Arrow Valves Ltd

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Installation Instructions / Operating & Maintenance Manual "Autofill®" Pressurisation Unit - Models – AFS, AFP

This unit must be tested by an accredited RPZ Valve Tester

FOREWORD

Autofill® is a Pressurisation Unit with integral Fluid Category 4 backflow protection for filling "non-house" heating or chilled water systems. Filling loops with a Double Check Valve must no longer be used for non-house primary circuits - see Water Regulations.

The AFS and AFP Autofill® units contain a BA device (RPZ Valve), which must be installed, commissioned and maintained in accordance with the Water Supply (Water Fittings) Regulations 1999 and AIM 08-01 Issue 1. The design of this unit meets the relevant requirements.

SUPPORTING LITERATURE

- Autofill® Datasheet
- Wiring Diagram AM052*

WARNING!

Disconnect electrical power before removing electrical cover, guard or any servicing

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1.0 VALVE TESTING

1.1 Once the Autofill® unit has been installed, the RPZ valve assembly **must** be commissioned by an "Accredited Tester".

1.2 A test report must be sent to the local water company.

1.3 The RPZ valve must be at least annually tested or at more frequent intervals as specified by the local water company.

1.4 Arrow Services has Testers throughout the mainland UK and can offer commissioning and annual testing on behalf of Arrow Valves Ltd.

1.5 Once installation of the Autofill® unit is complete, contact Arrow Services (0208 387 1421) to arrange for the RPZ valve to be commissioned.

1.6 The "Accredited Tester" will test the RPZ valve only. The setting of the cold fill, vessel pressure etc. is to be done by the boiler supplier or contractor.

2.0 INSTALLATION

2.1 The Autofill® should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, Building Regulations, IEE Regulations, Water Supply (Water Fitting) Regulations, Water Bye-Laws (Scotland) and other local Bye-laws.

2.2 Do not install in a potentially freezing location or above 25º C.

2.3 Mount the unit to a suitable surface, with the base 300 – 1500 mm above the floor or permanent platform. Secure using suitable fasteners or the optional wall bracket – *code AFBRA*.

2.4 Thoroughly flush the supply pipe before connecting. Ensure the supply pressure is at least 0.5 bar more than the cold fill pressure required before fitting (except for model AFP).

2.5 It is recommended a volumetric water meter be fitted before the Autofill® - *code WMV4P15MPAF*. Use water meter servicing valves.

2.6 Connect the supply to the **right** "Inlet" connection using the flexible hose supplied. Where the cold fill is to be more than 5 m, check there is sufficient mains pressure. If not, supply from a boosted cold water service or use model AFP. Note - the special flexible hoses supplied incorporate a servicing valve. Ensure Autofill® is commissioned before the unit is signed off as installed.

2.7 Connect the outlet to the system at the bottom of the primary pipe and before the circulating pump. An "anti-gravity loop" is recommended.

2.8 Sterilise – if required – all fittings on the supply pipe before the Autofill® in accordance with BS 6700.

2.9 The unit requires a 230 V supply to power the solenoid and pump (model AFP). Supply via a 5 A fused isolator. Route the cable through the conduit on the left of the unit into the electrical box and connect to terminal block – see wiring diagram AM052*.

2.10 Connect the boiler control circuit or BMS to the terminals in the electrical box – see wiring diagram AM052*.

2.11 The Autofill® is supplied with a tundish and has a funnel output to connect to various size waste pipes. Under normal circumstances no discharge should occur. However some discharge can occur if a fault occurs within the RPZ valve (e.g. debris in the upstream check valve). A 22 mm (3/4") warning pipe will generally provide sufficient capacity for DN15 – DN20 RPZ valves if the run is short – e.g. discharging directly through an exterior wall. Ensure discharging water can not splash onto any item where water damage may occur. Ensure that the drainage facility cannot become flooded, or become a health hazard.

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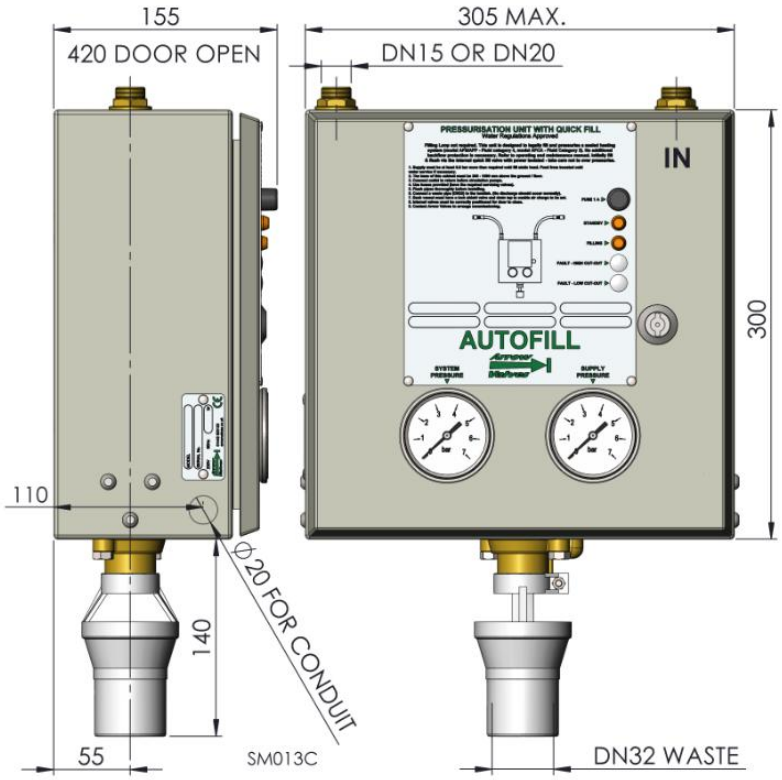

3.0 COLD FILL PRESSURE

3.1 The cold fill "system" pressure is normally equal to the static head of the system plus 2 m to assist venting. However there may be a minimum pressure requirement specified by the boiler – e.g. 1.5 bar.

3.2 Pressure switches have a "differential", this being the difference between the switch on and switch off pressure. This is approximately 0.3 bar. The terms "falling" or "rising" clarify the setting of the switch. E.g. the system switch on pressure may be set to 1.1 bar falling and therefore the switch off will be 1.4 bar rising.

3.3 It should be noted that the "final working pressure", i.e. hot pressure would be more than the cold fill.

3.4 Where the supply pressure is from the mains, it may be the case that insufficient pressure is available at times during the day. However, providing the pressure is sufficient at some stage during the 24 hours, the system will fill.

4.0 EXPANSION VESSEL

4.1 An appropriately sized expansion vessel is required. Arrow Valves supply two models – standard red EVCP and higher pressure blue EVUP.

4.2 All expansion vessels should have a special expansion vessel isolating valve (locked open) and drain tap – model BVEV.

4.3 The vessel should be pre-charged with air to the same pressure as the cold fill (switch on) – e.g. 1 bar for heads less than 8 metres.

5.0 PRESSURE ADJUSTMENTS

5.1 The system pressure is indicated by the left "system" gauge on the door.

5.2 Model AFS and AFP have a PRV set to 2.8 bar (that may need to be adjusted) and pressure switch located in the plastic control box - to **decrease** system pressure, rotate the screw on the system switch **clockwise**.

5.3 Adjust the high and low cut-out switches as required in the same way.

5.4 The static head can be determined by filling the system until water reaches the highest vent in the system and noting the "system" pressure on the gauge – the unit should not be filling at this point (isolate the water or electrical supply). Add to this pressure any additional head above this vent plus a further 2 m. Where 1 bar = 10 m of water column.

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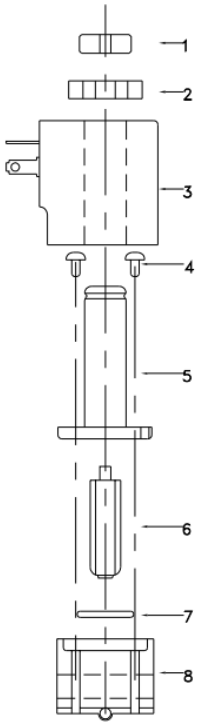
5.5 The cold fill pressure must be checked after adjustment. The servicing valve on the outlet hose should be shut – use a screwdriver. The pressure in the Autofill® unit can be reduced by drawing a little water from the left test cock on the RPZ valve. To do this, first remove the plastic plug from the test cock, then slowly open the test cock unit water discharges. Note the pressure on the gauge when the unit switches on. Adjust the system pressure switch as described above. The isolating valve on the left with the black "T" lever needs to be at the 45º to do this.

6.0 SOLENOID SERVICE INFORMATION



1. Cap
2. Retaining clip
3. Coil & Name plate
4. M3x6 Bolts (X4)
5. Bonnet Assembly
6. Core Assembly
7. O ring
8. Valve Body

AF074A

7.0 OPTIONS

Code	Description
AFNEON	High & Low Warning Lamps 230 / 24 V
AFPUMP	Pump Conversion Kit AFS - AFP
AFBRA	Wall Mounting Bracket – Stainless
WMV4P15MPAF	AF Water Meter Class C 1 Pulse/Lt Cold MUBSP
WMV4P20MPAF	AF Water Meter Class C 1 Pulse/Lt Cold MUBSP

AFNEON – Additional lights on the door to warn of high or low pressures, for installations where there is no BMS or control panel. This option comes as a kit for onsite installation.

AFPUMP – A pump conversion kit to add a pump to the unit after installation, supplied with instructions.

AFBRA - Stainless Steel wall bracket, complete with fasteners for Autofill® (ensure the fasteners are suitable for the wall it is being attached to).

WMV4P15MPAF – DN15 Volumetric Class C water meter to be fitted to the inlet of the Autofill® unit, with volt free output 1 pulse/litre for BMS.

WMV4P20MPAF – DN20 Volumetric Class C water meter to be fitted to the inlet of the Autofill® unit, with volt free output 1 pulse/litre for BMS.

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8.0 FAULT FINDING

8.1 The Autofill Fault Finding Chart can be found here:
https://www.arrowvalves.co.uk/media/wysiwyg/pdfs/AM157A-AUTOFILL-FAULT-FINDING-CHART.pdf

9.0 SPARES

Code	Description
EMKAKEY	Cabinet Key
AA032	Pressure Gauge
SOL1/8-1.5	Solenoid Valve for 15 mm Autofill
SOL1/8-2.0	Solenoid Valve for 22 mm Autofill
SOL42N7502	Solenoid Coil (for 15 mm & 22 mm)
R.225.12 F	Filling Pressure Switch 1.2 bar falling
R.225.12 L	Low Cut Out Pressure Switch 0.5 bar Falling
R.225.12 H	High Cut Out Pressure Switch 2.8 bar Rising
PRV15NGFP533	PRV 1-6 bar for 15 mm Autofill
PRV20NGFP533	PRV 1-6 bar for 22 mm Autofill
BAECO3T5	RPZ Valve Spares Kit
BA15MUECO3T	15 mm RPZ Valve
BA20MUECO3T	22 mm RPZ Valve
FH15CSV15PS300	15 mm Autofill Hose
FH22CSV20FPS300	22 mm Autofill Hose

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