Polyurethane Wheels in Friction-Driven Logistics

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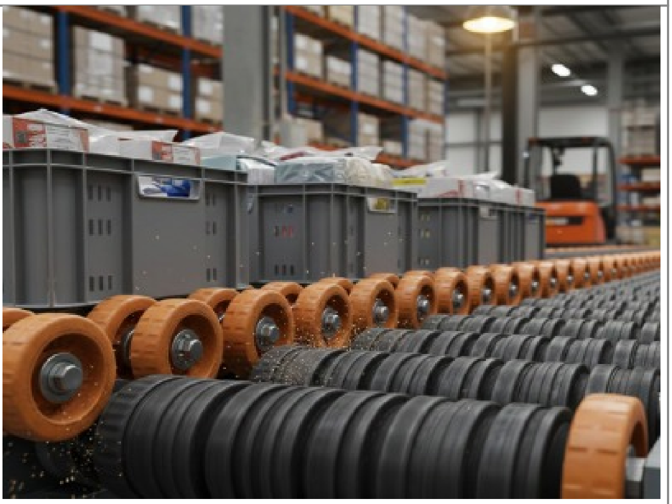
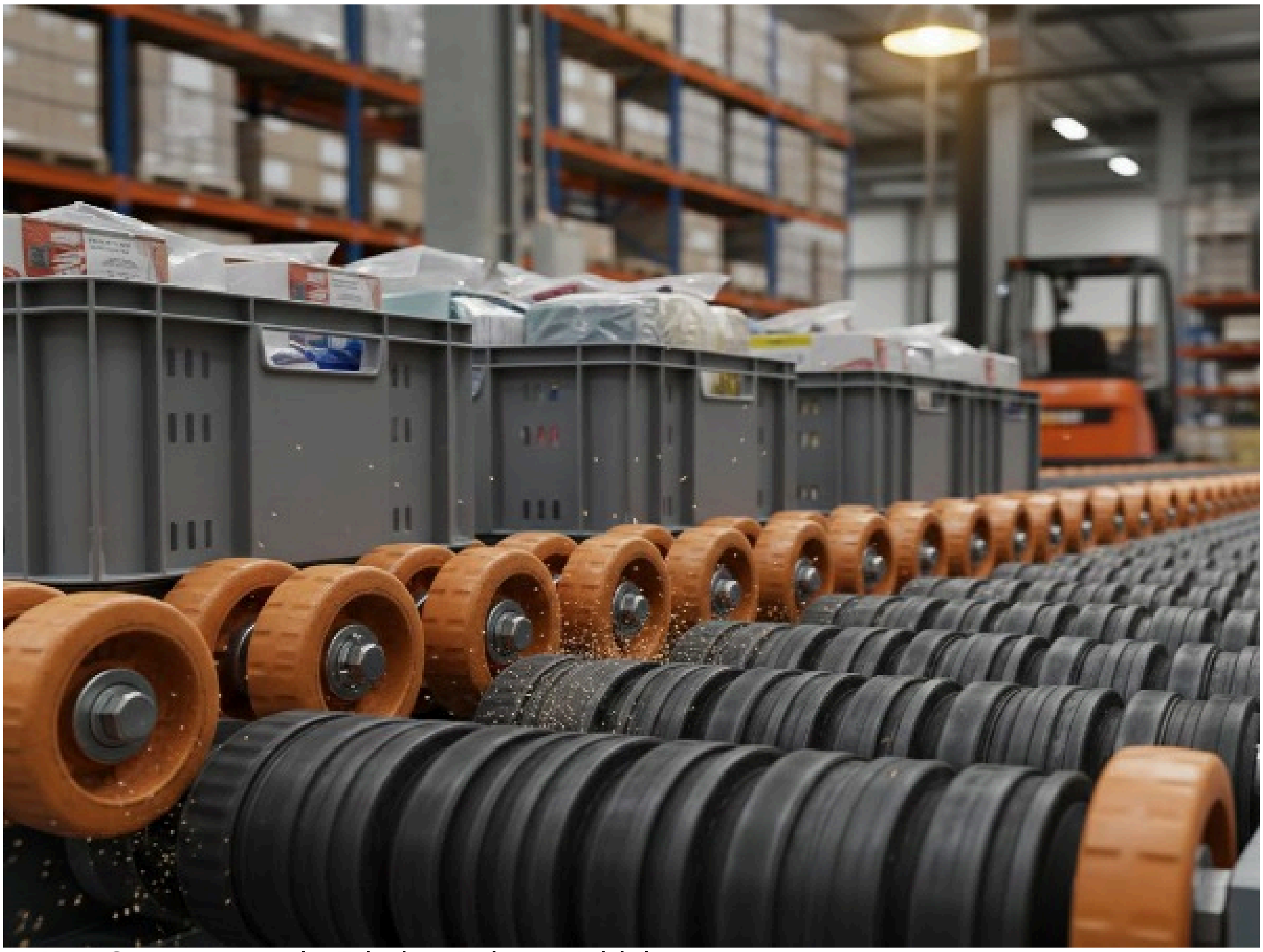
Thumb	
Address	Anfeng Industrial Park, Dongtai City, Jiangsu, China
Website	https://www.poly-wheels.com/
Email	sale06@kfqizhongji.com

Description

In the fields of automated logistics and heavy-duty transportation, friction-driven [illegible] (EMS), [illegible] rely primarily on the friction between the drive wheels and the track to transmit power.

The operational efficiency of the entire system depends on two core elements: the [illegible] Polyurethane [illegible] performance friction drive wheels and components, becoming the industry standard.



1. Key Components in Friction-Driven Vehicles

The working principle of a friction drive system involves pressing a rotating drive wheel [illegible] mechanical interlocking, power is transmitted entirely through the contact surface.

Key components include:

Drive Wheels: The core source of power, which must possess extremely high grip.

Guide Rollers: Ensure the vehicle is precisely aligned on the track while minimizing frictional loss.

Tension/Pressure Rollers: Provide the necessary normal force to prevent the drive wheel from slipping during startup or climbing.

2. Core Advantages of Friction Transmission Materials

Materials used for friction power transmission must balance a fundamental contradiction: they must be hard enough to support heavy loads, yet elastic enough to provide grip.

Stable Coefficient of Friction: Traditional rubber tends to age, become brittle, or undergo [illegible] temperature range, ensuring the precision of RGVs during acceleration and braking.

Superior Wear Resistance: Friction inherently causes wear. Polyurethane is renowned for [illegible] translates to fewer maintenance downtimes and a lower Total Cost of Ownership (TCO).

High Load-Bearing Capacity: At the same hardness level, polyurethane’s load capacity is [illegible] or shuttle systems to be designed more compactly while supporting heavier cargo.

3. Typical Applications of Polyurethane Wheels

We see the excellence of polyurethane wheels in several environments where precision and safety are paramount.

Automotive Assembly Lines: Friction-driven Electrified Monorail Systems (EMS) require extremely quiet operation and resistance to oil and grease.

Automated Storage and Retrieval Systems (AS/RS): High-speed shuttles require high initial acceleration and must not damage the track surface.

Amusement Equipment: Friction drive segments of roller coasters have stringent requirements for heat dissipation to ensure safety at extreme speeds.

4. How to Select the Right Polyurethane Material?

Not all polyurethanes are created equal. The key to optimizing a friction drive system lies in selecting the correct prepolymer and curing agent.

NDI Polyurethane: Suitable for severe operating conditions involving high speeds, heavy loads, and sensitivity to heat buildup.

MDI Polyurethane: Suitable for standard industrial friction drives, balancing cost-effectiveness with versatility.

Conclusion

Investing in high-quality friction drive wheels and components is the most direct way to [illegible] speeds, heavier loads, and a significant reduction in equipment maintenance costs.