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Custom Push-Plate

Food and Beverage/Packaging Industry Application Spotlight


Custom Push-Plates

In a packaging line, production teams designate and implement pushers for various functions such as diverting and sorting, rejecting, inserting and feeding, lane switching, and more. These projects often require diverse approaches for preparation and installation. As factories are increasingly required to operate with greater agility in terms of both product variety and production schedules, meeting these new demands can necessitate heightened levels of automation on the factory line, including the customization of pusher components. Additive manufacturing broadens the possibilities for production teams to create customized pusher components on-site, enabling them to address challenging pusher placements, unique product contact surfaces/angles, and other objectives.

These components offer teams the flexibility to enhance pusher performance within hours, eliminating the need to wait for the shipping and testing of specialized components or endure conventional custom parts development cycles. With each successful implementation, the team incorporates approved, validated designs back into their digital repository, ready to be fabricated again with a simple click.

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PRODUCTION END-OF-ARM TOOLING

Importantly, this process does not significantly increase physical inventory requirements.

The process for creating additive manufactured pusher components involves:

- Identifying the elements necessary to address the issue and determine custom part requirements.
- Modifying existing designs or creating new geometries in CAD.
- Producing robust, reliable custom push-plates and mounting adapters on-demand using industry-grade composite materials like Markforged Onyx®.
- Enhancing strength by incorporating Continuous Fiber Reinforcement (CFR) to achieve metal-strength parts. Additionally, including Aramid Fiber (Kevlar®) CFR can provide added impact resistance.
- Iterating and optimizing part performance using Simulation.

Key ROIs

1. Address an issue identified by your teams today by manufacturing a custom push-plate or mounting adapter for a pusher system within hours.
2. Utilize additive manufacturing to address a wide range of potential parts instead of investing in expensive and wasteful one-off tooling for each scenario.
3. Reduce excess storage of specialized pusher system components while maintaining your team's ability to handle unexpected challenges

Design Process

The production team manufactured three different custom rejection pusher-plate variants utilizing identical custom mounting points: flat, curved, and a hybrid push-plate featuring a Smooth TPU 95A impact-dampening pad on the product-contact surface. All three variants were swiftly 3D printed and installed on the same day as the need arose, ensuring they were devoid of any hardware that could potentially scratch the product. Subsequently, the team assessed the effectiveness of each angle and surface strategy in resolving the product line issue, and now has access to all three options for future custom push-plate deployments.

