Automated Guided Vehicle (AGV) Wheels with Keyway

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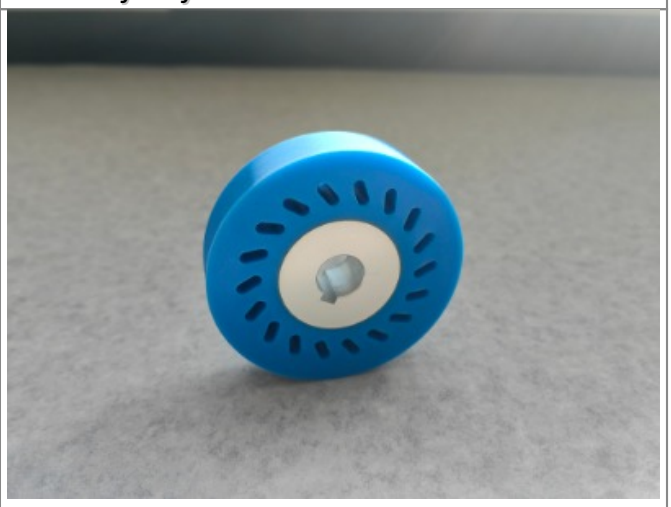
Thumb	
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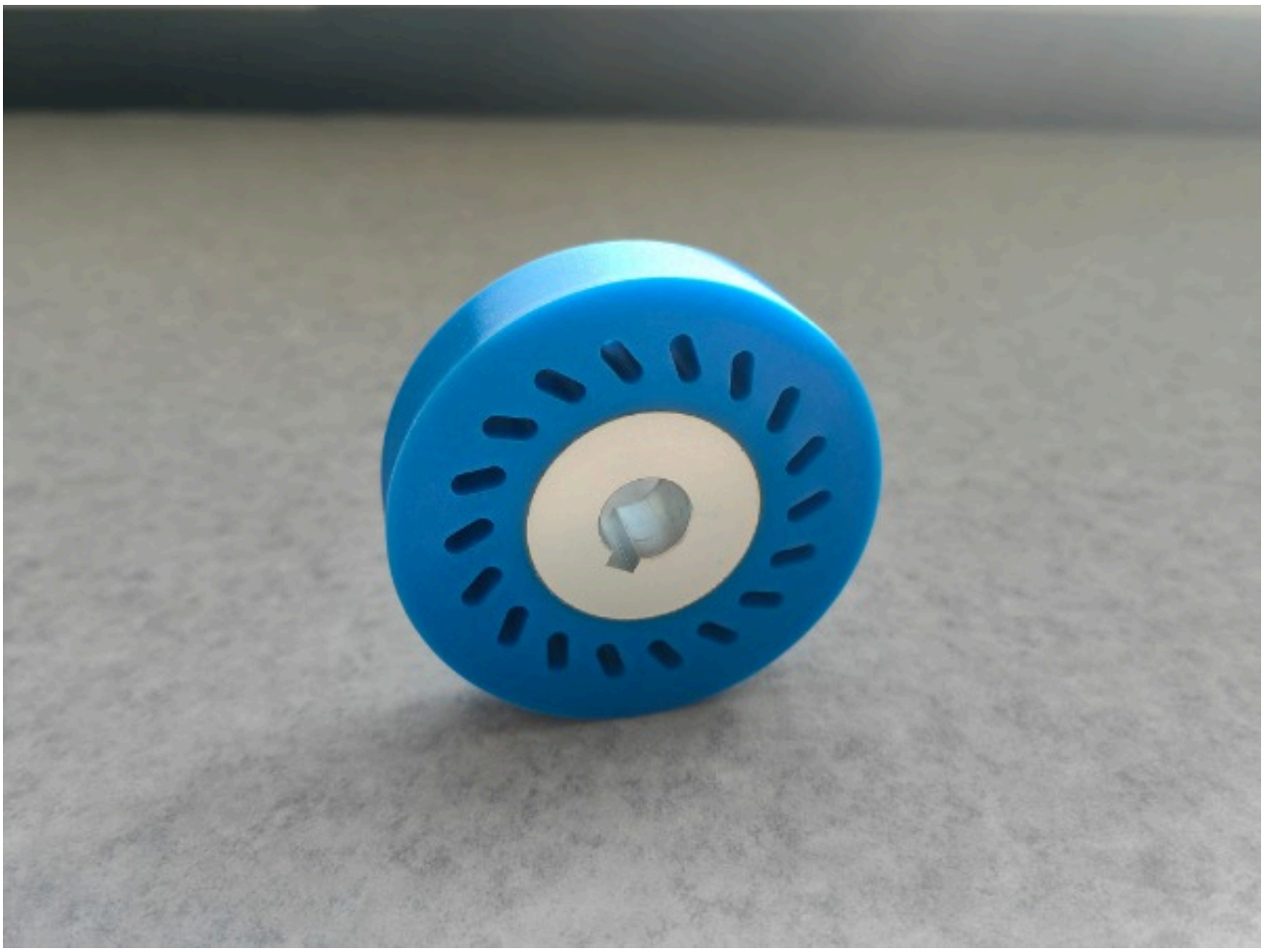
Description

Keyway AGV wheels are highly common in industrial automation, mobile robotics, and heavy-duty transportation. Compared to standard plain-bore or bearing-supported wheels, their ultimate distinctiveness lies in being specifically engineered for powertrain drives to deliver absolutely reliable torque transfer.



The Keyway: The Backbone of Reliable Torque Transfer

At the center of any high-performance AGV drive wheel is a precision-machined hub. Unlike idler or caster wheels that rotate freely on bearings, a drive wheel must locked securely to the motor shaft. This is where the keyway becomes critical.

Eliminating Slip under High Dynamic Loads: AGVs operate in a constant cycle of rapid acceleration, deceleration, sudden braking, and bi-directional switching (reversing). A simple press-fit or smooth-bore connection would quickly fail under these harsh dynamic stresses, leading to rotational slippage between the shaft and the wheel. By utilizing a "shaft-key-hub" mechanical interlock, the keyway creates a rigid, non-slip connection. It ensures that 100% of the motor’s torque is instantly and accurately transferred to the wheel, preventing mechanical lag.

Maintaining Navigation Precision: Modern AGVs rely on precise odometry and navigation systems. If a drive wheel slips by even a fraction of a degree, it introduces cumulative

positioning errors, causing the AGV to drift off course. The keyway guarantees a perfect 1:1 correlation between motor rotation and wheel movement, safeguarding the robot's millimeter-level tracking accuracy.

Technical Parameters

Model	Wheel Dimension (mm)	Wheel Width (mm)	
AGV130/50	130	50	
AGV144/32	144	32	
AGV160/40	160	40	
AGV165/37	165	37	
AGV170/40	170	40	
AGV177/37	177	37	
AGV180/50	180	50	
AGV190/40	190	40	

Industry-Specific Application Scenarios

1. Advanced Electronics & Semiconductor Manufacturing (Cleanrooms): In ISO Class 5–6 cleanroom environments, the mechanical locking of the keyway mounting completely eliminates the need for volatile thread-locking adhesives or anti-loosening agents. Combined with the ultra-low particle emission of this high-performance polyurethane, these wheels perfectly meet the strictest contamination control standards.

2. Automotive Assembly Lines: When heavy-duty AGVs transport engine blocks or vehicle chassis (handling loads of 3–5 tons), the keyway design ensures millimeter-perfect stop-start precision at designated workstations, strictly preventing assembly errors caused by shaft slippage.

3. Aerospace & Heavy Machinery Manufacturing: Transporting large composite components or massive castings requires high vibration damping. These wheels protect

sensitive, high-value cargo from physical damage by isolating ground micro-vibrations. Even in harsh workshop environments containing metal debris or welding spatter, the keyway drive connection remains rock-solid.

Conclusion

Keyway-Mounted Polyurethane AGV Wheels are the premier choice for modern, high-precision, and high-reliability material handling systems. Whether operating in a sterile semiconductor fab or a heavy-duty automotive plant, this design ensures your automated logistics systems run with maximum efficiency, safety, and minimized maintenance downtime.