



Customer Needs

The critical factors in the project's success are the needs, attributes, and requirements of the customer. These needs are not tied to any specific design concepts but instead reflect the functions that the customer desires from our solution. During multiple meetings with the Corning project sponsor representatives, Jeffrey Stott and Jeffrey Roche, the team asked numerous questions in order to get a better understanding of the customer's needs. The feedback received will be used in determining the device functions and design constraints. These questions are listed below along with their responses and the team's interpreted needs based on Corning's responses.

Customer Needs Q & A			
Number	Question	Customer Statement	Interpreted Need
1.	What is the goal of our project?	The goal of the project is to prevent ceramics from tipping off the conveyor belt.	The solution protects the ceramics from being damaged.
2.	Which ceramics are being damaged during the manufacturing process?	The shorter ceramics are being damaged due to vibration on the conveyor.	The solution works for short ceramics.
3.	What is the issue with the system currently in place?	The system in place requires manual labor to install and return to the beginning of the conveyor.	The design has limited human interaction.
4.	Are there any limited spaces that should be taken into consideration?	Some restrictions include: limited space on return conveyors that run under the normal belts, space underneath the base plate is extremely limited, inability to change conveyor design, and must conform with the half-moon pickup and unload system.	The project works with the given space of the conveyor.



5.	Any concerns with other nearby equipment (electric)?	Edges of the conveyor have sensors and readers that hang over the conveyor.	The solution works with current conveyor conditions.
6.	What size ceramics will we be working with?	Ideally, the system can work with multiple different ceramic size lines. However, there is the option that different variants of the design can be used for specific manufacturing needs.	The design can be scaled for different sized ceramics.

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7.	What activities are the Ceramics undergoing at each station?	Imaging, which requires both surfaces to be uncovered so the laser imaging can access the ceramics. Orthogonal and directional changes to pallet travel. Vibrations of the ceramics while the pallet is stationary at stops on the conveyor.	The solution complies with several different motions and orientations during the travel process. This includes uncovering the ceramic for imaging.
8.	Are there any material restrictions?	There are no current material restrictions for the different stations such as the imaging system.	The solution complies with any material restrictions.
9.	How is the problem being handled currently?	The method that currently exists is placing 'T' shaped plexi-glass stabilizers at both ends of the ceramic. The current method is successful but requires a significant amount of manual labor.	The solution improves upon the current method.
10.	What is the average amount of ceramics damaged when shorter parts are being produced?	Without using the current stabilizing method around 15% of the ceramics are damaged.	This design allows for fewer ceramics to get damaged.



Explanation of Results

Team 506 is tasked with designing a method to prevent ceramics from falling off of the pallet during conveyor use. The team had several meetings with the representatives of Corning in order to inquire further details regarding the needs of the project. After analyzing the customer's statements, the table above was generated to list the interpretations of each independent need. From these discussions with the customer, the team has gained a better understanding of the needs that are to be incorporated into the design.

The solution that the team develops will protect the ceramic cylinders from being damaged while on the conveyor system. This design will limit the need for human interaction and therefore cut down on the human resources currently being expended on the protection of these ceramics. The design will comply with the current space limitations of the Corning conveyor system. Additionally, the various sizes of the ceramics will be addressed and taken into careful consideration. With the project conclusion, Team 506 will provide a design that fulfills the desired customer needs.