

Micro Double Valve Pump

Model 408M

The Micro Double Valve Pump (Micro DVP) has a remarkably small and flexible design. As a positive displacement pneumatic pump, it uses coaxial PTFE tubing to give high quality samples. It is small enough to fit in 1/2" (13 mm) tubing and all channels of the Solinst Model 403 CMT Systems, as its diameter is only 3/8" (10 mm). The unique combination of flexibility and size make the pump easy to transport and install in a variety of applications.

The Micro DVP is ideal for low flow sampling and narrow down-hole applications. Flow rates of 20 to 150 ml/min, are possible within the narrow applications. The Micro DVP is durable and easy to operate using the pre-sets and custom sampling capabilities built into the Solinst Model 464 Electronic Control Unit (see Model 464 Data Sheet).

Model 464
Electronic Control Unit



Design & Construction

The Micro DVP uses coaxial PTFE tubing in lengths of 90 ft, 140 ft, and 240 ft. The pump body and filter assembly is 6" long x 3/8" diameter (150 mm x 10 mm). It is constructed of coaxial PTFE tubing with stainless steel fittings and a sintered 316 stainless steel 50 micron filter. Filters are easily cleaned and replaced. A manifold at the top end of the pump has a 3/16" (5 mm) PTFE sample tube and a quick-connect fitting for easy attachment to a Control Unit. A multi-purge sampling head is also available for use with the CMT System.

Pump Manifold with
Quick-Connect for Drive Air
and PTFE Sample Tube



Operation

Formation water enters through the filter under hydrostatic pressure into both the inner PTFE tube and the annulus of the coaxial tubes. Drive gas/air is cycled down the annular space between the two tubes to close the lower check valve and push the water up the inner sample tube. The pump is then vented to allow new formation water to enter both tubes under hydrostatic pressure. Air/gas pressures are carefully controlled at all times to ensure that the air/water interface never enters the body of the pump, resulting in high quality samples. Repeating the pressure/vent cycle brings the sample to the surface at a controlled rate. The Micro DVP operates with 2 ft (0.6 m) or more head of water above the intake.

Applications

Groundwater sampling in:

- CMT and Waterloo Multilevel Systems
- Direct-Push/Drive-Points
- Low flow monitoring in narrow diameters

Advantages

- Only 3/8" (10 mm) in diameter
- Flexible PTFE, goes almost anywhere
- Inexpensive and readily dedicated



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