Bill of Materials (BOM)

Plan 1: TOF, Ion Gun, and Vacuum Chamber on Time

After the Ion Gun, TOF and Vacuum Chamber are ordered these are the additional supplies that will be needed to integrate the system. Additional equipment, such as three pumps, an oscilloscope, and computer, have all been provided by the University.

The range of cost on the copper rings are due to the uncertainty of the sized flanges that will be used. The tolerance is also included in the total cost.

No.	*Item*	*Cost*	*Quantity*	*Part No*
1.	Large Copper Ring	$53.00-$75.00	3	GA-0600 GA-0675 GA-0800
2.	Small Copper Ring	$26.40-$35.00	5	GA-0275 GA-0275LB GA-0275S GA-0337 GA-0450
3.	40x40mm XYZ Axis Linear Stage Adjustable	$167.37	1	417054038
4.	Hex Bolts (2-3/4” flange)	$32.50 per 25 units	1	HBKM6X25
5.	Hex Bolts (6” flange)	$22.80 per 25	2	HBKM8X45
	Total	$1,136.34 ± 54.5		

The links to find the corresponding supplies in the table are the following:

1. https://www.lesker.com/newweb/flanges/hardware_cf_gaskets.cfm?pgid=ofhc
2. https://www.lesker.com/newweb/flanges/hardware_cf_gaskets.cfm?pgid=ofhc
3. http://www.bonanza.com/listings/40x40mm-XYZ-Axis-Linear-Stage-Adjustable-Manual-Displacement-Platform-Sliding-Ta/417054038?goog_pla=1&gpid=76984043821&keyword=&goog_pla=1&pos=1o7&ad_type=pla&gclid=Cj0KEQiAkO7CBRDeqJ_ahuiPrtEBEiQAbYupJXBTFdMqUxuzXEeZbk-H-EwxUqnxeBu-7m4XcL_QN8YaAjwH8P8HAQ
4. https://www.lesker.com/newweb/flanges/hardware_cf_boltkits.cfm?pgid=6pt2
5. https://www.lesker.com/newweb/flanges/hardware_cf_boltkits.cfm?pgid=6pt2

It is unknown the quality of the XYZ stage (No. 3). Most likely a similar model to the item in the table will be selected from Kurt J. Lesker. Prices are unavailable so the model in the table was added to give an estimate of price.

The model that will be quoted from Kurt J Lesker can be found at:

https://www.lesker.com/newweb/sample_manipulation/xyzmanipulators_xyz.cfm?pgid=0

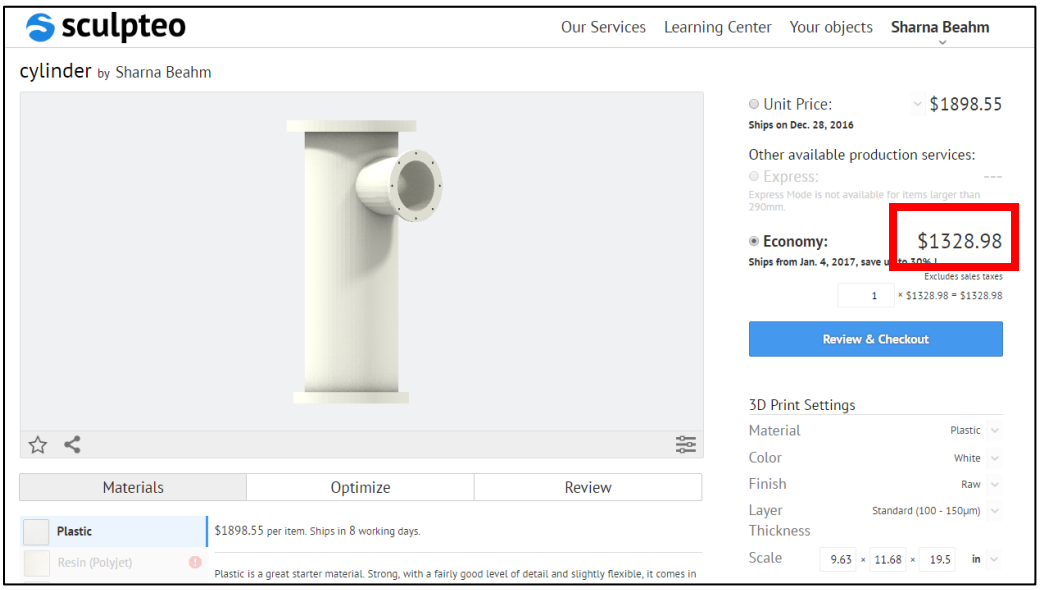
Model: XY146438-HZ25H

Plan 2: Vacuum Chamber late

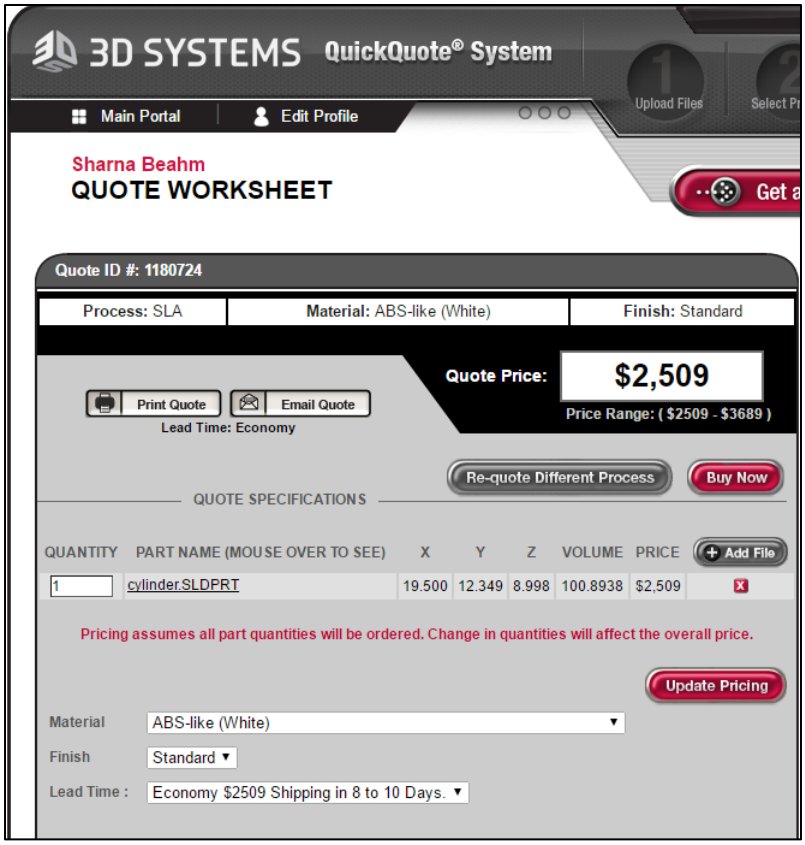
If the Vacuum Chamber fabrication takes too long, the team plans on 3D printing the piece so that a proof of concept can be made. Although the final assembly would not actually function as a SIMS, the integration of individual components would prove that the team could finish the instrument. If this becomes the situation the table below would replace the BOM above. The copper gaskets would no longer be necessary, so those have been eliminated.

No.	Item	Cost	Quantity	Part No
1.	3D Printed Vacuum Chamber	$1,328.98-$2,509	1	See Sites below
3.	40x40mm XYZ Axis Linear Stage Adjustable	$167.37	1	417054038
4.	Hex Bolts (2-3/4" flange)	$32.50 per 25 units	1	HBKM6X25
5.	Hex Bolts (6" flange)	$22.80 per 25	2	HBKM8X45
	Total	$2,449.25 ± 638.23		

The pictures below are screen shots of the designed vacuum chamber upload and quoted from two different sites. The first is cheaper but the second site has more of engineering background. Depending on the needed finish, these are the price ranges that the team is seeking. Each has an order time of about a week. This is good because the team can wait some time before defaulting to this decision. Unfortunately, this plan would mean that the printed chamber would be purchased in addition to the stainless-steel vacuum chamber and would significantly increase the budget. This is something that will need to be discussed with the client.



https://www.sculpteo.com/en/



https://www.3dsystems.com/quickparts/about/quickquote