ARMSTRONG

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INSTALLATION AND OPERATING INSTRUCTIONS

AG SERIES

This installation guide gives basic instructions which are to be observed during installation, operation and maintenance of the circulator. It is therefore imperative that this manual be read by the responsible person / operator prior to the installation and should always be kept available at the site. It is not only the general safety instructions under this main heading "Safety" that are to be observed but also the specific information provided under the other main headings.

Serial No.: See nameplate

The "AG" CIRCULATORS are available in:
Dark blue model for heating and chilled water (20-50% Glycol solution).
Yellow model for secondary hot water **application**.

CIRCULATOR MEDIUM

Clean, thin non-aggressive and non-explosive fluids without any solids or fibres. Antifreeze without any mineral oil (special model upon request)

Please note: If any liquid other than water is being circulated, we recommend that you contact our their representatives as the circulator characteristics may change.

Technical data	
Electrical data:	See nameplate
Max. working pressure:	10 bar
Min. static head at 82°C:	2-3m (dependent upon model)
Min. static head at 95°C	4-6m (dependent upon model)
Temp. Model "C"	- 15° C to + 120° C.
	-15° C to + 65° C, (when used for secondary hot water)

SAFETY

- The surface temperature might be hot.
- When venting the circulator (fig. 5), it could result in a slight escape of hot water or steam!

- Circulator should be wired in line with the existing regulations.
- The electrical supply to the circulator is to be switched off before adjusting the speed plug.

PERSONEL QUALIFICATION AND TRAINING

Personnel responsible for operation, maintenance, inspection and installation of the circulator must be in possession of the necessary qualifications for this kind of work.

Furthermore the owner should assure that the contents of the operation manual is understood by his personnel.

Airborne Sound pressure level (distance 1 m)
max 55 dB (A)

TRANSPORT, HANDLING AND STORAGE INSTRUCTIONS

a. Transport

i . AG circulators are despatched fully assembled.AG circulators are packed for transport by road, sea and air carriers.

b. Handling

i. Crushing Hazard.
ii. When lifting an AG circulator above a weight of 25 kg, use lifting equipment having a safe working load rating suitable for the load specified. Use suitable slings for lifting any circulator.

c. Storage

i. Short term Storage (six weeks). If the AG circulator is not to be installed immediately after unpacking, then it is to be be stored in a cool dry dust free location.
ii. Long term storage. If the AG circulator is not to be installed for period of longer than six weeks after receipt on site, then it is to be retained in its packing case. If the casing case is disposed of, then the inlet and outlet connections are to be blanked off with suitable clean covers to prevent ingress of damaging solids.

INSTALLATION

1. The circulator should always be installed with the circulator shaft horizontal, **see Fig. 1**. Direction flow through the circulator casing is indicated by an arrow.

2. Ensure pipework alignment is correct and the circulator and pipework are adequately supported. Sharp bends should be avoided adjacent to the circulator.

3. If circulator is mounted in vertical pipework, flow should be upwards. If flow is downwards, an air-vent must be fitted at the highest point before circulator suction. This applies especially with yellow AGB circulators, which should be vented regularly.

4. Circulators should never be allowed to operate for a long period in a closed valve condition.

5. Circulators should never be installed with terminal box facing downwards. If terminal box is repositioned by rotating head, care must be taken to ensure the casing "0" ring is correctly positioned.

6. To avoid accumulation of impurities in the circulator, ensure that it is not mounted at the lowest point in a system.

7. It is recommended that isolating valves are fitted on either side of the circulator.

8. System should be thoroughly flushed out to clear any solder, steel wool, plaster or any other foreign matter that may be lodged in the circulator.

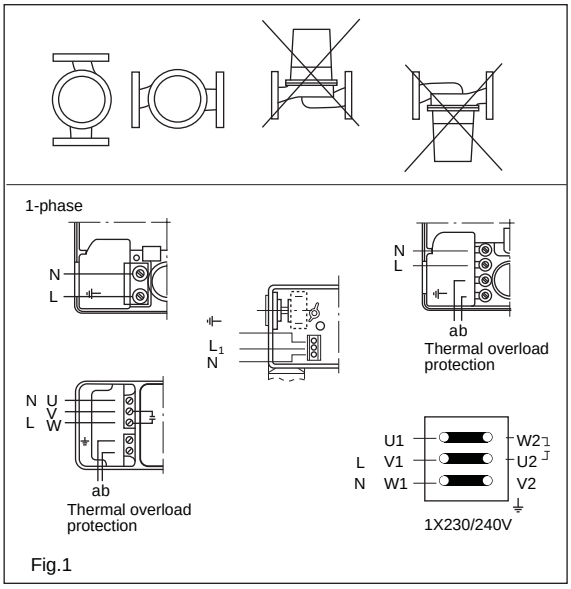


Fig.1

ELECTRICAL CONNECTION

A wiring diagram is located under the terminal box cover lid . **See Fig. 2**. PG standard compression glands are fitted to allow cable entry to the terminal box. Motor protection may not be required with the smaller “AG” circulators, AG 22-05. The larger circulators need overload protection.

Note: If standard motor starter is used, the overload should be adjusted in accordance with the full load current shown on the circulator nameplate. Overload must be readjusted when speed is changed.

After wiring, direction of rotation should be checked by removing plug in the centre of the nameplate , **see Fig. 5** , which will reveal the motor shaft. If incorrect, exchange any two supply leads, on 3-phase circulators. On single-phase circulators check that units are wired strictly in accordance with **Fig. 2.** If the system is not filled with water, circulator should only be run for a short period to prevent damage to circulator bearings which are lubricated by system water.

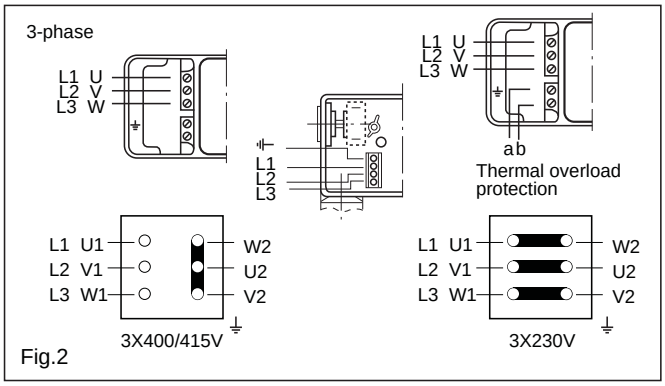
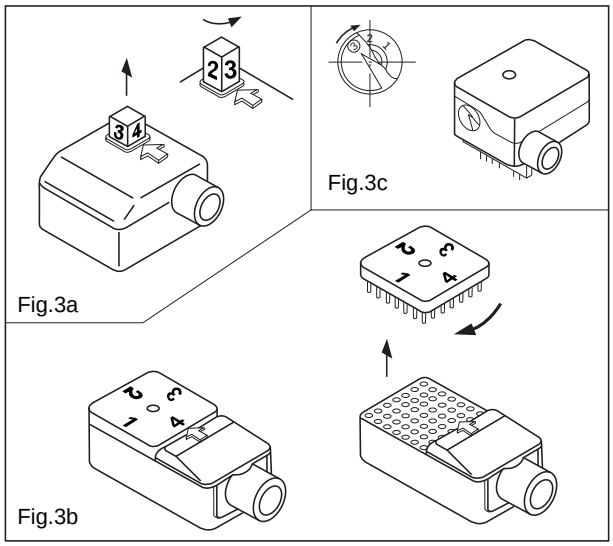


Fig.2

VENTING

Once the system has been filled and pressurized, if required, and before starting up, the circulator must be vented by removing the plug positioned in the centre of the nameplate, **see Fig.5**., the venting must be tighten before starting the circulator. This process should be repeated periodically, until all air held in suspension in the system water, has been removed. On single-case twin circulators mounted in horizontal pipework, it is possible to fit an automatic air vent to the top part of the circulator easing.



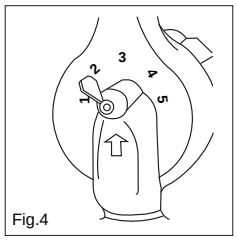


Fig.4

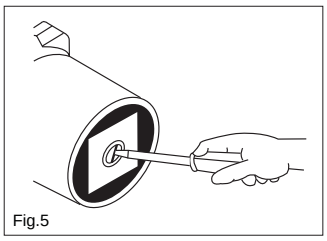


Fig.5

SPEED SELECTION

All circulator motors fitted with electrical regulators, are wound suitable for 3 or 4-speed operation. **See Fig. 3a, 3b, and 3c. The regulator must only be operated when the motor is isolated**. All circulators are supplied with speed plugs set at maximum. Speed plug should always be readjusted to minimum speed, compatible with efficient operation of the system.

This will ensure minimum velocity noise and minimum power consumption. Manually regulated circulators should also be readjusted , **see Fig. 4**

SERVICE / MAINTENANCE

Armstrong’s AG range of glandless circulators are maintenance free and, in a well designed system, should give many years of service. If motor shaft is seized as a result of circulator standing for a long period without use, or by the accumulation of magnetite, or other impurities, it should be freed. Insert a screwdriver through vent plug hole into the slot in the end of the shaft and rotate, **see Fig. 5**. Circulator can also be stripped down and cleaned, system drained, flushed out and refilled.

FAULT FINDING

Fault	Cause	Action
The circulator is running but no flow.	Air in system.	Vent circulator and system.
Circulator will not start.	Power supply failure. Loose electrical Connections Seized shaft.	Check starter and fuses. Remake connections. See above Service/ Maintenance.
Circulator noisy.	Incorrect rotation. Circulator speed too high Static head two low Air in system.	Check rotation and correct. Reduce speed regulator setting. Increase inlet Pressure. Vent circulator and system.

DECLARATION OF CONFORMITY

Armstrong hereby declares that this unit complies with the following relevant provisions

i. EC Machinery Directives 89/392/EEC, 91/368/EEC, 93/44/EEC, 93/68/EEC

Ii. Electromagnatic compatability standard 89/336/EEC, 02/31/EEC, 93/68/EEC

iii. Applied harmonisation of standards EN809, EN50 081-1, EN50 082-1, EN50-081-2, EN50-082-2.

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