

Parameter	Minimum Target	Stretch Goal
	Functional Requirements	
Sustained Vacuum	51.7149 Torr (1 psi) 94% vacuum	15.2 Torr (0.29 psi) 98% vacuum
Maximum Operating Pressure	20 psi absolute	30 psi absolute
Maximum Chamber Temperature	80 F	100 F
Maximum Chamber Relative Humidity	65%	85%
Minimum Chamber Relative Humidity	5%	2%
Drop Height	12"	15"
Working Open Area - Impact	50in ² (8" Diameter)	113in ² (12" Diameter)
Working Open Area - Levitation	40 in ²	50in ²
Droplet Heater Maximum Temp	85 F	200 F
Temperature Control Droplet	True	True
Droplet Volume	25 µl	50 µl
	Optical Requirements	
Light Transmission	85%	95%
Refractive Index	1.4	1.2
	Safety Requirements	
Factor of Safety - Allowable Stress	3.5	6
Factor of Safety - Allowable Temperature	1.5	2
Factor of Safety - Allowable Pressure	3.5	6
Automatic Overpressure Relief Valve	True	True
	Structural Requirements	
Maximum Weight	51 lb	35lb
Maximum Volume	20" x 20" x 20"	15" x 15" x 15"
	Sensor Requirements	
Chamber Humidity Sensor	True for Levitation	True for Both
Chamber Humidity Resolution	0.5%	0.1%
Chamber Humidity Accuracy	±1%	± 0.5%

Chamber Humidity Range	4% - 65%	0% - 100%
Chamber Temperature Sensor	True	True for Both
Chamber Temperature Resolution	0.5F	0.1F
Chamber Temperature Accuracy	3F	1F
Chamber Temperature Range	50-150 F	32 - 212 F
Droplet Heater Temperature Resolution	0.5F	0.1F
Droplet Heater Temperature Accuracy	3F	1F
Droplet Heater Range	50-150 F	32 - 212 F
Pressure Sensor	True for Impact	True for Impact
Pressure Sensor Range	1 - 20 psi absolute	0.29 - 30 psi absolute
Pressure Sensor Resolution	0.25 psi	0.1 psi
Pressure Sensor Accuracy	0.5 psi	0.1 psi