

## **ORION IMMERSIBLE STEEL PUMPS**

Following some recent reports of product failure, our investigations have revealed a consistent theme in terms of cause.

- Frequent switching (no pressure tank installed)
- Voltage Drop
- Earth pin a long way from the pump and in sand, making a preferred earth path out through the pump
- Water in the junction box for terminations
- Excessive use of PVC glue contaminating the flow sensor

The tricky thing with voltage, as with pumps that have been run dry, is that the evidence that you will have is often only in the pump, motor, circuit board, and capacitor. The homeowners often are not even aware of the situation.

Research and also practical testing has been conducted at Steel Pumps in Italy to identify and confirm issues.

Steel Pumps found that if pumps are run at low voltage and high flowrates causing maximum current draw, that the track on the board would burn and capacitors fail.

X-AMV150 has FLC of 7.9amps  
X-AMO120 has FLC of 7.2amps  
X-AJE120 has FLC of 5.9 amps  
X-AJE080 has FLC of 4.5amps

As  $\text{Volts} = \text{Current} \times \text{Resistance}$  - a reduction in voltage requires a reduction in resistance to maintain the same current, unfortunately if you use small cable sizes high currents increase the temperature increasing the resistance and consequently the voltage required to maintain the same current –

**IT IS CRITICAL THAT CABLES ARE SIZED APPROPRIATELY**

For many years this issue when presented in a prescontrol, is seen on the prescontrol contactor as carbonising and causes the contactor to fault. The same issues, and signs are being presented in the steel pump. Carbon in the contactors and burnt tracks on the circuit boards and blown capacitors.

The following suggestions are for pumps up to 8 amps

- 1.5mm cable is not recommended at all, out to the pump.
- Recommend minimum cable conductor size 2.5mm for maximum run of 40m with only the pump on this cable
- Recommend minimum cable conductor size 4.0mm for maximum run of 60m with only the pump on this cable
- Recommend minimum cable conductor size 6.0mm for maximum run of 85m with only the pump on this cable
- Recommend a maximum 10 amp motor rated fuse on the pump circuit with only the pump on that circuit

If loading on that line is more than the one pump, it will need specific calculation of cable size and should be done by an electrician and the pump should still be individually fused.

You will note that 1.5mm cable is common size on all extension leads. Smaller cables are possible but should be used only on smaller pumps.

**NB ALL INSTALLATIONS MUST HAVE A PRESSURE TANK INSTALLED WITH THE PUMP**