REAL
Fine Grinding Solutions
Pet Food Industry

OVERVIEW

The Challenge

- Jaw Life Decline Of The M-Series Fine Grinder Due To An Increase In Part Wear And Change In Raw Material

The Solution

- Redesign Of The M-Series Fine Grinder
- Increase Rockwell Hardness To 48-52
- Research And Development Of New Raw Material For Superior Grinding

The Results

- Lowered Jaw Costs 17% Annually
- Increase Jaw Performance
- Lengthened Jaw Life by 2.5 months
- Eliminated Production Downtime

Business Overview:

One of the country's largest producers, distributors and marketers of premium quality, branded pet products and food products for the U.S. retail market, generating over $3 billion in net sales in their previous fiscal year. With a substantial portfolio of brands, their products are found in eight out of ten U.S. households.

The Challenge:

This customer had recently seen a decrease from 3 months jaw life from the M-Series Fine Grinder to a 1.5 months use. An increase in part wear and a change in the raw material and flow system were most likely the culprits.

This Prater customer was utilizing the M-Series Fine Grinder for grinding dry, free flowing material as fine as 200 mesh (75 microns) with a very tight distribution of particle size. Utilizing a high-speed impact principle, the feed material is metered into the center of the mill where it is impacted by the rotor. This action continues until the particles are properly sized and are discharged through the bottom of the mill.

Precision tolerances are maintained between the rotor blades and the stationary grinding surfaces, also known as jaws, to allow for accurate control of the finished particle size and distribution. In certain instances and with certain products, this process can be very abrasive and shorten the life of the jaws considerably.

The Solution:

Demanding more life from the grinding mill jaws, the customer enlisted the help of the Prater Team. The Prater Engineering Group took on the challenge of re-engineering the product to increase the jaw life.

The engineering team determined that a new stronger raw material would need to be used for process improvement of the M-Series Fine Grinder.

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The challenge was to find a new material that would increase the Rockwell hardness while still being able to be machined to the same precision tolerances without warping. Through continued research and development, the Prater Engineering Team was able to redesign the M-Series Fine Grinder with the new raw material, increasing the Rockwell hardness from 12-14 all the way to 48-52, while at the same time maintaining precision tolerances.

The Results:

The redesign of the M-Series Fine Grinder and the resulting increase in Rockwell hardness, allowed the jaws to perform without wear for a full 4 months instead of the decreased 1.5 months or their previous optimum of 3 months. This increase in grinding performance lowered the customer's annual jaw cost by 17% and provided them with a return on investment in a short period of time. The customer was pleased with Prater's investment in superior product performance to increase their productivity and profit margins. The facility is now operating at maximum efficiency.

Bio:

Ryan Blary is The Customer Service Manager handling parts and repairs for major manufacturers worldwide. He has been with Prater in this role since 2012. Ryan is a graduate of Purdue University in the field of Building Construction Technology and has a minor in Management. In total, he has 10+ years of manufacturing experience, with the last 5 focused on processing.

At Prater, results come first. Prater has been providing reliable particle management solutions since 1925. The company specializes in an extensive line of equipment and engineered systems including rotary airlocks, lump breakers, hammermills, fine grinders, classifier mills, screeners/separators, air classifiers, compactors, plant-wide automation/controls as well as toll processing services.

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