705 - 7945.

Stuart Turner Limited

AUTOMATIC FLOW SWITCH ISSUE: 17482 - 2197/004

G.B

MODEL:

VERTICAL SUCTION

RFL250
RFL100
RFL330
RFL500
RFLD500

END SUCTION

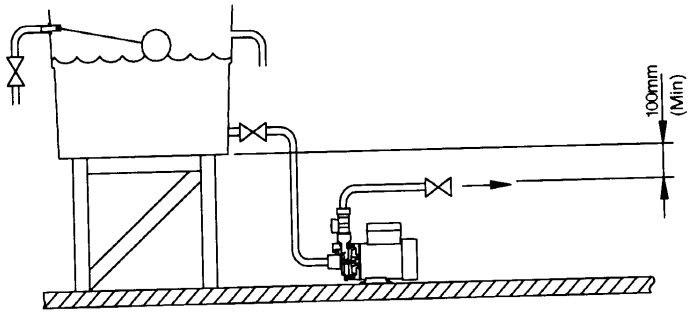
EFL250
EFL330
EFL500
EFL600
CFL253
XFL72
XFL192

IMPORTANT NOTES

Please read these instructions fully before starting the installation: It is assumed that the installer will have adequate knowledge of the bye-laws covering the installation of new water fittings (excluding repairs and renewals).

- **The electrical installation must be carried out in accordance with the current local electrical regulations.**
- **The motor and wiring must not be exposed to water.**
- **This appliance must be earthed. When earthing continuity is broken by a flexible hose or plastic components, the pump and copper pipework must be correctly earthed using clamps connected with earthing wire size 4mm². A standard kit is available from Stuart Turner (Part No. 14-50-17044). The pump must also be earthed via the mains cable which must be correctly connected to the earthing terminal supplied in the terminal box.**
- **Do not run pump without guards and terminal box lid correctly fitted.**

TYPICAL INSTALLATION FOR: AUTOMATIC FLOW SWITCH PUMP



APPLICATION

Stuart Automatic Flow Switch pumps are designed for applications where the water pressure from the storage tanks is too low to provide adequate pressure to meet the demand. These pumps have been designed to be installed adjacent to the water source, up stream of the discharge points.

The pump is automatically switched on by a flow switch when the tap is open, but there must be a minimum flow of 1/2 litre/min (1pt/min), by gravity through the highest outlet to operate the flow switch. This is normally achieved with a static head of 100mm from base of storage tank to the highest outlet in the system.

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WARNING AGAINST MISUSE

This pump set must not be used for any other application without the written consent of Stuart Turner Limited and, in particular, must not be connected directly to the mains water supply.

PRODUCT DESCRIPTION

Motor: Induction type, totally enclosed fan ventilated construction, requiring no routine maintenance. Continuously rated. All models have integral auto resetting thermal overload protection. Motors are protected IP44 with the exception of the XFL72 and XFL192 which are IP45. The XFL192 and RFL100 are fitted with relay and thermal circuit breaker as standard. Motors comply to BS5000 Part II, insulation class F.

Pump: Models CFL253, XFL72, and XFL192 - all being of closed impeller centrifugal design (two stage in the case of the XFL72 and XFL192). Models EFL250, EFL330, EFL500, EFL600, RFL250, RFL330, RFL500, RFL100 and RFLD500 - are of Peripheral design. All models have mechanical shaft seal and integral flow switch pre-wired and plumbed. Wet end materials used are stainless steel, poly carbonate Noryl, brass, Kematal, rubber and ceramic.

All models are fitted with a two metre flying lead and supplied with a resilient mounting.

LIMITS OF APPLICATION

Max water temperature 80°C.

With exception of XFL72 & XFL192 65°C.
Min water temperature 4°C.
Max Amb Temp 40°C.

Max inlet pressure - 14 metres (10 metres for XFL192, XFL72)
Suction - flooded.
Max working pressure 6 Bar, with exception of XFL72 & XFL192 - 4 Bar.

CONNECTIONS

All vertical suction models G3/4 female. All end suction models G1 female.

SITING OF THE PUMP / PIPEWORK

The pump must be located in a dry, frost free position where it cannot be sprayed with water. Site the pump in a horizontal position as close to the water source as possible, having a flooded suction, a minimum flow of 1/2 litre/min gravity flow at the pump is required to enable the automatic flow switch to start the pump. This is normally achieved with a static head of 100mm from base of storage tank to the highest outlet in the system (see typical installation sketch). To prevent loss of water pressure the pipework should be sized to the pump wherever possible, minimising 90° bends. When pump is to be installed in areas where there is a risk of debris or scale build up within the system, it is recommended that the inlet pipework is fitted with an inline strainer. The pump enclosure must be ventilated and there should be a minimum clearance of 80mm between the pump and housing on all sides.

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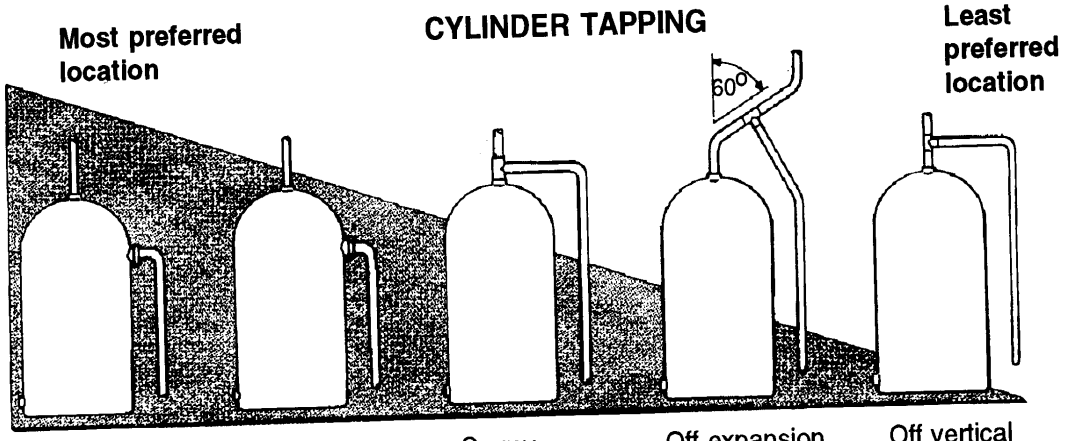
We do not recommend location of the pumps in the roof space, since air locks can easily result. If there is no alternative, please contact our technical sales department for advice.
Where secondary circuits are in use, the pump should be sited as close as possible to the discharge points and draw offs from the circuit.
All possible precautions have been taken to reduce noise transmission, however care must be taken when mounting the pump that any noise is not amplified through loose panels etc., or other mounting medium. The pump must be mounted with the discharge branch (see details of connections) pointing vertically upwards. The pump should not be fixed down, but allowed to stand freely on the resilient mounting provided.

PIPEWORK CONNECTIONS (GENERAL)
For ease of maintenance, isolating valves must be fitted at either side of the pump. The supply to the pump should be taken directly from the storage cistern. The pipework feeds to the storage tank should be of adequate size to ensure replenishment rate of tank is sufficient to meet the needs of the pump.
Note: 28mm pipe should be used throughout system on XFL72 and XFL192 models. A minimum of 22mm pipe should be used in all other models.
The pipe runs from the pump to the outlet valve should not be routed above the level of the storage cistern.

PIPEWORK CONNECTIONS (HOT)
When a hot water cylinder or storage tank is used, ensure the pipework size from the cold water storage to the hot water storage is adequate size in line with the above recommendation.
The cold water cistern should be at least 1 metre above the top of the hot water cylinder. Hot water should be taken from the hot water cylinder, being the first draw off by means of an Essex flange or other such fitting that ensures a clean, air free supply. Methods of connection as shown below.



Existing secondary tappings 22mm

Essex flange 22mm

Surrey flange 22mm outlet

Off expansion pipe off set 60° 22mm pipe work (As close to the cylinder as possible).

Off vertical expansion pipe 22mm pipework

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WARNING

- **Ensure pipework to and from pump is independently supported to prevent forces being transferred to inlet and outlet branches of pump.** An installation pack is available, Part No. 14-50-16691, for G¾" models, or Part No. 14-50-17504 for G1" models.
- **Do not install a non return valve in the suction (inlet) pipework to the pump.** The pump must be free to vent to the supply tanks at all times.

ELECTRICAL INSTALLATION

Before starting work on the electrical installation ensure the power supply is isolated. The pumps are suitable for a supply of 230V - 1 Phase - 50Hz. The pump must be permanently connected to the fixed wiring of the mains supply via a double pole switched, fused connection unit with a minimum 3mm contact separation gap.
All motors exceeding 370 watt output should be provided with control equipment incorporating means for protection against motor overload. Note XFL192 and RFL100 all have integral motor overload protection fitted.
The spur box (fused connection unit) to which the pump is connected should be mounted in an easily accessible position and labelled if confusion is possible to allow easy isolation of the unit.

EARTH CONTINUITY

WARNING: This appliance must be earthed.

Copper pipes must have supplementary earth bonding where the continuity has been broken by a flexible hose, plastic components, or plastic pump head. The pipes should be fitted with earthing clamps to BS 951 and connected with earthing wire size 4mm2.
A standard kit is available from Stuart Turner (Part No. 14-50-17044).

WIRING

The wires in the mains lead are coloured in accordance with the following code:
Green and Yellow: Earth. Blue: Neutral. Brown: Live.

As the colours of the core in the new mains lead may not correspond with the coloured markings identifying the terminals in your connection unit, proceed as follows:

- Green and yellow coloured wire must be connected to the terminal marked with the letter 'E' or by the earth symbol ⏚ or coloured green or green and yellow.
- Blue coloured wire must be connected to the terminal marked with the letter 'N' or coloured black.
- Brown coloured wire must be connected to the terminal marked with the letter 'L' or coloured red.

FUSES

The following fuse size should be used for the appropriate pump:
XFL192 & RFL100 13 Amps All other models 5 Amps

Wiring diagrams are available from Stuart Turner, for two pumps to be connected in parallel, if required.

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