

## Increased reliability for the MVP IV Pump

The MVP IV Pumps' dependability and durability have increased as a result of improvements in the way the air valve is actuated.

### 1.0 Improved Reliability

- 1.1 A common downside of pneumatic pumps is that they tend to stall, particularly in low-yielding wells. The reason: the slower the float moves up, the greater the chance of the air exhaust and air inlet valves not opening properly thus causing the pump to short circuit and stall.
- 1.2 Solving this situation requires a means of activating the valves at the right time instantly and with sufficient force. That's what the new MVP Mag-N-Latch IV does.
- 1.3 As a result, the pump fills more consistently, it pumps a greater volume per cycle than in the past, and all adjustments are eliminated.

### 2.0 How Mag-N-Latch works

2.1 New mechanism catches the actuating arm and firmly holds it in place.

- 2.1.1 The **Mag-N-Latch** [1] — a magnetic latch — has been added to the bottom of the actuating arm.
- 2.1.2 The magnet holds the actuating rod down (against the increasing buoyancy of the float) while the pump is filling. This builds momentum.
- 2.1.3 When the fluid level in the pump chamber reaches the midpoint on the float [Fig. 2, water activation level B], the float starts to move up with the fluid.
- 2.1.4 When the float hits the end of its travel, the fluid level continues to rise.
- 2.1.5 When the fluid level reaches approximately 2" from the top of the float [Fig. 2, water activation level A] the float is about 80% submerged. At that point, the buoyancy force exceeds the retaining force of the magnet resulting in the release of the actuating arm.
- 2.1.6 The actuating arm is now free to move up towards the head under the momentum gained by the forced submergence.

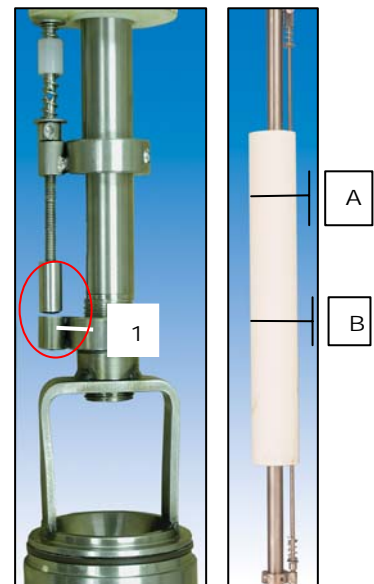


Fig. 1

Fig. 2



- 2.1.7 This momentum, aided by a magnet in the head, forces the actuating arm to “lock” in the UP position, opening the air valve completely and without hesitation. This eliminates the potential for the pump to stall.
- 2.1.8 The new design allows the air valve to open five times greater.
- 2.1.9 When the fluid level recedes enough, the weight of the float, together with the force of the lower magnet, release the actuating arm instantly which causes the air exhaust valve to open.

### 3.0 New Design features:

3.1.1 **A magnet cover / strike plate** has been added to provide a

- a) solid stop for the actuating rod
- b) permanent adjustments for the air inlet and exhaust valves which eliminates adjustments.

Fig. 3 — The actuating arm shown in its DOWN (or OPEN) position.

Fig. 4 — The actuating arm shown in its UP (or CLOSED) “locked” position. The float is shown in going down as the fluid level recedes

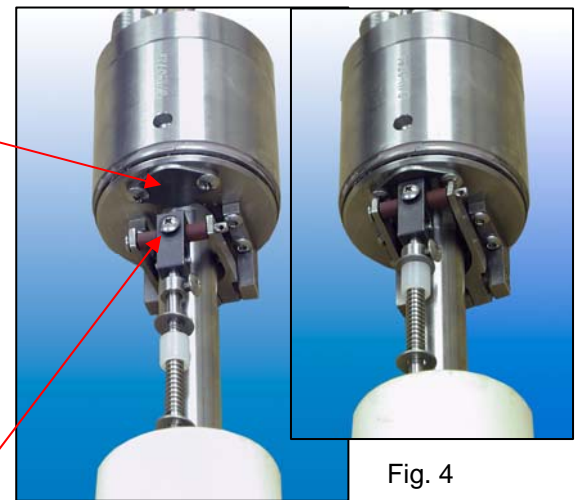


Fig. 3

Fig. 4

3.1.2 The **actuating arm block** is heat treated to increase durability and corrosion resistance.

3.1.3 **Spring retainer bushings** has been added around the springs to prevent them from being compressed beyond their design limit and becoming deformed.

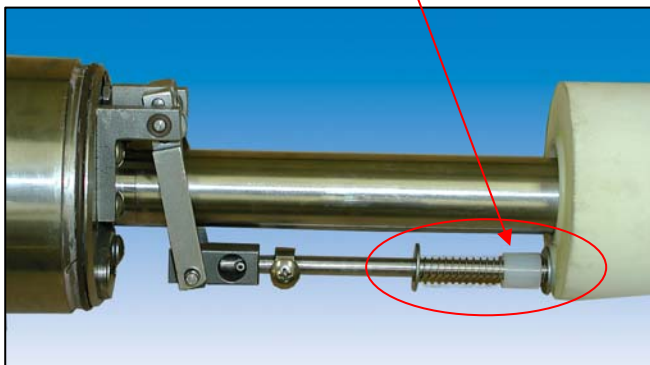


Fig. 5

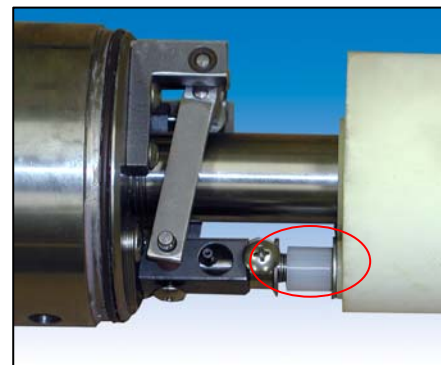


Fig. 6



## 4.0 Ordering Information

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- 4.1.1 The part number is unchanged.
- 4.1.2 Pricing: unchanged.
- 4.1.3 Available immediately.
- 4.1.4 Retrofits: MVP Pumps may be upgraded at the factory. A cost estimate will be provided depending on the condition of the pump.