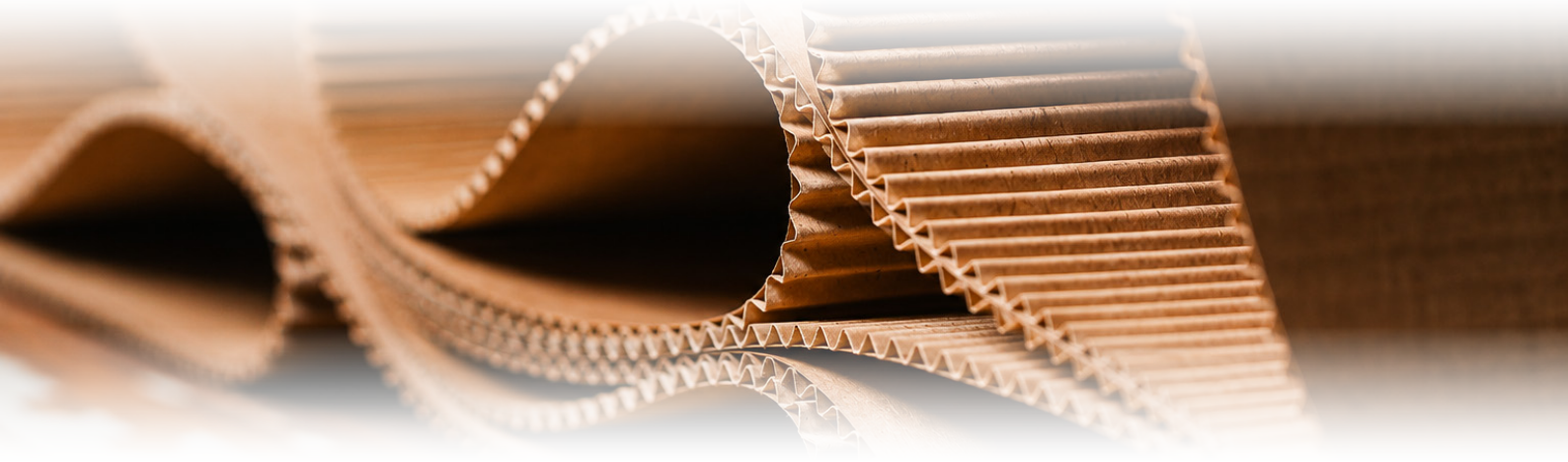
APPLICATION SPOTLIGHT

ARO®

Revolutionizing Starch Pumping in Corrugated Box Applications

GLOBALGEAR SOLUTION



Introduction

Corrugated box production relies on the precise delivery of starch-based adhesives to bond the layers of corrugated sheets. Internal gear pumps are the workhorses behind this critical process, ensuring a consist ent flow of starch adhesive in corrugators. ARO's GlobalGear Pump introduces a new and improved design that overcomes common challenges associated with starch pumping, setting a new industry standard for reliability, longevity, and efficiency.

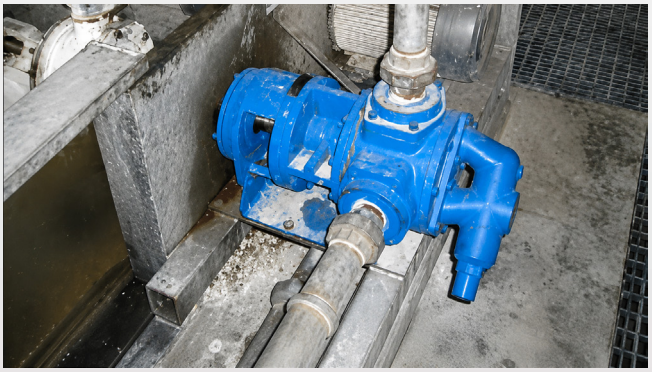
Applications Overview

Corrugated box plants, both large integrated paper companies and regional independents, are integral to the packaging industry. These facilities utilize starch-based adhesive, commonly referred to as starch or gum, in the corrugation process. Internal gear pumps play a pivotal role in transferring starch from storage tanks to the corrugator tray. Their ability to provide pulsation-free, energy-efficient, and continuous flow makes them the preferred choice for this application.

Conventional Internal Gear Pumps Challenges

Typical issues encountered when using conventional internal gear pumps for starch applications include:

- **Excessive Leakage:** Problems arise from packing and mechanical seal leakage.
- **Short Mechanical Seal Life:** Mechanical seals often fail prematurely.
- **Bearing Failures:** Poor design for v-belt loading leads to bearing failures.
- **Viscosity Thinning:** Starch viscosity can thin due to excessive recirculation in worn or clearance-opened pumps.



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Advantages of the GlobalGear Starch Pump

The ARO GlobalGear starch pump presents several key advantages over competitors:

- **Triple Lip Seal:** Ensures long service life, leak-free operation, and the ability to handle run-dry situations.
- **HG Heavy Bearing Design:** Ideal for handling thrust side loads from v-belt drives & vibrations.
- **Heavy-Duty Jackscrew Arrangement:** Allows for precise setting & maintenance of clearances, in contrast to competitors' single setscrew designs.
- **Oversized Shafts:** Significantly reduces shaft deflection, minimizing wear and tear.
- **Pressure Spike Resistance:** The combination of oversized shafts and HG bearing design can withstand pressure spikes that typically cause seal faces to open.
- **Vent to Suction:** Standard vent-to-suction in the lip cavity areas prevents starch from becoming trapped, avoiding seal face issues.
- **Longevity:** Reduced shaft deflection leads to less contact and rubbing of gear surfaces.
- **Material Quality:** Ductile iron rotors and idlers, along with bronze brackets and carbon idler bushings, offer superior wear characteristics compared to standard cast iron.
- **Modular Design:** Allows back pullout access to the fluid chamber without disturbing piping

Conclusion

The introduction of the ARO GlobalGear starch pump represents a significant advancement in starch pumping technology for corrugated box converters. With enhanced reliability, leak resistance, and longevity, this pump ensures uninterrupted adhesive delivery, contributing to improved production efficiency and product quality. ARO's commitment to heavy-duty construction and innovative design sets a new industry benchmark, making it the clear choice for starch pumping in corrugated box applications.

Recommendations

- Corrugated box converters should consider upgrading their existing starch pumping systems to the
- ARO GlobalGear starch pump to realize the benefits of improved reliability and longevity.
- Regular maintenance and monitoring of clearances and seals are essential to maximize the lifespan and efficiency of the GlobalGear pump.
- Industry stakeholders should collaborate with ARO to explore potential adaptations and enhancements for specific application requirements.

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