Polyurethane Forklift Wheels & Pallet Jack Rollers

Title	Polyurethane Forklift Wheels & Pallet Jack Rollers
Thumb	
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Description

In modern material handling systems, Polyurethane (PU) forklift wheels are critical components for ensuring logistical efficiency. Compared to traditional rubber tires, PU wheels offer superior load capacity, exceptional wear resistance, and premium floor protection, making them the gold standard for warehousing, automotive manufacturing, and cold chain logistics.



1. Core Advantages of Polyurethane Forklift Wheels

Why do leading global forklift brands (such as Linde, Toyota, and Jungheinrich) prioritize polyurethane?

Extreme Load Capacity & Durability: With a hardness range typically between Shore 80A – 95A, PU wheels can support heavy loads—up to several tons per wheel—with minimal deformation, ensuring stability during high-lift stacking.

Chemical & Oil Resistance: Unlike rubber, polyurethane does not degrade when exposed to hydraulic oils, grease, or industrial chemicals, significantly extending service life in harsh factory environments.

Noise Reduction & Vibration Damping: The high elasticity of PU absorbs high-frequency vibrations. This not only protects the operator’s health but also ensures the silent transportation of fragile goods.

Non-Marking & Clean Room Compliance: Polyurethane wheels leave zero scuff marks on epoxy-coated or painted floors. Our FDA-compliant formulas are ideal for pharmaceutical and food processing facilities requiring sterile environments.

2. Functional Classification of Forklift Wheels

Forklift wheels are engineered differently based on their position and mechanical function:

Category	Primary Function	Technical Highlights
Pallet Wheels / Guide Wheels	Mounted at the fork tips to stabilize the pallet during entry and lifting.	Compact diameter (80-120mm); high peel strength to prevent debonding under pressure.
Drive Wheels (Power Wheels)	Transmit motor torque to achieve movement and acceleration.	High-traction tread patterns; reinforced steel/cast iron cores for maximum shear resistance.
Load Wheels (Bearing Wheels)	Support the bulk of the forklift and cargo weight.	Large diameter (300mm+); equipped with heavy-duty ball bearings for smooth rotation.
Swivel Wheels (Casters)	Provide 360° directional control and balance during turns.	Shock-absorbing PU design; integrated braking systems for stability on uneven surfaces.

3. Industry-Specific Custom Solutions

A. High-Frequency Logistics & Distribution Centers

For continuous, high-speed shuttle operations, we provide heat-resistant polyurethane. This prevents "Hysteresis" (internal heat buildup), which is the leading cause of "blowouts" or tire failure in high-traffic warehouses.

B. Food & Pharmaceutical (Clean Rooms)

We offer non-marking, anti-static (ESD) polyurethane wheels. These prevent the buildup of static electricity, which can attract dust or trigger sparks in sensitive environments.

C. Cold Chain Logistics (-40°C Environments)

Standard materials become brittle and lose traction in deep-freeze conditions. Our specialized low-temperature PU formula remains flexible down to -40°C, preventing surface cracking and ensuring grip on icy floors.

D. Heavy Manufacturing & Automotive

In environments with metal shavings or oil spills, Philson wheels feature high tear strength to prevent debris from embedding in the tread and damaging expensive warehouse flooring.

4. Why Choose Philson Polyurethane Solutions?

At Philson, we don't just sell parts; we engineer performance. Our forklift wheels are optimized for:

Custom Formulations: Anti-static, flame-retardant, and extreme temperature options available.

Superior Bonding: Advanced casting processes ensure the highest bonding strength between the PU and the core to eliminate delamination.

Precision Engineering: Strict tolerance control ensures 100% compatibility with your existing fleet.

Searching for a more durable, high-performance wheel solution for your fleet? Contact our engineering team today for a technical consultation and quote.