

SUPAflo EVO

Condensing Gas Fired Water Heater

Flue installation

Electrical wiring data



Please read and understand these instructions before commencing installation and leave this manual with the customer for future reference.

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Andrews SUPAflo EVO has been designed and manufactured to comply with current International standards of safety. In the interests of the health and safety of personnel and the continued safe, reliable operation of the equipment, safe working practices must be employed at all times. The attention of U.K. users is drawn to their responsibilities under the Health and Safety Regulations 1993.

All installation and service on the Andrews SUPAflo Evo must be carried out by properly qualified personnel, and therefore no liability can be accepted for any damage or malfunction caused as a result of intervention by unauthorised personnel.

The Andrews Water Heaters policy is one of continuous product improvement, and therefore the information in this manual, whilst completely up to date at the time of publication, may be subject to revision without prior notice.

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1 General and Safety Information

1.1 General information

To ensure the continued, trouble-free operation of your heater at maximum efficiency, it is essential that correct installation, commissioning, operation and service procedures are carried out strictly in accordance with the instructions given in this manual. By law, installation and commissioning of the heater must be carried out by properly qualified personnel.

The SUPAflo EVO must be installed in accordance with the following requirements; The current BUILDING REGULATIONS.

The current WATER SUPPLY (WATER FITTINGS) REGULATIONS 1999.

Additionally, installation should be performed in accordance with all relevant requirements of the Local Authority and recommendations of the British Standards and Codes of Practice detailed below.

1.2 British standards and codes of practice

| | |
|---------------|--|
| BS 5440 | Part 1 1990 Specification for installations of flues |
| BS 6644 | Installation of gas – flues hot water boilers of rated inputs between 60kW – 2MW |
| IM/11 | Flues for commercial and industrial gas installations |
| IM/22 | Installation guide for high efficiency condensing boilers |
| Clean Air Act | 1993 Clean Air Act Memorandum |

1.3 Health and safety regulations 1993

It is the duty of manufacturers and suppliers of products for use at work to ensure, so far as is practicable, that such products are safe and without risk to health when properly used and to make available to users, adequate information about their safe and proper operation.

Andrews Water Heaters should only be used in the manner and purpose for which they were intended and in accordance with the instructions in this manual. Although the heaters have been manufactured with paramount consideration to safety, certain basic precautions specified in this manual must be taken by the user.

It is imperative that all users of the heater must be provided with all the information and instruction necessary to ensure correct and safe operation.

2 Installation Instructions

2.1 Flue installation

The SUPAflo SF60 EVO range of water heaters are modulating pre-mix, blown gas condensing heaters. A recognised installer in accordance with the applicable national and local regulations must install the flue system. The flue connection is located on the top of the heater at the rear and has a push fit seal ready to accept the correct diameter flue (see table below for size). The flue connection diameter of the unit has been designed such that the speed of the flue gases will always be approximately 6 m/s max.

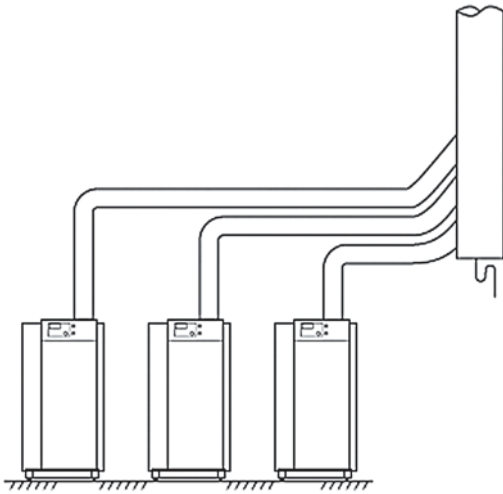
As a result of the pre-mix burner fan, an overpressure is built up within the unit. This overpressure is sufficient to overcome a maximum amount of flue resistance within the secondary flue (see table below). If the room sealed option is used then the resistance within the air intake duct is to be added to the sum total of the maximum flue resistance.

This high efficiency unit will produce condensation both within the unit and in the secondary flue. The secondary flue system must be designed to discharge condensation and constructed of a corrosion resisting material such as single-wall 316 stainless steel (for example, Selkirk Supra or Omega SW), NB. flued into a brick flue stack is not permitted. The unit is supplied with a condensate trap so the condensation within the secondary flue can be allowed to drain into the unit. Alternatively, the flue will need its own condensate drain and trap.

| Model type | Heater output 80/60°C | Flue outlet diameter | Flue gas temp. at 80/60°C | Flue gas volume max/min | Permissible flue resistance max/min | NOX value 80/60°C max/min | Co2 value max/min | Co value 80/60°C max/min |
|------------|-----------------------|----------------------|---------------------------|-------------------------|-------------------------------------|---------------------------|-------------------|--------------------------|
| | kW | mm | °C | M3/h | Pa | mg/kWh | % | mg/kWh |
| SF61 EVO | 142 | 150 | 90 | 188 / 43 | 200 / 10 | 38 / 19 | 10.2 / 9.4 | 14 / 3 |
| SF62 EVO | 190 | 150 | 90 | 251 / 57 | 200 / 10 | 38 / 19 | 10.2 / 9.4 | 14 / 3 |
| SF63 EVO | 237 | 200 | 90 | 313 / 64 | 200 / 10 | 36 / 18 | 10.2 / 9.4 | 14 / 5 |
| SF64 EVO | 285 | 200 | 90 | 377 / 77 | 160 / 10 | 36 / 18 | 10.2 / 9.4 | 14 / 5 |
| SF65 EVO | 381 | 250 | 90 | 502 / 102 | 400 / 10 | 34 / 17 | 10.2 / 9.4 | 14 / 8 |
| SF66 EVO | 476 | 250 | 90 | 628 / 128 | 300 / 10 | 37 / 18 | 10.2 / 9.4 | 16 / 5 |
| SF67 EVO | 540 | 250 | 90 | 712 / 161 | 400 / 10 | 40 / 19 | 10.2 / 9.4 | 18 / 1 |

2.2 Multiple installations

Fig.1



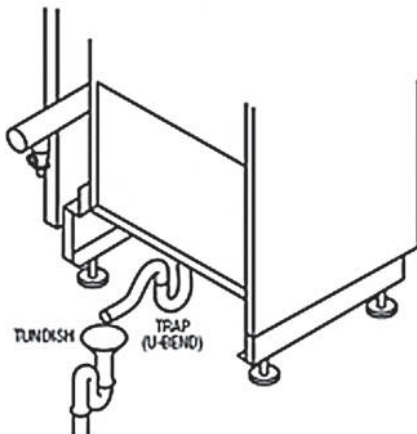
On multiple installations with forced draught units, it is recommended to install each appliance on individual flues (see fig.1). However, if this is not possible they can be connected into a common flue stack. Usually this is achieved by flueing each unit separately to the vertical stack.

If a common header must be used then the unit is connected into the flue header by angle of 45° via a swept tee to prevent the burner draught affecting the other appliances. The flue header and stack must be sized correctly to prevent any adverse draught problems affecting the other applications and their internal pressure switches, i.e. the least line of resistance for the products of combustion will be into the flue header and the vertical stack to the outside.

If a horizontal flue header is used it is standard practice to step-up the diameter of the flue header as it meets each individual flue branch.

2.3 Condensate discharge

Fig.2



The heater will produce condensation during operation that must be discharged to drain or a collection reservoir with a pump and a water level switch. A condensate trap (U-bend) is supplied to permit the discharge of condensate and provide a water trap to prevent flue gases from entering the plant room from the combustion trap is a plastic U-bend that is fitted directly to the underside of the heater and provides a 22mm Ø pipe at the discharge end of the fitting. This must run into a plastic or stainless steel drainpipe due to the corrosive nature of the condensate. A tundish or air break is recommended between the trap and drainpipe for inspection and maintenance (see fig.2).

Note: All electrical work carried out must be in accordance with IEE regulations.

Since it is our policy to strive for progressive design and performance all our equipment is subject to alteration without notice.

2.3 Optional room sealed facility

Fig. 3

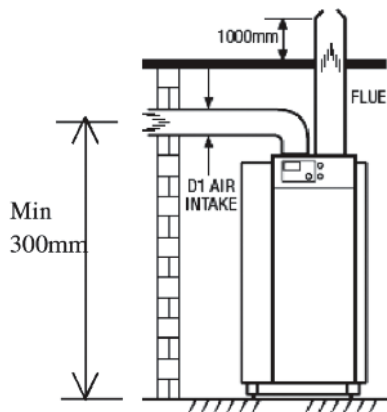
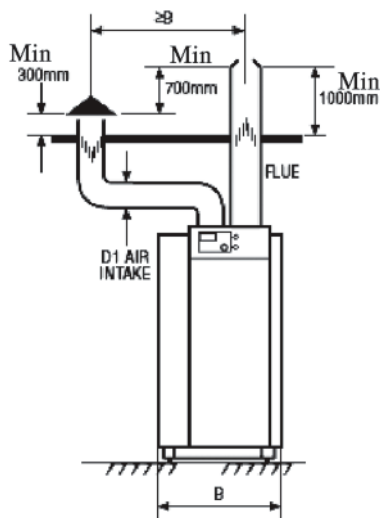


Fig. 4



The SF60 EVO can be supplied as a room sealed option that enables you to supply the combustion air via an air duct direct to the unit. This air supply pipe may be constructed of insulated stainless steel or aluminium, plastic or flexible aluminium (taking into account the added resistance). The total resistance of the air supply duct and the secondary flue may not result in a pressure drop exceeding the maximum permissible chimney resistance (see table). If room sealed, open tees or draught stabilisers are **not** permitted. This option could be used if the free combustion air within the plant room is contaminated or a dusty environment; alternatively, if there is a need to make the plant room more secure, i.e. no large ventilation grills are permitted, please see the table below that indicates the air supply duct connection sizes to the heater. This connection is found to the rear of the unit, to the right of the secondary flue outlet. On multiple installations, please use individual air ducts.

When a horizontal air duct is used, please ensure that a suitable inlet grill is used and the height from the ground is maintained to prevent any ingress of snow, rain and dust (see fig. 3). Roof top air inlets are also acceptable with the SF60 EVO room sealed option. Again, assuming the roof is flat, ensure that a suitable minimum height of 300mm above the roof is maintained to prevent snow entering the air supply duct and that a suitable rain cap is fitted. To prevent any recirculation of combustion products into the air duct the horizontal difference between the secondary flue and the air duct must not be less than the width of the unit. Also, the secondary flue must terminate at least 1000mm above the roof space and at least 700mm above the air duct intake (see fig. 4) and a suitable flue terminal must be used.

| Air intake duct sizes | |
|-----------------------|-----------------------------|
| Model type | Air intake Diameter D1 (mm) |
| SF61 EVO | 130 |
| SF62 EVO | 130 |
| SF63 EVO | 130 |
| SF64 EVO | 130 |
| SF65 EVO | 130 |
| SF66 EVO | 150 |
| SF67 EVO | 150 |

3 Wiring Data

3.1 Siemens controller

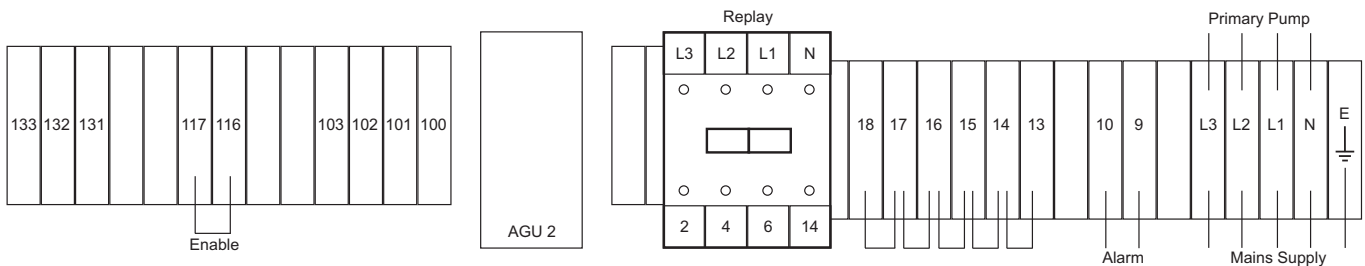
The SF60 EVO SUPAflo water heater requires a continuous secured 240 volt 10 – amp 50 HZ single phase. Please note that the SF66 Evo and SF67 Evo models require a 415 volt 3-phase supply for the primary circulator.

Also, the supply to each water heater must have a 10-amp fuse protection and an accessible local isolator with a secured earth. It is important to observe polarity of the supply to avoid problems with the flame detection circuits. The table below provides details of the electrical loading of each model type. The main electrical and BMS controls are all connected into the main terminal strip located at the front of the heater and housed behind the main front cover. All cables should enter the heater through the rear cable entry and travel through the lower cable tray to the front terminal rail.

Note: All electrical work carried out must be in accordance with IEE regulations.

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Fig. 5



Terminals 9 & 10 Alarm signal terminals. Terminal 9 and 10 provide a 240 volt output during a fault condition. Terminal 9 being the 240 volt live and Terminal 10 the neutral.

Terminals 11 & 18 Heater interlock. Breaking any of the 240 volt link wires between terminals 11 to 16 will shut the heater down.

Terminals 116 & 117 Enable Control. By opening and closing a 240 volt link wire across these terminals enables the heater to be enabled and disabled.

Terminals L¹, L² L³ & N Primary Pump connections. These are the control and power supply to the primary circulator. Please note that the models SF65 Evo and SF67 EVO have 3-phase primary circulators. Terminals L1, L2 and L3 are the phases and terminal N is the neutral to the circulator.

3.2 Heater and circulator electrical data

| Model type | Circulator type | Pump voltage | Heater watts max / min | Heater & pump watts max / min |
|------------|-----------------|--------------|------------------------|-------------------------------|
| SF61 EVO | UPS 32-80 B | 240v 1-Phase | 176 / 48 | 190 / 9 |
| SF62 EVO | UPS 32-120 B | 240v 1-Phase | 267 / 48 | 190 / 9 |
| SF63 EVO | UPS 40-120 FB | 240v 1-Phase | 286 / 53 | 310 / 12 |
| SF64 EVO | UPS 40-120 FB | 240v 1-Phase | 230 / 50 | 310 / 12 |
| SF65 EVO | UPS 50-120 FB | 415v 3-Phase | 504 / 54 | 470 / 25 |
| SF66 EVO | UPS 65-120 FB | 415v 3-Phase | 620 / 64 | 590 / 25 |
| SF67 EVO | UPS 65-180 FB | 415v 3-Phase | 676 / 61 | 800 / 38 |

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February 2018

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