



## Customer Needs

During the initial meeting with the project sponsor, Dr. Krick, a variety of customer needs related to the project scope were identified. Dr. Krick, as a professional and expert in mechanical engineering, materials science, and surface physics, plays a significant role in determining the project's focus. We followed up with Dr Krick and his graduate assistants, Kylie Van Meter and Adam Delong, a week later with more questions we thought pertinent to the project. The most crucial questions, answers, and interpretations from the meeting are summarized in Table 2 below.

*Table 2  
Customer Needs Questions, Responses, and Interpretations.*

Questions	Responses	Interpretations
What do you want?	“I want to be able to test multiple samples at once.” – Dr. Krick	The system tests multiple samples simultaneously.
What inputs would you like the system to accept?	“Temperature, contact stress, displacement of sample during slide, and number of samples tested.” – Kylie Van Meter	The system reads-in and stores inputs.
What would you like the system to determine for you and output?	“Temperature, contact stress, displacement of sample, coefficient of friction, and wear rate.” – Kylie Van Meter	The system returns outputs and critical targets from test results.
Do you want a visual display returned along with the parameter outputs?	“A graphical user interface (GUI) developed in MATLAB is expected.” – Dr. Krick	The system is compatible with the previous graphical user interface.
Where will this project need to work?	“Ideally, in an ultra-vacuum however, ours will only achieves high vacuum.” – Dr. Krick	The system can operate under vacuum conditions.
Do we need to modify the vacuum chamber?	“The conditions in the vacuum chamber are pre-set. The tribometer design needs to fit in the vacuum chamber and work under those conditions.” -Dr. Krick	The system works inside a vacuum.
Do the different samples need their own inputs?	“The tribometer has to be able to apply different contact stresses to each sample in order to test the same material at different conditions.” – Dr. Krick	The system can apply different inputs to different samples.



<p>What do you consider a success for this project?</p>	<p>“A minimum success would be a single headed prototype that can be expanded in the future. A great success would be a functional model that can test 4-6 samples at once.” – Dr. Krick</p>	<p>The system can test at least 1 sample, but ideally 4-6 samples.</p>
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From the interpreted customer needs, the most important need of the system is to run multiple tests simultaneously. While the system is running multiple tests simultaneously, the customer also needs the system to accept inputs, give outputs and perform in a vacuum. These are of the utmost importance due to our customers emphasizing them more than three times. In a few of the columns wants were expressed, we will consider these bonuses if successful.