

Technical Description/Operating Instructions

“Sigma” Type ‘K’ Semi-Rotary Hand Wing Pumps

Cast Iron Body with Brass Internals

These pumps are operated by a left and right reciprocating motion achieved by a handle of wood on an iron spike or a one piece metal handle of iron.

Before use, the plugs (which prevent particles entering the pump during transit) - top and bottom – must be removed.

Internally there is a “wing” fitted with two valves and at the lower half of the body is a suction divider that has two further valves. The left and right motion of the handle causes the “wing” to wobble, effecting alternate suction and discharge on the two sides of the pump. The resulting flow of liquid is almost constant with a slight drop at the end of each stroke.

On some pumps an arrow indicates which way up the pump must be mounted, otherwise the lettering indicating the size of the pump must be the correct way up. The outflow is at the top of the pump.

Please note the gland nut (item 4) should be tightened to customer’s requirements before the pumps are operated.

Pumps of this type can give up to 8 metres of lift if a foot valve is fitted; this device is not necessary when the lift is less than 2 metres. Discharge pressure is up to 2.5 bar (say 37 lbs psi) depending on the size of the pump.

Pipework should ideally be rigid; alternatively, non-collapsing type hose may be used. On the discharge side of the pump, a softer type of hose may be used but flow will be lost and unnecessary energy used up in the extra resistance caused in forcing this kind of hose open.

When connecting pipework or hoses, care should be taken to seal all threads. In addition, the gland nut on the pump may require tightening particularly if the pump has been out of use for some time causing the packing material to dry and shrink.

These pumps must be bolted securely to a robust surface, with the outlet vertically above the inlet.

Within the first few months, slight seepage of liquid around the gland nut may be experienced. This is not abnormal and can be resolved by tightening the gland nut.

If this is not sufficient to stop the seepage, a little extra gland packing should be added to the inside of the gland, the gland ring reinserted and the gland nut tightened.

If this is not sufficient then a nitrile rubber O ring, of the required size for the pump size, should be added between the gland packing and the gland ring to resolve the problem.

Using an alternative gland packing, more suitable to the customer's specific use of the pump [the medium/liquid used] is another possible solution.

Maintenance Procedure

This manual pump does not normally require lubrication.

For use with fresh water:

If there is no risk of freezing, ensure the pump body is always full of water.

If there is a risk of freezing, the pump must be drained.

At the completion of the pump's operation any water should be drained from the pump and the pump should be operated again for a few strokes. The handle should be left in the right-hand position of the stroke.

If the pump is not to be used again for some time, drain the pump and spray Vaseline oil via the upper flange. Actuate the handle to distribute the lubricant in the pump body.

In the case of a blocked pump, spray Vaseline oil via the upper flange. Loosen the cover nuts by not more than one quarter-turn, actuate the handle several times and refasten the nuts.

Storage procedure – the pump should be protected from frost and dampness and temperatures in excess of 50 degrees C.

Pumps of bronze are available for corrosive liquids such as salt water, strong chemical solutions, etc.