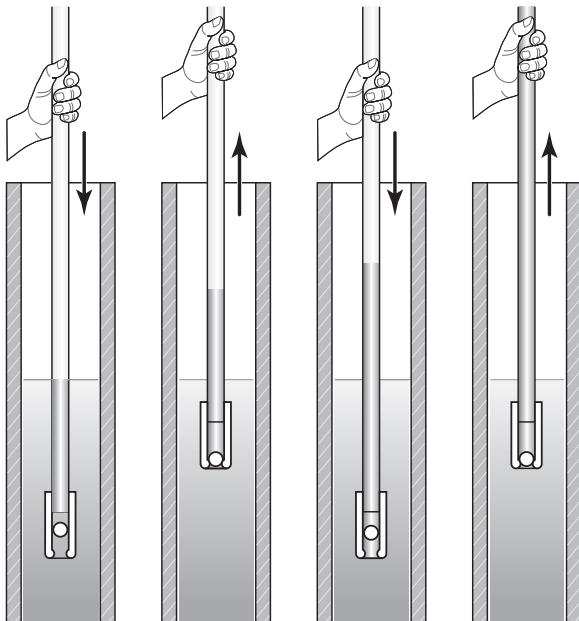


### Operating Principles

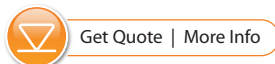
The Inertial Pump is a groundwater pump, simply consisting of a riser tube with a one-way valve at the foot. The valve allows water to enter the tubing as it is pushed downward, and retains the water when the tubing is pulled upward again. The inertia of the water itself provides the force to carry it up to the surface.

### Pump Operation

1. Attach the footvalve to the tubing by hand-threading the self-tapping footvalve onto the tubing as far as it can go (at least 1/2" or 12 mm). This provides a secure, watertight grip.
2. Lower the tubing (footvalve end first) into the well to the desired pumping depth.
3. Repeatedly lower and raise the tubing and footvalve approximately 6" - 12" (15 - 30 cm). A slug of water enters the tubing on the downward stroke and is retained as the valve closes on the upward stroke. This enables the water to gradually rise in the tubing and discharge at surface.



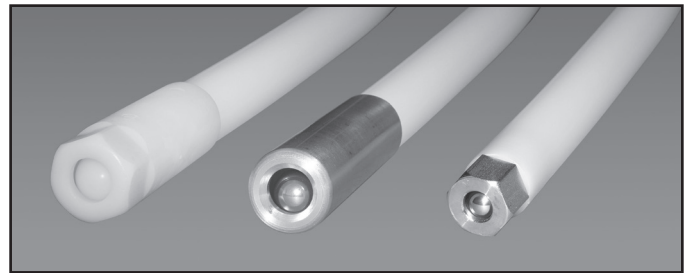
*Inertial Pump Operation*



### Optimize the Pumping Rate

For the most efficient operation, the following points should be considered:

- The tubing should be as straight and rigid as possible and centered in the well.
- The pumping motion should be constant (i.e. no stops or delays) and the strokes should be distinct and rapid.
- The footvalve must be submerged at all times to operate.
- It is best to have the footvalve as deep as possible below static water level.



### Well Development

The Inertial Pump can be an excellent well development tool. A minimum annular space between the footvalve and the well casing, can create a strong churning effect that helps remove silt and fine sand, to enhance well development. Turbidity is greatly reduced after well development.

Pumping silty water is possible, however, should the silt settle and clog the footvalve, it may be cleared by unscrewing the footvalve from the tubing and tapping the footvalve and tubing to dislodge the sediment.

### In-line Disposable Filters

In-line Disposable Filters are easily connected to the riser tubing using the 3/8" (9.5 mm) hose barb inlet. Simply press fit the inlet into the tubing and operate the pump as usual. The outlet connector is also a 3/8" (9.5 mm) hose barb. There is also a 1/8" NPTM vent/drain connection. The operating pressure of the pump is sufficient to filter the sample.