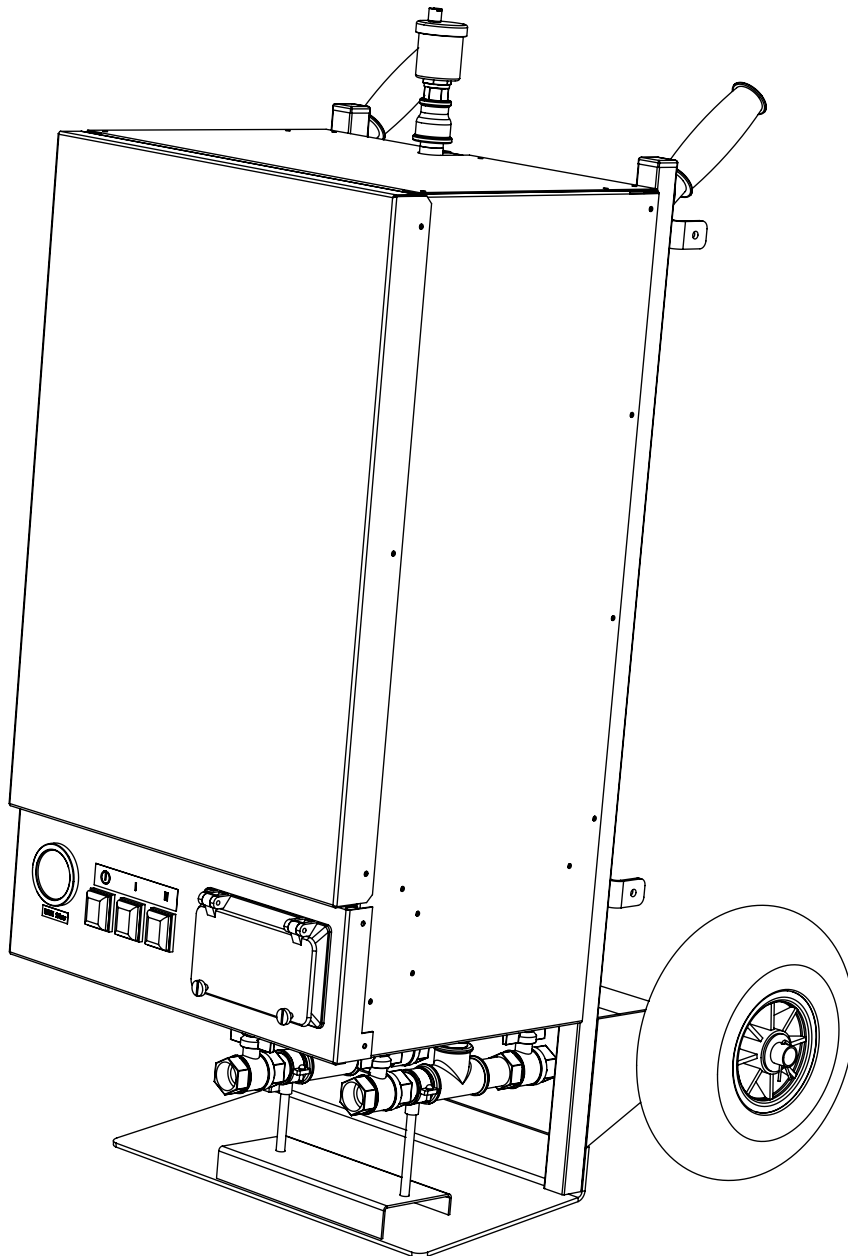


WB22

22Kw PORTABLE ELECTRIC BOILER.

PRODUCT MANUAL



WARNINGS

These instructions should be read by:

The specifying engineer.
The installation engineer.
The user.
The service engineer.



- Any failure to follow these instructions may result in risk of personal injury or pollution.
- The appliance must be installed and serviced by qualified engineers, in compliance with local regulations.
- Do not switch on if there is a risk that the boiler is frozen.
- Do not attempt to alter factory set digital controller parameters.
- The appliance must be switched off and disconnected from its power supply before any work is carried out.
- There are no user controls inside the appliance casing.
- Do not by-pass or over-ride safety devices.
- A copy of these instructions must be provided to the user.
- Do not run the boiler with the hot water inlet and outlet valves closed. This could result in failure of the circulation pump.
- The correct operation of the pressure safety valve must be verified before each installation.
- Risk of scalding. Always allow the boiler to cool before carrying out any work.
- Do not exceed the maximum system capacity.
- Always add a rust inhibitor to the system during each installation. Failure to add an inhibitor could damage the low pressure water switch.

Specifications:

The WB22 is a 22Kw 3-phase portable electric boiler.
It is connected to the power supply with a 3P+N+E 32A plug.

The heat exchanger is of a welded mild steel construction and has been hydraulically tested to 5 bar.

The boiler can be connected to a heating system without the need for a feed and expansion system.

Maximum system capacity 160 Litres.
The appliance comes complete with: 10 Litre expansion vessel, circulation pump, pressure gauge, digital thermostat / controller, safety valve, low water pressure switch, safety limit thermostat and control switches.

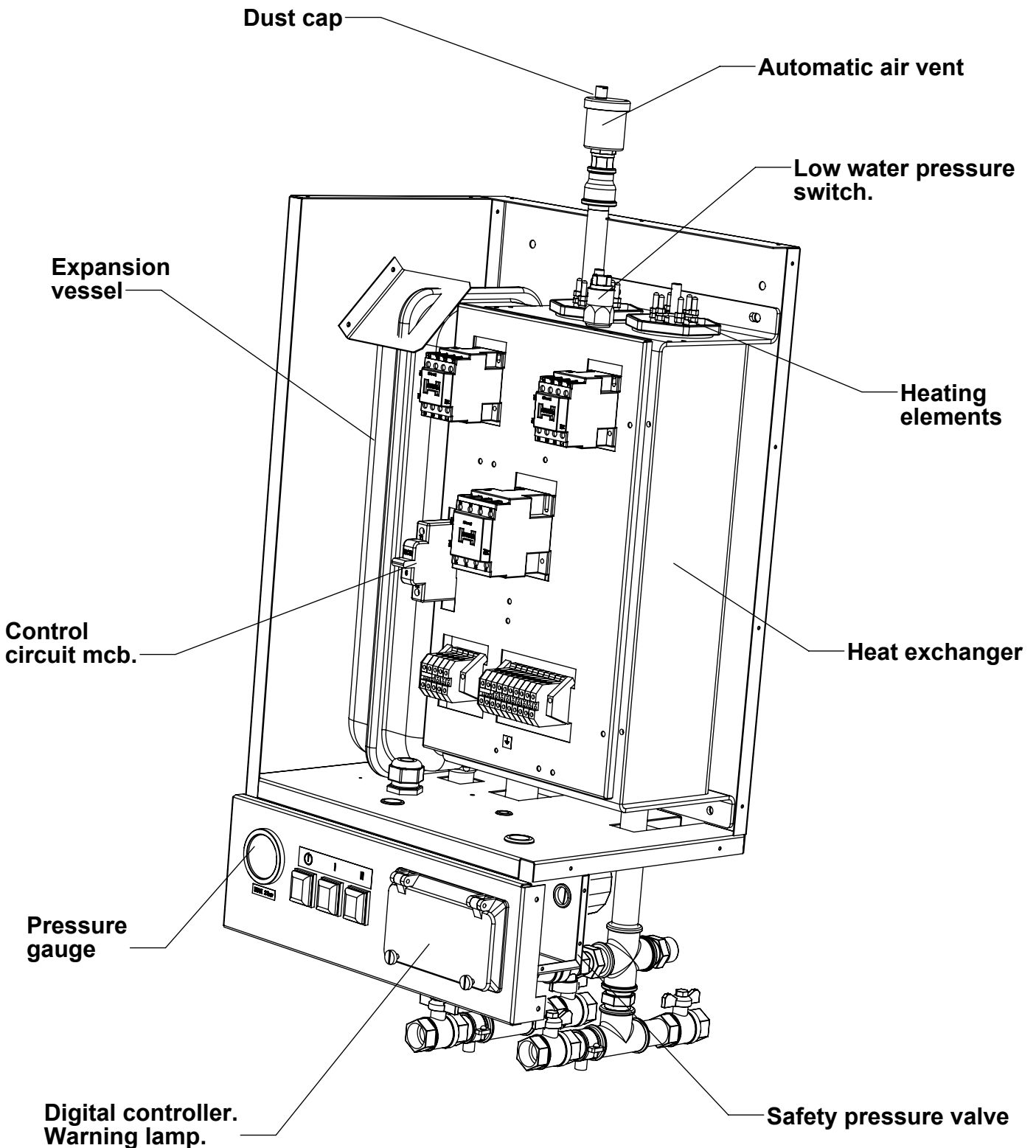
The boiler is suitable for connection to most heating systems with a maximum working pressure of 3 bar and a maximum working temperature of 85°C.

Digital thermostat / controller:

The boiler temperature is controlled by a digital controller which is set by the user to give the desired boiler temperature. This is the set point.

During normal operation the controller display shows the actual boiler temperature not the set temperature.

This controller incorporates a warning alarm in cases of high or low operating temperatures. Please note ! The alarm acts as a visual warning only and does not inhibit the operation of the boiler.





**Manual reset safety
limit thermostat**

**Circulation
pump**

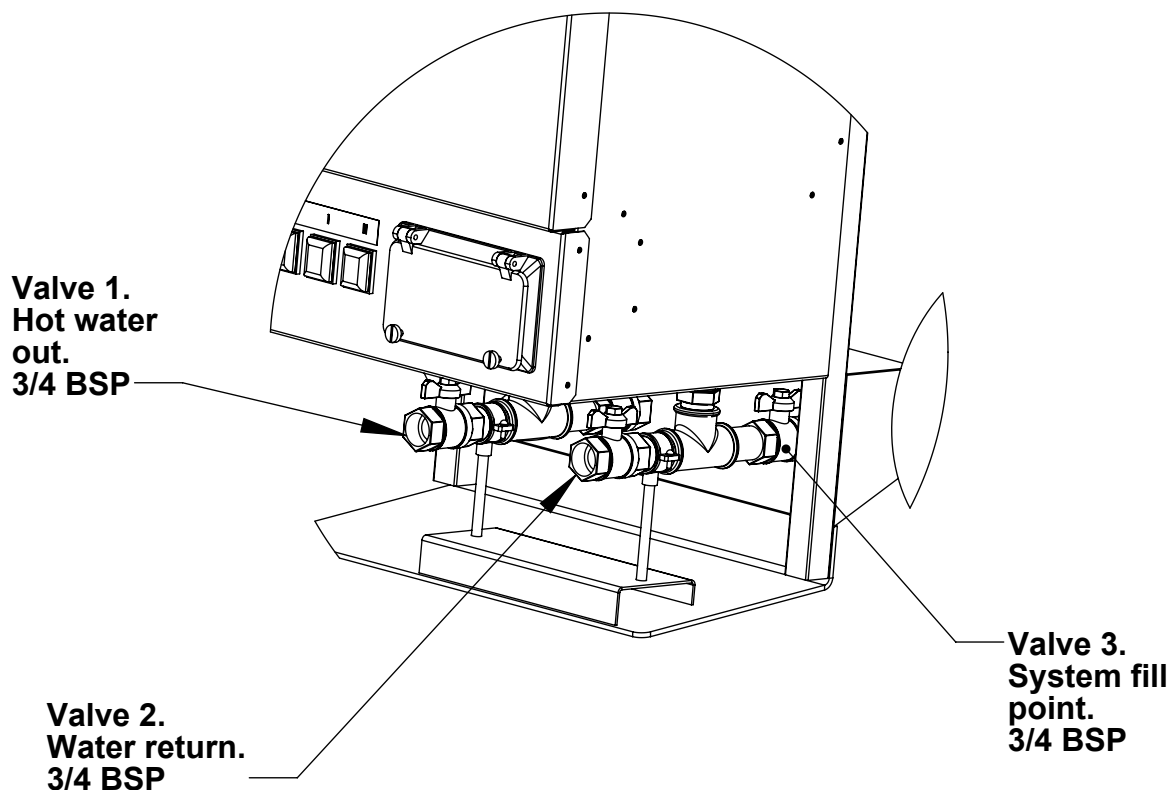
Heating out

**Heating
return**

Installing the boiler:

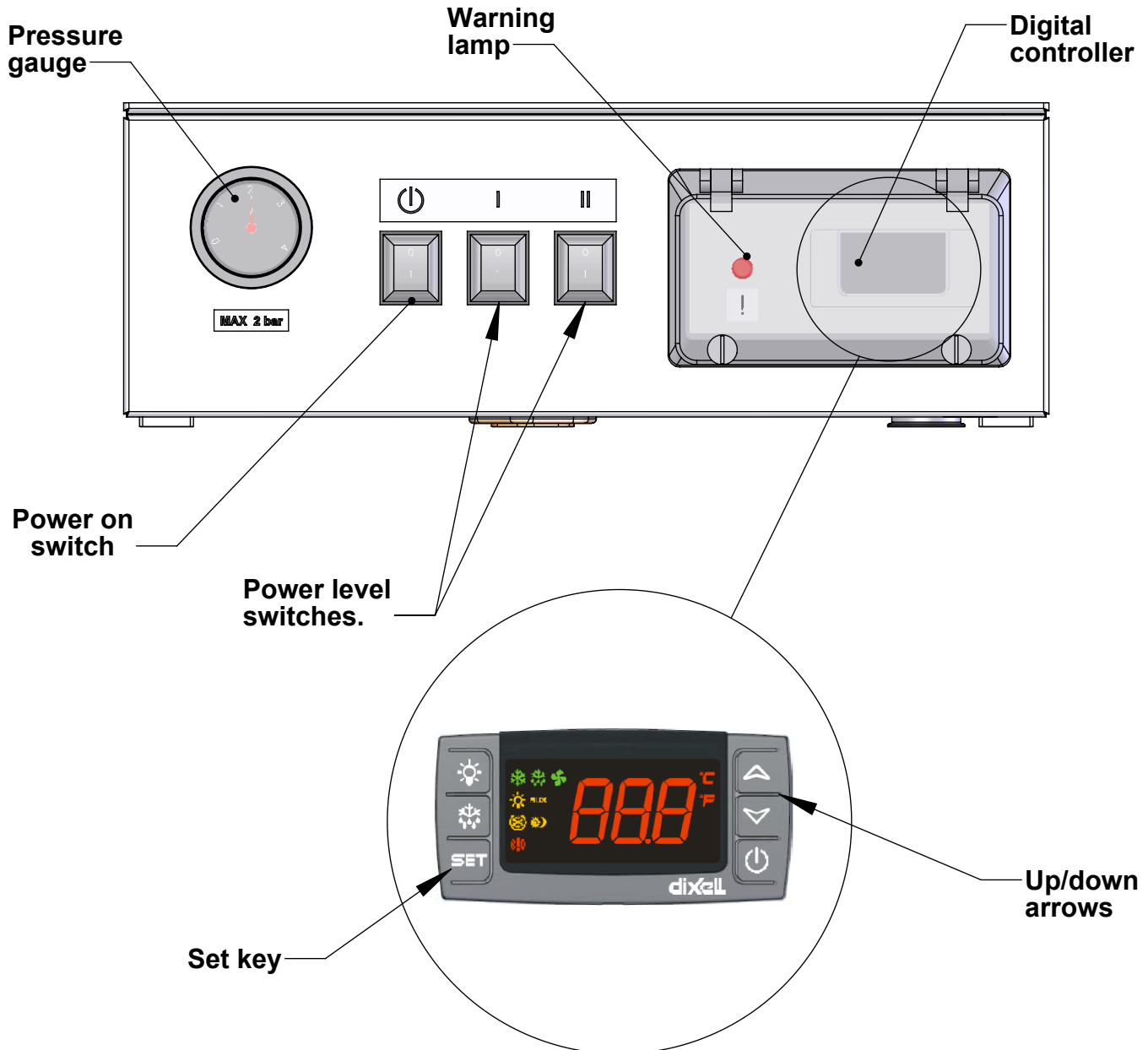
Before connecting to the power supply:

- The system should be cleansed prior to connection of the boiler and the system water should be treated to prevent corrosion.
- Connect water pipes to the radiator system or air handler.
- Open valves 1 & 2 on the boiler.
- Loosen the protective dust cap on the automatic air vent. Do not re-tighten.
- Connect a filling hose to valve 3.
- Open all valves at radiators or air handling unit.
- Fill the system to a pressure of between 1 -1.5 bar. Shut off valve 3.
- Bleed any air from the radiators or air handling unit. Top system back up to a pressure of between 1 - 1.5 bar. Shut off valve 3. Do not pressurise above 2 bar.
- Inspect the entire system for leaks.
- Connect the appliance to the power supply. Press the 'power on' switch. The digital controller will illuminate and the circulation pump will operate. Check the pump operation by feeling the outlet pipe for small vibration.
- Set the digital controller set point to the desired temperature.
- The boiler has two power level switches. I=11Kw and I + II=22Kw. Select the required setting.



How to see the set point:

- The set point is the maximum temperature the boiler will operate up to.
- To see the set point push and immediately release the SET key: the display will show the set point value.
- Push and immediately release the SET key or wait for 5 seconds to display the boiler temperature.



How to change the set point:

- Push the SET key for more than 2 seconds to change the set point value.
- The value of the set point will be displayed and the "°C" LED starts blinking.
- To change the set point value push the up or down arrows within 10 seconds. The maximum set point is 70°C It is normal for the boiler to cycle a few degrees above this point.
- To memorise the new set point value push the SET key again or wait 10 seconds.

Safety devices:

The boiler is fitted with three safety devices. These must not be by-passed or disabled at any time:

- **Safety pressure valve:** Should the system pressure rise above 3bar the safety pressure valve on the bottom of the boiler will open and drain the water. In this instance please contact your installer.
- **Low water pressure switch:** to prevent the boiler operating with insufficient water a low water pressure switch is fitted. Should the water pressure fall below approximately 0.8 bar this switch will activate the warning lamp and shut the system down.
- **Manual reset safety limit thermostat:** Should the temperature of the boiler rise above 85°C the safety limit thermostat will activate the warning lamp and shut the system down. In this instance please contact your installer.

Frost prevention:

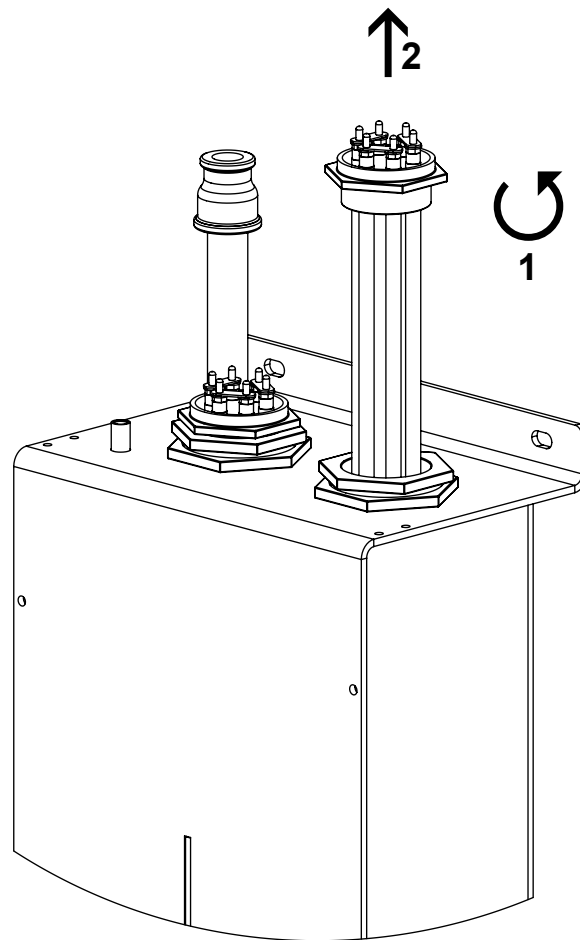
Do not operate the boiler if there is a risk that it is frozen:

- If the boiler is not in regular daily use during cold periods it is recommended that it is set to power level I and the set point is lowered to 5°C, this will offer basic frost protection. Alternatively the system can be fitted with a frost sensing thermostat to prevent freezing.
- Should the temperature of the heat exchanger fall to 1°C a warning will be displayed on the digital controller. 'LA'. This is a visual warning only, it does not shut down the boiler and does not indicate if any radiators or air handler units are frozen.
- If the boiler is not used for prolonged periods it is recommended that the system is drained.

Maintenance:

- For safety reasons it is recommended that regular servicing be carried out by a qualified engineer. These should include inspections of the steel heat exchanger in accordance with local regulations.
- During each installation operation of the safety pressure valve and low water pressure switch should be verified.
- A visual inspection of all cables and terminations should be performed before each installation.

Heating element removal:

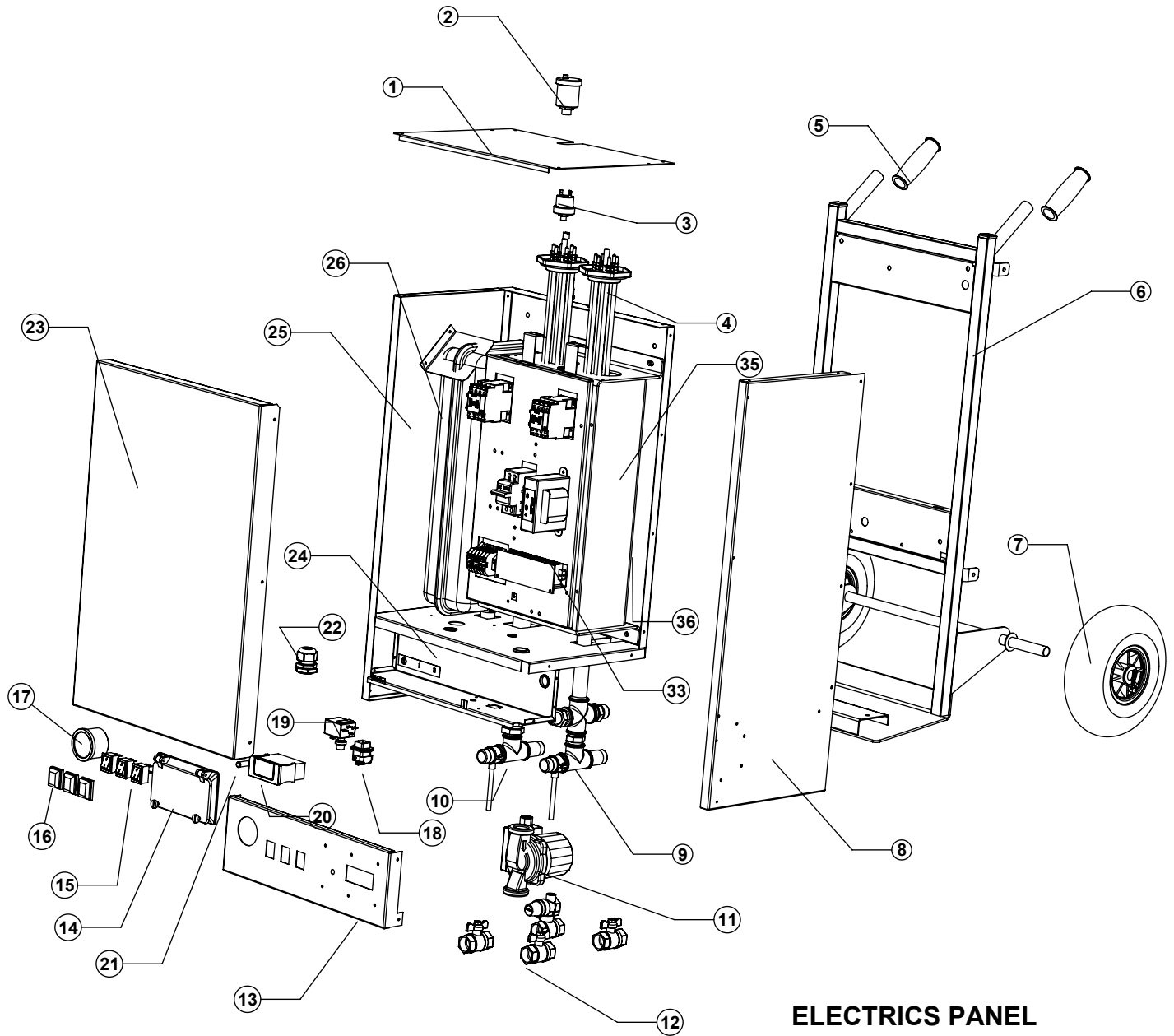


When refitting the element ensure rubber sealing washer is present.

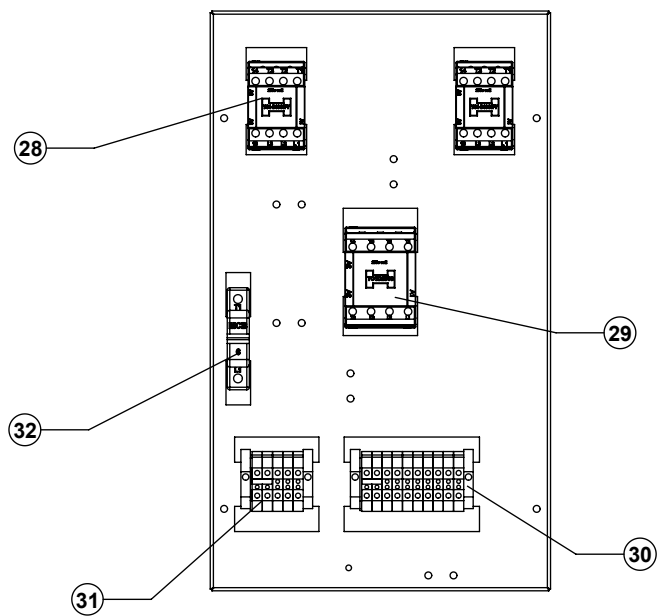
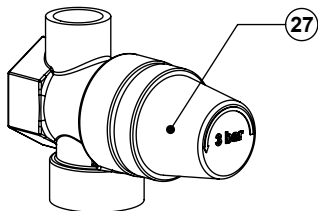
Digital controller alarm codes:

- LA..... Low temperature warning.
- HA..... High temperature warning.
- P1..... Temperature probe fail.

WB22-16 EXPLODED VIEW



ELECTRICS PANEL

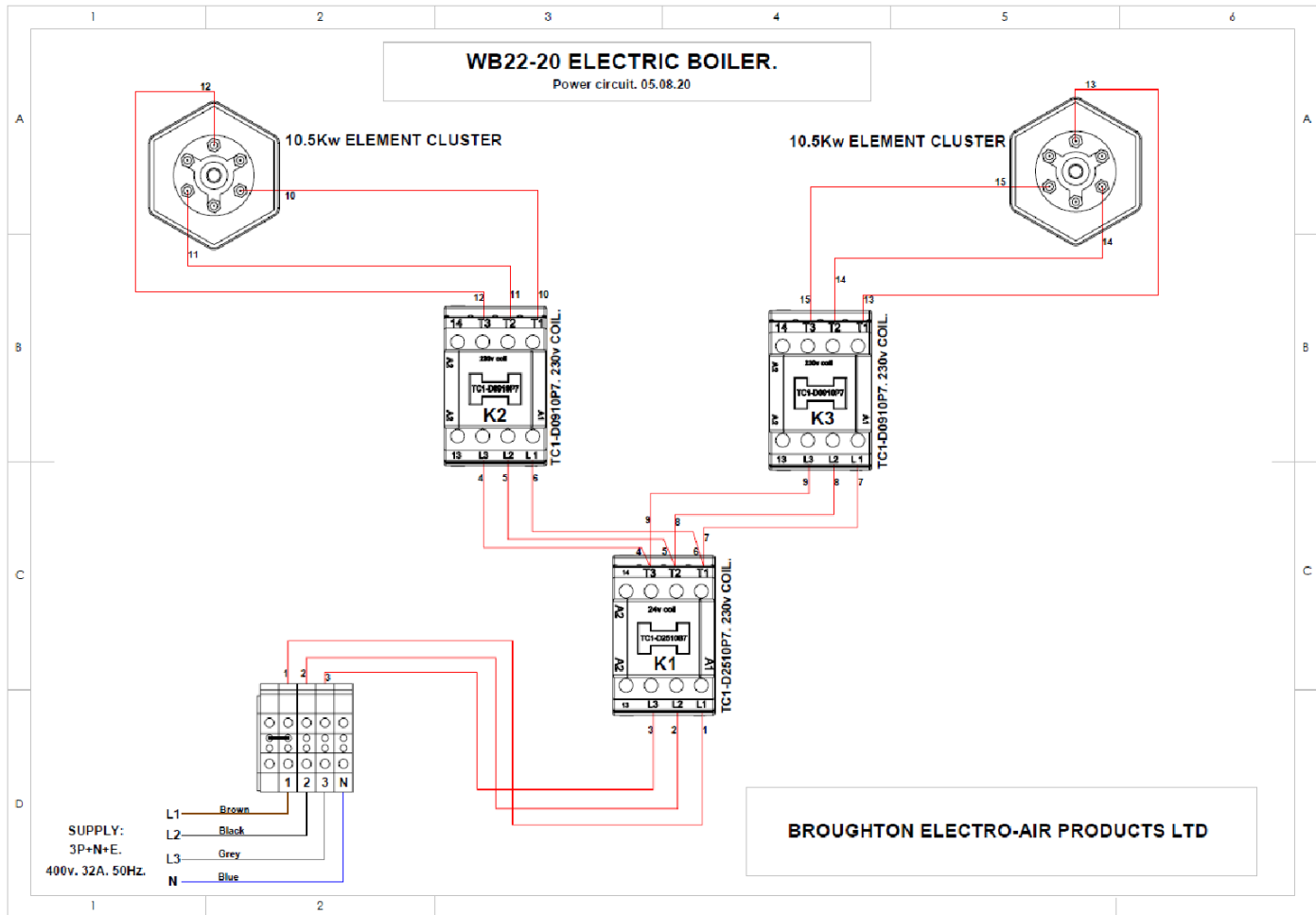
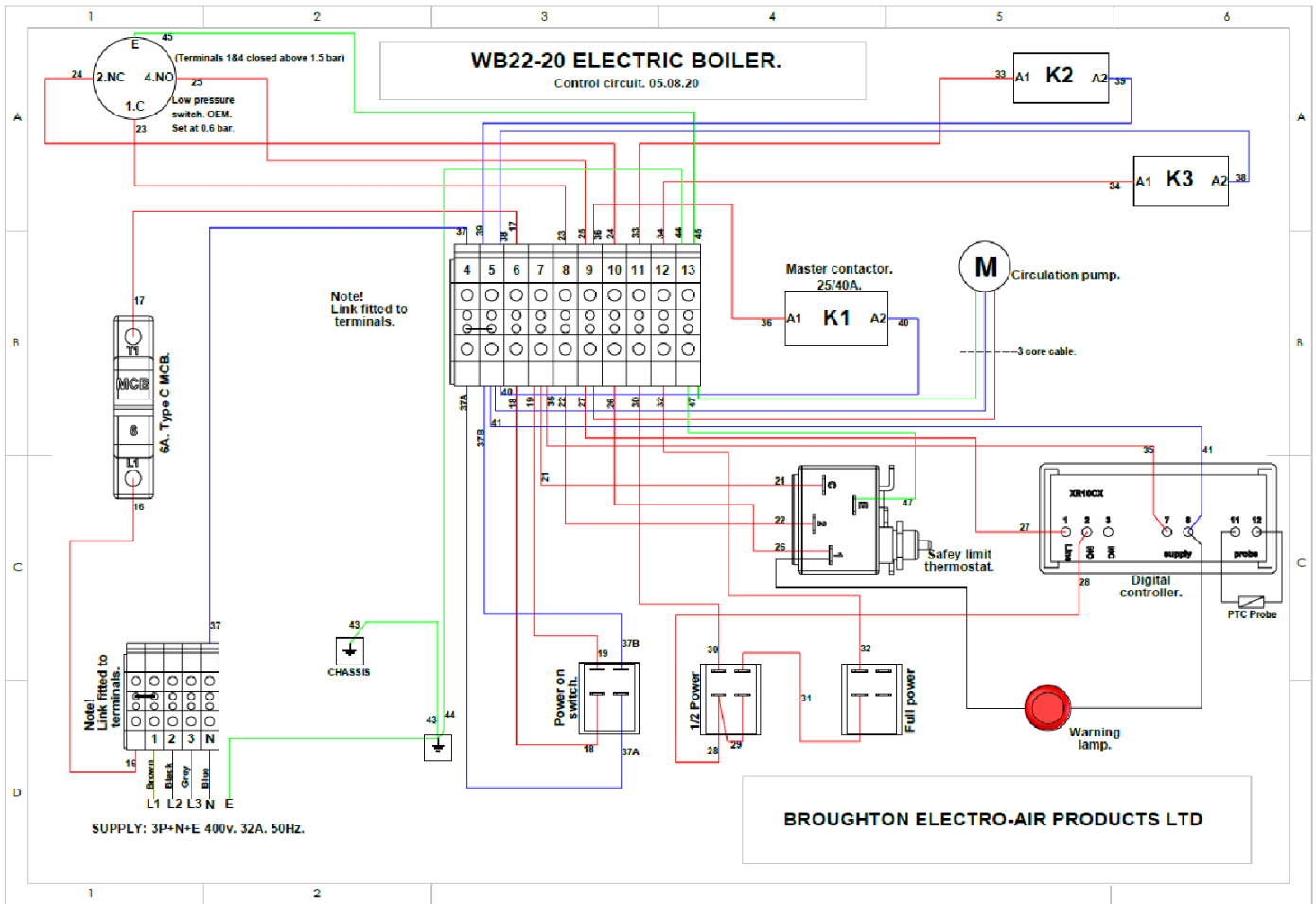


WB22-16 SPARE PARTS

REF	PART #	DESCRIPTION	PRICE
1	BW020291	TOP PANEL	
2	ME040198	AUTOMATIC AIR VENT	
3	EL040124	LOW PRESSURE SWITCH	
4	HE010116	HEATING ELEMENT	
5	ME040431	RUBBER HANDLE GRIP	
6	BW020283	TROLLEY FRAME	
7	ME010105	PNEUMATIC WHEEL	
8	BW00285	RIGHT SIDE PANEL	
9	ME0401114	INLET MANIFOLD ASSEMBLY	
10	ME0401113	OUTLET MANIFOLD ASSEMBLY	
11	ME040197	CIRCULATION PUMP	
12	ME0401107	3/4" BALL VALVE	
13	BW020287	CONTROL PANEL	
14	BW040509	INSPECTION WINDOW	
15	EL030135	0/1 ROCKER SWITCH	
16	EL040121	SPLASH PROOF COVER FOR ABOVE	
17	ME0401112	PRESSURE GAUGE	
18	EL020523	POWER TAKE-OFF SOCKET+ CAP	
19	EL030415	SAFETY LIMIT THERMOSTAT	
20	EL030403	DIGITAL CONTROLLER XR10.	
21	EL030709	9mm INDICATOR LAMP	
22	ME040204	PG21 CABLE GLAND AND LOCK NUT	
23	BW020288	FRONT PANEL	
24	BW020286	BOTTOM PANEL	
25	BW020284	LEFT SIDE PANEL	
26	ME0401111	EXPANSION TANK	
27	ME0401100	PRESSURE RELIEF VALVE	
28	EL010232	9/25A CONTACTOR. 230V.	
29	EL010234	CONTACTOR. 40/25A. 230v COIL.	
30	EL020422	DIN TERMINAL END STOP	
31	EL020413	6mm DIN TERMINAL	
32	EL010222	6A MCB. TYPE C. SINGLE POLE.	
33	BW020289	ELECTRICS PANEL	
34	EL030416	Ptc PROBE (NOT SHOWN)	
35	BW020292	HEAT EXCHANGER	
36	BW020290	BACK PANEL	
37	EL020133	5 CORE 2M CABLE C/W 32A 3P+N+E PLUG ASSEMBLY (NOT SHOWN)	

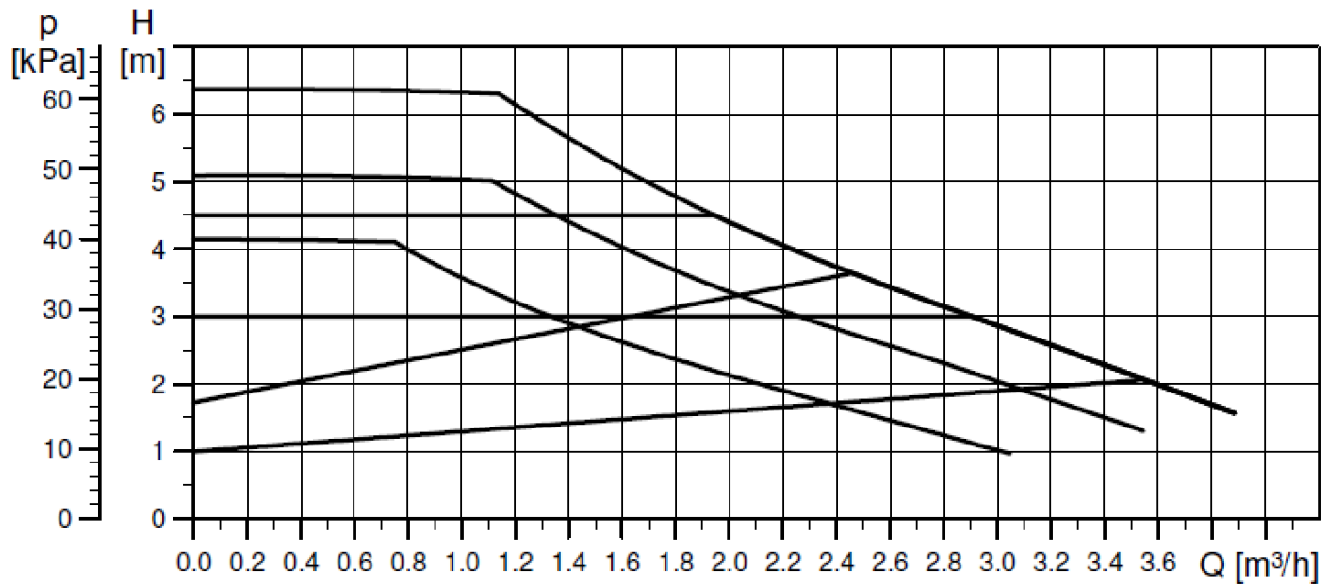
FAULT FINDING

DO NOT ATTEMPT TO CARRY OUT RECTIFICATION WORK UNLESS THE APPLIANCE HAS BEEN ISOLATED FROM THE POWER SUPPLY! ENSURE CORRECT ISOLATION PROCEDURES ARE FOLLOWED AT ALL TIMES.		
FAULT	POSSIBLE CAUSE	SOLUTION
BOILER FAILS TO START. WARNING LAMP NOT ILLUMINATED. DIGITAL CONTROLLER NOT ILLUMINATED	UNIT NOT SWITCHED ON	GO THROUGH START SEQUENCE.
	INTERNAL MCB TRIPPED	RESET MCB. INVESTIGATE CAUSE OF TRIPPING.
	FAULTY POWER SUPPLY	CHECK POWER SUPPLY AND RECTIFY.
BOILER FAILS TO START. DIGITAL CONTROLLER ILLUMINATED. WARNING LAMP ILLUMINATED.	WATER PRESSURE LOW	CHECK WATER PRESSURE IS BETWEEN 1.5 AND 2 bar. TOP SYSTEM UP AND RESTART.
	SAFETY LIMIT THERMOSTAT ACTIVATED. EXCESSIVE TEMPERATURE.	RESET THE SAFETY THERMOSTAT. INVESTIGATE THE CAUSE OF TRIPPING. IT SHOULD BE NOTED THAT IT CAN TAKE A SIGNIFICANT TIME FOR THE THERMOSTAT TO COOL SUFFICIENTLY TO RESET. IF THE PROBLEM PERSISTS CONTACT SUPPLIER.
BOILER RUNNING NORMALLY. NO HEATING AT RADIATORS OR HEATING OUTLETS.	INLET OR OUTLET VALVES CLOSED.	RECTIFY AND RESTART
INSUFFICIENT TEMPERATURE RISE AT RADIATORS OR HEATING OUTLETS.	DIGITAL CONTROLLER SET POINT TOO LOW.	RESET TO DESIRED TEMPERATURE.
	SYSTEM TOO LARGE FOR THE CAPACITY OF THE BOILER.	CONTACT SUPPLIER.

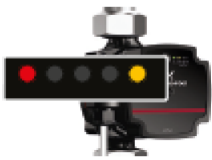


Pump performance curve:

Performance curve, UPS3 15-50/65

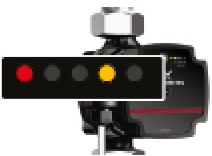


UPS3 Circulation pump error codes.



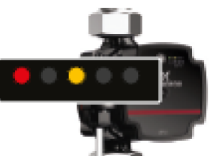
Rotor shaft seized.

Depress the grub screw at the centre of the pump and rotate anti-clockwise. Repeat procedure and rotate clockwise. When the shaft will rotate clockwise the fault has been rectified.



Low supply voltage.

Check power supply to pump and rectify.



Pump failure.

Replace pump.