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# BESST Panacea Pumps (Patented)

## The solution to the toughest groundwater sampling challenges

**BESST's Panacea Pumps are unmatched in reliability and versatility, offering the solution to whatever challenge you might be facing in groundwater sampling.**

- Deep water
- Low submergence
- Corrosive environment
- Narrow wells
- Crooked wells
- Extreme temperatures
- Large purge volume
- High gas consumption
- Slow recharge


Figure 1 - Panacea P200 Pump with 200 mL chamber, economical Delrin plastic model with ceramic filter

**BESST's line of Panacea Pumps are built out of rugged materials, designed for durability and consistency, and require little to no maintenance. The pump is powered by inert gas or air, meaning no more risk of malfunctioning from overheating motors. The two-valve lift system, when used in ratchet mode, does not allow the gas to contact the sample water, and enables gentle discharge of the sample, eliminating the need for fragile and unreliable bladders.**

**Panacea Pumps are available in a variety of sizes and materials . The miniaturized P125 and P100 are ideal for narrow or obstructed wells where clearance is an issue. The P200 is designed for wells 2" and larger, and takes advantage of the additional space with a 200 mL chamber to boost purge and sample volume. All Panacea Pumps are available in 316 stainless steel, for increased depth capability up to 3000 ft. bgs as well as resistance to corrosive or extreme environments.**

- Usable to 3000 ft. bgs
- Deployed in wells as small as 1"
- Volume Booster technology for low submergence and deep first water
- Delrin or 316 Stainless Steel
- Customizable filter options: Ceramic, Poly, Stainless
- No motor or bladder
- Use 30% less gas than a bladder pump
- Customizable compression fittings for different tubing (standard 1/4" connections)
- Includes hook or port for support cables
- Integral with Zone Isolation Sampling Technology (ZIST)

Figure 2- Stainless Steel Panacea Pumps. Left: P125, 1.13" OD. Right: P100, 0.88" OD

**BESST Panacea Pumps use a two-valve system with two modes of operation: Purge mode and Ratchet mode.**

| Purge Mode | Ratchet Mode |
|---|---|
| • Fully discharge water in the system each pump stroke | • Partially discharge the sytem with each pump stroke |
| • High pumping rates and volumes | • Samples are gently discharged, ideal for delicate analytes |
| • Minimizes gas usage | • Sample water does not contact nitrogen gas |
| • Volume Booster increases flow rate | • Volume Booster increases flow rate |

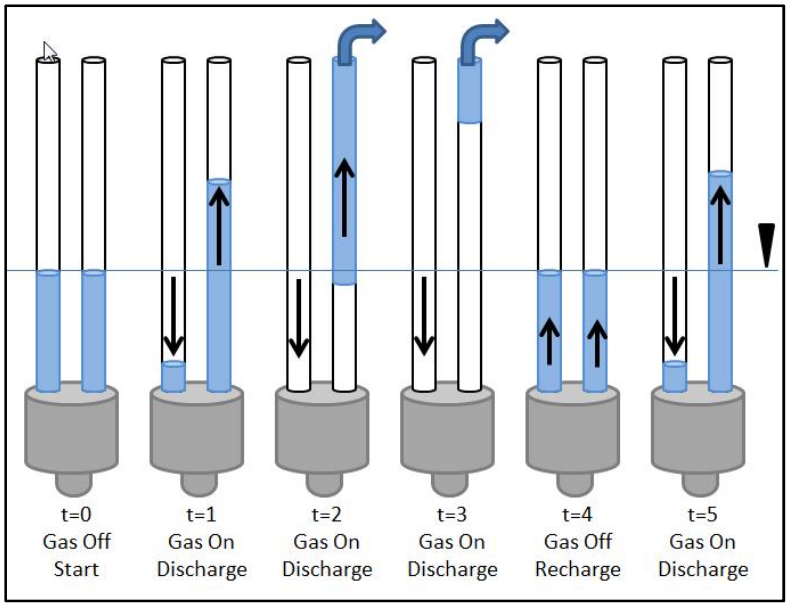


Figure 3- Schematic diagram showing pump operation in Purge Mode. All water in the system is removed in each pump stroke.

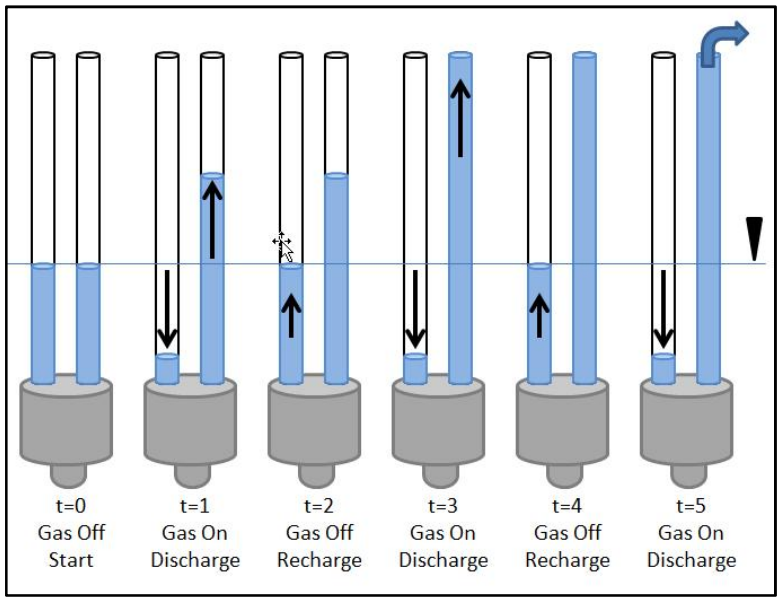


Figure 4 - Schematic diagram showing pump operation in Ratchet Mode. Note the gas-water interface does not reach the pump, preserving sample integrity.