

Maric Flow Control Valves

Constant Flow Rate Regardless of Pressure

## Case Study: Franklin FPS1A-13TS

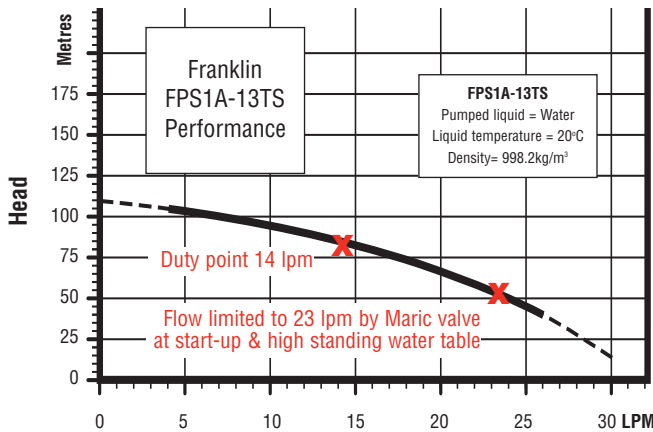
Using Maric flow control valve for pump protection in a high standing (high draw-down) water table condition.

This pump suits the application at the 85m draw down level, however, will run off the right hand side of curve with only 20m head against pump at start up resulting in pump and motor damage.

### Installation Details

• Pump	Franklin FPS1A-13TS
• Flow Controller	Maric 23 litre per minute Precision
• Pump depth	110m
• Standing water table	20m
• Typical draw down water level	85m
• Max flow allowed (rhs of curve)	1.55m <sup>3</sup> /hr (26.0 lpm)
• or, Min. Head required	43m
• Duty	To fill tank at ground level adjacent borehead

**Pump Selected;** Franklin FPS1A-13TS  
Manufacturers performance curve below indicates flow should not exceed 1.4m<sup>3</sup>/hr (23L/min).



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Gunmetal wafer type valve mounted between flanges

## Pump Protection Requirement

To limit flow, or add sufficient head, during start-up, to prevent pump and motor damage due to upthrust condition.

### Three options available

**1, Gate Valve:** They are cheap, can be noisy and can also result in a high headloss at the duty point, reducing pump output. As these valves can be adjusted by anyone, they are **not tamperproof**, and are often opened all the way in the endeavour to get maximum flow and can fail due to gate vibrating loose.

**2, Pressure Sustaining valve:** These are expensive, adjustable, and can result in a potentially high headloss at duty point, reducing pump output. Again, as they are adjustable, they are **not tamperproof**, and are often opened all the way in the endeavour to get maximum flow.

**3, Flow Controller:** These are the **best solution** for high standing water table, with lower duty point conditions. **They are tamperproof**, inexpensive and result in a low headloss at the duty point as can be seen in the graph below.

### Question:

What will the headloss be across the Maric valve and its affect on pump performance at the 85m duty point?

### Answer:

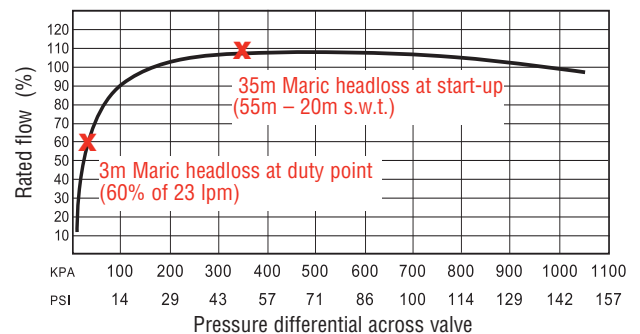
Very little. Around 4 metres.

### Why?:

At 85 metres drawdown (and resulting head against pump), flow rate will be 0.85m<sup>3</sup>/hr (14 lpm) only. This is 60% only of the rated flow of the flow controller, and at 60% of flow through the Maric valve, the pressure differential, (or headloss) is around 3 metres only, having little affect on pump output.

### Flow Control Valve Performance:

Flow control valve performance curve below indicates 60% of rated flow = 3 metres headloss only (see X).



### Conclusion:

As in the above application, and many similar cases, the Maric flow control valve is an excellent choice for pump protection, due to its lower headloss, cost effectiveness, long maintenance free life and being **virtually tamperproof**.

