Boedeker Plastics Case History

Boedeker Plastics Provides Onshoring of Critical Automation Components to Help Ice Cream Manufacturer Minimize Downtime and Solve Supply-Chain Disruption.

Intro

Ice cream is a popular dessert in the United States. According to a report on Statistica.com, USA Ice Cream manufacturers produced over 550,000 gallons of ice cream in the United States in 2021. (Shahbandeh, 2022)

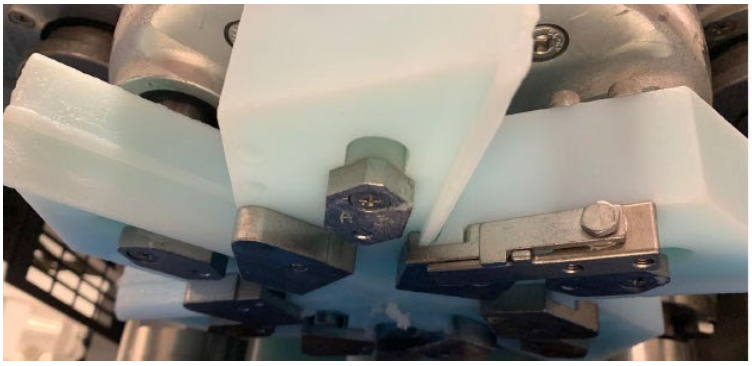
Ice cream manufacturing utilizes a wide range of automation equipment and other technology to produce ice cream and other frozen desserts.

Like all manufacturing equipment, some components wear out and must be replaced as part of a standard maintenance schedule to prevent downtime.

In this case history, we will examine how Boedeker Plastics solved a supply chain disruption faced by an Ice Cream Manufacturer based in the United States.

Challenge: Replace OEM Critical Automation Components

An ice cream processor faced a significant problem when it encountered a supply chain disruption preventing it from sourcing replacement parts, which were manufactured overseas in Asia, for its automated ice cream machine. The original equipment manufacturer (OEM) of the ice cream processing machine could no longer supply the necessary replacement parts shown below in (Figure 1). To compound the issue, the customer needed help identifying the material required for the replacement parts.



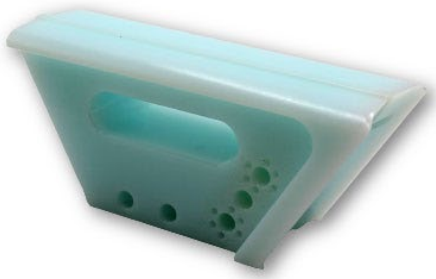


Figure 1 – OEM Ice Cream Automation Machine Plastic Components for Dispensing Aperture

The ice cream processor researched onshoring options for USA-based companies specializing in replacement parts for the food processing industry. They decided on Boedeker Plastics to help identify the material and solve this problem. The first step was to send a sample part to Boedeker Plastics for evaluation and assistance.

Solution: Higher Performance USA-Made Replacement Parts made from LubX® C

Once Boedeker Plastics received the sample part, they performed a material identification test to identify the material the OEM part was made from. After thorough analysis, Team Boedeker determined that the existing material was a specialty grade of lubricated Ultra-High Molecular Weight Polyethylene (UHMW). Team Boedeker carefully reviewed the application parameters with the maintenance and engineering team at the ice cream manufacturer to help determine the most suitable material for the application.

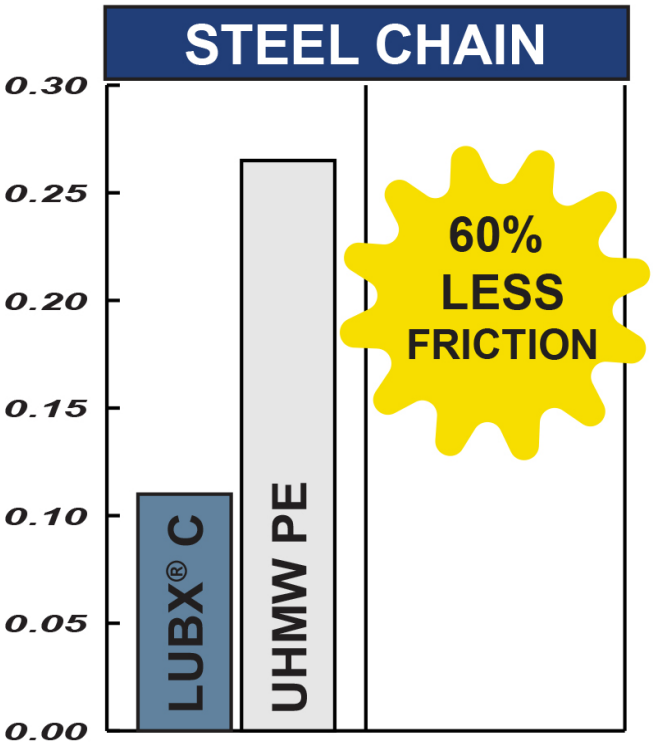


Figure 2 - Friction Comparison

Frictional data from Roechling Industrial Gastonia tribological systems conveyor test against steel conveyor chain.

The application involved significant sliding wear and exposure to cold temperatures. Based on these requirements, Team Boedeker recommended LubX® C as an ideal replacement, which offers up to 60% lower friction than standard UHMW against steel. (Figure 2) LubX® C also performs exceptionally well in applications involving sliding wear and low-temperature environments.

Figure – 3 Team Boedeker Machined LubX® C Replacement Parts

With the material specification settled, Boedeker Plastics' engineering staff reverse-engineered the replacement parts and created detailed 3-D models and drawings for CNC machining. This step was crucial in ensuring that the newly manufactured parts would be an exact fit and functionally equivalent or better than the OEM components.

The new LubX® C (Figure 3) replacement parts were machined in-house at Boedeker Plastics and promptly delivered to the ice cream processor. The delivery resolved the customer's supply chain disruption, providing them with high-quality replacement parts.

Summary

Boedeker Plastics effectively addressed the customer's supply chain issue by identifying the required material, reverse engineering the parts, and manufacturing them to precise specifications.

Team Boedeker's solution solved a critical problem related to potential downtime and ensured the uninterrupted operation of the ice cream production machine.

As an additional level of support, Boedeker Plastics now stocks these parts for the customer and releases them as needed with their JIT (Just-In-Time) Supply Service.

References

Shahbandeh, M. (2022, November 16). *Per capita consumption of ice cream in the U.S. 2000-2021*. www.Statistia.com. Retrieved October 26, 2023, from https://www.statista.com/statistics/183500/per-capita-consumption-of-ice-cream-in-the-us-since-2000/