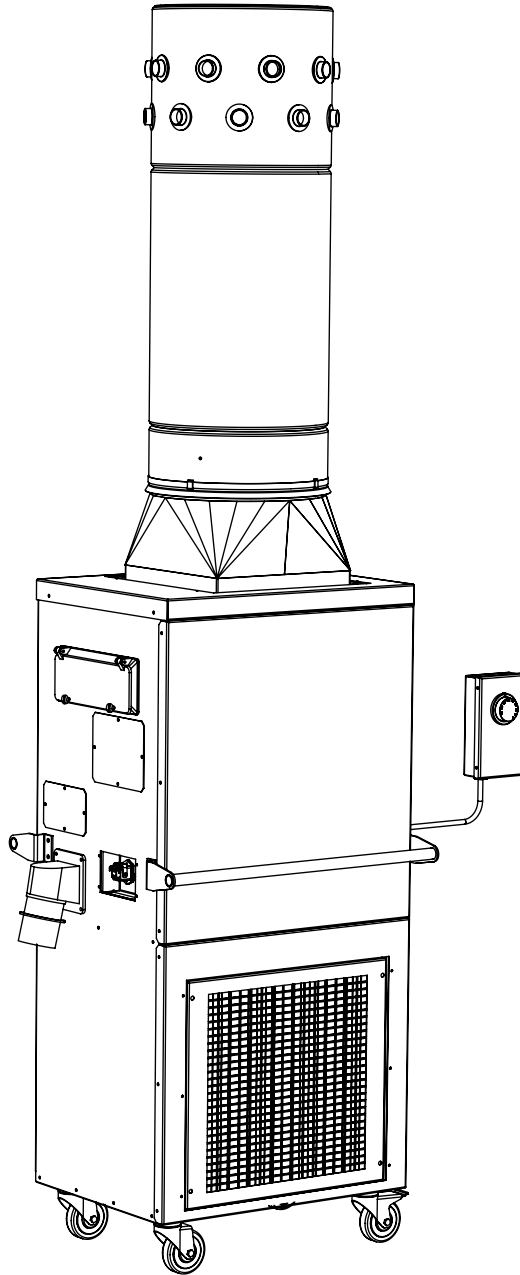


FFVH 32



FFVH32-19 3 PHASE 400V ELECTRIC HEATER

PRODUCT MANUAL

WARNINGS

These instructions should be read by:

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



- Failure to follow these instructions may result in risk of personal injury or damage to the equipment.
- Damage due to a failure to follow these instructions will invalidate the warranty.
- The appliance must be commissioned & serviced by qualified engineers in compliance with local regulations.
- The appliance must be switched off and disconnected from the power supply before any work is carried out.
- There are no user controls inside the appliance casing.
- Do not cover the appliance.
- Do not use in the vicinity of a pool, bath or shower.
- An air gap of at least 300mm should be allowed at the front of the unit to ensure a clear airflow. Do not site the unit close to soft fabrics or combustible materials. Do not obstruct the hot air outlets.
- Allow the unit to cool by running the fan only for a minimum of 5 minutes before switching off.
- Do not disconnect the appliance from the supply under load.
- For internal use only. Do not use out of doors.
- Extension cables should be correctly rated for the load, fully unwound and never run through water or over sharp edges.
- Ensure that locking castors are engaged before running the unit.
- The machine is not phase rotationally sensitive.
- This is a class 1 product and requires an Earth connection.
- Warning! Fan liable to start without warning.
- Do not run this appliance without fitting the air distributor support.
- Do not move the appliance when operating or connected to the power supply.
- This appliance should not be operated by children or those who have not read and understood the instructions.
- This appliance is not a duct heater. Do not operate with flexible ducting.










TECHNICAL SPECIFICATIONS. FFVH32-19

Heating capacity.	18 kw
Power supply.	400v. 3P+N+E. 32A. 50Hz.
Rated current.	27.5A
Airflow with distributor/ Without distributor.	1600/ 2300 M3h
Weight.	57.2 kg
Noise level at 3M.	69.4 dB(A)
IP Rating.	IP2X
Maximum operating temperature.	40 °C +/- 3°C
Temperature rise at 15 °C ambient. (Nominal)	50 °C

Standards applied:

BS EN 60335-1. 2012.
BS EN 60335-2. 2009.

MACHINE AND INSTRUCTION ICONS

	Important information
	Warning. In order to avoid overheating, do not cover the heater.
	Safety limit thermostat.
	Fan on/off
	Heat setting I on/off.
	Heat setting II on/off
	Thermostat. (Onboard)
	Thermostat. (Remote)
	Risk of electric shock. Isolate from power supply before removing cover.

Specifications:

The FFVH32 is an 18kw 3 phase industrial electric fan heater.

The appliance is connected to a 400v 32Amp 3P+N+E 50Hz fused power supply and comes fitted with the appropriate appliance inlet. A neutral is required. This appliance requires an Earth connection.

The machine is not phase rotationally sensitive !

The FFVH32 is fitted with two high quality forward curved fans which deliver up to 2300m³h of air.

The FFVH32 is fitted with an onboard thermostat as standard. It is also supplied with a remote thermostat as standard. (See P5).

The FFVH32 is supplied with locking castors to the front of the machine.

Setup and operation:

To start:

- Please note ! the control panel is to the side of the appliance and the controls are located beneath a protective plastic inspection window. The inspection window can be secured with thumb screws.(See P8).
- Site the appliance on a firm level surface and apply the castor brakes. Do not operate the unit without applying the brakes.
- Ensure that the air distributor support and air distributor are securely fitted. Do not operate the machine without the air distributor support! (See P6).
- Connect the machine to the appropriate power supply.
- Switch the fan rocker switch to I. (please note! the heat rocker switches will not operate the heating elements unless the fan switch is on).
- Switch the heat rocker switch to I- 12kw or I+II- 18kw.
- Set the thermostat to the desired temperature.

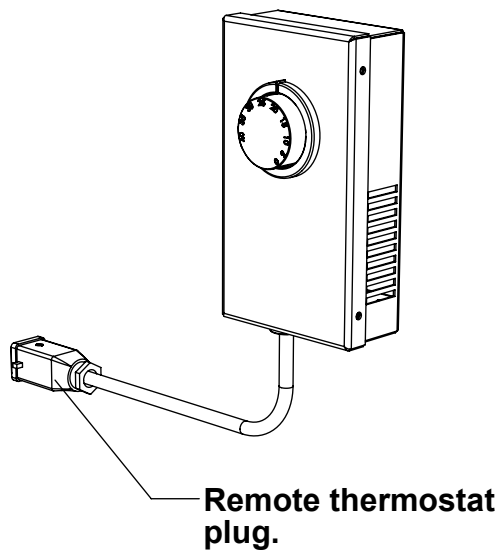
To stop:

- Switch the heat rocker switches to 0 and allow the fan to run for a minimum of five minutes to cool the machine. Failure to follow this procedure will damage sensitive components and invalidate the warranty.
- Switch the fan rocker switch to 0 when the heat has dissipated.
- If the heat has not fully dissipated the fan may 'run on' automatically. (see P8).
- If the heater is not in use disconnect from the power supply.

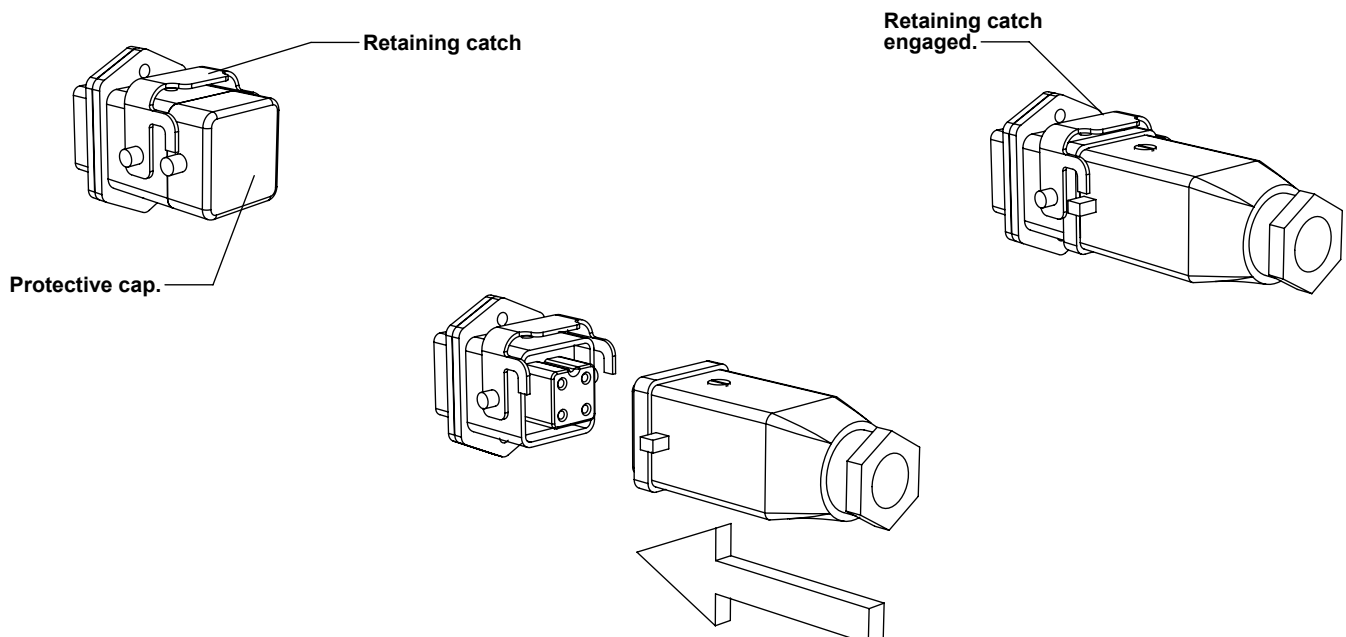
Using the remote thermostat:

- Set the onboard thermostat to 0. Please note! failure to set the onboard thermostat to 0 will prevent the remote thermostat from operating.
- Lift the retaining catch and remove the protective cap from the remote thermostat socket. The thermostat socket is located in the recess at the side of the machine. (See P8)
- Fit the remote thermostat plug to the socket and secure in place with the retaining catch.
- The remote thermostat is now ready for use.
- Always refit the protective cap when not in use.

Remote thermostat:



Remote thermostat socket:



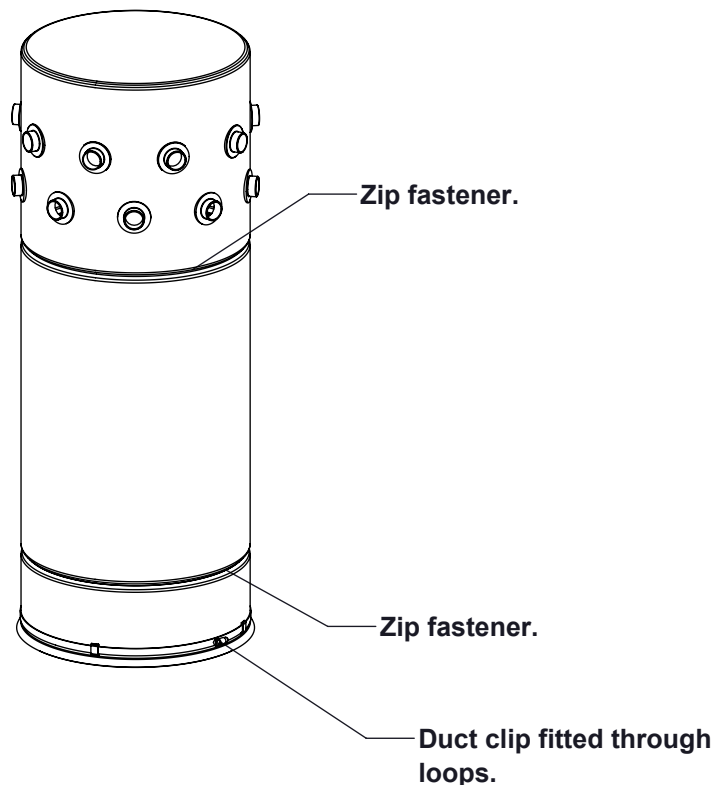
Using the fabric air distributor:

The FFVH32 is supplied with a fabric air distributor. This will distribute warm air through 360 degrees and is ideal for workshop environments.

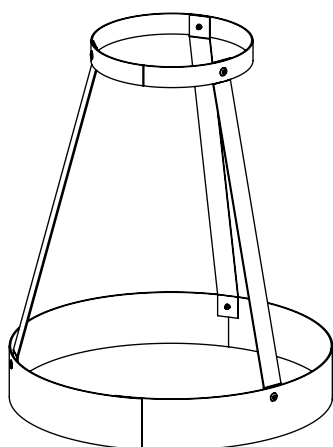
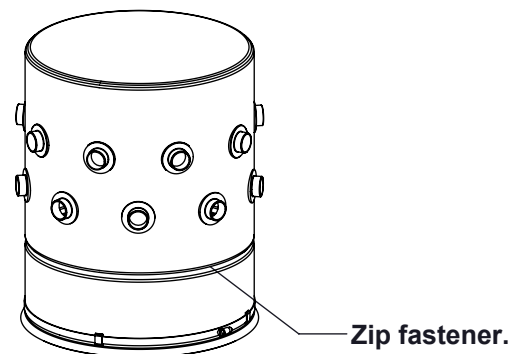
The air distributor can be modified by the operator to distribute air at head height or above head height.

The centre section of the air distributor can be removed via the zip fastenings and the two remaining sections zipped together.

Long distributor.



Short distributor.



Air distributor support.

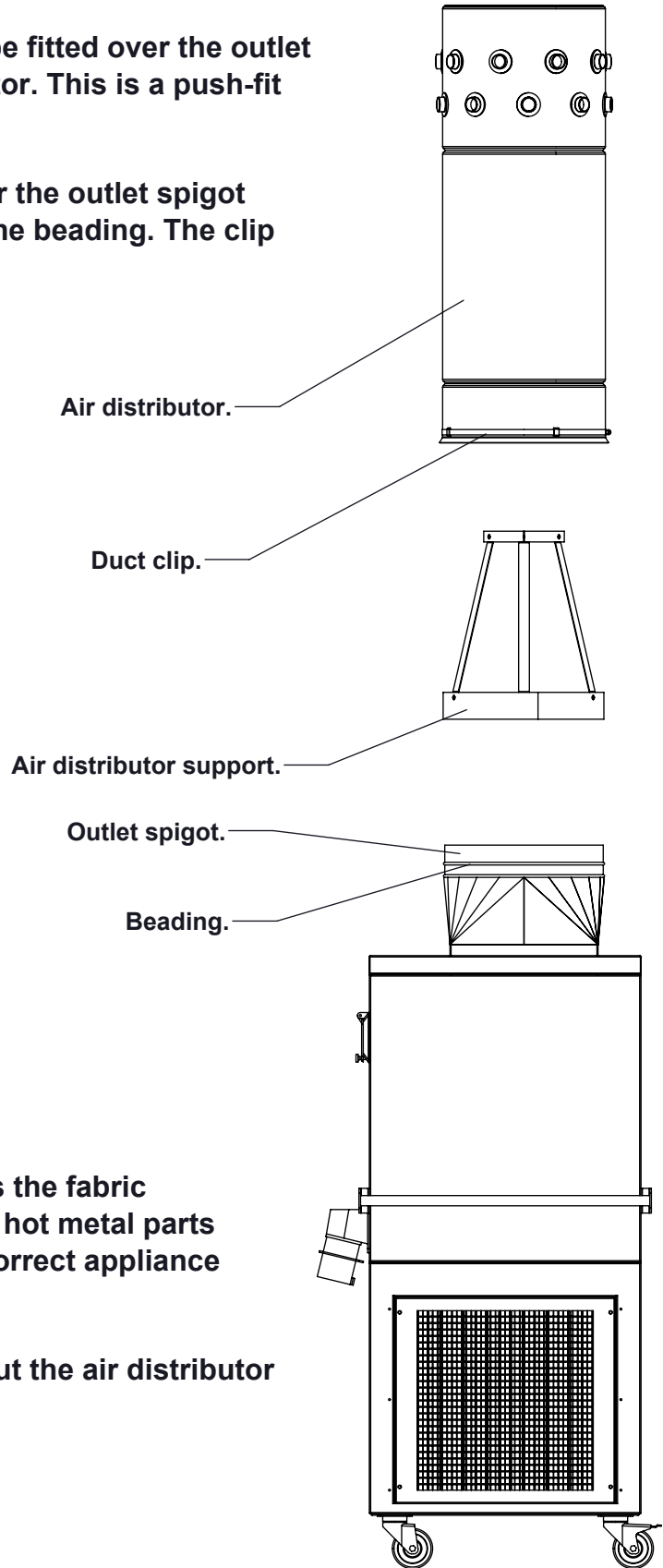
The air distributor should never be used without fitting the air distributor support.
The air distributor support should be used on both the long distributor and short distributor.
Failure to fit the support could result in damage to the appliance and will not be covered by the warranty.

Using the fabric air distributor cont'd:

The fabric air distributor is supplied with a duct clip that needs to be threaded through the cloth loops at its base before fitting.

The air distributor support should be fitted over the outlet spigot before fitting the air distributor. This is a push-fit connection.

The air distributor is then fitted over the outlet spigot ensuring the clip is located below the beading. The clip should be tightened.



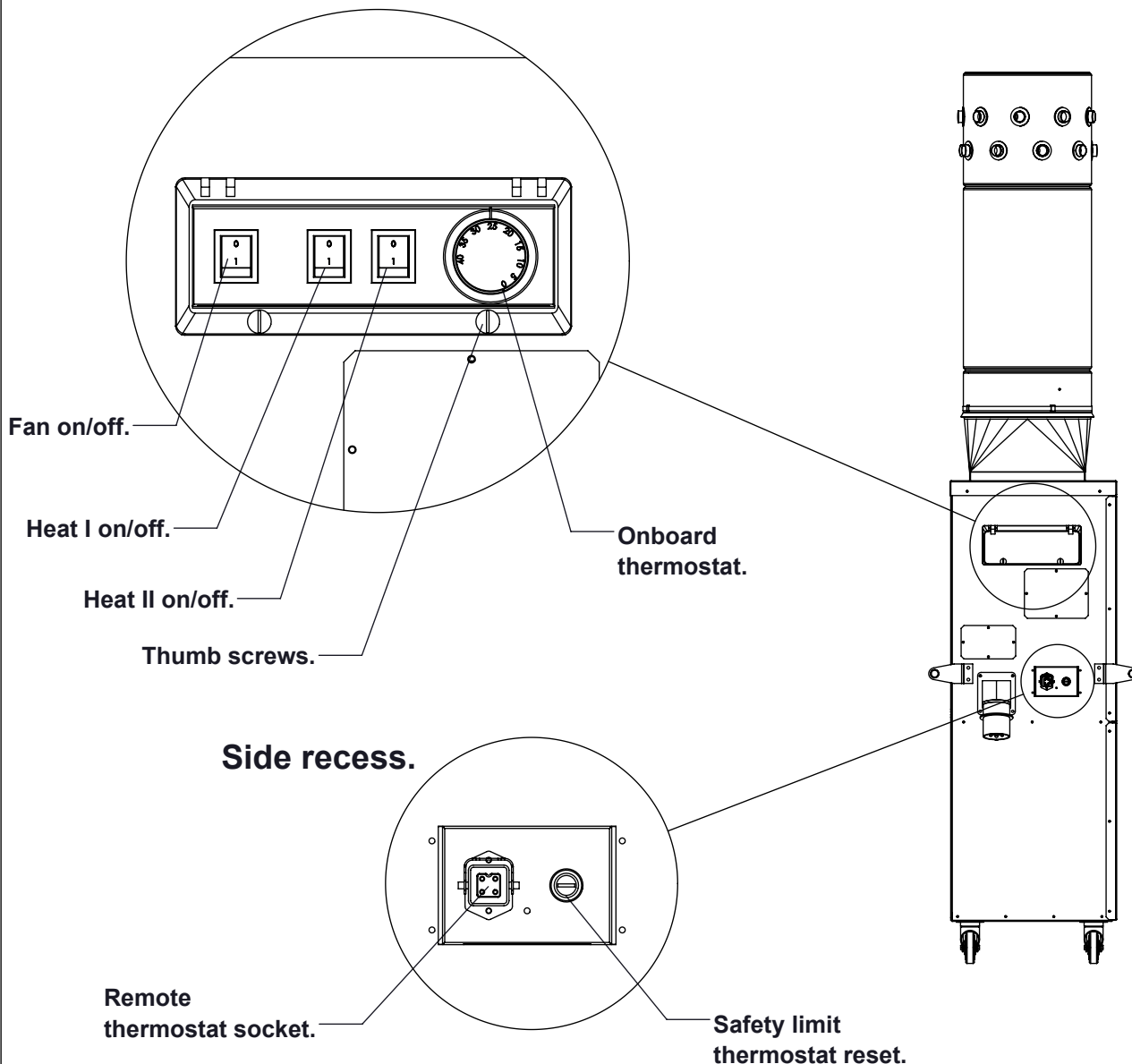
The air distributor support prevents the fabric air distributor from collapsing onto hot metal parts in the event of a malfunction or incorrect appliance shutdown.

Do not operate the appliance without the air distributor support.

Protective /safety devices:

- The FFVH32 is fitted with a safety limit thermostat. This is a fail-safe device. Should the maximum design operating temperature be exceeded it will shut down the heating elements. This device requires a manual reset and should only operate in the event of a fault. Any activation of this safety device should be investigated by a competent engineer.
- The FFVH32 is fitted with a limit thermostat. Should the maximum operating temperature be exceeded it will shut down the heating elements and leave the fan running. This device will automatically reset once the temperature falls to an acceptable level.
- The machine is fitted with an automatic fan run-on thermostat. If the machine is shut down without running on fan only for 5 minutes to cool down, this device will activate and allow the fan to keep running. This should not be used to routinely shut down the machine.
It should be noted that after operating at high temperatures it could take a significant amount of time for the fan run-on thermostat to reset.

Side view. Control panel:

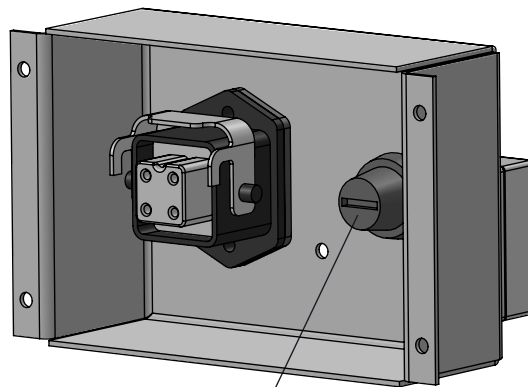


Safety limit thermostat:

Checking and resetting the safety limit thermostat:

Should the safety limit thermostat activate the causes should be investigated.

- **Remove the black plastic screw cover from the safety limit thermostat.**
- **If the pink reset button is noticeably pronounced the reset has activated.**
- **To reset the thermostat press the pink reset button. Allow the machine to fully cool down before resetting.**
- **Always replace the screw cap after resetting.**



Black plastic cover.

Removing the filter:

The filter requires periodic cleaning/ replacement.

To access the filter remove the four M5 cross head bolts located in each corner of the front grill panel.

Lift the grill panel away from the appliance and remove the filter.

Heavy dust deposits can be removed from the filter with low pressure compressed air. If the filter is very dirty it will need replacing.

Care needs to be taken when cleaning the filter. It is delicate and can be easily damaged.

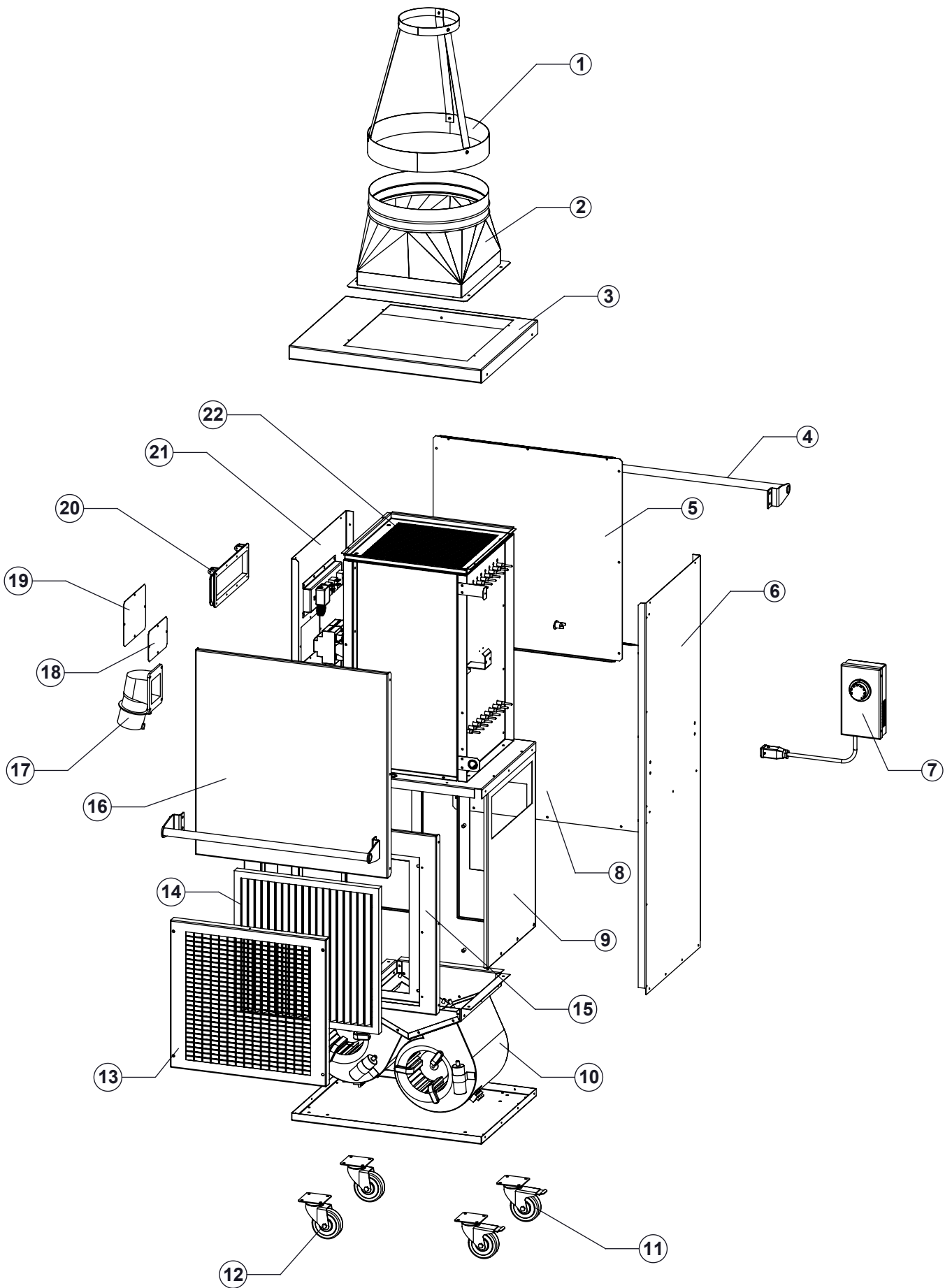
Ensure the air filter is correctly orientated when re-fitting. The air direction arrow should be pointing into the machine.

When maintenance is complete refit the filter and grill panel.

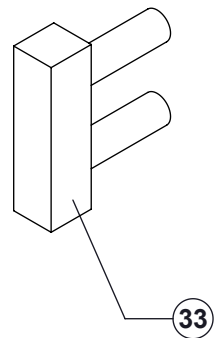
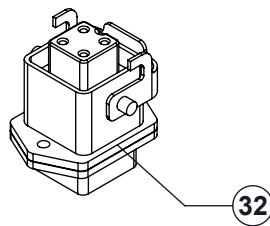
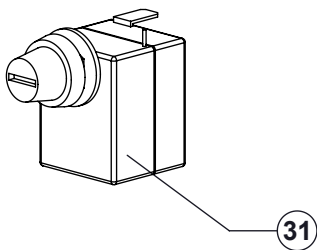
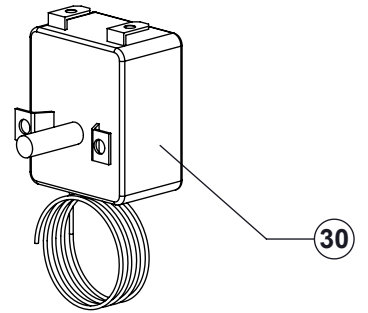
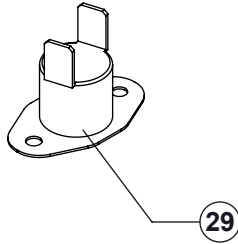
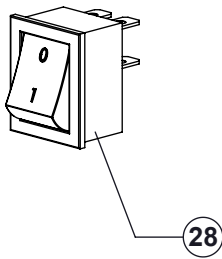
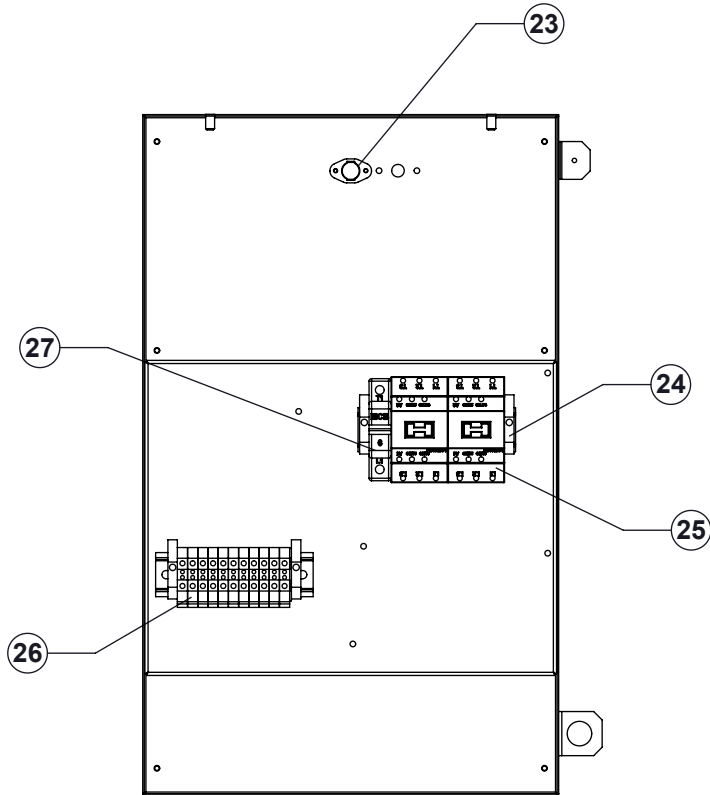
Do not operate the appliance without the grill panel.



Exploded view:



Exploded view cont'd:



Spare parts:

Drawing No	Description	Part No
1.	AIR DISTRIBUTOR SUPPORT.	BW0202116
2.	OUTLET ASSEMBLY.	BW0202108
3.	TOP PANEL ASSEMBLY.	BW0202117
4.	HANDLE ASSEMBLY.	BW0202118
5.	REAR TOP PANEL.	BW0202119
6.	RIGHT SIDE PANEL.	BW0202120
7.	REMOTE THERMOSTAT ASSEMBLY.	EL040125
8.	REAR BOTTOM PANEL.	BW0202121
9.	GALVANISED METALWORK SET.	BW0202122
10.	FORWARD CURVED FAN MOTOR.	FA010304
11.	75mm CASTOR. SWIVEL C/W BRAKE.	ME010222
12.	75mm CASTOR. FIXED.	ME0101223
13.	FRONT GRILL PANEL.	BW0202123
14.	FILTER.	BW030306
15.	FRONT BOTTOM PANEL.	BW0202124
16.	FRONT TOP PANEL.	BW0202125
17.	APPLIANCE INLET. 32A. 3P+N+E. 400v	EL020527
18.	TERMINAL COVER PLATE.	BW0202126
19.	CONTACTOR COVER PLATE.	BW0202127
20.	INSPECTION WINDOW.	BW040511
21.	LEFT SIDE PANEL ASSEMBLY.	BW0202128
22.	2000w 230v HEATING ELEMENT.	HE010118
23.	50 DEGREE THERMAL CUT-OUT. N/O.	EL010312
24.	DIN MOUNTED END-STOP.	EL020403
25.	32A 230v CONTACTOR.	EL030814
26.	6mm TERMINAL ASSEMBLY.	EL020424
27.	MCB. 6A. SINGLE POLE TYPE C.	EL010222
28.	1/0 ROCKER SWITCH.	EL030235
29.	70 DEGREE THERMAL CUT-OUT. N/C.	EL010311
30.	THERMOSTAT C/W BEZEL AND KNOB.	EL030409
31.	SAFETY LIMIT THERMOSTAT.	EL030417
32.	REMOTE THERMOSTAT SOCKET.	EL020523
33.	TERMINAL LINK.	EL020426
34.	FABRIC AIR DISTRIBUTOR C/W DUCT CLIP. (Not shown)	BW030111

Maintenance:

Always isolate the machine from the power supply before

Carrying out any maintenance.

DO NOT OPERATE THE APPLIANCE WITH GRILLS MISSING.

Fan motors, elements and switch gear are not customer serviceable components.

General maintenance should include regular inspection of:

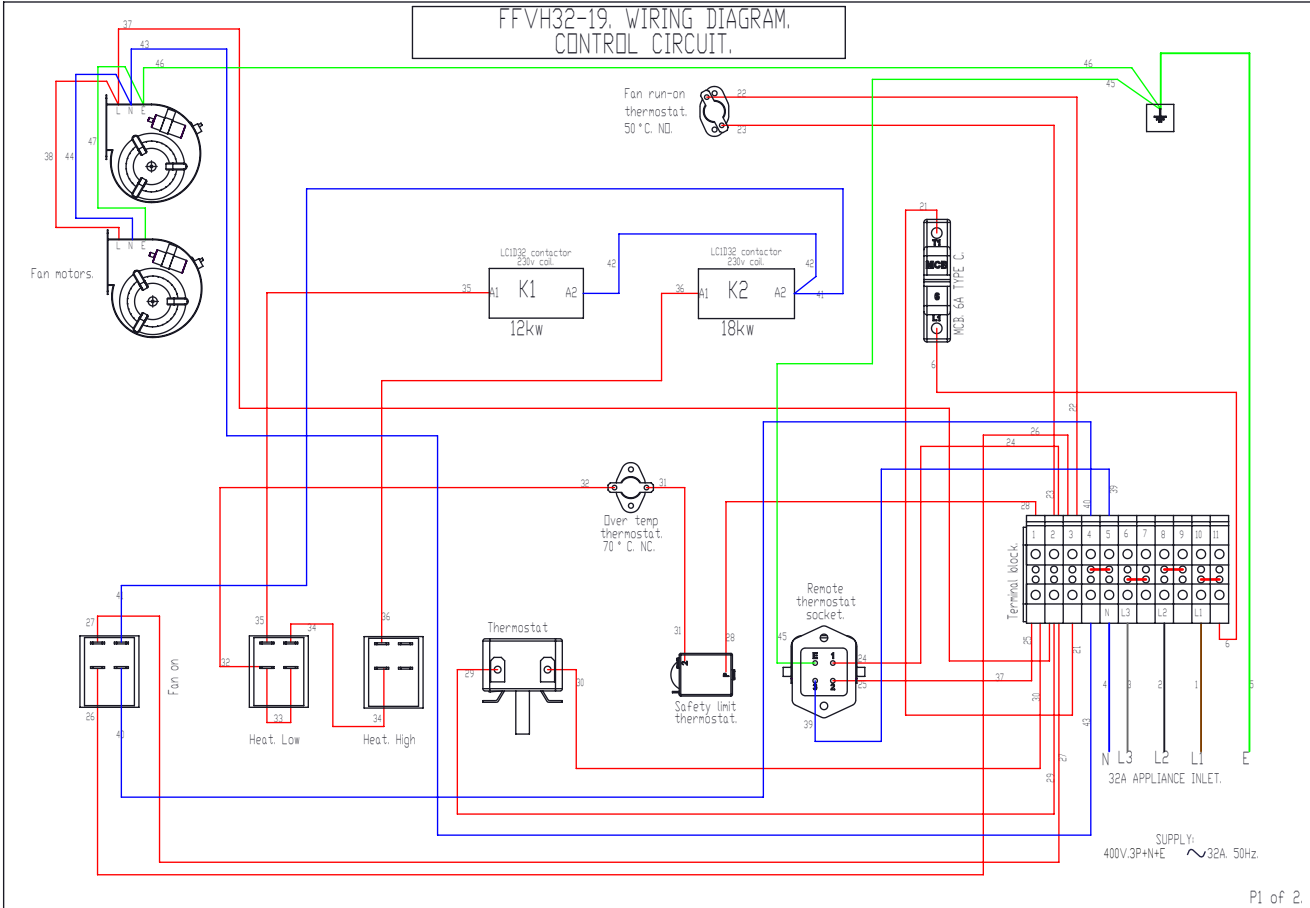
- 1: Appliance inlet. Check for signs of damage or heat build up. Replace if necessary.
- 2: Air intake & outlet grills: ensure grills are free from accumulated debris. Blow out with compressed air if required.
- 3: Regularly inspect the filter. Gently clean with compressed air or replace.
- 4: Fixings: Check all fixings are present and secure.

Maintenance carried out by a competent person:

- 1: Internal cables should be inspected for signs of heat damage and replaced when necessary.
- 2: All cable connections should be regularly checked and tightened. Particular attention should be paid to the connections at the contactors.
- 3: Regularly check the contactors for signs of heat. Replace if necessary.

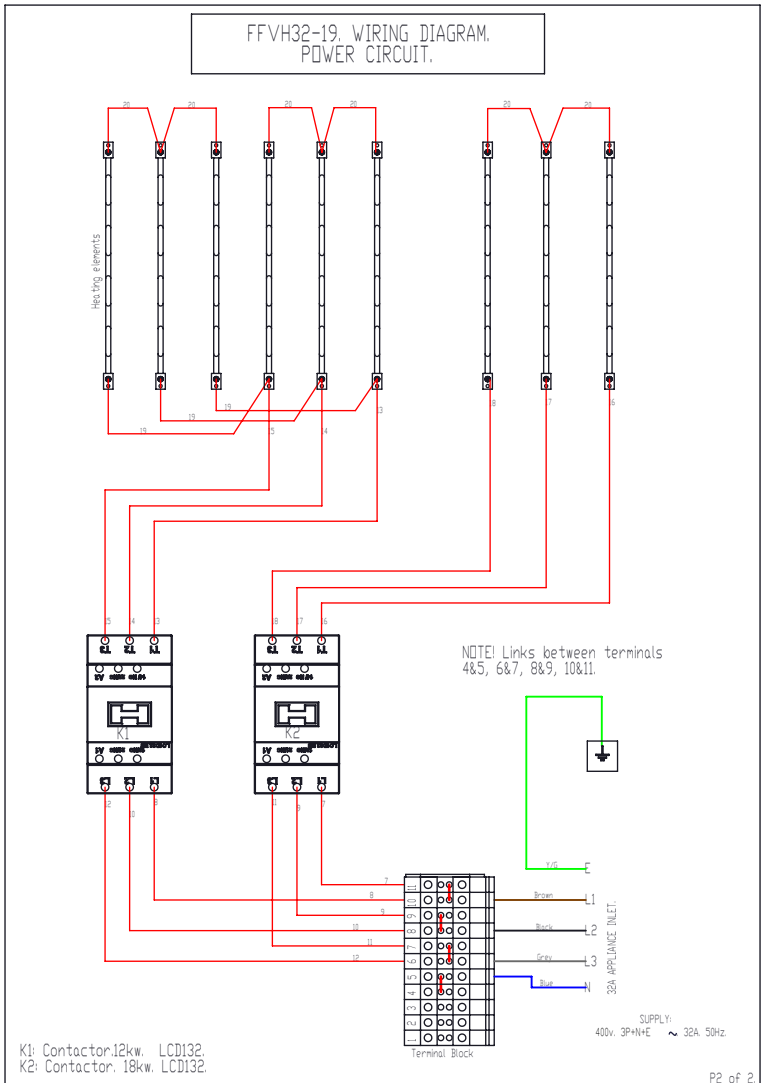
FAULT	POSSIBLE CAUSE	SOLUTION
NO HEAT OUTPUT.	FANS AND OR HEATING NOT SWITCHED ON.	CHECK ALL SWITCHES ARE ON.
	THERMOSTAT INCORRECTLY SET.	TURN THERMOSTAT KNOB FULLY CLOCKWISE.
	POWER SUPPLY INTERRUPTED.	CHECK POWER SUPPLY.
	FAULTY ROCKER SWITCH.	CHECK SWITCHES AND REPLACE IF NECESSARY.
	FAULTY THERMOSTAT.	CHECK THERMOSTAT AND REPLACE IF NECESSARY.
	FAULTY CONTACTOR.	CHECK CONTACTOR AND REPLACE IF NECESSARY.
REMOTE THERMOSTAT NOT SWITCHING THE HEATING ELEMENTS	ONBOARD THERMOSTAT INCORRECTLY SET	SET ONBOARD THERMOSTAT TO 0. (SEE P5).
	REMOTE THERMOSTAT PLUG INCORRECTLY FITTED	GO THROUGH FITTING STEPS ON (SEE P5).
SAFETY LIMIT THERMOSTAT HAS ACTIVATED	AMBIENT ROOM TEMPERATURE TOO HIGH	DO NOT OPERATE IN AN AMBIENT TEMPERATURE ABOVE 40°C.
	FILTER BLOCKED/ DIRTY.	REPLACE FILTER.
	FAN MOTOR FAILURE	TEST FAN MOTOR AND REPLACE IF REQUIRED.
	CORRECT SHUTDOWN PROCEDURE NOT FOLLOWED	ALLOW THE MACHINE TO FULLY COOL AND FOLLOW CORRECT SHUTDOWN PROCEDURE. (SEE P4).
	FAILED SAFETY LIMIT THERMOSTAT	THE SAFETY LIMIT THERMOSTAT IS A FAIL-SAFE DEVICE. CHECK THE CAPILLARY TUBE AND BULB FOR SIGNS OF DAMAGE. REPLACE IF REQUIRED.
FAN MOTOR NOT RUNNING.	POWER SUPPLY INTERRUPTED.	CHECK POWER SUPPLY.
	FAN MOTOR OVER HEATED	THE FAN MOTORS HAVE A HIGH TEMPERATURE PROTECTIVE DEVICE FITTED INTO THE WINDINGS. ALLOW THE MACHINE TO FULLY COOL AND ATTEMPT TO START.
	FAULTY ROCKER SWITCH	REPLACE ROCKER SWITCH
TEMPERATURE RISE INSUFFICIENT.	<p>THE MACHINE SHOULD DELIVER A TEMPERATURE RISE OF APPROXIMATELY 50°C AT AMBIENT TEMPERATURE OF 15°C. SHOULD THE MACHINE FAIL TO DO THIS CHECK THE POWER SUPPLY AND THAT THE THERMOSTAT IS TURNED FULLY CLOCKWISE.</p> <p>IT SHOULD BE NOTED THAT THE MAXIMUM AMBIENT TEMPERATURE THE MACHINE WILL RUN AT IS 40°C +/- 3°C. ABOVE THIS THE HEATING ELEMENT CONTACTORS WILL NOT OPERATE.</p>	

FFVH32-19. WIRING DIAGRAM.
CONTROL CIRCUIT.



P1 of 2.

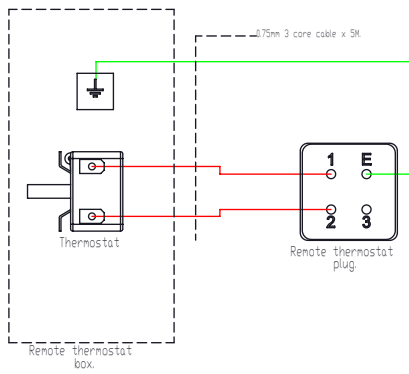
FFVH32-19. WIRING DIAGRAM.
POWER CIRCUIT.



P2 of 2.

FFVH32-19, WIRING DIAGRAM,
REMOTE THERMOSTAT.

MECHANICAL THERMOSTAT,
STANDARD PART.



Ensure blue cable is appropriately
labelled at each end.

DIGITAL THERMOSTAT,
OPTIONAL EXTRA.

