Attic 220 / Closet 300 PS

Water Pressurisation Units

Installation, Usage and Maintenance Instructions

201806278

Single & Vari-speed models

Thank you for selecting an RVR Energy Technology product. This product is the result of extensive research and experience in water pressurisation. This manual is an integral part of the product and should be retained. Please read it carefully, as it provides important information regarding the installation and maintenance of the product.

The product should only be installed and maintained by a person qualified in the design and installation of water pressurisation systems. Failure to properly install or maintain the product may lead to injury, death or property damage.

Before installing and using the PS unit, read the following instructions carefully. RVR Energy Technology declines any responsibility in case of accidents or damage caused by improper use of the unit or due to negligence or lack of observance of the instructions contained in this booklet or use of the product under conditions outside of the rated specifications.

01. INTRODUCTION

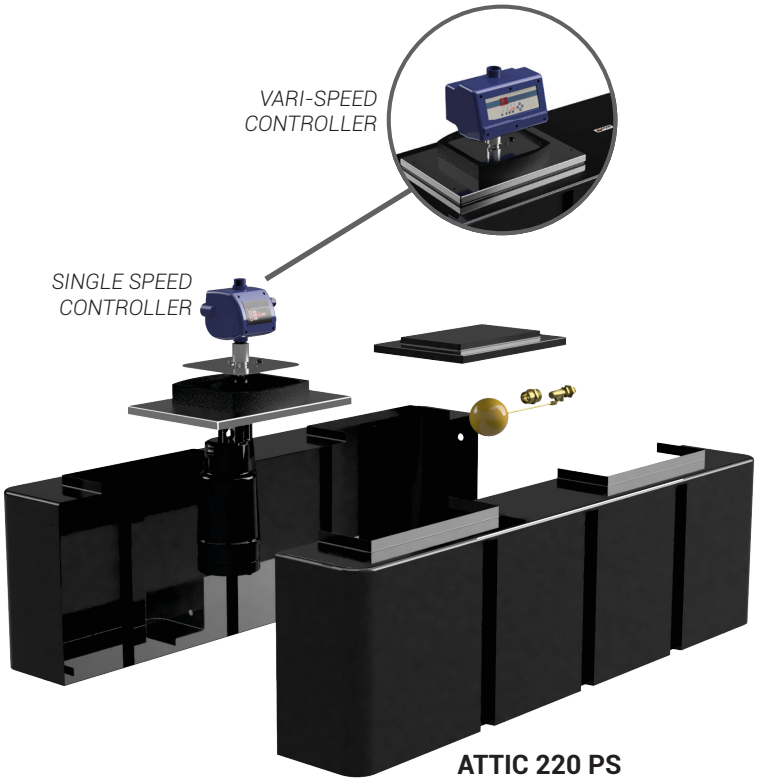
This document contains instructions for the use and maintenance of the Attic 220 PS / Closet 300 PS unit. These PS units have been designed to pump clean water not containing abrasive particles.

The PS Unit is suitable for the provision of a pressurised water supply in residences and commercial premises. It contains the following:

A MULTI-IMPELLER SUBMERSIBLE PUMP which is suitable for use in applications with up to 40 start/stop cycles per hour. The pump is fitted with a continuous duty asynchronous motor and thermal overload protection.

A SINGLE SPEED PRESSURE CONTROLLER which controls the starting and stopping of the pump. It must be installed in a vertical position with the water inlet at the bottom and the water outlet at the top. It starts the pump when the outlet pressure falls below 1.2 bar and stops when the flow stops. A **VARI-SPEED VERSION** is also available.

ATTIC TANK / CLOSET TANK INCLUDING FLOAT VALVE AND OVERFLOW.



ATTIC 220 PS

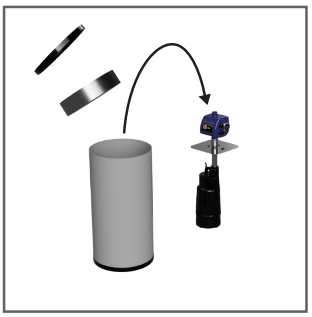
CLOSET 300 PS

02. PERFORMANCE

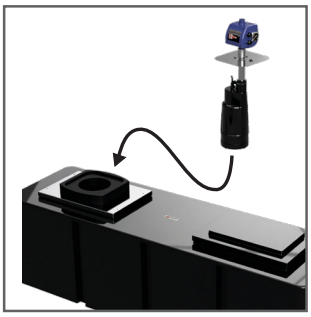
Flowrate (l/min)	10	20	30	40	50	60	70	80
Pressure (bar)	3.4	3.2	3.0	2.7	2.5	2.0	1.6	1.2

03. ASSEMBLY

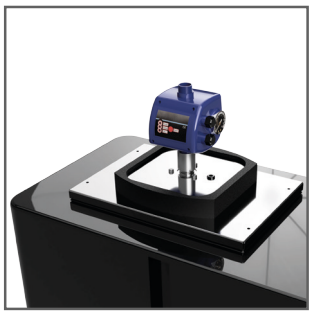
ATTIC 220 PS



Remove the pump assembly from the packaging



Insert the pump assembly into the tank via the top mounting hole



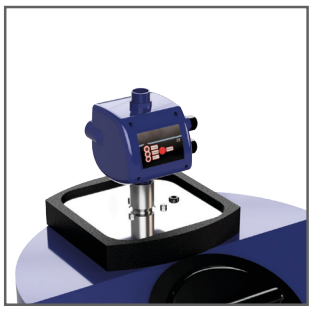
Ensure that the top plate is sitting correctly within the vibration isolating insulation

Read these instructions thoroughly before installing the unit

CLOSET 300 PS

Remove the pump assembly from the packaging

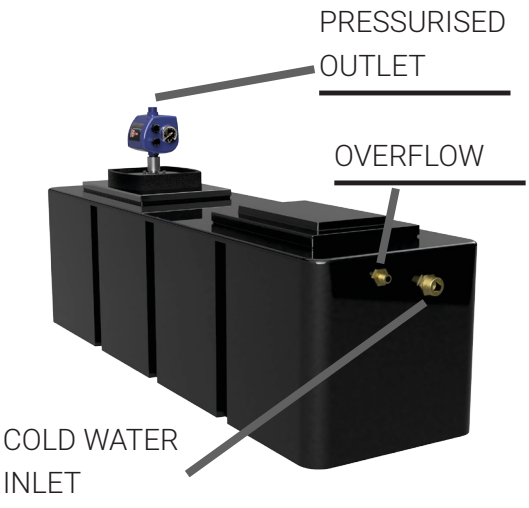
Insert the pump assembly into the tank via the top mounting hole

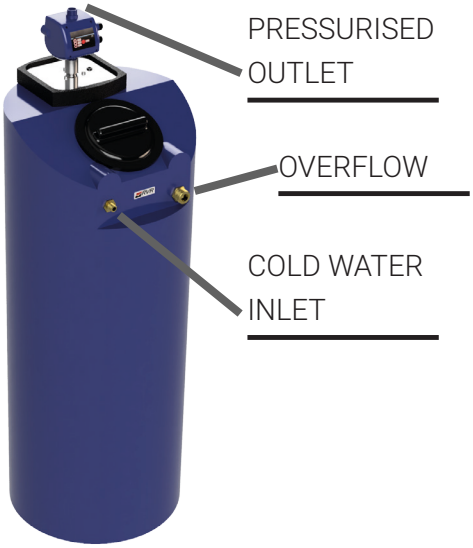


Ensure that the top plate is sitting correctly within the vibration isolating insulation

Read these instructions thoroughly before installing the unit

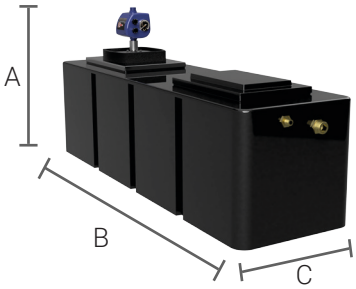
04. CONNECTIONS





05. DIMENSIONS AND CAPACITIES

Attic 220 PS	Height mm (A)	Length mm (B)	Depth mm (C)	Capacity litres
Excluding pump / controller	480	1600	470	220
With Single Speed Controller	720			
With Vari-speed controller	750			



Closet 300 PS	Height mm (A)	Diameter mm (B)	Capacity litres
Excluding pump / controller	1475	560	300
With Single Speed Controller	1625		
With Vari-speed controller	1660		

06. INSTALLATION AND CONDITIONS OF USE

This product must be installed subject to the following limitations:

- Temperature of pumped liquid between 0°C and +35°C
- Voltage variation allowed +/-5%
- Maximum number of starts per hour : 40
- Maximum water column between controller and highest water outlet: 6m
- Minimum positive head level: 100mm
- The unit must be installed in a dry location, indoors. It is not suitable for outdoor use
- The pump is not suitable for pumping inflammable liquids or for use in locations where there is a danger of explosion
- The pump is not suitable for use in swimming pools or garden ponds
- Do not cover or place anything on top of the controller

Install the PS unit in a dry location, indoors. Vibration isolating material should be installed underneath the unit. The pressurised outlet must be facing upwards (vertical), otherwise the pump will not operate correctly or leaks may occur.

Make sure that the water is free from sand, grit and other dirt. Do not run the pump without water. The controller will stop pump operation when there is no water and will need to be reset when this occurs.

Pressure test the water system fully to ensure there are no leaks before connecting and starting the pump for the first time. The maximum pump pressure is 3.5 bar. The pressure test should be carried out at a pressure of at least 5 bar.

We recommend the installation of a small (5 litre) expansion vessel on the cold water outlet. This will result in reduced pump operating cycles and also eliminate frequent starting due to drips and leaks. It will prevent premature failure due to frequent cycling. If an expansion vessel is installed, the expansion vessel charge pressure should be set to 1.5 bar with no water pressure in the system. The system will operate satisfactorily without an expansion vessel provided the number of start/stop cycles does not exceed 40 per hour.

We recommend the installation of an isolation valve on the pressurised outlet. A suitable flexible hose or connector should be used to connect the PS unit to the pipework.

Failure to ensure the integrity of all pipework, joints and fittings may result in flooding and property damage. RVR Energy Technology accepts no liability for damage due to leaks either inside or outside the product.

07. SINGLE SPEED - ELECTRICAL INSTALLATION

The PS unit is supplied with a 3 core mains cable with a length of 2 metres. A 220/240V 50Hz single phase supply with neutral and earth is required. All wiring must comply with I.E.E. and all local, national and EU requirements.

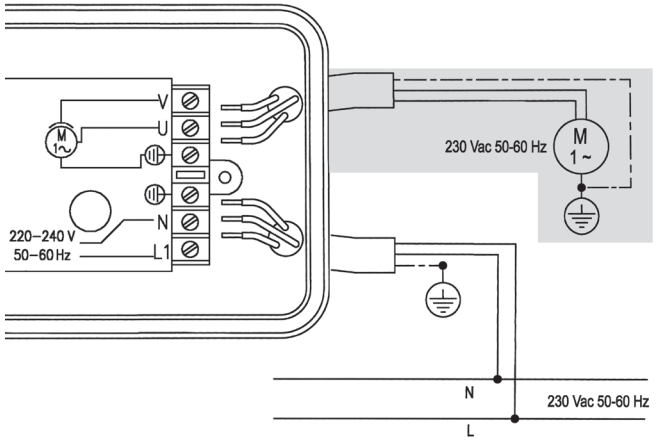
THIS APPLIANCE MUST BE EARTHED.

Pump Model	Motor Power	Rated Current	Minimum Fuse Size
Diver 6-700 M-A	0.65kW	3.8A	6A

The method of connection to the electricity supply must facilitate complete isolation and should preferably be made via a fused isolator having a contact separation of at least 3mm in all poles and supplying the pump circuit only. The fused isolator should also protect the cable supplying the unit.

A fuse/MCB suitable for the protection of motor loads should protect the circuit to which the pump is connected. The installation of a ground fault interrupter / RCCD-protector is strongly recommended.

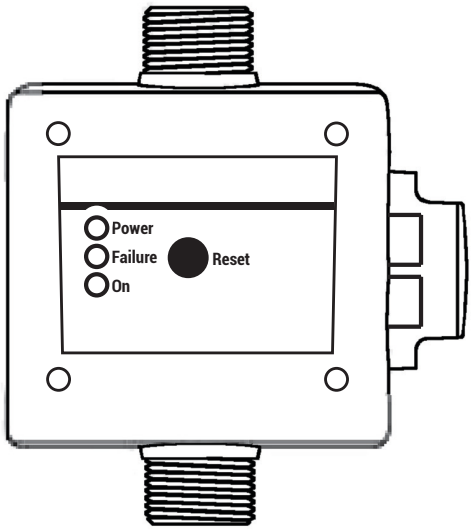
Cable extensions should only be made with a safe and waterproof system. The system should be interconnected as shown in the diagram (L: Brown N: Blue E: Green/Yellow) using suitable cable with a cross section of at least 1.5mm2.



Note - the pump connection (indicated in shaded area) comes pre-connected on the PS unit.

08. SINGLE SPEED - OPERATING INSTRUCTIONS

The controller has a Power light, On light and a Failure light. The Power light indicates that a voltage is connected to the controller. The On light indicates that the pump is running.



Make sure the pump is primed prior to first power on. When the power supply is turned on, both the Power and On lights come on and the pump is started for a few seconds in order to allow the system to build up pressure. If the time is not sufficient, press the Restart button until water is coming out of an open water outlet. The pump will stop and go into standby mode when the water outlet is closed. The On light will turn off and the Power light will remain lit. The pump is now ready for automatic operation.

When a water outlet is opened, the pump starts and runs as long as the outlet is opened. After the outlet is closed, maximum pressure is restored to the system, the pump then stops and returns to Standby mode.

If there is a shortage of water during operation, the controller will turn on the Failure light and stop the pump, protecting it from dry running. After five minutes the controller will attempt a 25 second reset, attempting to return to normal operation. If it cannot, it will perform a further automatic reset every 30 minutes for a 24 hour period. If the failure persists the controller will remain in a fault state until the water supply has been restored and the reset button is manually pressed. The reset button may be pressed at any time to reset operation.

If the electricity supply fails, the system will automatically restart once the electricity supply is restored.

10. VARI-SPEED - ELECTRICAL INSTALLATION

The PS Unit is supplied with a 3 core mains cable with a length of 2 metres. A 220/240V 50Hz single phase supply with neutral and earth is required. All wiring must comply with I.E.E. and all local, national and EU requirements.

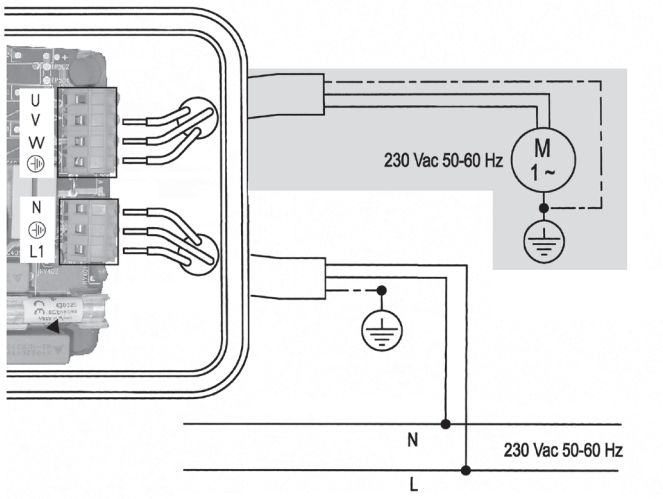
THIS APPLIANCE MUST BE EARTHED.

Pump Model	Motor Power	Rated Current	Minimum Fuse Size
Diver 6-700 M-A	0.65kW	3.8A	6A

The method of connection to the electricity supply must facilitate complete isolation and should preferably be made via a fused isolator having a contact separation of at least 3mm in all poles and supplying the pump circuit only. The fused isolator should also protect the cable supplying the unit.

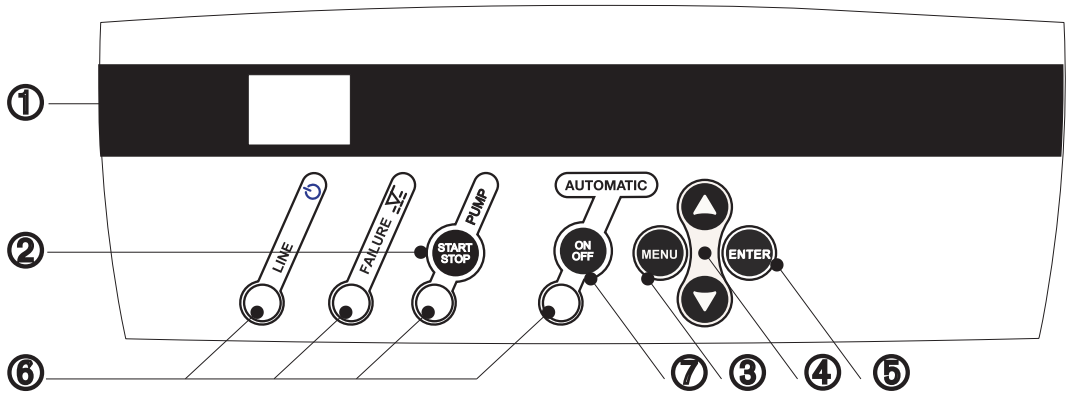
A fuse/MCB suitable for the protection of motor loads should protect the circuit to which the pump is connected. The installation of a ground fault interrupter / RCCD-protector is strongly recommended.

Cable extensions should only be made with a safe and waterproof system. The system should be interconnected as shown in the diagram (L: Brown N: Blue E: Green/Yellow) using suitable cable with a cross section of at least 1.5mm2.



Note - the pump connection (indicated in shaded area) comes pre-connected on the PS unit.

09. VARI-SPEED - OPERATING INSTRUCTIONS



1. TWO-DIGIT DISPLAY . In AUTOMATIC mode it shows instantaneous pressure (bar), instantaneous current consumption (A) and minimum speed (Hz).
2. MANUAL START-STOP button
3. MENU button for entering or leaving the menu.
4. MENU UP/DOWN buttons
5. ENTER for saving programmed values.
6. Led lights:
   LINE green: Electricity supply present. Lit when mains connected.
   FAILURE red: Lit or flashing depending on type of failure (see troubleshooting)
   PUMP yellow: Lit when the pump is working.
   AUTOMATIC green: Lit when the unit is operating in AUTOMATIC mode.
7. ON/OFF button: Allows the user to change between AUTOMATIC and MANUAL mode or vice versa.

VARI-SPEED START UP

Ensure that the pump is correctly primed. Connect the vari-speed controller to the mains supply as indicated in section 10. All the led lights will flash instantaneously for a second. The display will show SP (set pressure) and then its default value 2.0 bar. SP and the set value will alternate on the display. Use up and down to adjust the desired set pressure.

Press the AUTO button. The device will start to operate and the AUTOMATIC LED will light. The display will show the instantaneous pressure. While in automatic mode it is possible to display the following using the up and down arrows.

P: instantaneous pressure (bar)
Fr: instantaneous speed
A: instantaneous current consumption

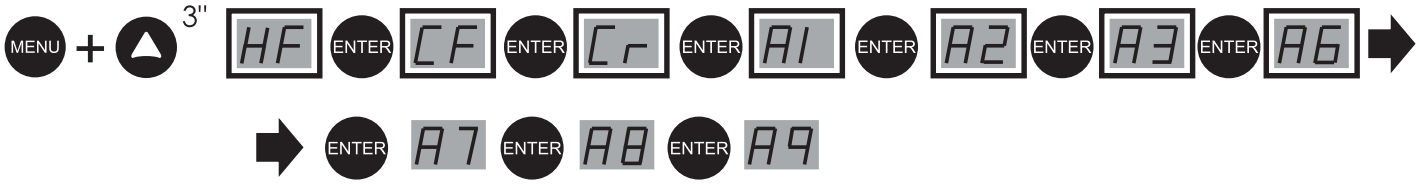
VARI-SPEED CONFIGURATION

In the configuration menu it is possible to adjust maximum current (A) and minimum pump speed (FL). Follow the steps below to do this.

Step	Display	Action
1	SP	Press MENU button for 3 seconds to start the configuration sequence
2	A	Input the nominal intensity value in Amps using up/down to enable thermal protection. This must be between 0 and 9A. The default value is 9A. Press ENTER to save.
3	FL	The the lower limit of the speed of rotation may be increased using the up button. The value must be within 30 and 35 Hz. Default value is 30 Hz. Press ENTER to save.
4	EL	This should be set to 0. Press ENTER to save.
5	SP	System is ready. Press AUTO ON/OFF to enter automatic mode.

VARI-SPEED OPERATING DATA AND ALARM HISTORY

By pressing MENU and UP simultaneously for 3 seconds it is possible to access operating data and alarm history information. Press ENTER to step through the information. The display will return to the main display once complete. The sequence and legend is shown below.



REGISTER HOURS (HF). Counter of total time that the pump has been operating.
REGISTER STARTS (CF). Number of cycles of operation, a cycle is a start and a stop.
REGISTER SWITCH (Cr). Number of connections to the electricity supply.
ALARM COUNT DRY RUN (A1). Number of dry-running alarms.
ALARM COUNT I MAX (A2). Number of overcurrent alarms.
ALARM COUNT. DISCONNECTED PUMP (A3). Number of disconnected pump alarms.
ALARM COUNT. TEMP (A6). Number of alarms for excessive temperature.
ALARM COUNT. SHORTCIRCUIT (A7). Number of short circuit alarms.
ALARM COUNT. OVERVOLTAGE (A8). Number of overvoltage alarms.
ALARM COUNT. UNDERVOLTAGE (A9). Number of undervoltage alarms.

Data is persisted even if the device has been disconnected from the electricity supply. Note: For quantities with more than 2 figures they will appear in consecutive screens after each ENTER. For example, to indicate 10234 overcurrent alarms:

11. SINGLE SPEED FAULTS

Problem	Causes or actions
The pump fails to start	Check electrical connections
The pump starts but fails to deliver water	Water column exceeds 6m
The pump starts and stops frequently	Leak in the system or no expansion vessel fitted
The pump fails to stop	Leak in the system or controller not installed in vertical orientation
The pump jams	Water supply problems, check for dirt or grit

13. VARI-SPEED FAULTS AND ALARMS

Code	Fault	Description	System Reaction	Solution
A1	Dry Run	Will activate after 10 seconds of dry run	Attempted restart after 5 minutes, then every 30 minutes for 24 hours	Restore water supply and re-prime pump using START/STOP
A2	Overcurrent	Excess current detected	Will attempt 4 restarts	Check for blocked impeller, and general state of pump. Check intensity values in menu. Re-run setup to clear.
A3	Pump Disconnected	Electronic protection system activated or fuse has blown	Requires intervention	Check fuses, motor windings and pump consumption. Re-run set-up to restore operation.
A5	Tranducer damage		Requires intervention	Contact service
A6	Over Temperature	Excess temperature at controller	Turns off inverter	Check water and ambient temperatire
A7	Short Circuit	Electronic protection system activated	Will retry every 10 minutes, 4 times.	Check the pump
A8	Overvoltage	Electronic protection system activated	Requires intervention	Check the electricity supply
A9	Undervoltage	Electronic protection system activated	Requires intervention	Check the electricity supply
-	Blank Screen	No electricity supply present	Requires intervention	Check the mains supply, and fuses if required

12. WARNINGS

Carefully read the instructions contained in the manual as they provide important information regarding safe installation and maintenance. The installation and maintenance must be performed in accordance with current standards and according to the manufacturer's instructions. Observe all warnings including those below.

Failure to ensure the integrity of all pipework, joints and fittings may result in flooding and property damage.

This product should not be installed in a location where water leakage is likely to cause damage. If it is installed such a location such as an attic or higher floor of a building, a 'tanked', waterproof chamber should be created underneath to ensure that any potential leaks from the product and associated fittings or pipes are contained and drained away safely.

Repairs must be only be carried out by a qualified technicians. Failure to comply with these requirements can compromise the safety of the device.

RVR Energy Technology accepts no liability for damage due to leaks or frost damage either inside or outside the product, or on any components whether supplied by RVR Energy Technology or not. It is the sole responsibility of the installer to ensure the water soundness of the entire system and the environmental conditions in which the unit is installed.

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