
Non-Marking Polyurethane Wheels

Title	Non-Marking Polyurethane Wheels
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Description

In industries such as Semiconductors, Flat Panel Displays (FPD), Solar Photovoltaics (PV), and Precision Printing, every contact point in an automated conveying system is critical. Any slight surface scratch, physical indentation, or chemical migration residue can lead to costly yield losses.

As a specialist in Polyurethane (PU) elastomer R&D and manufacturing, we offer the zero-marking wheels. These are engineered through molecular-level formulation optimization to provide superior protective power transmission for highly sensitive surfaces.



Why Choose Polyurethane (PU) for Zero-Marking Applications?

Compared to traditional rubber or silicone, high-performance PU elastomers offer a dual physical and chemical advantage in friction transmission:

1. **Superior Abrasion Resistance:** Polyurethane exhibits extreme durability, significantly reducing particle generation during high-frequency friction. This is essential for maintaining Cleanroom standards.
2. **Versatile & Stable Hardness:** We provide precise hardness control ranging from Shore A 60 to Shore D 80, offering a soft-touch contact while maintaining the structural integrity of the wheel.
3. **Non-Migratory Properties:** Our specialized formulas are free of low-molecular-weight plasticizers, eliminating the risk of oil bleeding or "ghosting" on the workpiece under pressure.

Core Technical Parameters: Defining Zero-Marking through Data

We believe that Zero-Marking should be a rigorous physical performance standard, not just a marketing slogan. Based on our laboratory testing, our materials excel in the following key indicators:

Property
Hardness
Akron Abrasion
Rebound Resilience
Compression Set
Migration Test

Engineering the Near-Zero Impact Solution

In real-world applications, achieving an absolute zero mark is a systematic challenge influenced by many variables. To assist our clients in reaching the ideal state, we implement the following material science strategies:

A. Reactive Formulation System: We utilize a reactive chemistry where functional additives are chemically bonded to the polyurethane molecular chain. This ensures that even under high-temperature or high-pressure continuous operation, there is no additive precipitation, solving the problem of chemical ghosting at the source.

B. Hysteresis & Heat Build-up Control: By optimizing the soft/hard segment ratio of the

PU, we drastically reduce hysteresis loss. This keeps the wheel cool during high-speed rotation, preventing material softening or "thermal adhesion" that can leave tacky residues.

C. Stress Distribution Technology: Leveraging the excellent elastic modulus of our polyurethane, these friction wheels uniformly distribute stress upon contact. This avoids localized high-pressure points that cause permanent physical indentations on fragile substrates.

Application Recommendations

Optical Glass / Wafer Handling: Recommended low-hardness, high-purity series for maximum soft-touch protection.

Solar Wafer Conveying: Specialized formulations with ESD (Anti-static) properties to prevent both static discharge and contamination.

Upgrade Your Conveyor System with Zero-Marking Technology.

Protect your high-value glass, wafers, and films with our high-purity PU elastomers. Contact us today for a quote and professional material recommendations.