Southern Pumps Ltd

Disclaimer

ABOVE MENTIONED ACCEPTS NO RESPONSIBILITY WHATSOEVER FOR LEAKS, EITHER INSIDE OR OUTSIDE THE WATER TANK OR IN ANY PART OF THE WATER SYSTEM.

EITHER AT TIME OF INSTALLATION OR THEREAFTER.

AQUABOX Systems

The Ultimate solution to cold water boosting systems

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Booster Tanks

Operating and maintenance instructions

Introduction

This leaflet contains information to enable the safe installation and operation of the products mentioned above.

The following instructions must be read and understood by all persons responsible for the installation, operation and

maintenance of this product.

Warning Symbols

Safety instructions where noncompliance would affect safety.

Safety instruction where electrical hazard is involved.

Safety instruction where noncompliance could cause damage to the equipment

Instruction for safe use

This product has been designed for boosting cold water in potable water installations to the operating conditions shown.

This product should not be installed until this leaflet has been studied carefully.

Handling, transportation and installation of this equipment should only take place with the proper use of lifting equipment.

This product must be stored in a frost-free dry environment.

Noise Emissions: This equipment operates at a noise level lower

Protection degree: IP5

Installation.

The Aquabox Systems is dispatched mounted on a wooden pallet, it is recommended that the unit be retained in the packaging until the product is to be installed.

- **The pump comes adjusted down to the base of the for <u>transit purposes ONLY</u>.**
- **It is very important that the pump is adjusted off the base of the Aquabox at installation time, so as to ensure that there is no vibration transference across the tank from the pump.**
- **The pump should clear the base of the Aquabox by 15-20MM before operation.**
- **The unit will arrive pre-packaged and wired ready for installation. This product has been fully run and tested at our manufacturers' facility prior to dispatch.**
- The unit should be thoroughly checked for physical damage that may have been caused during transit. If the
- unit is found to have damage it must be reported immediately and should not be installed.
- The unit should be sited in a dry frost free environment on a flat/level solid surface – **ideally on anti-vibration matting**

General fault finding guide.

Fault	Possible Cause	Remedy	
PUMP RUNS BUT NO PRESSURE	Pump test	Close valve (outlet) to check system pressure. NOTE: if pump stops and reaches cut off pressure, then pump is okay	
	Leak in system	Check Controller LED's	Open outlet line Valve
	Airlock	Vent Pump	
	Blockage	Clear Pump of Debris	
PUMP OVERHEATING	Pump test	close valve (outlet) to check system pressure. NOTE: if pump stops and reaches cut off pressure, then pump is okay	
	1. If pressure is met and pump doesn't cut out - then faulty controller		
	2. If pressure is not met and pump doesn't cut out - possible venting or faulty pump		
BREAK TANK IS OVERFLOWING	Leaking ball valve	Check and Clean Ball/Cock Assy	Replace damaged Ball/Cock Assy
	Non-return valve letting by	Check Non-Return Valve in Controller	
PRESSURE DROP WHEN PUMP STOPS	Pump test	close valve (outlet) to check system pressure. NOTE: if pump stops and reaches cut off pressure, then pump is okay	
	Pressure loss	Check Pressure on Vessel	Faulty Controller
		Check Non-Return Valve in Controller	Stuck Non return valve
NO SUPPLY TO STORAGE TANK	Ball valve status	Check and Clean Ball/Cock Assy	
	Airlock	Purge Mainline	

General fault finding guide.

Fault	Possible Cause	Remedy	
PUMP FAILS TO START	Power supply failure	Reinstate incoming power supply	Check plugs and fuses
		Check controller connections	
	Airlock	Vent Pump	Purge mainline
CONTROLLER HAS NO LIGHTS	Power supply failure	Reinstate incoming power supply	Check plugs and fuses
		Check controller connections	
	Isolator fuse blown/ MCB tripped	Replace fuse /reset MCB	
PUMP FAILS TO STOP	Pump test	Close valve (outlet) to check system pressure. NOTE: if pump stops and reaches cut off pressure, then pump is okay.	
	Leak in system	Check Leaking Outlets	Check Systems for Leaks
	Pressure loss	Faulty Expansion Vessel	Dirt in Controller non return valve
		Faulty Controller	Pump failing to make design pressure
	Blockage	Clear Pump of Debri	
	System	Check plumbing system	
PUMP SWITCHES ON AND OFF	Pump test	Close valve (outlet) to check system pressure. NOTE: if pump stops and reaches cut off pressure, then pump is okay	
	Leak in system	Check Leaking Outlets	Check Systems for Leaks
	Pressure issue	Check Pressure on Vessel - if installed (water logged)	Dirt in Controller non return valve
		Faulty Controller	Faulty Expansion Vessel

- This surface should extend at least 100MM beyond the base of the tank to facilitate good positioning and allow for, adequate room for general maintenance and service.
- **The use of flexible pipe connections and proper bracketing of services into and out of the unit will ensure that no vibration noise is generated.**

NOTICE

1. **Please consider installing a flexible hose when plumbing this unit, for ease of maintenance and safeguarding the controller.**

2. **Please take care to not over tighten fittings when installing.**

Electrical connections.

The cable used for the incoming supply must be of adequate size to carry the motor full load current. This is shown on the pump duty plate. The supply must provide thermal as well short circuit protection, a high sensitivity differential switch (0.15 to 0.3MA) is also recommended.

All connections must be made using the appropriate wiring drawings for the equipment being installed, with particular attention being paid to the supply voltages.

The supply voltage is shown on the pump duty plate.

Never operate this product with the Controller front panel removed.

It is essential that this equipment is earthed to the building earth system. Pump operates at 230v 50Hz

Water supply and system connection.

Connect the Aquabox 15mm water inlet to a suitable water supply. It is advisable to fit an external isolation valve for added ease of maintenance. If the pressure available at the ball valve is below 0.3 bar, a low pressure orifice must be obtained and fitted. It is mandatory that an overflow is fitted, and extended to a position where it will be noticed and rectified.

It is the responsibility of the installer to ensure that the overflow is able to keep up with the incoming water volume, if this is not the case then a pressure reducing valve should be fitted to reduce the incoming mains water volume.

Drip trays should be fitted where any potential leak from the Aquabox may cause damage to fixtures and fittings.

Insulation Jacket should be fitted if the Aquabox is installed in a location where it is subject to excessive heat or freezing temperatures. Drip trays and Insulation jackets are available from your local supplier.

Connect the discharge port to the system cold water inlet.

It is advisable to arrange a suitably valved by-pass line including non-return valve from the incoming mains water feed

and the system cold fill point to enable the booster set to be bypassed in the advent of power failure.

Commissioning.

1. Ensure the water tank is clean; the pump is in the correct position and drain valve closed. Ensure the by-pass lines (if fitted) are closed.
2. Check the vessel pre-charge (if fitted) this should be set to 0.2 bar below the system operating pressure, Re-charge with Nitrogen or dry air if required. Open vessel isolation valve.
3. With the power supply off, Close the discharge isolation valve and loosen the compression nut below the Controller unit. This will allow air to escape through the pump when the tank is filled.
4. Open the water supply to the booster set and let the water tank fill with water until the ball valve closes and stops further filling. Check the water level is correct and all joints are sound. Examine the tank and connections for possible leaks. Re-tighten the Controller compression nut.
5. Thoroughly flush the whole system through to ensure any contaminates that may have entered the system/tank during installation are completely removed.

Operation.

When a draw off point connected to the system is opened water will be discharged from the vessel (if fitted), if the demand continues the system pressure will start to fall until the pump cut in pressure is reached.

The pump will now start and pressurise the system.

The pump will continue to run until demand ceases, the pressure will rise to the closed valve head of the pump and the vessel will be re-charged (if fitted).

When demand ceases completely and flow has stopped (< 3l/m) the pump will run for approximately 10 seconds and will then shutdown.

The pressure will now be sitting at the pump closed valve head value which is 4.5 Bar.

Lack of water.

If the Controller senses a lack of water the pump will be stopped automatically after approximately 10 seconds and the Red failure light will be illuminated.

If the water supply comes back on line and a discharge is open the Controller will automatically reset and start the pump.

If the water supply has been reinstated and the pump has not started automatically the reset button can be operated

which will cause the pump to run for approximately 10 seconds and prime the system, if successful the pump will then operate normally.

Maintenance.

Routine check (12 monthly intervals)

- Check the pump produces the correct pressure.
- Check that the pump operates without undue noise or vibration.
- Check the break tank is clean and that the correct water level has been maintained.
- Check that all screws are tight on electrical components.
- Check that the earth connections are tight and making good contact.
- Check that the gas pre charge is at the correct pressure, this should be done by
- isolating the vessel from the system and draining water out of the vessel via the
- isolation valve drain point (if fitted).
- Once the water has been discharged, a Tyre gauge can be connected to the pre charge
- valve to display the vessel pre charge pressure. Recharge as necessary with Nitrogen or dry air.
- Any other expansion vessels connected to the system can be checked in the same manner.

Optional Extras.

A suitably sized pressure vessel with 500mm or 1000mm Flexi hose can be fitted to the

system –This decision is made by the installer. Both vessel and Flexi hose are available

from Aquabox Systems or through your local merchant.

Additional Accessories

Tank
Drip Trays

Tank
Insulation Jackets

Tank
Acoustic Mats

8lt In/Out
Pressure Tanks