

## DAVIES HYDROPAK SELF PRIMING PRESSURE SET OWNER'S MANUAL AND WARRANTY POLICY



Dear Client,

Congratulations on your purchase of a quality pump from the Davies range of pumping products. Like all Davies products, the quality and reliability is first and foremost, carefully chosen from manufactures worldwide to carry this proven brand name and deliver years of service. Please check your pump for any physical damage during transit and advise your supplier if so. Check the name plate to make sure the pump is what you ordered. The longevity of your pump largely depends on its application of use and the environment it is working in. Make sure it is the correct type of pump for the application and it has been sized correctly to meet your required duties.

## LIQUIDS TO BE PUMPED

These pumps are designed for the pumping of non-aggressive water, or water not containing solid particles.

## OPERATING CONDITIONS

Ambient temp. : Max. +40°C (104°F) for cold water series. | Water temp.: +2°C (36°F) ~ +40°C (104°F)

Water pH range : 5.5 ~ 8.5 | System pressure : 200W, 300W, 400W Max. 5 kg/cm<sup>2</sup> (70 PSI) 600W, 800W Max. 7 kg/cm<sup>2</sup> (99PSI)

Relative humidity: Max. 85% (RH)

## INSTALLATION

1. The pump foundation should be rigid enough to absorb any vibration from the motor, and the pump should be securely bolted to the foundation.
2. It is recommended that the plumber/installer provides an adequate draining system to avoid damage in case of leakage, particularly when installed indoors. When it is installed outside, it should be covered by a weather-proof housing, well ventilated to allow motor heat to escape.
3. The pump should be installed as close as possible to the water source.
4. When use with water heaters, a check valve should be installed between pump (discharge) pipeline and water heater to avoid high-pressure steam back-flow.
6. It is recommended to shut off the pump when the water source is unavailable; although it has the dry run cut off function.
7. The pump has a built-in check valve. It is not necessary install any other valve on the suction.

## PIPING

1. The suction line should be installed as short and straight as possible, with a minimum of bends. The internal diameter of the suction pipe must be equal to, or greater than the ports of the pump.
2. For suction lift over 4 meters, the suction pipe should be of greater diameter than the suction port.
3. The protective rubber films within the center of the suction/discharge flange gaskets must be removed before installation.
4. Be careful not to allow any foreign objects (PVC adhesive gum, dirt, sand etc.) into the pump, otherwise the pump will not operate correctly. To prevent this problem, it is recommended to use a strainer which already comes with the product.
5. Piping joints should be fitted carefully to prevent leaking problem. A leaking problem in the suction line will cause the pump to lose suction capacity, while a leaking problem in the discharge line will cause the product ON/OFF very frequently even while no any water is in used.
6. In the suction lift application, the connection between the suction line and pump must be airtight, and the suction pipe must be positioned so it has an upward slope or horizontal to the pump (thus avoiding the formation of air pockets).
  - When used on a suction lift, a foot valve should be fitted on the suction line, below the water level.
  - If hose is used as the suction pipe, it must be non-collapsible.
  - To minimize pressure drop, the discharge pipe should be at least the same size as the discharge port of the pump.

## ELECTRICAL CONNECTION

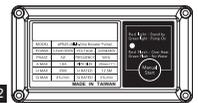
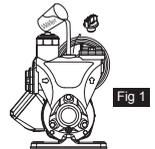
1. Ensure the mains voltage is the same as the voltage of the pump and that the pump is safely connected to ground/earth.
2. The single phase models are optionally supplied with plug and lead. The product comes with plug and lead can be connected directly to the mains supply.

## WIRING DIAGRAM

Risk of Electric Shock - This pump is supplied with a grounding conductor or a grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle. Before operation, please ensure the voltage is correct and the circuit breaker and grounding connectors are all connected in accordance with local regulations. In addition, please connect the product to an electricity leakage breaker to prevent more serious electric shock.

## STARTING

1. Installation where there is no positive inlet pressure for the pump, please follow the procedure as shown in Fig 1.
  - a. Remove the filling plug
  - b. Fill water in the priming chamber until all air is expelled
  - c. Replace the filling plug
2. Installation where the pump inlet is below the water supply, remove the priming plug and allow the water to flow into the priming chamber until all air is expelled.
3. The pump must always be checked for prime if not used for a prolonged period. It is imperative to fill the pump with water before operation as dry running will cause irreparable damage to the mechanical seal.
4. Installation where the pump is above the water source (suction lift), if there is no water come up after 2 minutes pump running, please push the MANUAL START button shown in Fig2 to force the pump to lift the water until the suction line is full. Water until the suction line is full.
6. Double check the voltage supply is correct then plug in the power. Open the faucet or water appliances on the discharge side. The water should be delivered after several seconds.
7. Once the water is pumped out, close and open the water appliances on the discharge side several times to check the automatic ON/OFF operation.



## PRECAUTIONS

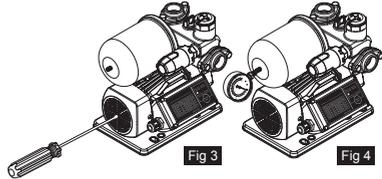
1. The pump should be shut down and the trouble corrected if the pump is running at speed and found to have any of the following problems:
  - No water discharged (Green light flash) | Not enough water discharged | Excessive vibration | Motor run hot
  - Pump runs hot (Red light flash) (only apply to the cold water models)
2. Do not allow the pump to continually start and stop (cycling) as this will reduce the motor life.
3. Cycling can occur on pressure units when the pressure tank pre-charge drops, or where there is a leak in the discharge plumbing.

## OPERATION AND MAINTENANCE

1. Periodically check the condition of the check valve and strainer (if used).
2. If the pump is to be inactive for long periods, it should be rinsed thoroughly with clean water, then, drained and stored in a dry place.
3. If the pump sticks after periods of inactivity, a screw driver slot is provided on the motor shaft end to free up the pump/motor. To do so, insert a screw driver in the slot in the motor shaft as shown in Fig 3 and turn to free the rotor. If this does not remedy the problem, the unit will need dismantling.
4. Pressure tank air charge should be checked at regular intervals of every 6 months and after the pump has not been used for a prolonged period. To check the Pressure Tank air pressure, turn off power, open a tap on the discharge line to release pressure from the pump, unscrew the black plastic cover and apply an accurate pressure gauge to the valve as shown in Fig 4.

Pressure should be adjusted to the original pre-charge as follows:

400W: 1.6 Kg/cm<sup>2</sup> (22 psi) | 800W: 1.6 Kg/cm<sup>2</sup> (22 psi)



## ADJUSTMENTS AND RESET PROCEDURES

For most applications, pumps need no adjustment to operate under normal conditions. It is only necessary when the inlet pressure is higher than the factory preset range. It is highly recommended that the adjustment is performed by the professional personnel.

The factory preset activation point is as follows:

Model	Power (HP/W)	Preset activation point (kg/cm <sup>2</sup> /psi)
400 W	0.5 / 400	2.0 / 28
800 W	1.0 / 750	2.0 / 28

## ADJUST PRESSURE SWITCH (Range: 1.0 – 3.0kg/cm<sup>2</sup> / 14–42psi)

Adjust the pressure switch setting (according to the pump models) as shown in Fig 5. Make sure the system is primed.

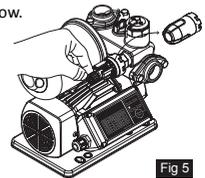
The pump is supplied with a preset pressure in the pressure switch. For most applications, it will be satisfactory.

In some cases a different pressure may be required. This can be achieved by following the instructions below.

However, it is highly recommended that the adjustment is only done by the professional personnel.

Instructions for pressure adjustment (Fig. 5):

1. If pump does not start when tap is on, adjust clockwise (“+”) till it starts.
  2. If pump does not stop when no water is consumed, adjust counterclockwise (“-”) till it stops.
  3. After adjustment is made, turn it on and off several times to make sure it operates normally.
- Open the cover to adjust the pressure



**WARNING**

The pump is not designed for continuous operation under low discharge flows such as slow closing float valves, slow running taps. Under this application, please install an extra pressure tank of adequate volume to avoid “cycling”. Leaking discharge line and leaking taps will damage the unit through causing the pump to repeatedly start and stop.

## FREQUENTLY ASKED QUESTIONS

1. What causes the pump to start?

The pump has the built-in pressure switch and internal flow switch. Each of these can turn the pump on depending on water consumption. The pump will start when: - The pressure is BELOW the pressure switch activation point. OR - The flow rate is greater than 4.0-5.0 lpm(1-1.3 GPM) preset activation point for each model is provided in the pump specifications. The cut in pressure must be lower than the pressure switch setting; otherwise the pump will only start by the flow switch.

2. What is the maximum pressure switch activation point?

Adjust the pressure only when the cut in pressure is higher than the preset activation point. Do not adjust the pressure to exceed the manufacturer suggestion maximum pressure range as below.

200W - 2.0 kg/cm<sup>2</sup> (28 psi) 300W - 2.5 kg/cm<sup>2</sup> (35 psi) 400W - 3.0 kg/cm<sup>2</sup> (42 psi)

600W - 3.0 kg/cm<sup>2</sup> (42 psi) 800W - 3.0 kg/cm<sup>2</sup> (42 psi)

3. What causes the pump to stop?

The flow switch is designed to automatically stop the pump when flow drops to below 3.0 lpm(0.8GPM). The pump will shut off in a few seconds after flow stops. In addition, the pump will be turned off in the event of dry-run or over-heat alarm.

4. What is the purpose of the built-in pressure tank?

The pressure tank comes from the factory pressurized at approximately 0.8 – 1.6 kg/cm<sup>2</sup> or 11–22psi (with the pump pressure at zero). It is designed to minimize motor startup due to small flow demand or minor leak of the pipeline and also to arrest the water hammer.

200W: 0.8 Kg/cm<sup>2</sup> (11 psi) 300W: 1.2 Kg/cm<sup>2</sup> (17 psi) 400W: 1.6 Kg/cm<sup>2</sup> (22 psi)

600W: 1.6 Kg/cm<sup>2</sup> (22psi) 800W: 1.6 Kg/cm<sup>2</sup> (22 psi)

5. How are the dry-run condition determined and the protection provided?

The dry-run is defined when the motor is running AND the flow rate is less than minimum requirement of 3.0 lpm AND when pressure is less than the pressure switch setting. The protection is provided:

\*To avoid dry run without water over 2 minutes, the pump will automatically rest for 15 minutes and restart again, if above cycling happen accumulate 10 times, the rest time will become 90 minutes and restart afterward.

Note: Above unusual pump shutdown, users may stop the power supply over 6 seconds and reconnect again to restart, if it is necessary.

## TROUBLESHOOTING

Problem	Cause	Remedy	Problem	Cause	Remedy
1. Pump does not start	a. No power supply	Connect the electricity supply	4. Pump starts and stops too frequently	a. Leakage in suction pipe or air in the Water	Check the suction pipe and water supply
	b. Wrong voltage	Check if supply voltage is correct		b. Discharge flow is too low	Set your tap on a higher water flow.
	c. Inadequate pressure setting	Adjust pressure per "ADJUST PRESSURE SWITCH" in the Manual.	5. Electric shock	a. Ineffective grounding	Reactivate grounding
	d. Seized-up pump	Place a screwdriver against the shaft end of the motor to check it the rotor will spin freely, and contact your pump supplier.		6. Pump does not stop when water is not consumed	a. Poor water supply or air suck in
2. Pump cuts out during operation	a. Seized-up pump	Same as above	b. Pressure setting is too high		Adjust pressure per "ADJUST PRESSURE SWITCH" in the Manual.
	b. Overloaded/overheated motor	The pump will start after motor cooling down. If it doesn't, or the problem happens too frequently, please your pump supplier.	c. Existing pipe is leaking		Fix the leakage.
	c. Poor water supply	Check if water supply is adequate and if the inlet pipe is blocked.	7. Pump runs normal but with very low discharge flow	a. 3-phase motor runs in wrong rotation	Switch any of the 2 wires from motor terminal to correct rotation.
3. Pump starts when no water is consumed	a. Existing pipe is leaking	Fix the leakage.		b. Poor water supply	Check if water supply is adequate and if the inlet pipe is blocked.
	b. Defective check valve	Clean or replace with a new valve			
	c. Pump suck in air.	Check the suction pipe and water supply.			

## Argon Distributors Warranty Policy for Davies Pumps

Your Davies Pump, when used for its designed purpose should give you years of trouble free service. Please take the time to read and understand the operator's manual for this pump before installing and running your pump. Failure to install and operate as per the operation instructions will render warranty on this unit void. Davies Pumps are warranted to be free of material and manufacturing defects at the time of purchase.

Warranty Period: 2 Years from date of purchase.

This warranty is limited to the cost of the product and does not cover travel charges, removal and re-installation charges, consumables, Electrician or Plumbers charges or any other third party costs unless authorized by Argon Distributors prior to being carried out.

Argon distributors will repair or replace for the consumer any portion of the failed item which has proved to be defective within the warranty period. Replacement product or parts may include refurbished parts or components.

### The warranty does not cover Damage or malfunction resulting from:

- A. Misuse, accident, fire, water, lightning, negligence, abuse, product modifications.
- B. Repairs or attempted repairs by unauthorized persons
- C. Damages to product caused by transit
- D. Removal or installation of the product
- E. Normal wear and tear.
- F. Water and Insect ingress
- G. Exposure to corrosive conditions
- H. Dry run
- I. Foreign objects in the liquid being pumped
- J. Electrical power fluctuations
- K. Freight

### Argon Distributors liability is limited to the cost of the product and shall not be liable for:

- A. Damage to other property caused by defects in the product.
- B. Loss of use of the product.
- C. Loss of time, loss of profits, loss of business opportunity, loss of goodwill
- D. Any other damages-incidental, consequential or otherwise.
- E. Claims under this warranty must give evidence of the Date of purchase, Invoice Copy, Model, Serial Number, photos and information of the installation as soon as the failure has occurred. Owner's details must be noted.

If any of the above is unclear please contact the warranty manager at:

**ARGON DISTRIBUTORS Freephone: 0508 634 341**