



Choosing Irrigation Pumps

About Hort360

Hort360 is the horticulture BMP program, designed to give production horticulture growers a 360-degree view of their farm operations.

Hort360 assists growers to identify potential risks and off-farm impacts of their practices, capitalise on business opportunities and highlight unnecessary farm expenses. It is a whole of farm business approach, and it's being embraced by growers and horticulture stakeholders throughout Queensland.

Choosing Irrigation Pumps

- There are different types of pumps for different applications
- They have different advantages and disadvantages

There are three common types of pumps, centrifugal, vertical turbine and submersible. This fact sheet will help you to understand the options available and terminology used.

Centrifugal pumps

Centrifugal pumps use an impeller which rotates in one direction to move water through the pump. They can have just one impeller, also called single stage, or a multi stage which is a series of impellers in the one case. They can be self or non self-priming depending on the situation.

Centrifugal pumps are usually used to pump from dams and creeks, and can be used as a booster pump in a pipeline. The advantages and disadvantages are as follows:

Advantages	Disadvantages
<ul style="list-style-type: none"> • Easy to install and maintain • Different motors available: electric, internal combustion or tractor • Can be installed above water source and moved around in case of flood • High efficiency under different conditions 	<ul style="list-style-type: none"> • Limited suction lift • Usually need priming to prevent internal damage • Motor can overload if the load is too low

Submersible Pumps

Submersible pumps have the pump and the motor located underwater. The motor is sealed in an oil filled cavity that protects it from the water. They are placed in a sleeve that goes down to the water source such as a bore. They need to run at a minimum speed to keep the motor cool.

Submersibles are good for water transfer from a bore into a dam or tank. A solar submersible can run during daylight hours as an efficient water transfer solution. The advantages and disadvantages of submersible pumps are:

Advantages	Disadvantages
<ul style="list-style-type: none"> • Self-priming • Can be used for deep bores • Easy to install • Can move water long distances 	<ul style="list-style-type: none"> • Difficult to access for maintenance and repairs • Only electric power can be used • Struggles with air or low water levels in the bore

Vertical Turbine Pumps

Vertical turbine pumps are impeller pumps located underwater that are attached to a motor above ground via a drive shaft. They are also called vortex pumps. They are usually used where the motor is large and difficult to fully submerge like a submersible pump.

They are good at high pressure, low flow applications such as bore pumping. The advantages and disadvantages are:

Advantages	Disadvantages
<ul style="list-style-type: none"> • High pressure achievable • Can deal with air in water • Consistent flow rate with pressure changes • Compact • Can use electric or internal combustion motor • Self-priming 	<ul style="list-style-type: none"> • Low flow rate • Can't pump solids • Susceptible to damage from poor assembly • Difficult to install and repair • Higher lifecycle cost than centrifugal

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