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Solid Rubber vs Pneumatic Casters: Use Cases

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Quick answer. Solid rubber casters win on uptime, load capacity, and zero maintenance: a 10 inch mold-on rubber wheel carries roughly twice the load of a 10 inch pneumatic and can never go flat. Pneumatic casters win on cushioning and soft terrain: an air tire at 30 psi absorbs shocks that solid rubber transmits. Spec pneumatic for gravel, grass, and fragile cargo; solid rubber for pavement, mixed indoor-outdoor routes, and any equipment where a flat tire stops work. Foam-filled pneumatics split the difference.

Which Carries More Load?

Wheel Size	Mold-On Rubber on Iron	Air-Filled Pneumatic	Capacity Advantage
6 x 2 in	approx. 410 lb	not offered (no 6 in tire standard)	solid only
8 x 2 in / 8 in tire	approx. 500 lb	250 to 300 lb (2.80/2.50-4)	approx. 1.8x solid
10 x 2-1/2 in / 10 in tire	approx. 700 lb	300 to 350 lb (4.10/3.50-4 at 30 psi)	approx. 2x solid
12 x 3 in / 12 in tire	approx. 1,000 lb	400 to 450 lb (4.10/3.50-6)	approx. 2.3x solid

Solid Rubber or Pneumatic: The Decision Table

Application	Spec	Why
Indoor carts on smooth concrete	Solid rubber (or polyurethane)	Low push force, quiet, zero maintenance; air adds effort and upkeep for nothing
Mixed indoor-outdoor, paved routes	Solid rubber	Handles thresholds and aprons, keeps constant deck height, never strands the cart
Gravel yard, fragile or instrumented cargo	Air-filled pneumatic	Only the air column absorbs washboard shock at that level
Gravel yard, uptime critical	Foam-filled pneumatic	Tire footprint and most of the cushioning with no flats
Turf and grass, light loads	Semi-pneumatic or pneumatic	Flotation over footprint; loads rarely exceed the semi-pneumatic ceiling
Towed trains at 5+ mph	Pneumatic or solid rubber on towable rigs	Tapered roller bearings and kingpinless rigs govern; wheel choice follows terrain
Equipment parked weeks between uses	Solid rubber or foam-filled	Air leaks down in storage and the first move ruins the casing
Loads over 500 lb per wheel	Solid rubber on iron core	Roughly 2x pneumatic capacity at the same diameter, rating never decays



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