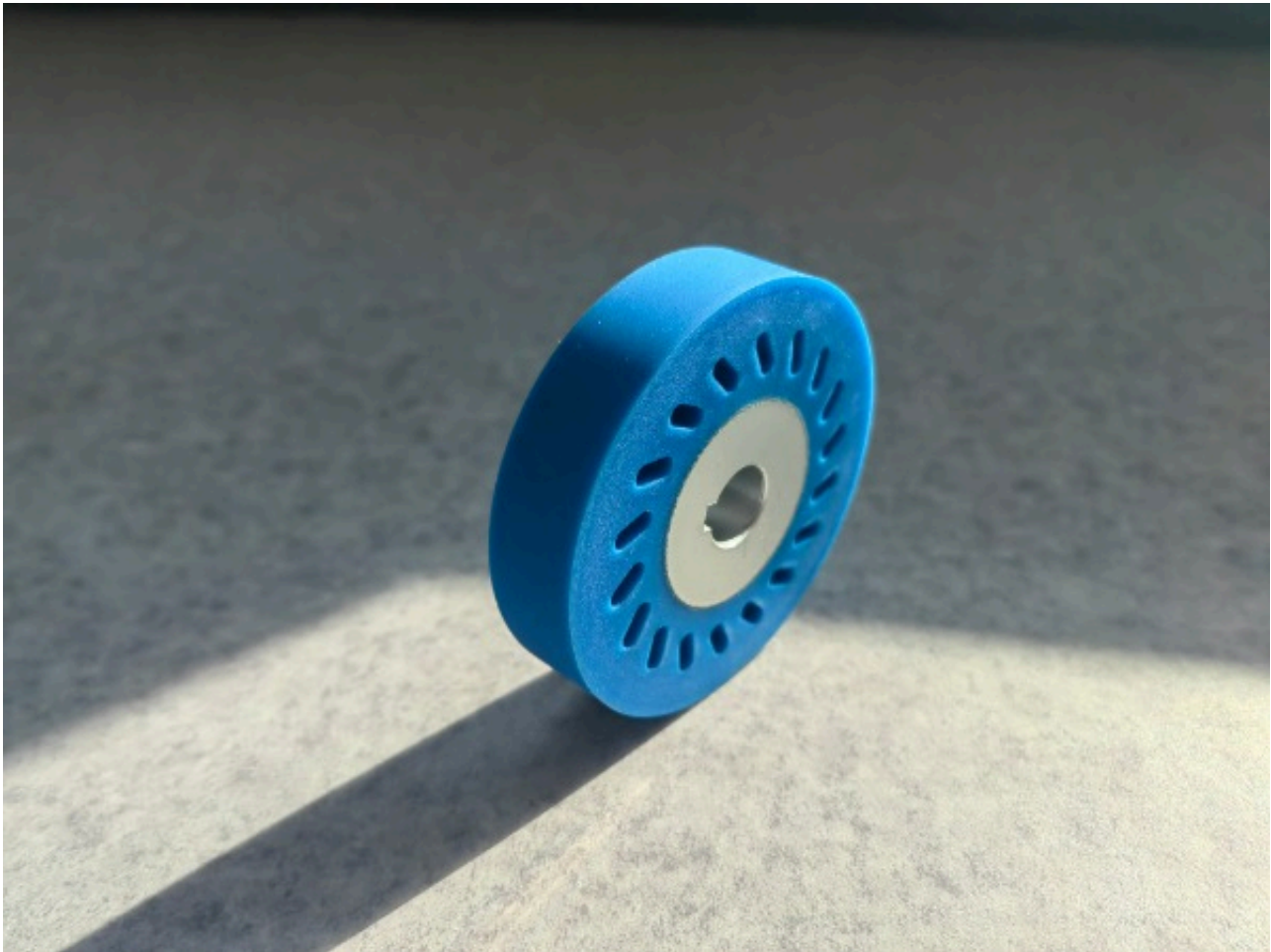

Keyway Polyurethane Drive Wheels

Title	Keyway Polyurethane Drive Wheels
Thumb	
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Description

Keyway polyurethane wheels combine the exceptional material properties of polyurethane with reliable mechanical locking connections to achieve efficient, high-torque power transmission.



What Are Polyurethane Drive Wheels with Keyways?

A drive wheel with a keyway is a component featuring a precisely machined groove (the keyway) in its central bore. This keyway aligns with a corresponding groove on the motor or drive shaft. A separate rectangular component—the key—is inserted into this assembly, creating a robust, anti-slip mechanical connection that completely prevents relative rotational slippage between the shaft and the wheel.

Polyurethane enhances this design by manufacturing the wheel body from high-performance cast polyurethane elastomer, directly molded onto a precision metal hub (typically aluminum or steel) that includes the keyway.

Core Features and Advantages

1. Zero-Slip Rigid Transmission

The fit between the key and keyway ensures absolute synchronization between the shaft and the wheel. This is critical for applications requiring precise positioning, timing, or where sudden load changes could cause friction-dependent connection methods (such as set screws or clamping collars) to fail.

2. High Torque Load Capacity

This design is ideally suited for transmitting high torque in compact spaces. The metal hub and key bear the torsional load, while the polyurethane wheel surface handles contact and driving functions.

3. Exceptional Polyurethane Material Properties

Excellent Grip and High Coefficient of Friction: Polyurethane naturally provides superior traction on belts, cables, or driven surfaces, often reducing the required clamping force.

Abrasion and Tear Resistance: Far outperforms rubber and most plastics, significantly extending service life in high-wear environments.

High Elasticity and Vibration Damping: The polyurethane layer effectively dampens vibrations and absorbs impact loads, protecting bearings, shafts, and other downstream components from damage.

Resistance to Oils, Greases, and Various Chemicals: Maintains integrity and performance in harsh industrial environments.

Customizable Hardness: Available in a range of Shore hardness options (e.g., 85A to 95A) to optimize for grip, wear resistance, or specific drive characteristics.

Comparison of Keyway Connections and Other Mounting Methods

Compared to traditional friction-based locking methods (such as set screws or clamping collars), keyway connections offer fundamental advantages. Set screws rely on point pressure from the screw against the shaft surface to generate friction, which may loosen under vibration or high loads and can damage the shaft. Clamping collars provide more reliable gripping through uniform radial compression but generally cannot match the absolute torque transmission capability and anti-slip security of keyway connections.

In short, keyway connections are rigid connections, while set screws and clamping collars are friction-based connections. For applications where any slippage is unacceptable, or where extremely high torque transmission or precise positioning is required, keyways are the indisputably superior choice.

Need a Customized Solution?

Feel free to contact our engineering team to discuss in detail your specific requirements for torque, speed, environmental conditions, and dimensional specifications for your next drive system project.