
Industrial Polyurethane Elastomer Wheels

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

Description

Polyurethane (PU) elastomer wheels, with their unique physical properties, positioned performance mobility mechanisms, have become the premier choice for high-



I. Dynamic Mechanical Properties: The Physical Advantages of Polyurethane

The corrosion resistance of polyurethane wheels stems from the molecular structure of

1. Superior Load Density and Compression Resistance

Compared to natural rubber, polyurethane possesses a significantly higher Young's Modulus, which

2. Dynamic Heat Generation and Hysteresis Loss

For electric forklifts or AGVs (Automated Guided Vehicles), hysteresis loss is a critical

operational factor. Significantly reduces battery consumption and extends

the life of the wheel core caused by thermal accumulation, preventing debonding between

II. Analysis of Core Technical Indicators

When evaluating a professional-grade polyurethane wheel, the following key

1. Abrasion Resistance

Using Akron or DIN abrasion testing, the wear index of polyurethane is typically 2-3 times that of rubber, equating to longer replacement cycles and lower maintenance costs.

2. Bonding Strength

The failure of quality with a worn wheel often occurs not from material wear, but from allowing the wheels to withstand high shear forces under heavy loads. The polyurethane itself,

3. Hardness Gradient and Friction Coefficient

Industrial application typically utilize a hardness range of 90A to 95A, achieving an optimal balance between traction and rolling resistance.

High Traction: Provides excellent grip, preventing slippage even on damp or smooth surfaces.

Operational Noise: Natural lower than those of polyurethane, resulting in

III. Chemical and Environmental Adaptability in Extreme Conditions

Oil and Grease, and most non-poly solvents, making it excellent for machining workshops.

Hydrolysis Resistance: In high temperature and high humidity environments, standard materials. The mechanical properties do not degrade in humid climates or cold.

Microbial Resistance: In the food and medical industries, polyurethane meets high hygiene standards.

IV. Industry Applications and Selection Guide

Application	Key Focus	Recommended Solution
AGV / AMR Robotics	Positioning accuracy, high	High rebound PU with
Warehouse Automated	Strength, loads, compressive	Large diameter aluminum enhanced heat dissipation
Medical Equipment	Whispering operation, Non-	Soft PU (75A-85A) to ensure zero floor scarring

V. Conclusion

By choosing the right wheels, you can extend the life of your equipment, reduce downtime, and improve your overall productivity. Let us help you calculate your potential savings and optimize your fleet's performance.

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