



October 1, 2013

Phase 3 Requirements

Key Tasks

- Specifications for 120 psi testing:

Cartridge:

- Check valves
 - Must hold 95psi backpressure for 20 minutes
 - Cracking pressure must be high enough to seal, but ideally <10psi
 - Check valves must be compatible with our chemistry; if unclear whether this condition can be met, Accel will contact MBARI for clarification.
- Syringes
 - Spring return in air syringe is preferred, but the syringe must be able to deliver 95 psi to puck for evacuation in 10 or less strokes
 - Plungers will have a thread-in return
 - Total plunger throw shall be 35mm or less
 - Plunger actuation force not to exceed 8 lbs maximum, including overcoming stiction. This is a design target; advise if greater force is required during testing.
- Cartridge Valve
 - Hard stops must place valve in final, sealed positions
 - Hard stops shall hold 5x the maximum force required to actuate, including overcoming stiction or 20 lbs, whichever is greater
 - Reduce o-ring catch
- Manifold
 - Must not leak

Puck

- Must not leak at 120psi
- Must work within new cartridge for functional testing
 - No leakage around thin spot in puck wall
 - Must filter at same rate as V1 puck and evacuate same as V4 puck
- We will participate in a formal design review before prototype fabrication commences.
- We will review and agree on the test plan; this plan may be refined ahead of final acceptance testing.
- Prior to fabrication of the 5 units for delivery, Accel shall demonstrate the prototypes meet or exceed the requirements detailed in the test plan. MBARI shall be present for these tests.
- Acceptance of delivered parts and final payment subject to favorable acceptance testing at MBARI.