

Operator's Manual

for the

SEATON/DIVER

Jet Pump

Introduction

THE SEATON is a lightweight annular-type jet pump for pumping liquids and solids. It is driven by liquid, such as fresh or sea water or oil. This fluid may be clean or dirty but must not contain particles that will not pass through the annular nozzle or disintegration nozzles. It has no moving parts. It works by producing a jet of fluid that entrains and pressurises whatever contacts it, generally liquid that may contain solids, or solids that may contain liquid and air. The mixture is propelled along a pipeline against a combination of friction head and static lift.

The Mixing Chamber and First-stage Diffuser are machined from a high-performance, low-absorption plastic material. As an alternative, at the penalty of additional weight, the Mixing Chamber may be supplied in case-hardened steel. The remainder is fabricated in 316 grade stainless steel. The Mixing Chamber is subject to wear, although the configuration minimises this, and should be returned to the manufacturer periodically for re-machining or replacement. (It will be appreciated that solids pass through the pump in a straight line, hardly touching the sides.) The Mixing Chamber is bench-adjustable to alter the nozzle area ratio to suit the application. Unless advised otherwise, the pump is supplied by the manufacturer in the median setting.

Three wing nuts allow the pump to be opened in the field to clear foreign matter from the Motive (high pressure) Manifold.

What Will It Do?

As a LIQUID-LIQUID pump it will pump up to about 100m³/h of liquid, plus the motive flow. (Liquid-liquid means liquid motive fluid, liquid induced fluid.)

As a LIQUID-SOLIDS pump it will pump up to 40 tonnes/hour of solids, and pass solid particles up to 75mm in size. (Liquid-solids means liquid motive fluid, solids induced, generally but not necessarily in liquid.)

Typical discharge distances are from a few metres to say 100 metres, but further in the Hybrid configuration. Typical discharge lifts are from nothing to 15 metres for a liquid system. With air injection downstream of the Diffuser the lift can be increased by about one-third.

IMPORTANT: Compressed air must NEVER be connected to the motive Branch of the SEATON Pump. To do so could result in serious injury to the operator. Other *Jet Pumps* are available for safe compressed air operation.

How to Use the Pump

CONNECT 100mm/4" hose to the Hose Tail and 75mm/3" hose to the Motive Branch.

If preferred, an adapter and 65mm/2½" coupling can be fitted in place of the 75mm/3" coupling to provide greater flexibility. However, production will suffer because of the increased pressure losses in the smaller hose.

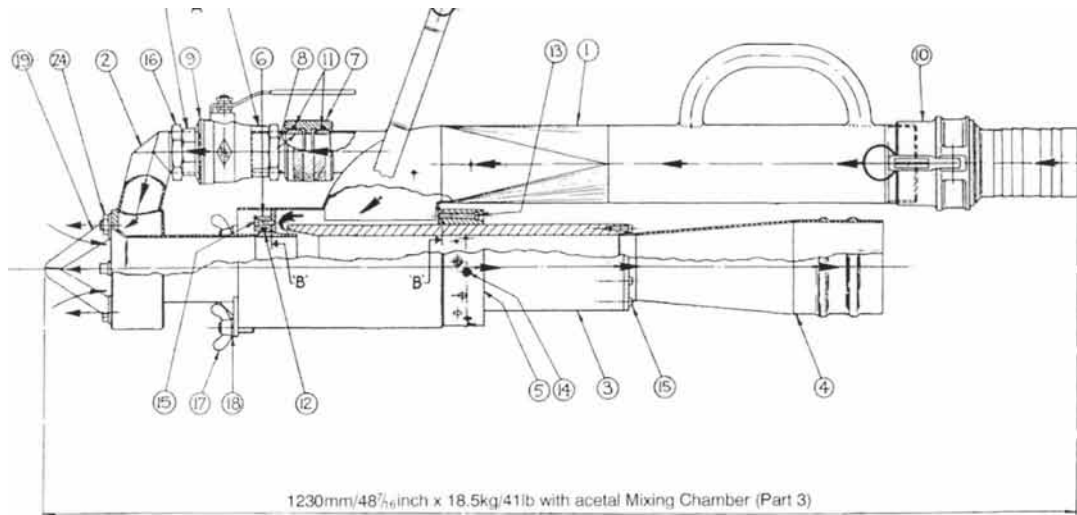
Ensure that the connections are tight and the Control Valve OFF before turning on the motive supply.

When pumping against a lift, water will run back when the motive supply is turned off. It emerges from the suction inlet, In certain applications you may prefer to fit a non-return valve or make other provision to collect or prevent the run-back. Run-back can penetrate the annular nozzle in the reverse direction and solids contained in it can cause a blockage or partial blockage on re-starting. Consideration may be given to fitting a dump valve downstream of the non-return valve to allow disposal of mixture in the discharge line.

IMPORTANT NOTE:

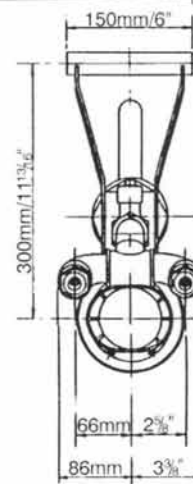
The control valve only regulates the disintegration water and not the motive supply. The motive supply cannot be controlled by the operator. The reason for this is two-fold. The pump is far lighter, and the discharge hose is not risked – rapid operation of a valve mounted on the pump can destroy discharge hose in underwater applications owing to a combination of negative pressure surge and external pressure.

Good communications MUST therefore be established between the operator of the SEATON Pump and the operator of the Motive Pump.



Non-mining Version of Seaton Pump

PARTS DIAGRAM



Mining Version of Seaton Pump

