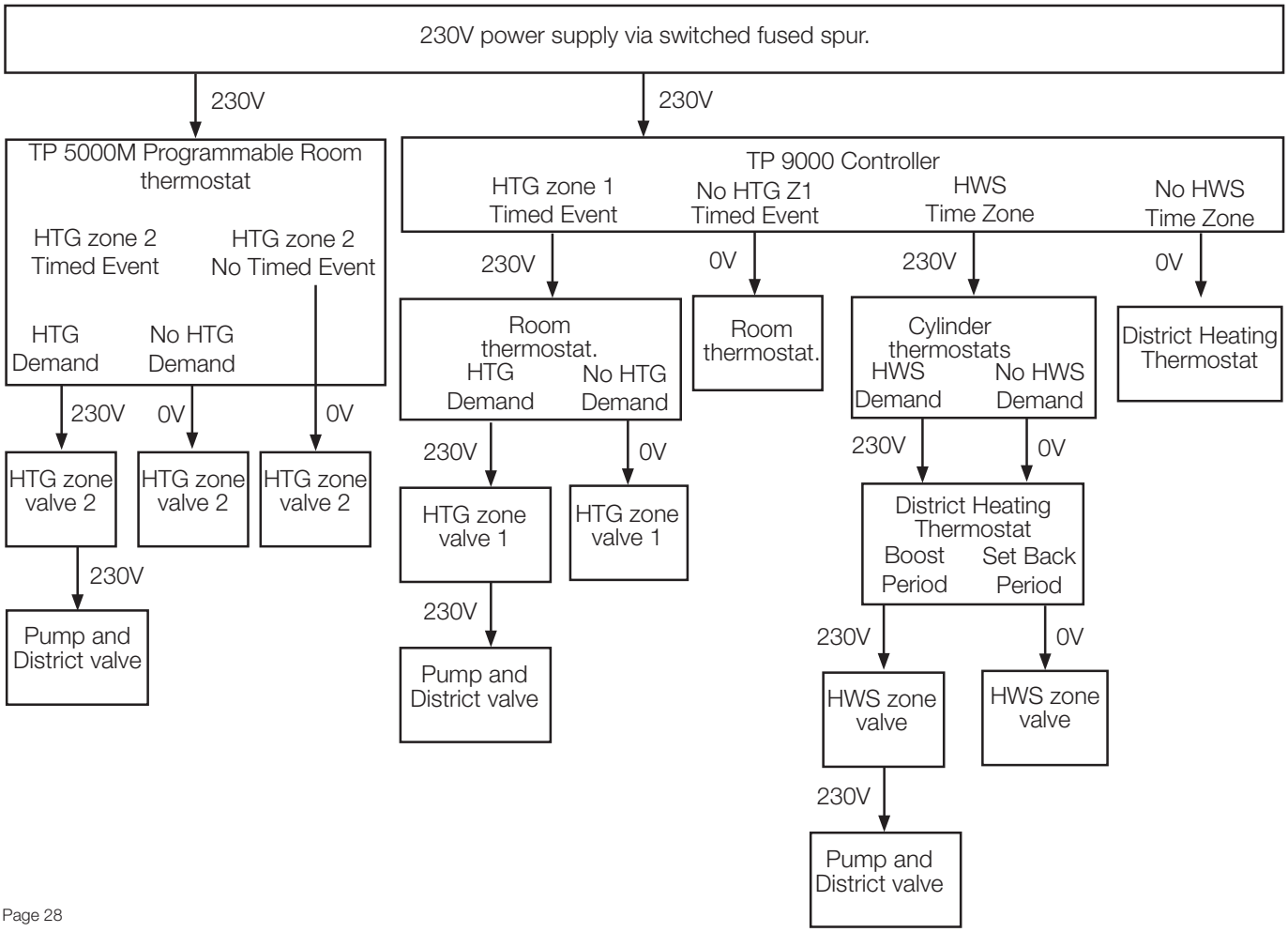


Fig 28. Controls Logic
CB-2Z and CB-2Z-DC heat interface unit with thermal store and district heating control thermostat and 2 heating zones



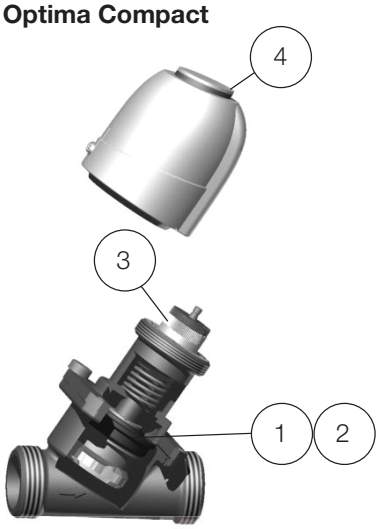
MAJOR COMPONENTS - DISTRICT CONTROL VALVE

Frese Optima Compact
(on CB-1Z-DC and CB-2Z-DC models only)

Application

- The Frese OPTIMA Compact pressure independent balancing & control valve (PIBCV) in your CB unit provides on/off control with full authority regardless of any fluctuations in the differential pressure of the system.
- Frese OPTIMA Compact combines an externally adjustable automatic balancing valve (1), a differential pressure valve (2), flow regulating control valve (3) and when fitted with a 230V thermo-actuator (4) an on/off control valve.

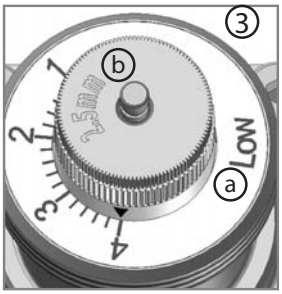
Fig 29. Frese Optima Compact



Frese OPTIMA Compact makes it simple to achieve 100% control of the water flow in the building, while creating high comfort and energy savings at the same time.

- An additional benefit is that no balancing is required if further stages are added to the system, or if the dimensioned capacity is changed.

Fig 30. Flow rate adjustment



(a) Flow Range
(b) Stroke

- The Frese OPTIMA Compact valve is factory set at at position 4 and can be adjusted on site to suit site conditions. Based on a design temperature differential of 20K this setting will control the community heating flow rate to provide over 13kW of power to each apartment.

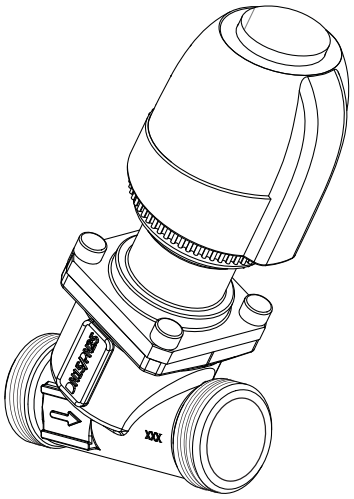


Fig 31. Frese Optima Compact

Installation Benefits

- No further regulating valves required in the distribution pipework when Frese OPTIMA Compact is installed at terminals.
- Total number of valves minimized due to the 3-in-1 design
- Minimized commissioning time due to automatic balancing of the system
- No minimum straight pipe lengths required before or after the valve.

Technical data valve

Valve housing and flow setting: DZR Brass, CW602N
DP controller: PPS 40% glass
Spring: Stainless steel
Diaphragm: HNBR
O-rings: EPDM
Pressure class: PN25
Max. differential pressure: 400 kPa
Medium temperature range: 0^{O}C to 120^{O}C

Technical data actuators

Characteristics: Thermo actuators, normally closed
Protection class: IP 54 to EN 60529
Frequency: 50/60 Hz
Control signal: 230V On/Off
Actuating force: 100 N
Stroke: 2.5mm
Running time: 180 s On/Off
Ambient operating conditions: 0^{O}C to 60^{O}C
Cable length: 1.0 m
Weight: 100 g

MAJOR COMPONENTS - DISTRICT CONTROL VALVE

Frese Optima Compact

Fig 32. Flow Characteristics

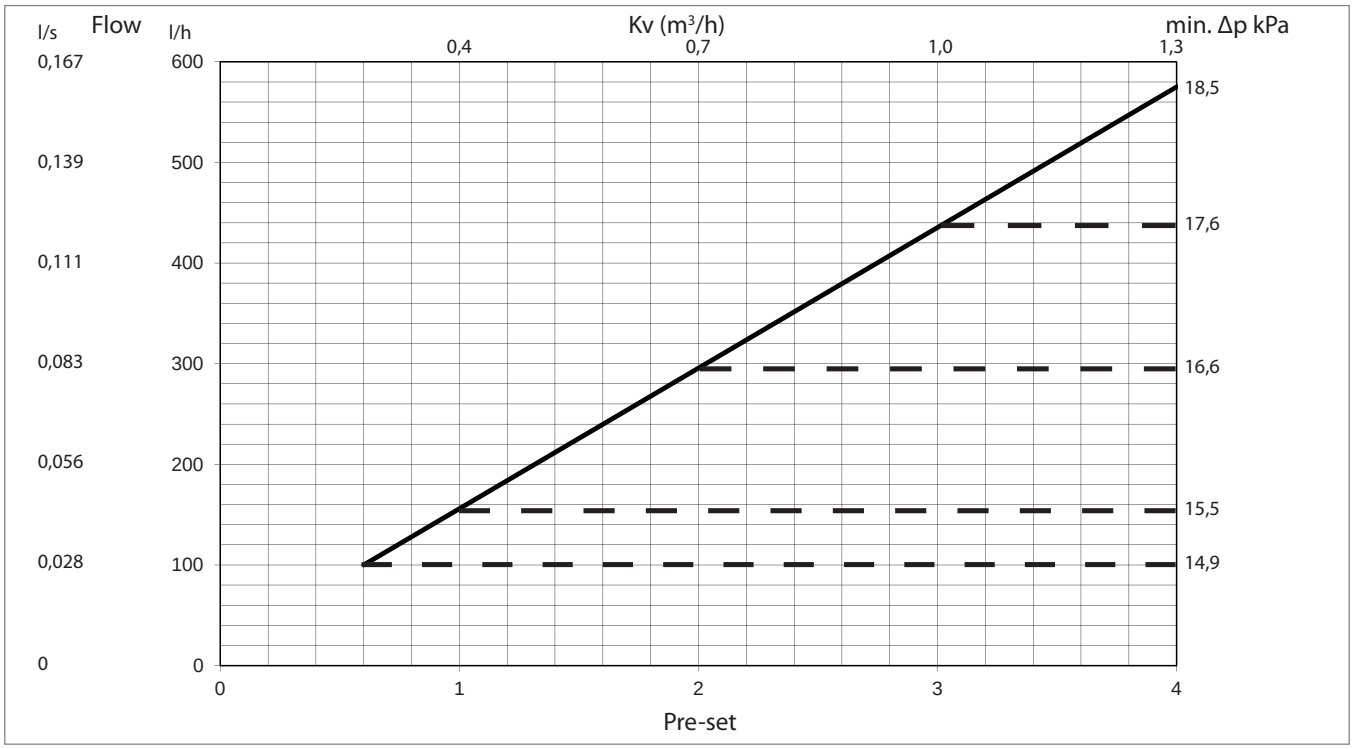


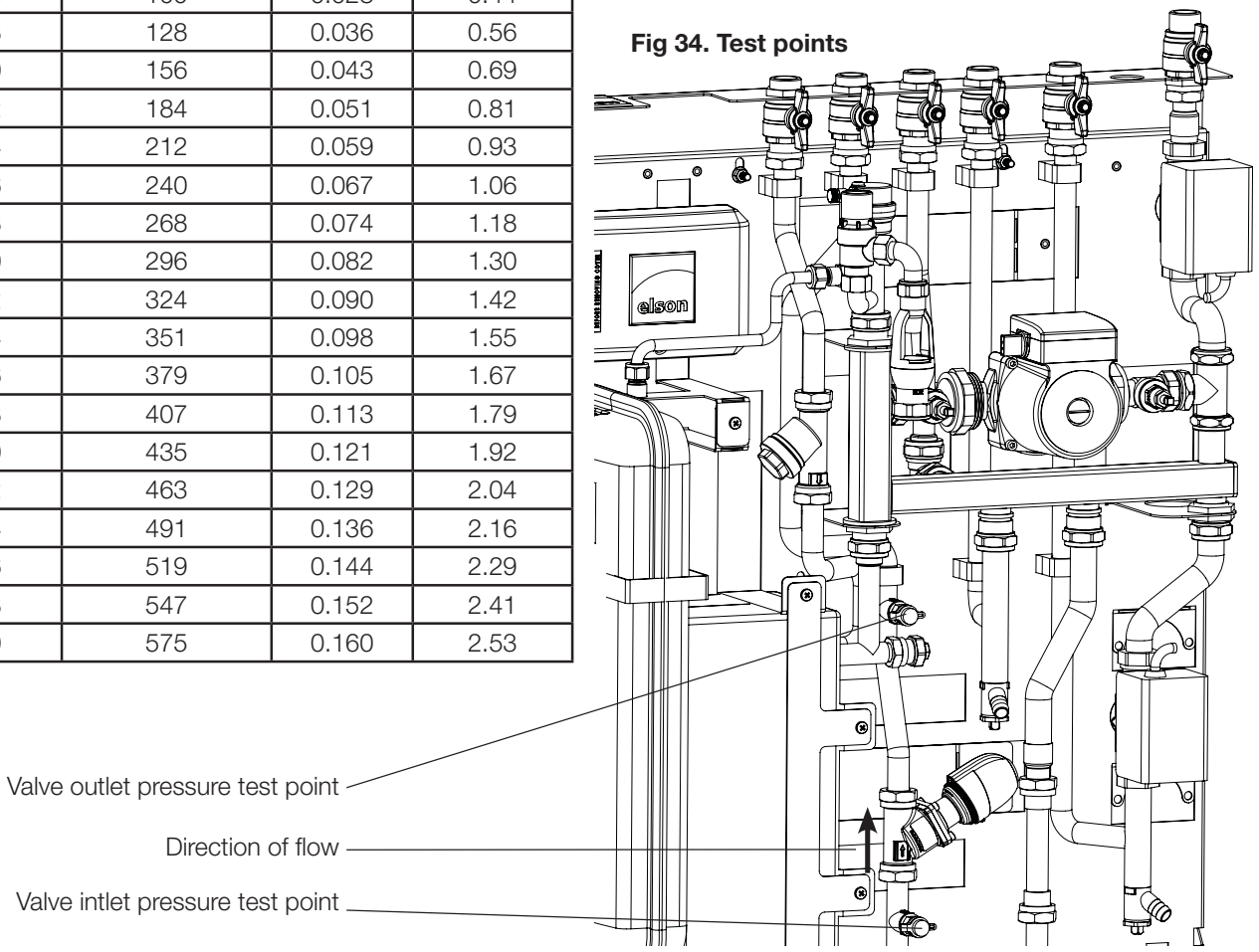
Fig 33. Flow Settings

Pre-set	Flow l/h	Flow l/s	Flow gpm
0.6	100	0.028	0.44
0.8	128	0.036	0.56
1.0	156	0.043	0.69
1.2	184	0.051	0.81
1.4	212	0.059	0.93
1.6	240	0.067	1.06
1.8	268	0.074	1.18
2.0	296	0.082	1.30
2.2	324	0.090	1.42
2.4	351	0.098	1.55
2.6	379	0.105	1.67
2.8	407	0.113	1.79
3.0	435	0.121	1.92
3.2	463	0.129	2.04
3.4	491	0.136	2.16
3.6	519	0.144	2.29
3.8	547	0.152	2.41
4.0	575	0.160	2.53

DISTRICT FLOW VERIFICATION

The district heating flow rate can be verified with a suitable manometer using the test points as detailed below in Fig 34 and cross referring the results with the chart given in Fig 32 and Fig 33.

Fig 34. Test points



MAJOR COMPONENTS - CENTRAL HEATING PUMP

Grundfos UPS 15-60

Application

• The Grundfos UPS 15-60, 3 speed pump is the central heating pump for the apartment providing heat to both the radiators and or the cylinder primary coil.

The pump is powered via the end switches within the two port motorized valves in an S plan and S plan plus arrangements.

Primary circulating pump:

Model No.: Grundfos UPS15-60

Working pressure: 1 MPa (10 bar) max.

Voltage rating: 230V ac, 50Hz

Starting capacitor: 2uF

Enclosure rating: IP42

Fig 35. Three speed pump

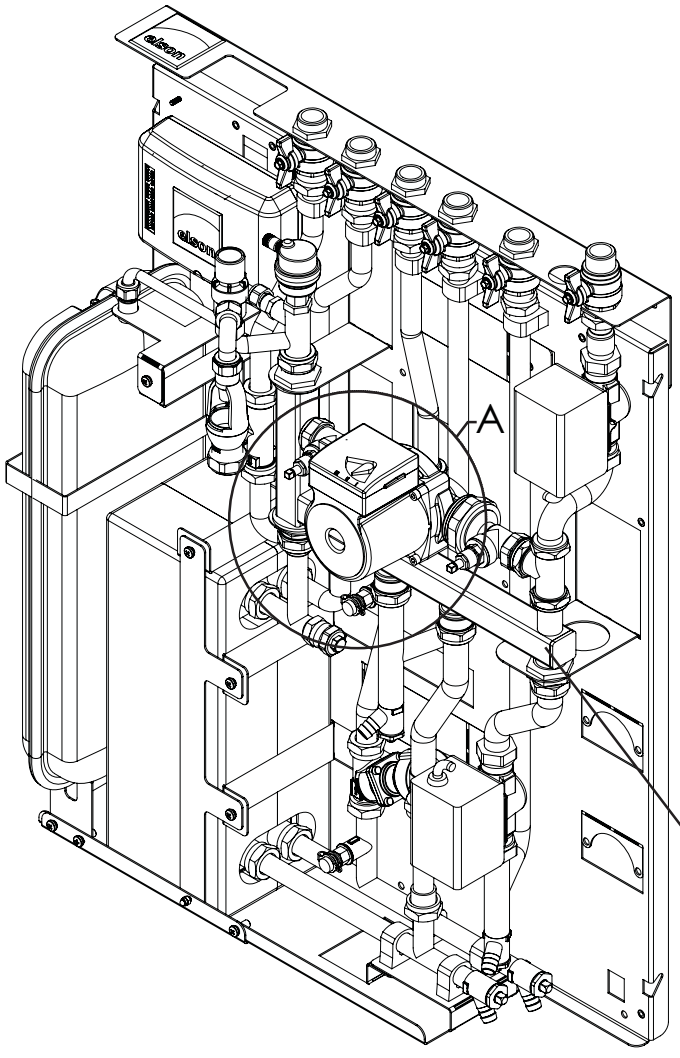
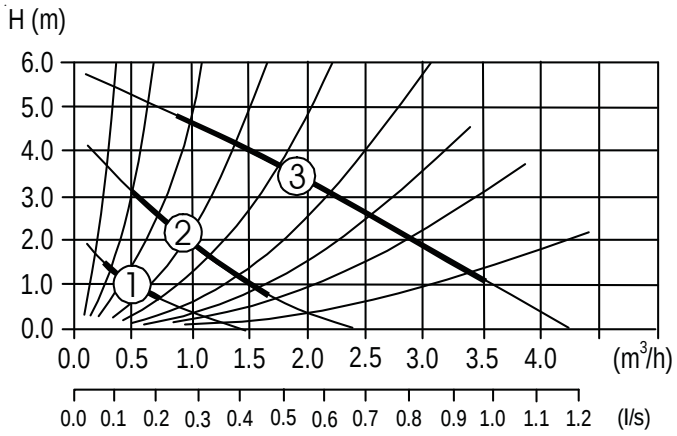


Fig 36. Electrical data

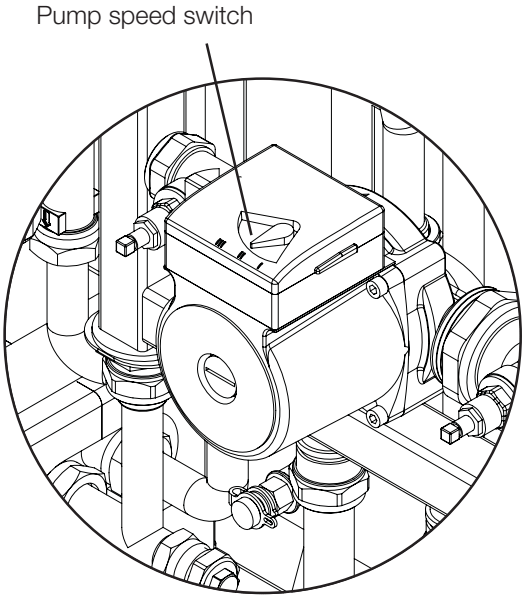
Speed Setting	Speed (RPM)	Power input (W)	Full load current (A)	Locked rotor current (A)
III	1750	95	0.44	0.47
II	1100	65	0.30	0.31
I	750	40	0.17	0.18

Fig 37. Pump performance curves



Pump Speed

The pump has a 3 speed control switch as detailed below. This allows the installer to set the flow rates generated by the pump to suit system. Larger systems will need to be set to speed three and small systems on speed one or two.



Detail A

Automatic Bypass

The Elson manifold is equipped with an integral automatic bypass to protect the pump.

MAJOR COMPONENTS - AUTOMATIC AIR VENT

Robocal AAV
The Robocal automatic air vent will purge any air that is left in the system after commissioning.

The AAV is fitted into a shut off valve for ease of maintenance. In the event of the AAV needing to be replaced, this can easily be done without the need to drain the system down. Simply hold the shut off valve whilst unscrewing the AAV.

The air release plug is replaced with an anti suction valve to prevent air from being pulled into the system by the central heating pump.

Technical data

Materials:	
Body and cover:	Brass EN 12165 CW617N
Float:	PP
Obturator:	silicone rubber
Spring:	stainless steel
Seals:	EPDM
Shut off valve seal:	PTFE
Performance:	
Medium:	water
Max. working pressure:	10 bar
Max. venting pressure:	4 bar
Max. working temperature:	110°C

Fig 38. Automatic air vent

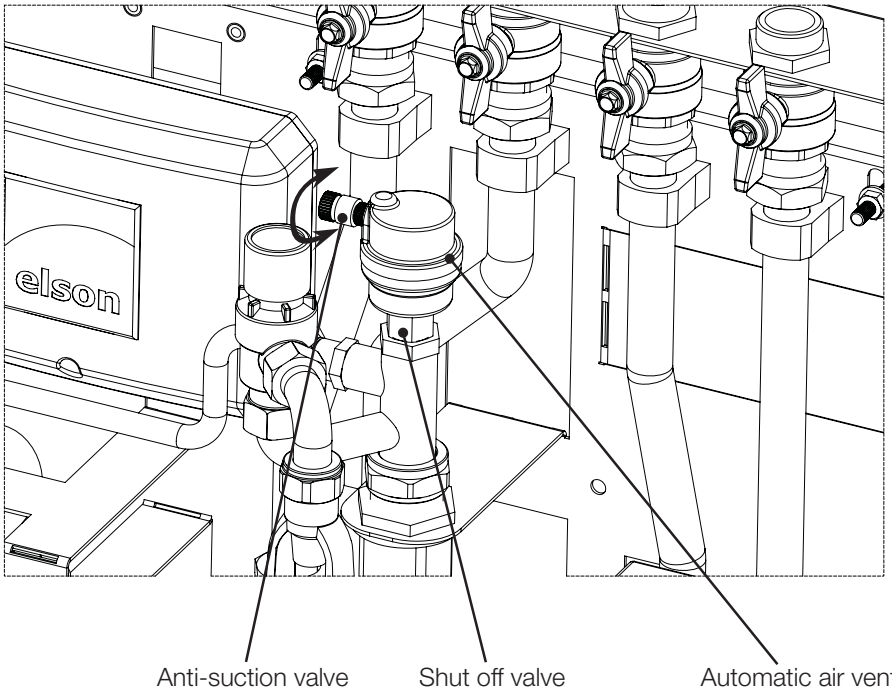
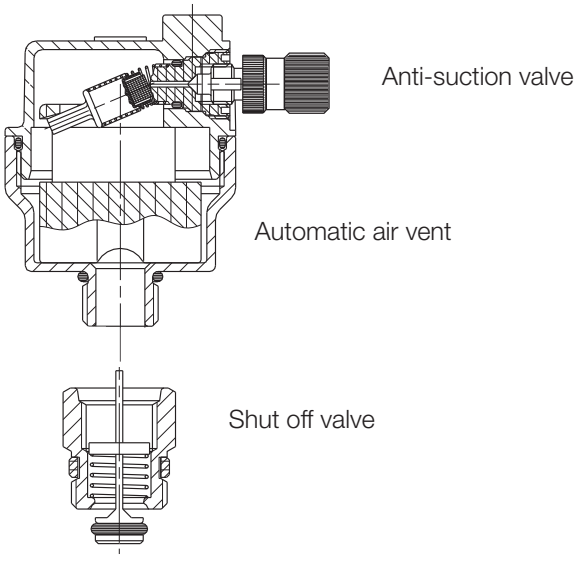


Fig 39. AAV assembly



MAJOR COMPONENTS - SAFETY VALVE

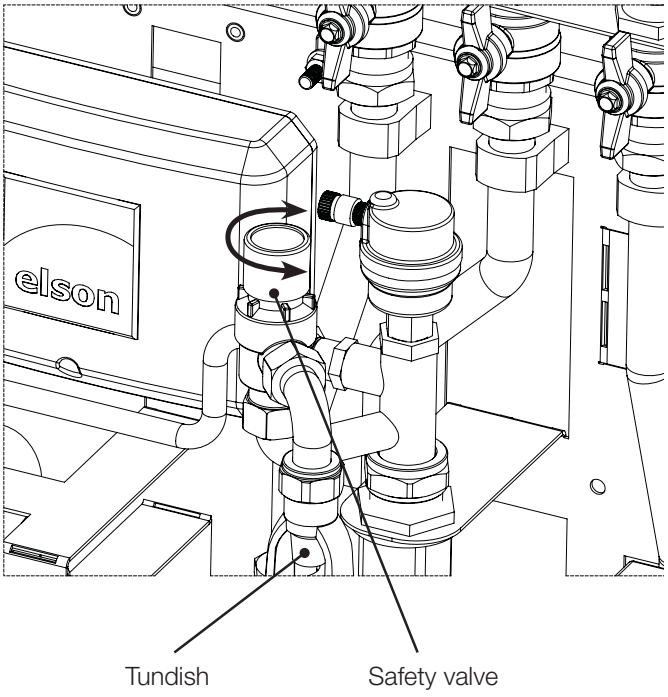
Safety Valve
The CB heat interface units are supplied with a sealed system safety valve set to lift at 3.0 bar g.

The safety valve should be checked periodically to ensure that the valve is operational. This is done by simply twisting the red plastic cap at the top of the valve. In so doing, a small burst of water will discharge from the valve, which can be witnessed through the tundish.

WARNING.
Any water discharged from the safety valve may be hot and poses a scalding risk.
It is important during handover that the end user is instructed to check this periodically to ensure the unit is not discharging.

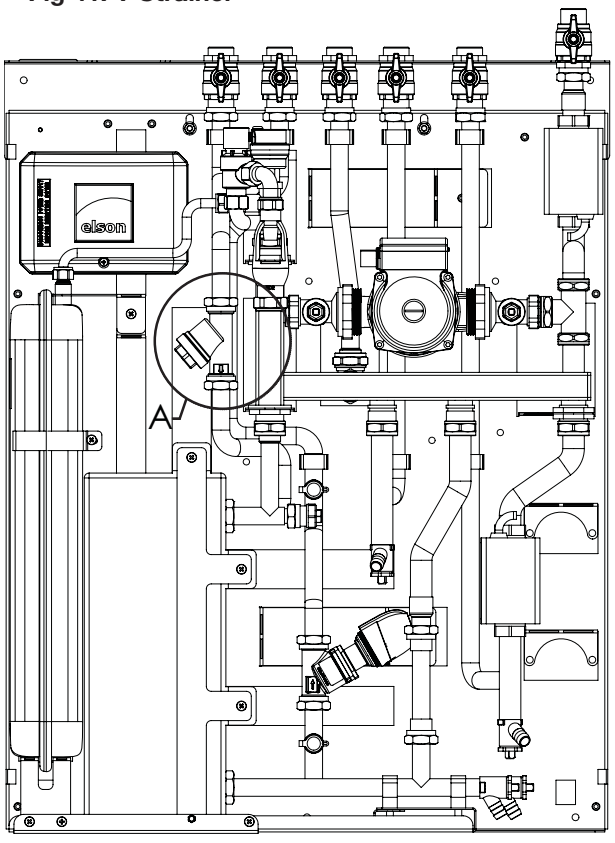
Note:
Check the system pressure once the above has been performed and top up as necessary.

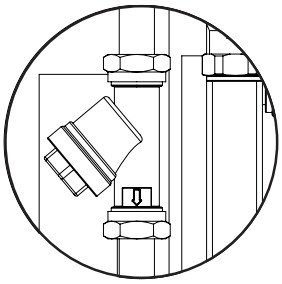
Fig 40. Sealed system safety valve



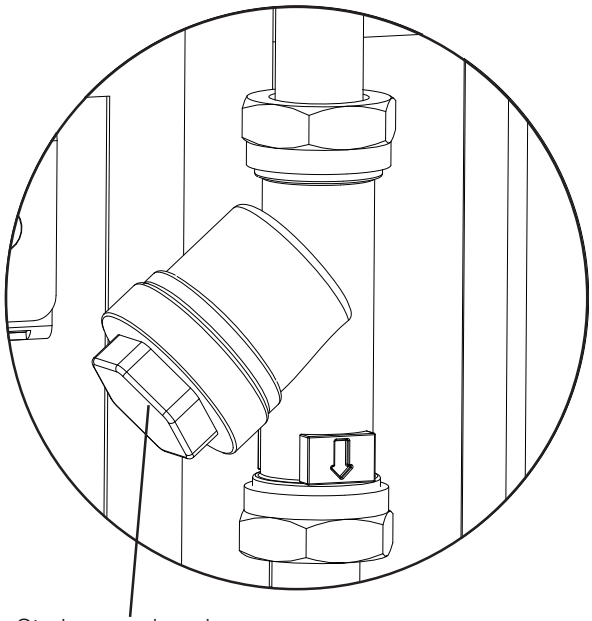
MAJOR COMPONENTS - STRAINER

Fig 41. Y Strainer





Detail A



Y Strainer (on CB-1Z-DC and CB-2Z-DC models only)
Installed in the district heating flow pipe, the Y pattern strainer is fitted with a 500 micron filter to prevent any debris from entering the CB interface unit from the district heating system. This filter can be accessed for cleaning purposes through the service plug as detailed in Fig 41.

Strainer service plug
Note:
Isolate the CB unit from the district system and drain down before opening the service plug.

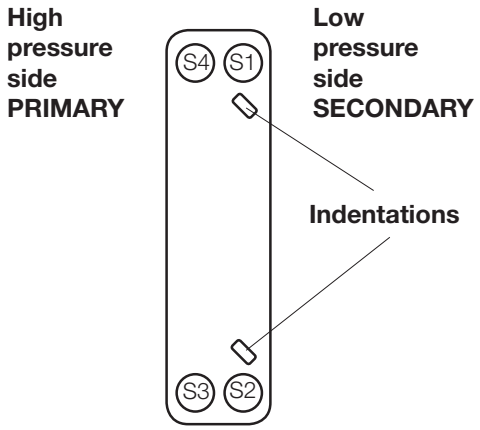
MAJOR COMPONENTS - PLATE HEAT EXCHANGER

Brazed plate heat exchanger
The brazed plate heat exchanger supplied within the CB heat interface unit provides a break between the primary (community / district) heating circuit and the secondary (apartment) central heating circuit. This is particularly useful in high rise apartment blocks where the primary circuit can run at high pressures.

As standard, the CB unit has a plate heat exchanger that is capable of working up to 10 bar g, (approximately 100 metres WG). Where primary pressures are likely to exceed this, high pressure plate heat exchangers are available on request.

Note: It is important that the high pressure side of the plate heat exchanger is connected to the district heating system. This can be identified as the side without the indentations in the end plate as detailed in Fig 42.

Fig 42. High and low pressure sides of the plate heat exchanger



The plate heat exchanger used is a parallel port version with the primary connections on one side and the secondary connections on the other.

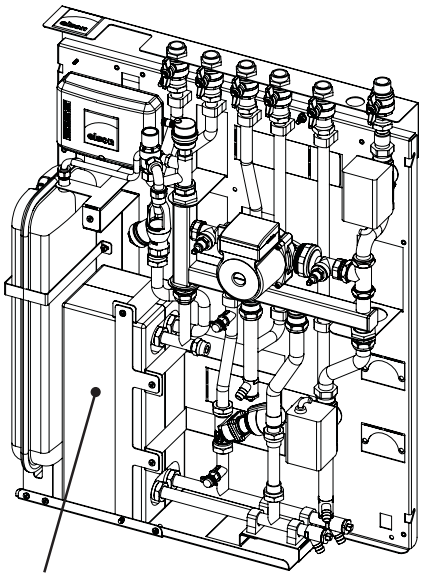
To maximise heat transfer across the plate heat exchanger the unit has been piped up in a counter flow method. The primary water enters the heat exchanger at the top and exits at the bottom, whilst the secondary water flows in at the bottom and out at the top.

Brazed Plate Heat Exchanger Specification
- channel plates (316 ss)
- 4 x ¾ inch bsp male connections (grade 304 ss)
- Secondary design pressure of 5.0 bar g - S1/S2 side
- Primary design pressure of 10.0 bar g - S3/S4 side
- Design temperature of 150.0 ^{O}C
- 100% air pressure test

Water Quality
Do not use the heat exchanger with de-ionized water and / or installations with galvanized pipes as this could chemically/ electrochemically affect or be affected by the channel plates (Stainless steel) and the brazing material (Copper).

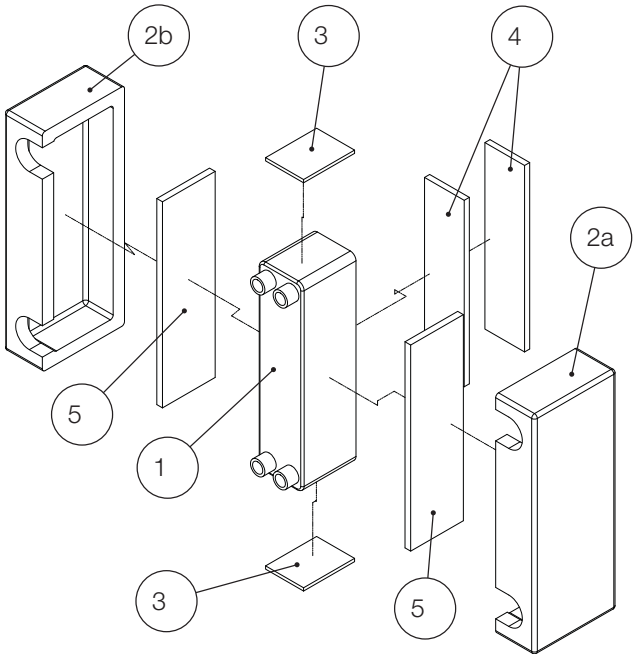
Maximum chloride content for the water in contact with the plate heat exchanger is 150mg/l (150PPM).

Fig 43. Position of plate heat exchanger



Position of the insulated plate heat exchanger

Fig 44. Plate heat exchanger assembly



(1) Stainless steel brazed plate heat exchanger
(2) Moulded insulation cover (2 halves)
(3) Insulation packing (top and bottom)
(4) Insulation packing (back)
(5) Insulation packing (sides)

MAJOR COMPONENTS - EXPANSION VESSEL

Heating expansion vessel
The heating expansion vessel is sized to accommodate the expanded water in the apartment's central heating system.

Specification:

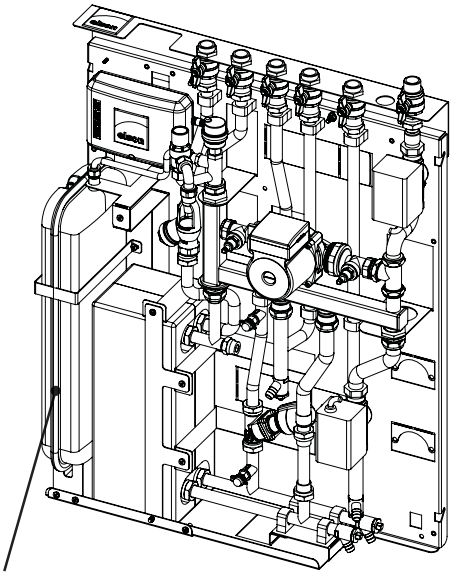
Volume:	8 litres
Gas charge:	1.0 bar g
Maximum working pressure:	3.0 bar g
Maximum working temperature:	99 deg C
Minimum working temperature:	-10 deg C

System sizing:

The 8 litre expansion vessel is design to suit heating systems with a total water content of 100 litres, based on a flow temperature of 82 deg C, a safety valve setting of 3 bar g and a static height of up to 10 metres.

In the unlikely event that the CB interface unit is fitted on a system outside these parameters, there will be a need to fit an additional expansion vessel and / or alter the gas charge pressure in the vessel to suit the system.

Fig 45. Position of the expansion vessel



Position of the expansion vessel

COMMISSIONING

Filling the system

1) Ensure the apartment central heating system is switched off at the mains isolation switch.
2) Isolate the CB HIU from the district heating system using the isolation valves ① on the first fix rail and thoroughly flush out the distribution pipework throughout the building using the flushing bypass arrangement. Ensure that all drain valves ⑥ on the unit are closed. Only when all the debris has been removed from the system should the isolation valves be opened. Now check all joints for leaks.
3) It is recommended during the commissioning phase that the strainer ② is checked and the filter is cleaned out as necessary. To do this, shut the isolation valves ① and drain down using drain valves ⑥ and remove the service plug on the strainer.
4) Manually open up the zone valves ③ using the lever on the actuator (2 No. of the CB-1Z and 3 No. on the CB-2Z units).
5) Ensure the anti-suction valve ④ on the AAV is open.
6) Ensure the pump isolation valves ⑤ are open.
7) Open up the isolation valves ⑦.
8) Using the filling loop adjacent to the hot water store, fill the central heating system. Radiators etc. should be vented separately, do not rely on the AAV on the CB unit to expel all the air from the system. Once all air has been expelled from the system and the system pressure is up to 1.3 bar g, switch on the central heating system at the electrical isolation switch and manually override the heating and hot water system on the TP9000 controller and if there is an extra heating zone the additional TP5000 (please refer to the TP9000 and TP5000 instructions). The central heating pump, heating zone valve(s) and district heating control valve should operate. Please note the district control valve will take three minutes to open once the zone valves have opened. If the district heating pipe stat is fitted, the HWS zone valve will only operate if the district heating system is in boost mode (>82°C). If the district heating system is in set back mode ensure the HWS zone valve is manually opened. Bleed any air that has worked its way around the system at all radiators and automatic air vents on the CB heat interface unit and adjacent to the cylinder / thermal store primary coil.
9) Switch off central heating and hot water manual override. The pump should stop and the valves close.

Commissioning the district heating system

1) Depending on the size of the building there will be an element of diversification factored into the design. As such the centralised plant and pumps are unlikely to be able to supply 100% of the heat load to all apartments at any one time. Where extensive parts of the development are ready to be commissioned (especially in the depths of winter), this must be done with a controlled and phased approach to overcome the initial thermal inertia within the building.

2) On systems with a set back regime, it is recommended that the main boilers are run at boost temperatures during the commissioning process. This will allow the installer to get the cylinders / stores up to temperature.

3) With the power off, unclip the Frese Optima Compact actuator ⑧ and ensure that the valve is set to 4 on the dial. The valve is fully open when the actuator is unclipped. If the project requires the flow rate to each apartment to be individually set refer to Fig. 29 to Fig. 34 for setting details otherwise leave at setting 4 (see Fig 47).

Fig 46. CB Heat Interface Unit

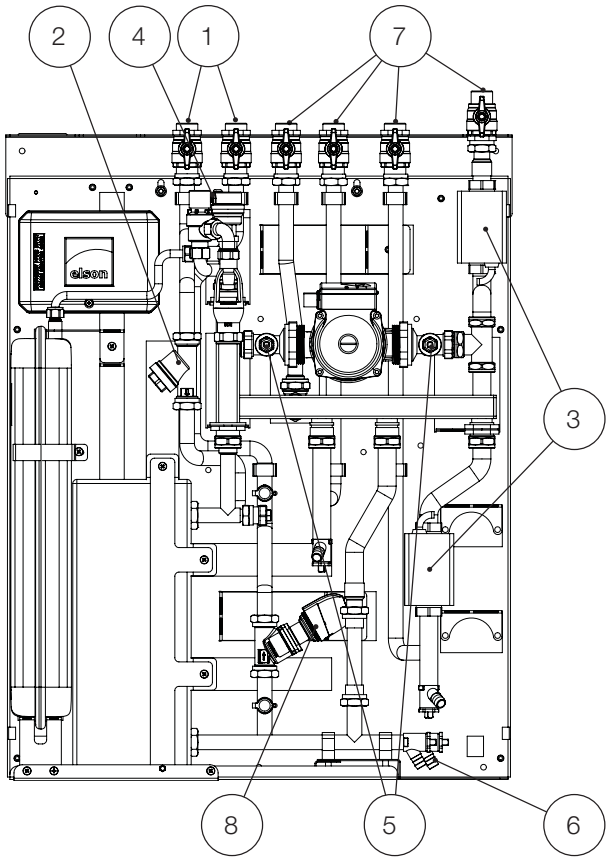
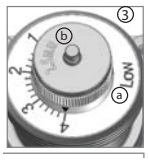


Fig 47. Setting the flow rate dial
Also see page 29 and Fig 30.



4) Once the district heating flow rate has been set, clip the actuator back on and switch on the power to the central heating system.

5) Using the controller manually override the heating and hot water. The radiators and hot water store should now start to heat up.

6) Set up the programmer times in line with the customers' requirements. Please refer to separate controller instructions for details.

7) Leave all instruction manuals on site with the client.

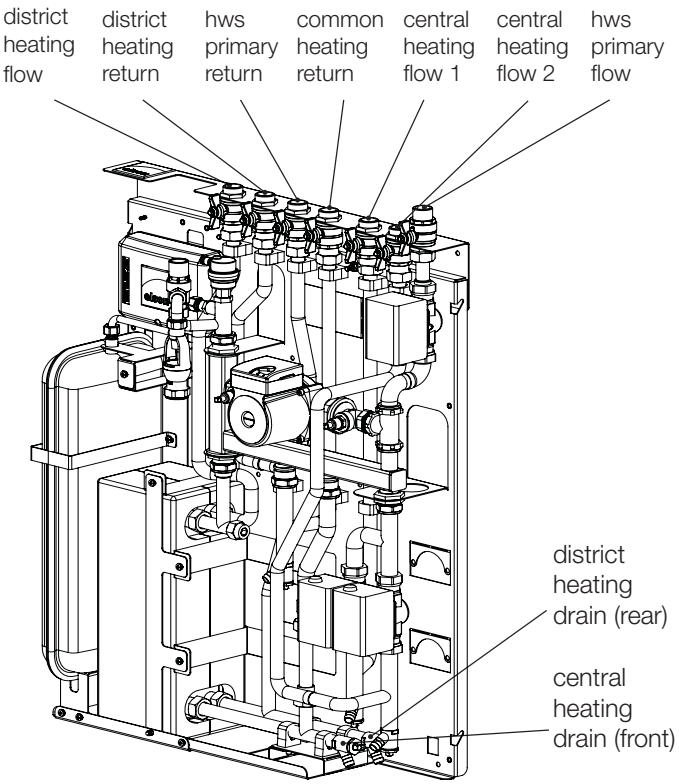
SERVICE

Check and clean strainer filter
The strainer filter is accessed through the strainer service plug as detailed in Fig 49.

1) Isolate the electrical supply.

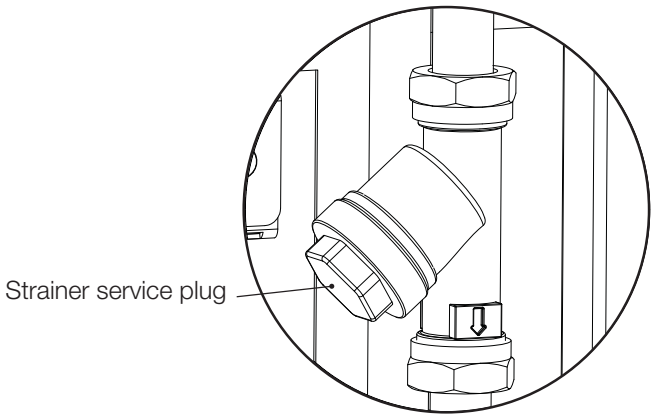
2) Using the isolation valves shut off the district heating flow and return connections as detailed in Fig 48.

Fig 48. District connections and drain cock



3) With the district heating system isolated, drain down the unit using the district heating drain cock as detailed in Fig 48.

Fig 49. Strainer service plug



4) Remove the strainer filter and clean under a cold water tap.

5) Replace filter, refit service plug, close drain cock, open up the district isolation valves and switch electrical power back on.

Check the inhibitor content in the system
1) Open the central heating drain cock to take a small sample of the water from the apartment central heating system. Using a protector test kit, check the concentration of inhibitor in the system.
2) Top up the system using the filling loop and add inhibitor as necessary.

Check the safety valve
1) Twist the red plastic cap anti-clockwise and witness water discharge through the tundish.
2) Using filling loop top up the system as necessary.

WARNING.
Any water discharged from the safety valve may be hot and pose a scalding risk.

Check gas charge in the expansion vessel
1) Isolate the central heating flow and return and HWS primary flow and return connections.
2) Drain down the CB unit on the apartments' heating circuit using the central heating drain.
3) Using a pressure gauge, check the gas charge in the expansion vessel. This should be 1.0 bar g.
4) If gas charge is low, recharge the gas pressure using a bicycle pump or compressor.

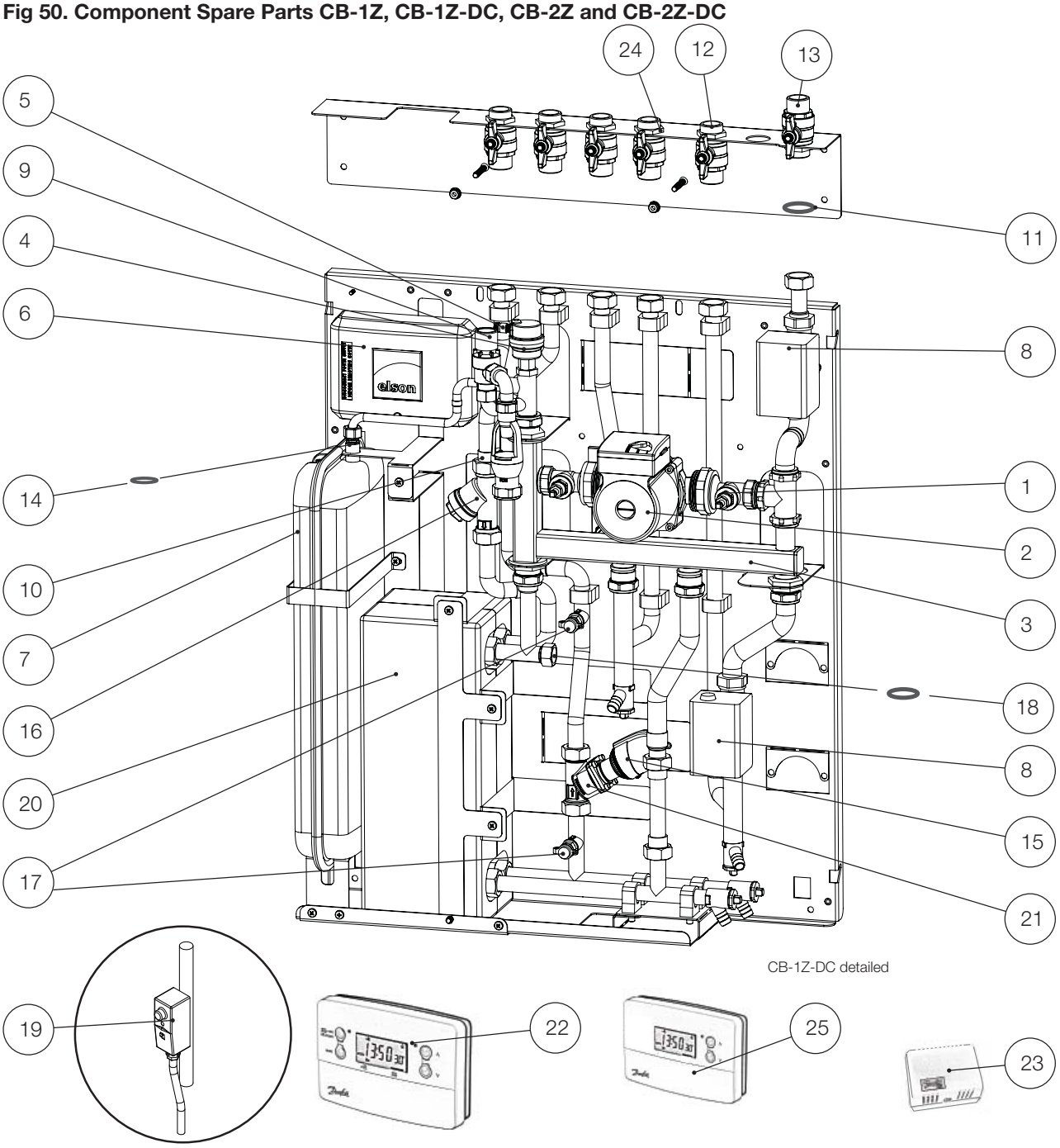
Check the system pressure
1) With the apartment central heating system cold, check the system pressure. This should be 1.3 bar g. Top up using the filling loop as necessary.

FAULT FINDING

Fault	Cause	Action
No Heating	Programmer incorrectly set, faulty, or wired incorrectly. Room thermostat set wrong, faulty, or wired incorrectly. Heating zone valve seized, faulty, or wired incorrectly. Central heating pump seized, faulty, or wired incorrectly. District heating control valve seized, blocked, faulty, or wired incorrectly. Strainer blocked. Isolation valves in closed position. Incorrectly piped.	Check programmer settings, wiring, and is operating correctly. Check room thermostat settings, wiring, and is operating correctly. Check zone valve wiring, is operating correctly and auxiliary switches. Check central heating pump wiring, is operating correctly. Check valve wiring and is operating correctly. Check pipe temperature either side of the valve. Check actuator is operational. Remove and clean as necessary. Remove and clean filter. Ensure all isolation valves are open. Ensure CB unit is correctly piped.
No hot water	Programmer incorrectly set, faulty, or wired incorrectly. Cylinder thermostat set wrong, faulty, or wired incorrectly. When used the district pipe stat is set wrong, faulty, not fitted correctly or district piping not correct. Hot water zone valve seized, faulty, or wired incorrectly. Central heating pump seized, faulty, or wired incorrectly. District heating control valve seized, blocked, faulty, or wired incorrectly. Strainer blocked. Isolation valves in closed position. Incorrectly piped.	Check programmer settings, wiring, and is operating correctly. Check cylinder thermostat settings, wiring, and is operating correctly. Check thermostat setting, check the stat is fitted to the pipe correctly, ensure the thermostat is on the correct pipe with heat constantly flowing through it. Check zone valve wiring, is operating correctly and auxiliary switches. Check central heating pump wiring, is operating correctly. Check valve wiring, is operating correctly. Check pipe temperature either side of the valve. Check actuator is operational. Remove and clean as necessary. Remove and clean filter. Ensure all isolation valves are open. Ensure CB unit is correctly piped.
No heating or hot water	No power to programmer / heating system. Programmer incorrectly set, faulty, or wired incorrectly. Cylinder and room thermostat set wrong, faulty, or wired incorrectly. Heating and hot water zone valve seized, faulty, or wired incorrectly. Central heating pump seized, faulty, or wired incorrectly. District heating control valve seized, blocked, faulty, or wired incorrectly. Strainer blocked. Isolation valves in closed position. Incorrectly piped.	Check power supply / fuse / circuit breaker. Check programmer settings, wiring, and is operating correctly. Check cylinder and room thermostat settings, wiring, and is operating correctly. Check zone valve wiring, is operating correctly and auxiliary switches. Check central heating pump wiring, is operating correctly. Check valve wiring, is operating correctly. Check pipe temperature either side of the valve. Check actuator is operational. Remove and clean as necessary. Remove and clean filter. Ensure all isolation valves are open. Ensure CB unit is correctly piped.
Insufficient heat	Low district heating flow temperature. Low district heating flow rate. No district heating flow to the CB unit. Distribution pumps not set correctly or under sized.	Check district flow pipe temperature / heat meter temperatures. Check central boiler flow temperature settings and boiler size. Using manometer check pressure drop across district control valve to verify flow rate, check and clean strainer, isolation valves and district control valve. Check pipe sizing. Check strainer isn't blocked, check isolation valves and district control valve are fully open. Check district heating pumps.

SPARES

Fig 50. Component Spare Parts CB-1Z, CB-1Z-DC, CB-2Z and CB-2Z-DC



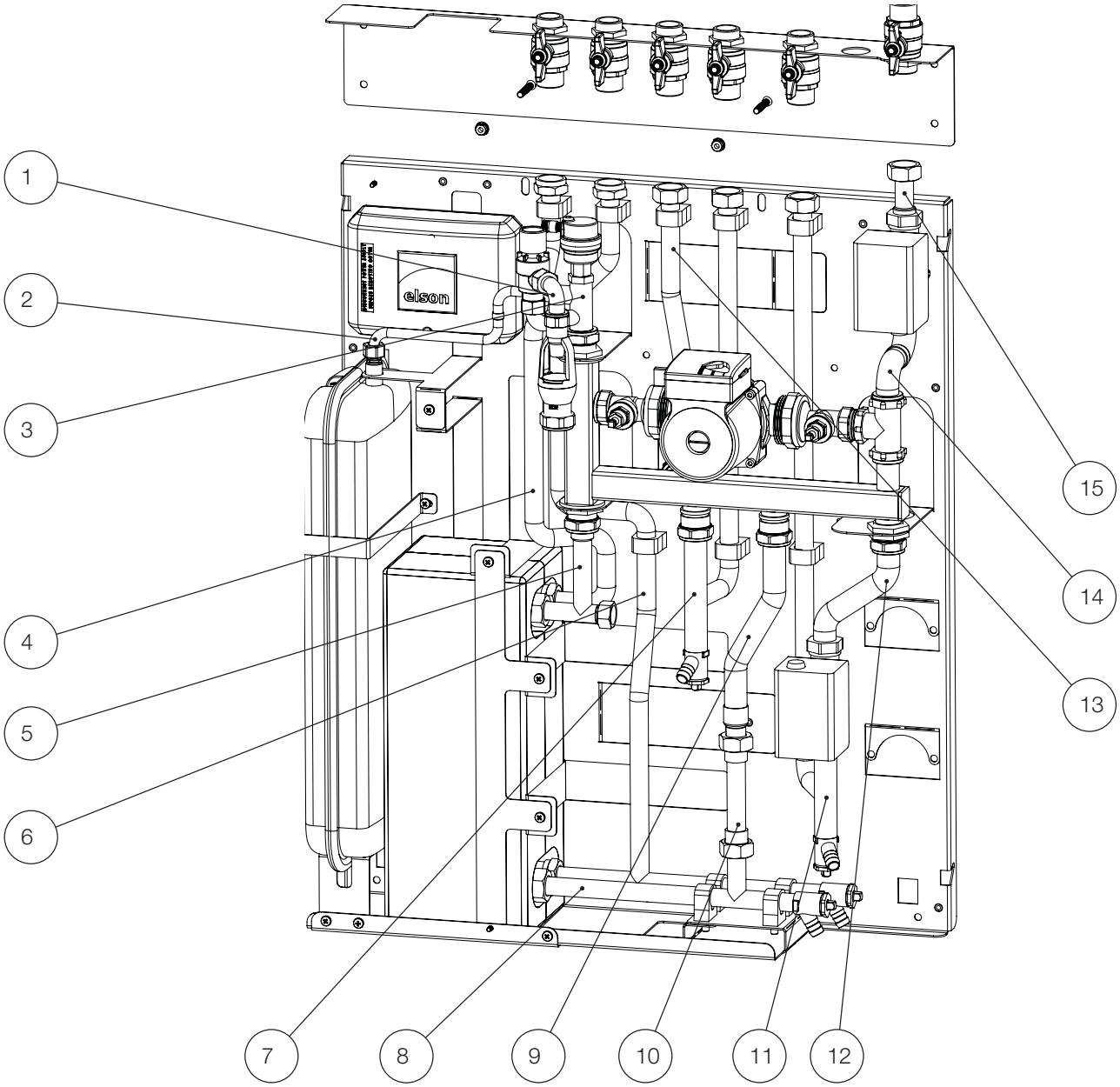
CB-1Z-DC detailed

Pos	Description	Part Number
1	Pump valve	40120010
2	Pump	24400021
3	Manifold	90000002
4	Automatic air vent - 3/8”	24200121
5	AAV anti suction valve	24200122
6	Wiring centre	24400022
7	Expansion vessel - 8 litre	24100037
8	Two port zone valve - 22mm	95605819
9	Safety valve - 15mm - 3 bar	95607095
10	Tundish - Straight - 15mm x 22mm Plastic	95605838
11	Washer - EPDM - 3/4”bsp	38450008
12	Isolation valve 3/4” bsp male/male (blue)	5136203
13	Isolation valve 3/4” bsp male/male (red)	5136204

Pos	Description	Part Number
14	Washer - EPDM - 3/8”bsp	24100039
15	Actuator - on/off - 230V	24500024
16	Strainer - 3/4” bsp male/male	24500020
17	Binder test points - 1/4” bsp (pack of 2)	24500022
18	Washer - EPDM - 1/2”bsp	24100041
19	District heating flow thermostat	24400017
20	Plate heat exchanger	24100040
21	District heating control valve	24500019
22	TP9000 Programmer	95607903
23	TS2 Room Thermostat	95607904
24	Locking nut 3/4”bsp	24200153
25	TP5000 Programmable room thermostat	95607044

SPARES

Fig 51. Prefabricated Pipe Spare Parts - CB-1Z

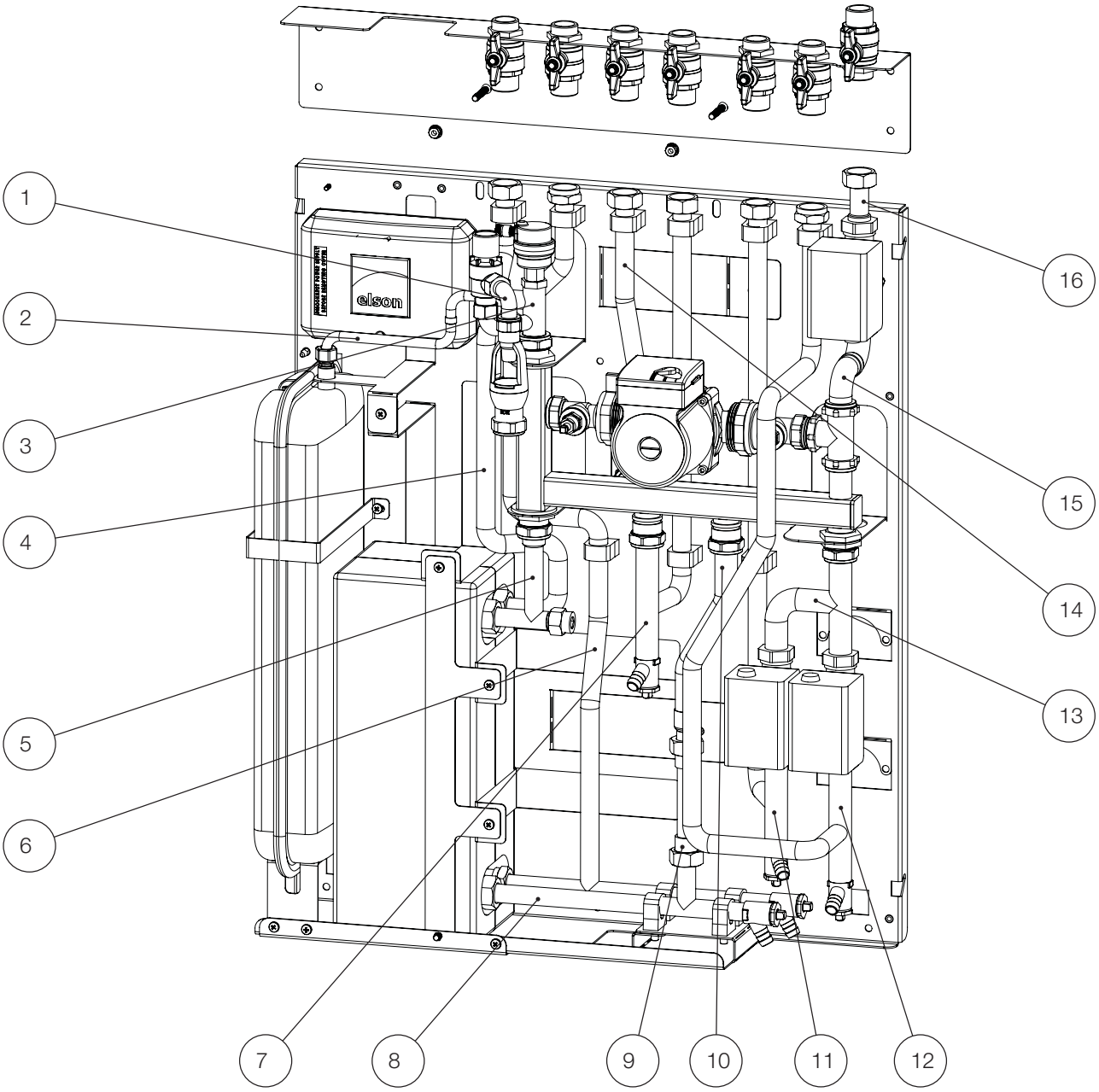


Pos	Description	Part Number
1	Pipe - Safety valve discharge	24200016
2	Pipe - Expansion vessel connection	24200146
3	Pipe - AAV and expansion vessel	24200137
4	Pipe - Plate heat exchanger to district flow	24200160
5	Pipe - Plate heat exchanger to manifold flow	24200132
6	Pipe - Plate heat exchanger to district heating return	24200157
7	Pipe - Manifold to heating return	24200131
8	Pipe - Heat meter to plate heat exchanger return	24200135

Pos	Description	Part Number
9	Pipe - Manifold to heat meter	24200134
10	Pipe - Heat meter stool piece	24200133
11	Pipe - Heating flow to zone valve 1	24200136
12	Pipe - Manifold to heating zone valve 1	24200138
13	Pipe - Cylinder primary return	24200130
14	Pipe - Manifold to HWS zone valve	24200144
15	Pipe - HWS Zone valve to 3/4” ball valve	24200145

SPARES

Fig 52. Prefabricated Pipe Spare Parts - CB-2Z

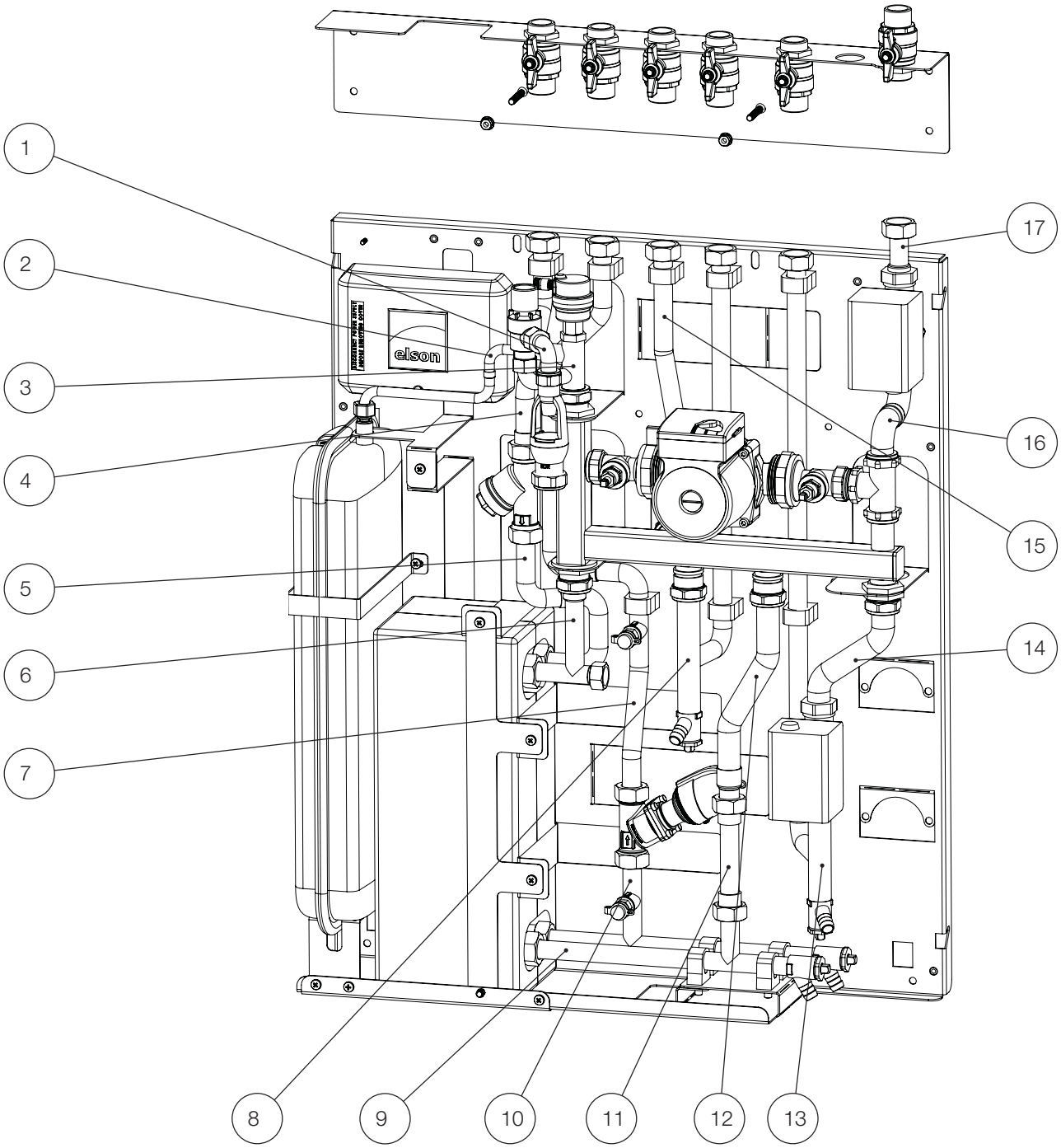


Pos	Description	Part Number
1	Pipe - Safety valve discharge	24200016
2	Pipe - Expansion vessel connection	24200146
3	Pipe - AAV and expansion vessel	24200137
4	Pipe - Plate heat exchanger to district heating flow	24200160
5	Pipe - Plate heat exchanger to manifold flow	24200132
6	Pipe - Plate heat exchanger to district heating return	24200157
7	Pipe - Manifold to heating return	24200131
8	Pipe - Heat meter to plate heat exchanger return	24200135

Pos	Description	Part Number
9	Pipe - Heat meter stool piece	24200133
10	Pipe - Manifold to heat meter	24200134
11	Pipe - Heating flow to zone valve 1	24200136
12	Pipe - Heating flow to zone valve 2	24200155
13	Pipe - Manifold to heating zone valve 1 & 2	24200156
14	Pipe - Cylinder primary return	24200130
15	Pipe - Manifold to HWS zone valve	24200144
16	Pipe - HWS Zone valve to 3/4” ball valve	24200145

SPARES

Fig 53. Prefabricated Pipe Spare Parts - CB-1Z-DC

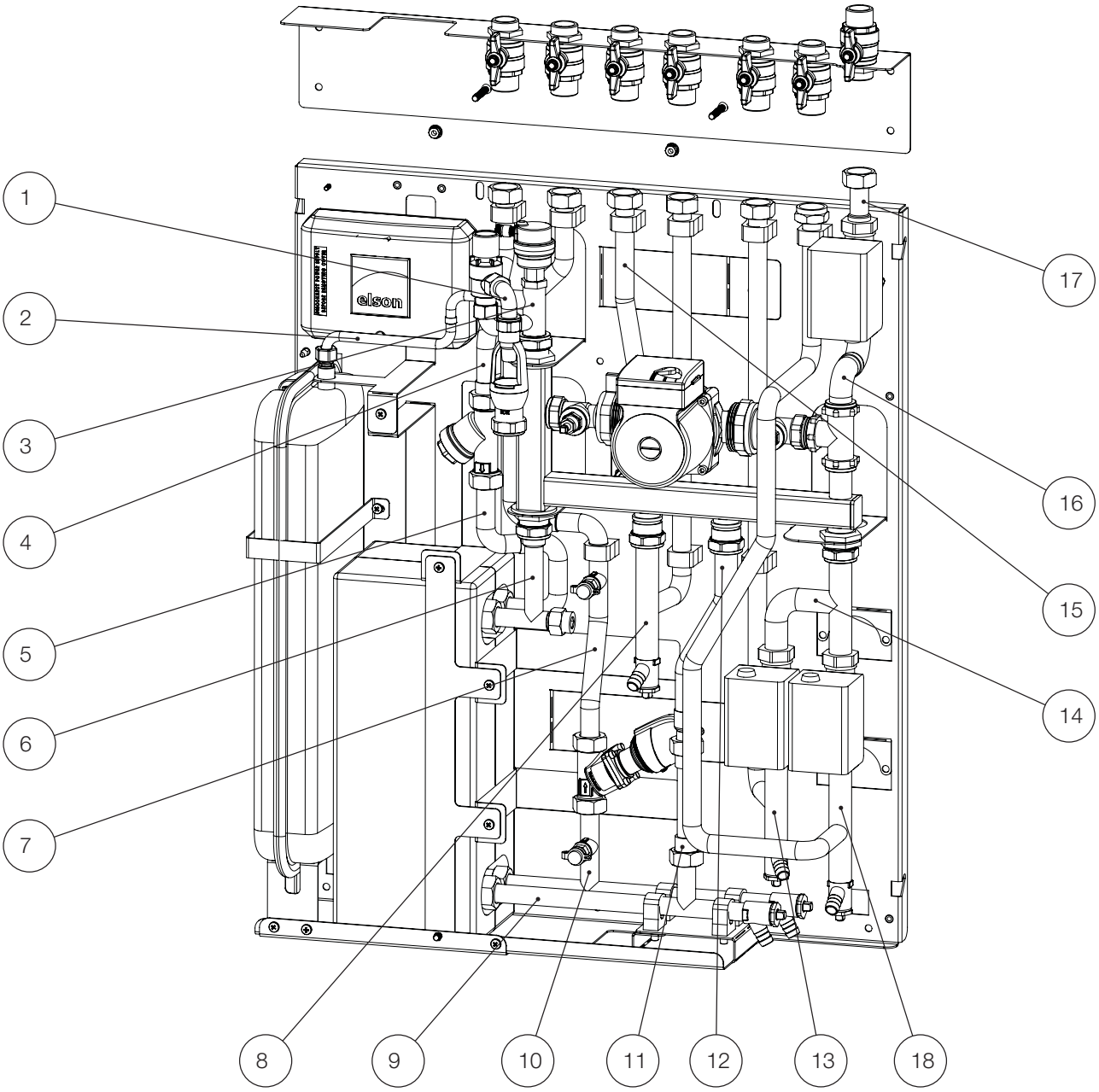


Pos	Description	Part Number
1	Pipe - Safety valve discharge	24200016
2	Pipe - Expansion vessel connection	24200146
3	Pipe - AAV and expansion vessel	24200137
4	Pipe - Strainer to district heating flow	24200139
5	Pipe - Plate heat exchanger to strainer	24200140
6	Pipe - Plate heat exchanger to manifold flow	24200132
7	Pipe - District valve to district heating return	24200141
8	Pipe - Manifold to heating return	24200131
9	Pipe - Heat meter to plate heat exchanger return	24200135

Pos	Description	Part Number
10	Pipe - Plate heat exchanger to district valve	24200142
11	Pipe - Heat meter stool piece	24200133
12	Pipe - Manifold to heat meter	24200134
13	Pipe - Heating flow to zone valve 1	24200136
14	Pipe - Manifold to heating zone valve 1	24200138
15	Pipe - Cylinder primary return	24200130
16	Pipe - Manifold to HWS zone valve	24200144
17	Pipe - HWS Zone valve to 3/4” ball valve	24200145

SPARES

Fig 54. Prefabricated Pipe Spare Parts - CB-2Z-DC



Pos	Description	Part Number
1	Pipe - Safety valve discharge	24200016
2	Pipe - Expansion vessel connection	24200146
3	Pipe - AAV and expansion vessel	24200137
4	Pipe - Strainer to district heating flow	24200139
5	Pipe - Plate heat exchanger to strainer	24200140
6	Pipe - Plate heat exchanger to manifold flow	24200132
7	Pipe - District valve to district heating return	24200141
8	Pipe - Manifold to heating return	24200131
9	Pipe - Heat meter to plate heat exchanger return	24200135

Pos	Description	Part Number
10	Pipe - Plate heat exchanger to district valve	24200142
11	Pipe - Heat meter stool piece	24200133
12	Pipe - Manifold to heat meter	24200134
13	Pipe - Heating flow to zone valve 1	24200136
14	Pipe - Manifold to heating zone valve 1 & 2	24200156
15	Pipe - Cylinder primary return	24200130
16	Pipe - Manifold to HWS zone valve	24200144
17	Pipe - HWS Zone valve to 3/4” ball valve	24200145
18	Pipe - Heating flow to zone valve 2	24200155

Sales & Support

Guarantee

The BDR Thermea products within the Elson package such as the boiler, cylinder or thermal store will follow their respective warranties. The additional components outside the scope of these warranties are covered under the package warranty and this includes on site service support including parts and labour for 24 months from date of installation unless otherwise stated in the contract documentation.

The guarantee is valid provided that:

- It has been correctly installed as per the instructions contained in the instruction manual and all relevant Codes of Practice and Regulations in force at the time of installation.
- It has not been modified in any way, other than by Elson.
- It has not been frost damaged.
- It has not been tampered with or been subjected to misuse or neglect.
- It has been installed in the United Kingdom.
- The fault is not caused by high chloride levels in the water supply or incorrect disinfection methods.

Evidence of purchase and date of supply may be required. The guarantee is transferable. This guarantee does not affect your statutory rights.

Servicing

heateam

heateam is Elson's service division. With us on your side, you can be sure that your customers are in the very best of hands. Totally committed to quality and safety, heateam is open 7 days a week, for 363 days a year.

*excluding Christmas Day and New Year's Day.

Simply call **0844 335 8819** or visit our website at **www.heateam.co.uk**

Spares

For all technical support, replacement parts & service issues please contact the Elson service desk.

Policy Statement

The policy of Elson is one of continuous product development and, as such, we reserve the right to change specifications without notice.

Fifers Lane, Norwich, Norfolk. NR6 6XB
T: 0844 335 8819
F: 0844 871 1528
E: elson.service@heateam.co.uk
W: elsonhotwater.co.uk

24700044