

# Glockemann Pump Set Up Tips

## Drive Head or 'drop'

A drive head greater than those outlined in the 'Performance Statistics' tables for each model should not be used. It is a common misconception that using a drive head higher than the recommended maximums will increase power and therefore increase output. In fact, the pump will be less efficient because the pump return spring will not be able to push the diaphragm and dia. plate back to its original position thus shortening the piston stroke and lessening the output. Using higher than recommended drive heads will also put excessive stress on the diaphragm and other components which will effect reliability.

## Drive Tubes

The Glockemann pump is designed to be used with the drive tube diameters outlined in the 'Performance Statistics' tables, in the case of the 320 Oasis, a choice of 100mm dia. (4 inch) or 150mm dia.(6 inch), for the 160 Waterdragon a 65mm dia. (2 1/2 inch). The ideal drive tube length is 6 to 8 times the drive head amount. e.g. drive head 1.0 metre = 6 to 8 metres drive tube length. Small variations will have little effect, however, if the drive tube needs to run a substantial distance to obtain sufficient drive head, the long drive tube method ( sect.2 page 1 . 'Installation Guide') should be used. This requires the use of a 'T' piece pipe fitting positioned at the ideal drive tube length from the pump and a section of uncapped tube standing upright from the 'T' piece at least as high as the level of the water at the drive head. All drive tubes may use elbow fittings to navigate obstacles or to position the pump for flood protection. The angle of the slope is not important as long as there is a constant slope to prevent air pockets forming.

## Pump Position

The ideal pump position is semi-submerged in the creek or stream. Having the pump semi-submerged will prevent air being drawn into the piston section or rear exhaust valve and allow the inlet filter to be placed immediately on the inlet check valve for unrestricted water induction into the piston. If it is not possible to position the pump in the stream flow, the alternatives are placing the pump in a container on the bank of the stream or using an elbow fitting on

the exhaust valve flange and running a pipe from the inlet check valve at the front of the pump to the rear and tapping into the elbow fitting (see '320 User Guide' sect. 6, fig.13, page 11 ).

## High Delivery Heads

If your pump will be delivering to heads higher than 75m (250 feet) you will usually have an 'a'(35mm), 'b'(48mm) or 'c'(60mm) diameter bore fitted to the pump. It is advisable to use a 'double bucket system' for these bore sizes pushing to high heads. The double bucket system is quite simple, an extra bucket is fitted in line on the piston rod in the bore using spacer washers. Using two buckets will prolong bucket life and provide extra seal capacity against high pressure. The inlet and outlet one-way valves will also need to be strong, preferably brass seating spring loaded valves to deal with the high pressure. One-way valves fitted to Glockemann pumps as standard, are designed for head capacities of up to 75 metres unless otherwise advised. Delivery heads above 75 metres we fit two 3/4" one-way valves in line at the inlet and outlet ports on the cylinder head. One-way valves usually perform well for a number of years and may be replaced with any locally produced brand of one-way valve of the correct size and pressure capacity. A good seal in the one-way valves is essential.

## Drive Tube Strainers and Inlet Filters

A free and unrestricted flow of water into the drive tube and inlet valve are essential. The drive tube strainer is required to stop larger pieces of foreign matter from entering the mouth of the drive tube. As the exhaust valve at the rear of the pump is 100mm diameter small pieces of foreign matter will simply pass through the pump. A number of variations may be used for drive tube strainers. The most common is a length of tube of the same dia. as the drive tube, say, one to one and half metres long, capped at one end and with a series of slots cut along its length using an angle grinder. There should be enough slots to allow the drive tube to draw as much water as it needs in a free and unrestricted manner. Another method is to form a 'cage' of say, 3/8" bird wire, into a ball or other shape and attach it to the mouth of the drive tube. The inlet filter should preferably be fitted directly to the inlet check valve, a filter is supplied with each pump, however, more elaborate filters may be used where the water to be drawn into the pump is dirty or contains grit or sand. If such a

filter is fitted it should be of sufficient size to allow the water to be drawn in a free and unrestricted manner. The drive tube strainer and inlet filter should be cleaned from time to time.

## Diaphragm

The diaphragm of the Glockemann pump is a replaceable item, however, it should perform its task for a number of years of normal operation without problem. The most common cause of diaphragm failure occurs when the pump is allowed to run 'unloaded', that is, when the piston bore loses prime and an air pocket is formed in the cylinder head of the pump or the delivery pipe. When this occurs the piston stroke will extend and the diaphragm plate may 'bottom out' against the back of the piston bore, the diaphragm will bulge dramatically and eventually, fail. Positioning the pump underwater is a preferred method of preventing loss of prime. At setup when the delivery pipe is not yet filled it is advisable to keep the pump at low throttle to prevent a similar situation occurring. The diaphragm is readily available from Glockemann Peck Engineering Pty Ltd, or from your local distributor. In the event a factory manufactured diaphragm is not available, the diaphragm may be replaced by cutting a large size tractor inner tube using the old diaphragm as a template, tractor tube diaphragms should be two or three layers thick.

## Delivery Pipe

The delivery pipe should be of sufficient strength to deal with the delivery head pressure, check with your local irrigation supplier. The delivery pipe should also be of sufficient diameter to allow a free and unrestricted flow, generally 25mm(1 ") to 50mm (2") pipe is required depending on the amount of water which will be pumped. Placing a check valve in the delivery pipe approx. ten metres from the pump, or above the floodline, is useful to prevent the pipe emptying if the pipe is detached for regular maintenance or during a flood.

If Drive Tube is say 30 m longer than in this Gm you have to fit a T Piece 6 m in front of the pump

