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Living with Solar Course
These courses are held regularly.

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Registration by Friday 16th March, 2007



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Pressure Pumps FAQ

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FAQ on Pressure Pumps Systems

1) 12V Pressure Pumps vs 240V Pumps:

The question whether to use a 12/24 volt or a 240 volt pressure pump for a home pressure system is an interesting one.

The advantage of a 12/24 volt pump is that they are smaller and more energy efficient if you only want to run one tap or shower at a time. They typically draw 40 - 80 Watts. You don't need an inverter to run them. The disadvantage of these pumps is that they have brushes and require more maintenance than a larger 240V unit.

The 240V pumps are much larger (usually 200 - 800W) and they will run three or more taps at once. They are often cheaper than the 12V type. However, they would use more power and you could be without water if your inverter ever breaks down. You would need quite a large inverter to run the pump. This could add several hundred watts of size to your inverter (when you consider that the pump will probably need to be on while the washing machine etc is on). This could amount to several hundred dollars extra for a larger inverter.

2) Home Pressure Pump Systems & Header Tank:

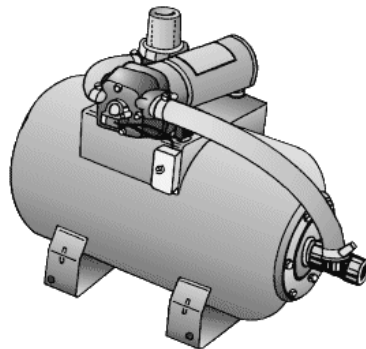
We do not encourage the use of header tanks unless you have a good reason for doing so.

A header tank introduces some inefficiency into the system. The water needs to be 'forced' throughout the small orifice in the ball cock valve. When the tank is almost full, this orifice starts to close slowly or intermittently.

The other issue is that as the tank is nearly filled, the ball cock can often bob up & down causing the pump to cycle on and off repeatedly. This causes more inefficiency as well as wear and tear on the pump.

Normally the small Flojet pump does not need an accumulator tank. However if there is a ball cock (toilet cistern) in the system, then the additional cost of the accumulator tank is required.

Water Pressure Systems are required when you have a water tank at or below tap level (e.g. underground tank) or when you have a gravity fed system that doesn't supply sufficient pressure. You may create sufficient pressure by either pumping up to a header tank or using a pump with an automatic pressure switch and a pressure tank.



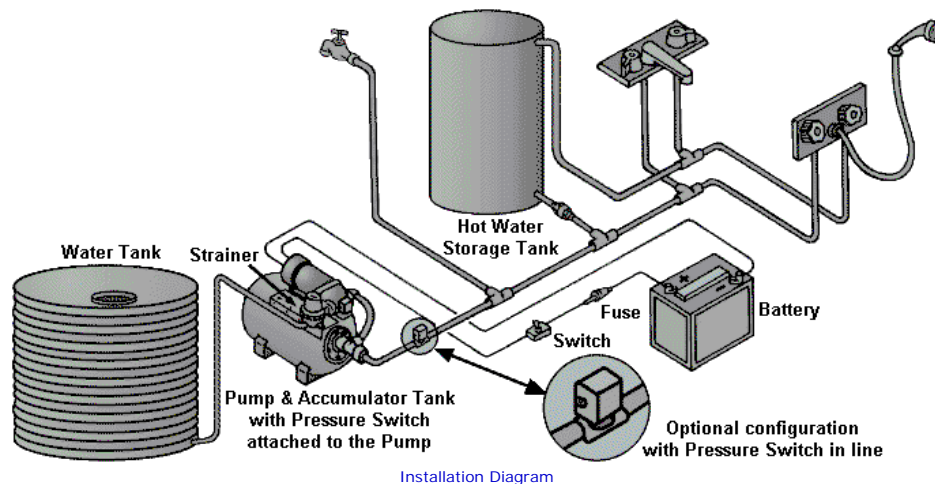
PMP-012

- 20 Litre Pressure Tank: PMP-012
- 24V Flojet 'Quad' 4325: PMP-046
- Pump Connection Kit: PMP-K01
- The approximate dimensions are 450 x 290 x 320mm (H)

It is recommended to have at least a 20 litre accumulator (pressure) tank to provide a more even and constant pressure and to reduce wear of the integrated automatic pressure switch in the pump. The accumulator tank enables the pump to cope with a slow flow rate, such as when a tap is on partially and with a float valve when it is close to turning off. Without an accumulator tank the pump would switch on and off very rapidly.

It is also recommended to use a strainer or filter to prevent damage to the pump and to use 25mm (3/4") water pipe or larger to guarantee a good delivery rate.

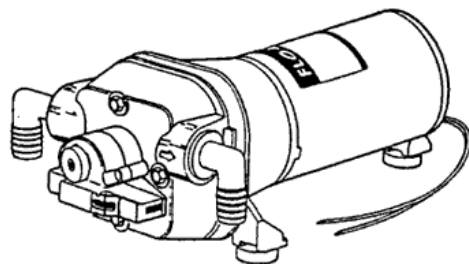
The pump chosen for the following pressure systems kit is the larger Flojet 'Quad' 4325 pump. The 'Quad' pump was chosen because of their 4 chambers which allow a smooth pumping action and quiet operation. The pressure system kits include all the required nuts, bolts, pipe fittings and flexible hose. The pump (with strainer) and 20 litre pressure tank need to be purchased separately.



Testimonial from John Paoloni, Blue Mountains

"Just installed the Flojet 4325 pump - works beautifully - have attached to the water tank, pump flooded with approx 6 metre head and feels no different to the 1200 watt Davey pump. Amazing that it only draws around 72 watts."

Flojet Pressure Pumps Specifications



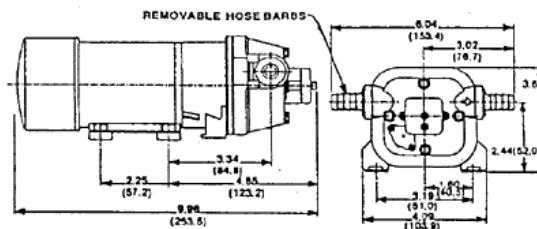
4325 Series Specifications:

Design: 4 Valve Diaphragm
 Drive: Ball Bearing
 Motor: Permanent Magnet
 Voltage: 12VDC or 24VDC
 Current Draw: 6.3A at 12V full flow
 Flow Maximum: 17.4 litres per minute
 Flow at 200 kPa: 14 litres per minute (10.76A)
 Pressure (off): 300 kPa (45 PSI)
 (on): 137 kPa (20 PSI)
 Check Valve: 843 kPa (125 PSI)
 Self prime: up to 1.8m (6 feet)
 Size: 252mm x 160mm x 100mm (LxWxH)
 Weight: 1.77 kg
 Warranty period: 1 year

4405 Series Specifications:

Design: 4 Valve Diaphragm
 Drive: Ball Bearing
 Motor: Permanent Magnet
 Voltage: 12VDC or 24VDC
 Current Draw: 2.8A at 12V full flow
 Flow Maximum: 12.5 litres per minute
 Flow at 70 kPa: 11 litres per minute (3.9A)
 Pressure (off): 235 kPa (35 PSI)
 (on): 137 kPa (20 PSI)
 Check Valve: 843 kPa (125 PSI)
 Self prime: up to 1.8m (6 feet)
 Size: 211mm x 160mm x 100mm (LxWxH)
 Weight: 1.77 kg
 Warranty period: 2 years
 Max.Cont.running: 1 hour

metres head	0	5	10	15	20	25	30	35
litres/min.	16.8	16	15.3	14.4	13.4	12.6	11.8	11



metres head	0	5	10	15	20	25
litres/min	12.1	11	9.7	7.6	4.5	2.1

Note: In high head situations with a constant back pressure it is recommended to install a one-way valve within 380mm of the outlet of the pump to avoid damage to the diaphragm.

Warning: Pumps make some noise. Please think carefully about the position of a pump.

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