

G3 Technology Shopping List.

	G3 Function	Requirements	Technologies	
	Isolation	-Isolation of seawater path -Up to 500 psi, 1mm min port dim -Non-corroding -Small scale -Low power - Size: less than c-battery,	Direct lift solenoid valves Custom body valves (thread into a SAE 4 port) Size: less than c-battery, Axial flow thru valves Turn or axial pull valves Multi port valves Automated actuators of above valves. Multiple bank valves integrated on a chip	
	Filter		25mm diameter surface filtering media Similar area, but other geometry filters Filter integration in mount/seal/chip/cartridge	
	Filter Pumping	-75 psi (5 bar bubble point) -Variable speed -Max flow at least 4L/hr (@22psi) -Min flow 300mL/hr -Dosing accuracy <1% -Positive displacement (or flow measuring) -Unaffected by saltwater -Minimal shear damage to microbes. -Bidirectional (not required, but valuable) - Size (with drive mech, but not motor) < soda can	Piston pumps Rotating piston (Similar to DWSM) Syringes (with or without flow valves) Gear pumps (low expectation) Peristaltic (low expectation) Progressive cavity (typically large frame) Diaphragm Others?	

	Lyse	-Up to 1mL of buffer + beads -Sample particles on filter	Bead Beating Heating Integrated heater/filter fit or holder Grinding Magnetic driven beating/grinding Acoustic/Sonic Automation of the above in closed volumes	
	Sample purify	Purification of 500-1000uL of lysate RNA and DNA in single sample desired.	RNA and DNA extraction from one sample Magnetic bead Glass bead/fiber columns Non-centrifuge wash processes. Automated systems that perform the above.	
	Reagent storage	Bulk storage to 500mL Single use storage 50uL to 1mL	Blister packs Prefilled syringes Imbedded syringes Lyophilized Dry powder (beads)	
	Reagent dosing	Deliver 50-750uL doses of liquid reagent Deliver single shot reagent doses Deliver/dose powder (beads)	Compressed gas systems Linear or cam actuators of blisters/syringes Actuation methods for any of the above storages, such as Dissolving/melting pills or isolators.	
	Transfer to AM	90+ ports in to 3 ports out.	Mega-multi port valves. (90+ ports) Chip based valve to make multiport system Low pressure, robotic open/seal fittings.	