

TECHNICAL REFERENCE · PRINT & KEEP

Casters for AGVs & Autonomous Equipment Spec Guide

One-page quick reference · Full engineering guide + live tools at the QR codes below

Quick answer. AGV casters require precision swivel bearings, forged raceways for docking repeatability, high-durometer polyurethane or polyamide treads for low rolling resistance, and IP67 sealed bearings against floor chemistry. Size each caster for total vehicle load divided by 3, since one wheel can be airborne, and spec dual-wheel configurations to distribute load on heavier autonomous vehicles.

Precision Swivel Bearings (The Core AGV Upgrade)

Bearing Spec	Standard Industrial	AGV Precision	Effect on AGV Performance
Raceway hardness	Rockwell 55-58 HRC	Rockwell 60-62 HRC	2-3x longer raceway life
Ball precision grade	Grade 25-50	Grade 10-16	Lower stick-slip, smoother swivel
Initial axial play	0.005"-0.015"	≤0.002"	No initial shimmy at speed
Raceway type	Stamped or formed	Forged or machined	Holds tolerance under load cycles
Swivel torque spec	Variable ±30%	Controlled ±10%	Predictable cornering response

Load Distribution and Dual-Wheel AGV Casters

AGV Payload	Typical Caster Config	Wheel Diameter	Caster Load Rating
Light AMR (500-1,200 lb)	4-wheel single	4"-6"	300-500 lb per caster
Medium AGV (1,500-2,500 lb)	4-wheel single, larger diameter	6"-8"	700-900 lb per caster
Heavy AGV (3,000-4,000 lb)	4-wheel dual or 6-wheel	6"-8"	1,200-1,600 lb per caster
Load-handling AGV with lift	4-6 wheel, dual-wheel preferred	8"-10"	1,500-2,500 lb per caster
Heavy tow AGV (up to 10,000 lb)	6-8 wheel dual	8"-12"	2,000-3,500 lb per caster



SCAN · THIS GUIDE
Reopen the full guide and interactive tools on your phone. Always current.



SCAN · ALL 18 FREE TOOLS
Load & derating calculators, push and ramp force, bolt pattern identifier, wheel material selector, failure diagnosis tool, AGV sizing + more.

WHY ENGINEERS USE CASTERHQ
Free application engineering review
Same-day RFQ response & shipping
Albion · Hamilton · Colson · P&H in stock
Ships from Mansfield, TX

844-439-4335