

Appendix 1 Price of Components - source

Item	Specifications	Brand	Supplier	Cost (US dollars 2020)
Motor for Probe drive (axial)	TSM 34Q-1DG	Applied Motion Products	www.applied-motion.com	\$433.00
Motor for Probe drive (rotation)	STM 235-3EF	Applied Motion Products	www.applied-motion.com	\$268.00
Power supply probe motor	12V, 5Amp	Digikey	www.digikey.com 800-858-3636	\$275.00 (good for 2 motors)
Velmex Linear Probe Drives	20 inches	Velmex	www.velmex.com	\$ 1000.00
Velmex Linear Probe Drives	Axial drive 48 inches	Velmex	www.velmex.com	\$ 2,500.00
LaB ₆ Material	3/8X3X3 inch EDM to make disks	Materion	Materion.com 216-486-4200 Mayfield Heights, OH	\$1,000
Turbo Pump	Rebuilt TG 450 (RF) chamber	Osaka Corp Japan	Osaka vacuum USA Freemont Ca. 94538	\$ 2000.
Turbo Pump	Rebuilt :TG 1300 Dual cathode chamber	Osaka Corp Japan	Osaka vacuum USA Freemont Ca. 94538	\$ 6,000
Mechanical Pump Backing for Turbos	16 CFM (cubic feet minute)	Leybold	PTB sales 1331 Mountain View Circle Azusa Ca. 91702 www.nowvac.com	\$1,200 (rebuilt)
Mechanical pump for manifold	6CFM	Leybold	PTB sales 1331 Mountain View Circle Azusa Ca. 91702 www.nowvac.com	\$ 625.00 rebuilt
KF-40 valves	1.5 inch (40 cm)	VAT	Duniway Stock 48501 Millmont Dr. Freemont Ca 94538 Duniway.com	\$ 750.00
Shutoff valve for manifold		Nupro	Swagelok Swagelok.com	\$ 125.00
Graphite plate	1/16X3X3 in	For heaters Semiconductor Grade	EDM Performance 562-694-6228	\$150.00
Pyrex Windows	4" diameter ½ in thick		SciTech Moorpark, CA.	\$100.00
Magnet Power Supply ICP device	60V- 250A 20V-250A	Lambda TCR,EMS	Us.tdk-lambda.com Lambda makes TCR series (new)	Used 0.33-0.50 /Watt New \$ 1.00/Watt

Magnet Power Supply cathode device		Lambda TCR, EMS		Used 0.33-0.50 /Watt New \$ 1.00/Watt
DC charging supply cathode device	300 V, 6Amps	Lambda, EMS (2 required)	Rebuilt: Brue Martin EM Emirepair.com	Used 0.33-0.50 /Watt New \$ >1.00/Watt
RF source for ICP device	1250 W 40-500 kHz	Advanced Energy	LFGS Pulsed RF (0-10 kHz)	Available e-Bay \$2800 used
Moly, Tantalum, Other thermal components		Thermoshield	sales@thermoshield.us	
Stainless Steel Sheet	6' long X 75 in wide X3/16" thick			
Semi-rigid Coaxial cable		Amawave part no. UT-034-M	Amawave.com	\$ 5.25 / foot
Cu Bars for magnets	¼ in X3/4 in Length ??	Transformer wire		
Glass ion gauge	KF Flange	Duniway Stock	48501 Millmont Dr. Freemont Ca 94538 Duniway.com	\$ 220.00
Convectron Gauge	Measures Pressure atmosphere to 5 mT	Duniway Stock	Duniway Stock Duniway.com	\$ 275.00
Ionization Gauge Controller	Measures Ion gauge (to 10 ⁻⁷ Torr) and convectron pressure	Terranova Corp Model 934	Duniway Stock Duniway.com	\$1975.00 (comes with convectron)
Mass Flow Controller	SCM	MKS	Rebuilt Coastal Instum. 1-800-MFC-help	\$850.00 rebuilt
Stanford pulse generator	DG 535	Stanford Research systems Valuetronics (used)	thinkrs.com www.valuetronics.com	\$4,000 new \$ 2,000 rebuilt
Material for ICP chamber	Sheet of stainless steel type 304	3/16 in thick, 75inX75in		\$200.
ICP chamber	Roll and weld Stainless sheet			\$1250
Material for ICP chamber end flanges	Stainless steel for two end flanges Type 304	¾ in X 15 in		\$920
Material for ICP port flanges	Stainless steel tube for 12- 6inch Port flanges	Thick wall pipe (wall ½ in thick)		\$382

Material for ICP chamber end flanges	Stainless steel type 304	12 foot lengths cut and rolled to size		Al \$ 825 Cutting SS \$ 200 Welding and labor \$ 1400.
ICP chamber Aluminum plate for end flange	Aluminum 24in dia X 0.75 in thick	Al type 6061 T6		Al price \$450 Machining \$ 400
ICP chamber 12 ports	Machine 12-6in tubes and weld flanges	Thick wall stainless type 304		\$1000.
Frame to support chamber	8- 8ft Al Channel 4 in wide	Al Type 6061	Cut to form frame	\$ 1400.
LAB ₆ source	Molybdenum	.010 in. thick Material and labor	Thermoshield	\$ 200.
LAB ₆ source	Carbon for heater	1/8 in thick		\$ 10.00
LAB ₆ source	Molybdenum screws, nuts		Thermoshield sales@thermoshield.us	\$15.00
LAB ₆ source	1 inch diameter Lab ₆ disc		Materion	\$ 200.00
LAB ₆ source	Additional materials and labor			\$ 250.00