

### GO-BGC - Vertical Profiling Float

At Wildcats Engineering., we heard MATE's RFP for building a vertical profiling float capable of doing multiple profiles. Our approach differs from the traditional buoyancy engine that moves oil from a reservoir inside the float to an external bladder that displaces water, changing the total float's buoyancy. Instead, we use a dual DC Servo pump (Figure 23) system that is open and only utilizes water around the float, and in the following short paragraphs, we will dive deeper into how it works. We utilize two high-pressure DC diaphragm servo pumps to move water surrounding the float into an internal tank; the float's buoyancy is positive by default. After collecting a specific amount of water, the vertical float begins to sink slowly. To bring it back up, another pump pushes water from the internal reservoir to outside the float. Again, changing its buoyancy to return to its normal state of positively buoyant and slowly ascends from the depths. For batteries, we are using a standard array of Triple-A alkaline batteries neatly put in a special enclosure that is designed to open if the inside pressure increases dramatically and uses a pressure relief valve to relieve any built-up pressure inside the housing.



Figure 1 - Vertical Float

### NRD SID (GO-BGC Float)

