

# Supercomfort Fan Convectors

## Installation, Operation & Maintenance Instructions

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**INSTALLER: Please leave these instructions, heater wiring diagram & access panel keys with the user.**

### INTRODUCTION

This booklet provides guidance to identify, handle, install, commission, operate and maintain Dunham-Bush Supercomfort fan convectors. The instructions apply to the standard range of three models shown below. Please study the instructions carefully before commencing any installation work.

### IDENTIFICATION

The fan convector serial number, model description, figure number (size) are displayed on a label found on the inside of the heater access panel. If specified, a stencil reference may also be marked on the heater on-site identification.

### DESCRIPTION

Each Supercomfort fan convector comprises a sheet steel casing with a lockable access panel, fan/motor assemblies, air filter and hot water heating coil.

Single phase electric elements can be fitted instead of a hot water coil. Heaters are supplied for two speed fan operation, pre-set to low/medium speeds.

Fan control is by means of switches and/or thermostats, listed in Accessories.

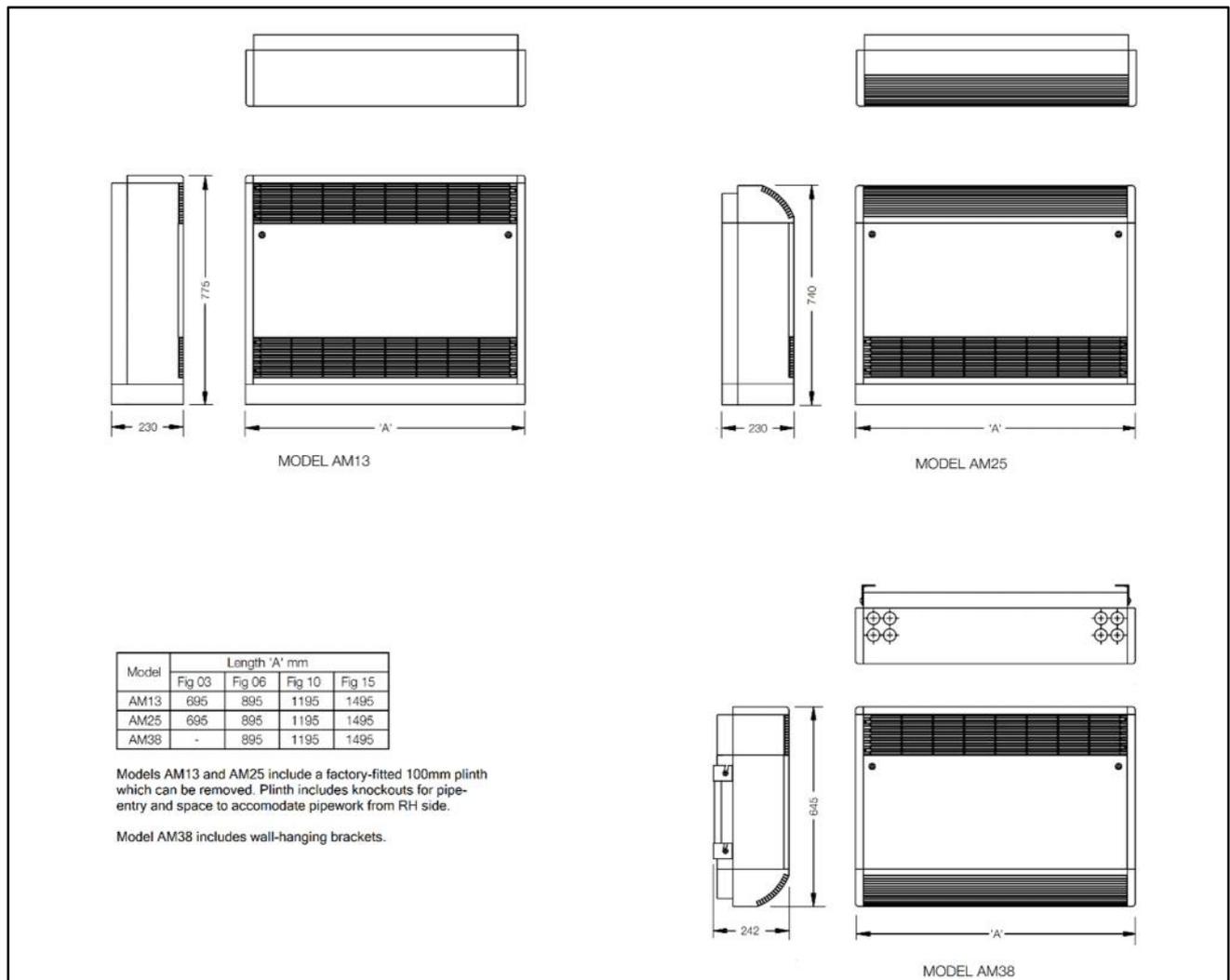


Diagram 1: Range of Supercomfort fan convectors

**RANGE**

The standard range comprises 3 standard models, in Refer to Diagram 1 on page 1 for model identification. All models are available in four sizes (figure numbers), with the nominal output indicated by the figure number.

- Model AM13 - floor-standing*
- Model AM25 - floor standing*
- Model AM38 - high wall mounted*

**CONTROLS**

*Air thermostats*

Air thermostats can be provided to automatically switch the heater on/off and to change the fan speed/heat output, in response to a fall or rise in ambient air temperature. Thermostats can be fitted or remote as follows :-

*Fitted air thermostats - Models AM13 and AM25*

Capillary thermostats are fitted for on/off and fan speed change. Optional remote on/off thermostats can ordered separately and connected on-site.

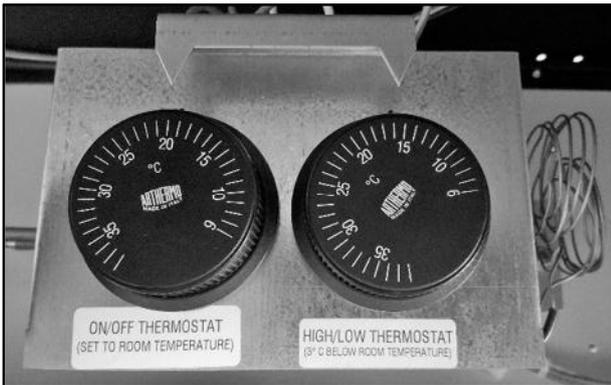


Diagram 2: Fitted on/off & low/med thermostats

**OPTIONAL ACCESSORIES**

Isolating valves (supplied loose) can be fitted on flow and return coil connections

Size	Nominal output (kW)	Casing width (mm)
Fig 03	2.6	695
Fig 06	6.0	895
Fig 10	9.4	1195
Fig 15	12.7	1495

Table 1: Nominal outputs and sizes

*Remote thermostats - Model AM38*

Remote thermostats with an accelerator heater, are provided for on/off and fan speed change. Thermostats can be standard user control or fitted with tamperproof covers.

*Low temperature cut-out (LTC) thermostat*

A low temperature cut-out thermostat is fitted to operate the heater when hot water is supplied to the coil. This will automatically stop the heater at the end of a normal operating period e.g. when the boiler plant shuts down. The thermostat is adjustable with a range 30 - 90°C

*Remote Switches*

Remote switches (flush or surface wall mounting) can be provided to switch the heater on/off, change fan speed and/or override any thermostats.

The man/off/auto switch allows the fans to circulate room air when the boiler plant is shutdown during the summer.

150mm or 200mm high plinth.

(Models AM13 and AM 25 are supplied with a factory-fitted 100mm plinth; this can be removed and replaced)

## CONSTRUCTION

### Handling

The purchaser is responsible for off-loading. Heaters are individually packed and two/three persons can usually handle the heaviest heater. If a significant quantity is delivered, they may be palletised and shrink-wrapped, so a fork-lift or similar will be required for lifting. Heater must not be dropped or suffer impact in any circumstances.

### Storage

Heaters should be stored in clean, dry conditions. Any packaging should not be removed until the heater is required for installation and should only be removed if damage is suspected at delivery

### Preparation

Make proper provision for fixings. The structure to which heaters are to be fixed must be fit for purpose and capable of accepting plugs and screws, anchor bolts or drop rods. Floor models require a level base. Floor and wall models require a sound flat wall surface. Heater casings are supplied with knockouts for pipework and conduit entry.

Piping and electrical conduit should, as far as possible, have been completed and any wall apertures for loose grilles and ductwork should be fully prepared.

**WARNING: Some internal components may have sharp edges. Protective gloves should be worn.**

## INSTALLATION

### General

1. Check the identity of the heater marked on the outside of the carton. The carton can be saved to protect the heater from damage by other trades after installation.
2. Unlock and remove the access panel with the key provided with the heater.
3. Re-check the identity of the heater, from the serial number on the nameplate.
4. The inner cover, fans/motors pipework cover plate, filter and grilles can all be removed to provide better access when making pipework connections and to allow easier lifting of model AM38. (see Diagram 4 below)
5. Disengage the line connector to disconnect the wiring harness to the fan platform. On ceiling models, remove the platform retaining brackets before removing the platform.
6. Remove the knockouts in casing and/or plinth, to suit pipework and conduit entry



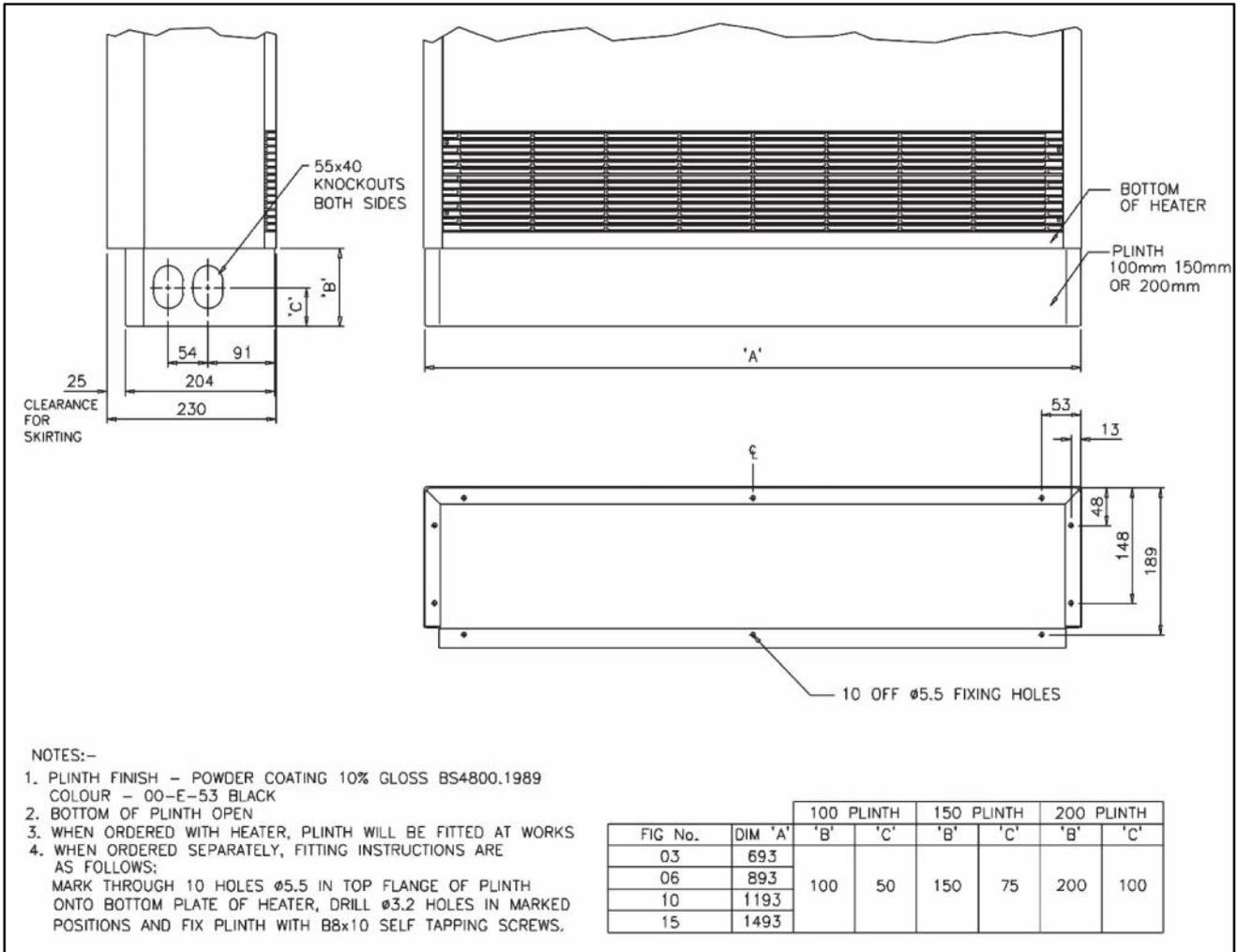
Diagram 3 : Mains inlet plug and fuse holder



Diagram 4 : Fan and inner side plate removed

**Floor models AM13 and AM25**

1. Fix heater using the Ø5 fixing holes in the heater backplate.
2. Pipe up as detail in *Pipework Connections* on page 6.
3. Wire up as detailed in *Electrical Connections and Controls* on page 6.
4. Fit the adjustable low temperature cut-out thermostat to the LTHW flow pipe.
5. After filling the system, check for leaks (see *Commissioning* on page 6).
6. Replace all components previously removed.
7. Where appropriate, cut the back out of the carton and tape into position over the heater.
8. The heater is supplied for LH coil connections, Pipework from the right hand side can be fitted within the fitted plinth and heater casing.
9. The plinth is 100mm high and can be removed and replaced by builders-work or by optional 150mm or 200mm high plinths.



**Diagram 5: Fixing detail for plinth**

Floor mounted models AM13 and AM25 are supplied with a 100mm high plinth factor fitted. This can be removed and replaced with 150mm or 200mm plinth (ordered separately)

*Wall models AM38*

1. Loosen the M8 screws which attach the suspension brackets to the heater casing and remove the brackets.
2. Position and fix the suspension brackets to the ceiling or wall; see Diagram 6.
3. Lift the heater into position and secure the heater to the suspension brackets by the four M8 screws.
4. Connect pipework to the coil as described in *Pipework Connections* on page 6.
5. Wire up as detailed in *Electrical Connections and Controls* on page 6.
6. Fit the adjustable low temperature cut-out thermostat to the LTHW flow pipe.
7. After filling the system, check for leaks (see *Commissioning* on page 6).
8. Replace all components previously removed.
9. Where appropriate, cut the back out of the carton and tape into position over the heater.

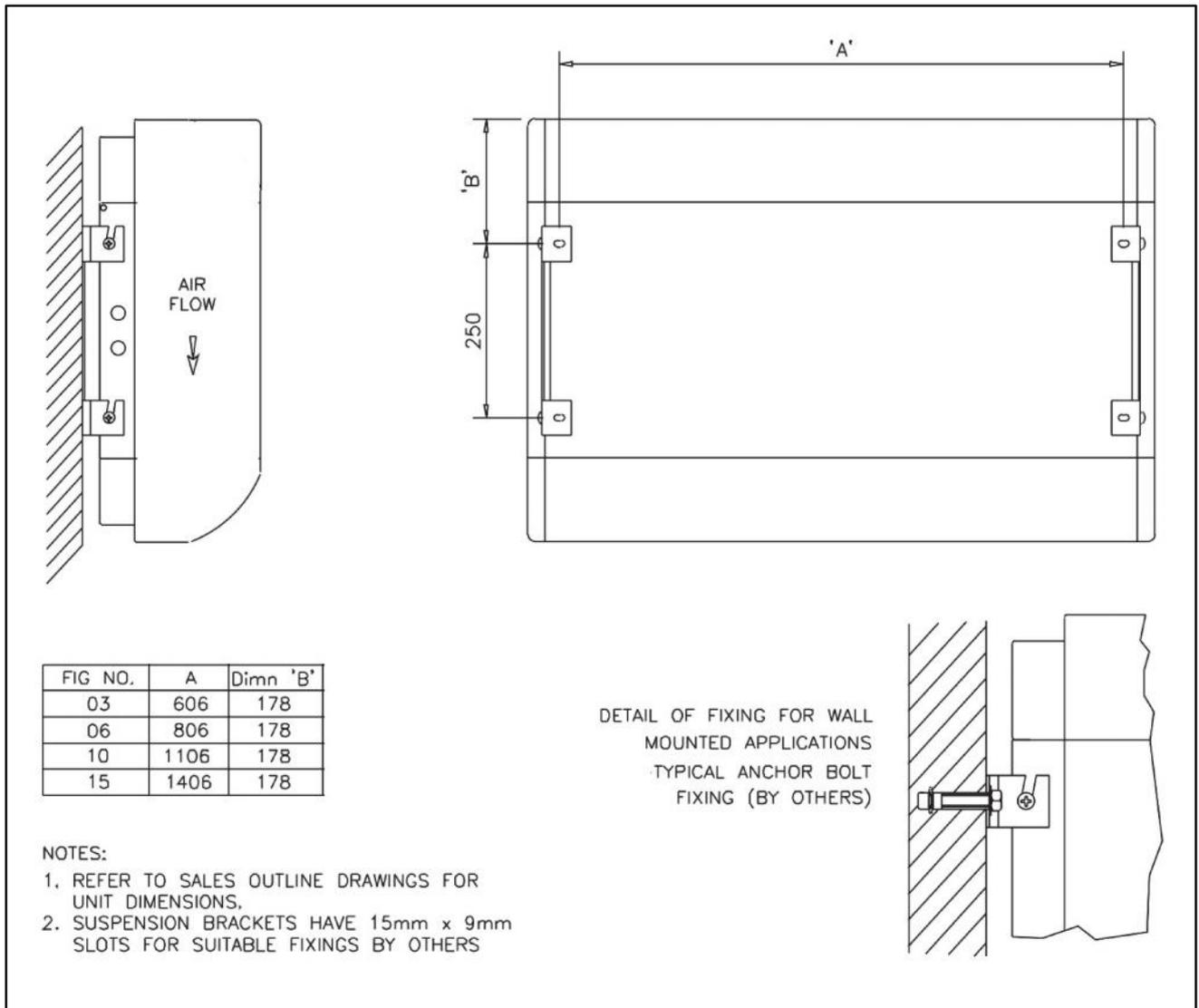


Diagram 6: Fixing detail for suspension brackets for Model AM38  
Model AM38 can also be retro-fitted with panel lock indicators (see page 7 - ordered separately)

*Pipework connections*

1. Flow and return pipework can enter the heater via knockouts in the casing and/or plinth.

*Models AM13 and AM25 - pipework can enter through the base (via the plinth) or from the rear.*

*Model AM38 - pipework can enter through the top of the casing or from the rear.*

2. Coil connections are DN20 (3/4" BSP) female parallel. Local isolating and regulating valves are recommended. Observe the correct flow and return positions, to ensure the rated heat output, see Diagrams 7 and 8 below. Fill the system and check for leaks.

3. Maximum pressures:  
*Cold test pressure - 10.5 barg*  
*Working pressure - 7.0 barg*

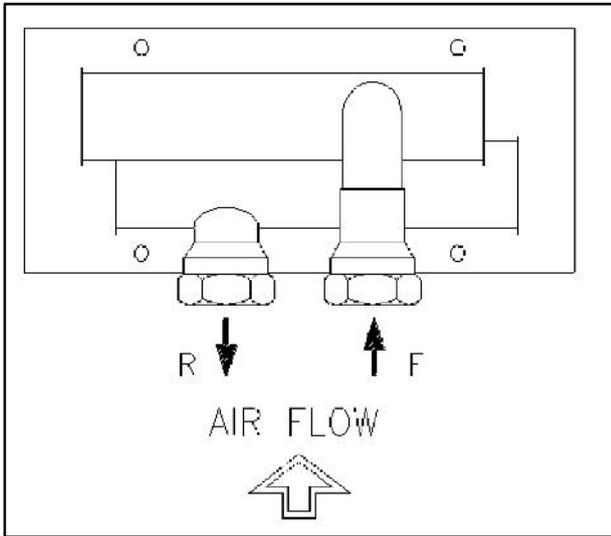


Diagram 7: Hot water coil connections for models AM13 and AM25, as viewed on the header/connection end of the coil.

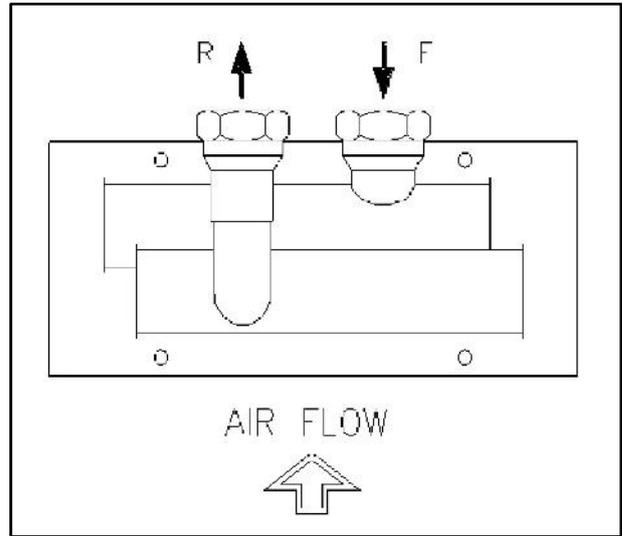


Diagram 8: Hot water coil connections for model AM38, as viewed on the header/connection end of the coil

**\*\* NOTE: For correct operation, the back face of the adjustable low temperature cut-off thermostat needs to be fitted with a straight pipe length not less than four inches (100mm) in length.**

*Electrical Connections and Controls*

1. Connect a 230v/1ph/50Hz supply to the IEC mains inlet connector. (see Diagram 3 on page 2).
2. A 12 way terminal block is located behind the plate on which the mains inlet connector is fitted.

3. Fix any remote accessories-switches or thermostats in the appropriate locations and connected to the 12 way terminal block, **as shown on the wiring diagram supplied with the unit**

**COMMISSIONING**

1. Purge air from the coil using the manual air vent, or through the mains above the coil if applicable. Balance the water flow rate through the system to accepted practice.
2. Adjust LTC thermostat (adjustable between 30-90°C). The fans will run when water in the flow pipe reaches the required temperature. A setting of 20K less than the mean water temperature is recommended. In the absence of hot water, a temporary link can be used.
3. Adjust air thermostats to the specified temperatures. If no settings are specified, typical settings are:
  - a) on/off thermostat - set to 20°C
  - b) high/low thermostat - set to 17°C.

4. Check the operation of all thermostats by varying their settings to achieve the desired effect on the fan.
5. If switches are fitted check for satisfactory operation.
6. A manual/off/auto switch will bypass all thermostats when in the manual position. This allows the fan to circulate room air when no hot water is present.
7. Leave this document and all wiring diagrams with the end user.

*Fan Speed Adjustment (EC Motors)*

1. In the unlikely event that fan speeds require adjustment, refer to the wiring diagram supplied with the heater. Contact Dunham-Bush for guidance on adjusting fan speeds and selecting appropriate DC signal voltages.
2. A fan speed controller is located underneath the fan/motor platform and comprises electronic controls with inputs from thermostats and/or switches and a single analogue 2-10VDC output signal to the motor(s).
4. Refer to Diagram 9 three fan speeds are available. Supercomfort heaters are factory-wired to use two speeds (low and medium) which can be varied by adjusting the appropriate potentiometers; signal voltage can be measured across 0V and CTRL terminals.
5. Avoid setting fan speeds too low. Low fan speed can cause stratification of heated air within the room, reducing effective comfort
6. All connections to the EC fan controller shown are safe low voltage of 10VDC or less.

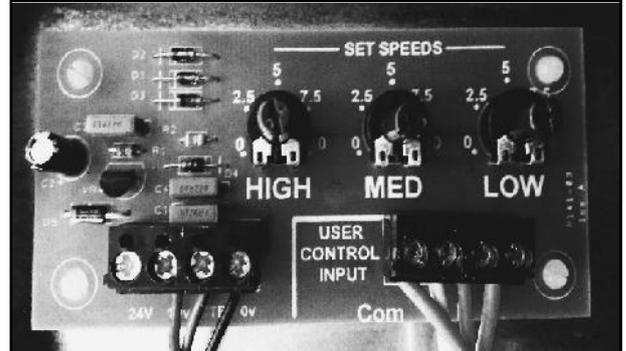


Diagram 9: Fitted 3 speed EC fan controller

Size	Low speed				Medium speed			
	Fan voltage (VDC)	Airflow (l/s)	Running current (A)	SFP (W/l/s)	Fan voltage (VDC)	Airflow (l/s)	Running current (A)	SFP (W/l/s)
Fig 3	3.4	50	0.08	0.16	4.6	75	0.14	0.19
Fig 6	5.2	105	0.18	0.19	7.5	150	0.40	0.30
Fig 10	5.4	205	0.35	0.19	7.0	270	0.64	0.27
Fig 15	5.8	280	0.54	0.22	6.7	330	0.60	0.21

Table 2: Electrical data for EC motors

*Optional Panel Lock Indicators*

An optional feature on Supercomfort heaters are colour indicators which show whether the access panel is locked or unlocked. The lock position is shown through the 10mm viewing window next to the lock; green indicates the panel is safely locked and cannot be removed or fall out; red indicates that the access panel is unlocked and can be removed or fall out.

Lock indicators can be retro-fitted to all Supercomfort models by replacing the standard access panel with a new one which includes the lock indicators. For panel lock indicators, refer to Dunham-Bush, stating part numbers reference 21-253-208.

Price and delivery upon application.



Diagram 10: Lock indicator green - panel locked



Diagram 11: Lock indicator red - panel unlocked

## CLEANING AND MAINTENANCE

### WARNING:

Prior to undertaking any cleaning or maintenance, ensure that all electrical supplies are disconnected from the heater via local isolators. Some internal components may have sharp edges. Protective gloves should be worn.

#### Inspection

Frequency of cleaning and inspection depend upon the operating conditions. Initially, it is suggested that the air filter is inspected after 6-8 weeks and cleaned as required at regular intervals. Cleaning the air filter ensures that the heater delivers the required air flow rate and heat output. The heater should not be operated without a filter, since the heater coil fins will become clogged with fluff and dust particles, resulting in reduced performance.

#### Filter access and removal

To gain access to the air filter, unlock and remove the access panel with the special key provided. Floor, wall and duct models, pull the access panel at the top and lift clear. Ceiling models, hinge the access panel down and allow it to hang from the safety screws (note: access panel can be removed by removing the safety screws).

#### Cleaning

1. Air filters can be cleaned by tapping out excess dust and washing in warm water (up to 40°C), using detergent if necessary. The filter must be rinsed and allowed to dry naturally before replacing. Do not use a vacuum cleaner, as it can damage the filter media. Filters should be replaced after approximately 20 washes.
2. Because the air filter retains most of the dusty particles, it will only be necessary to clean the fan/motor assemblies and heater coil annually. An industrial vacuum cleaner can be used to clean the inside of the heater, in particular the heater coil (or electric element) and fans, with the air being sucked through the heater coil in the opposite direction to normal air flow. All accessible surfaces can be wiped with a dry cloth.

#### Maintenance

1. *Coil* - Purge any air from the coil using the manual air vent (using a suitable key) or by turning the knurled thumbwheel on the automatic air vent if fitted. Automatic air vents have a built-in check valve which allows the head to be removed without draining the system.
2. *Motors* - The fan motor has 'sealed for life' bearings which do not require any maintenance, other than visual inspection.
3. *Fuse* - The mains inlet connector on the electrical connections box incorporates a 2A anti-surge fuse. A spare fuse is supplied in a slide out fuse holder next to the socket.
4. *Controls* - see accessories. A wiring diagram is supplied with each heater. Further copies are available on request, please quote the serial number from the nameplate, located inside the heater.

#### Please note :

1. If fitted, the LTC thermostat will switch power to the fan only when the thermostat reaches the required temperature, which is adjustable between 30-90°C (the recommended setting is 20K less than the mean water temperature)
2. If air thermostats are fitted (either to the heater or remote mounted on a wall), adjust to the specified temperatures. Typical settings are:
  - a) on/off thermostat - set to 20°C
  - b) high/low thermostat - set to 17°C.
3. If fitted or remote switches are being used, check that they operate correctly. Note : if manual/off/auto switch is provided, all thermostats are by-passed in the manual position, which allows the fans to circulate room air when the boiler plant is shutdown.

## SPARES/SERVICE

### PLEASE WRITE THE DETAILS OF THE UNIT HERE.

These details will be required when ordering spares for your Dunham-Bush Supercomfort Fan Convactor.

UNIT TYPE AND MODEL INFORMATION

SERIAL NUMBER

DATE OF INSTALLATION

Spare parts/service - Please contact our office, contact information shown below.

Manufacturer reserves the right to change any product specification without notice.

