TECHNICAL REFERENCE · PRINT & KEEP

How to Choose Casters & Wheels: 8-Step Engineer Guide

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

Quick answer. Choose casters by calculating load per caster with a safety factor: (total weight ÷ number of casters) × 1.3 to 2.0, or up to 4× for shock and towing. Then match wheel material to the floor, pick a diameter that clears obstacles, select the bearing, and confirm mounting style and environment compatibility.

2. Wheel material vs floor type

Floor	Best materials	Why	Avoid
Smooth concrete	Polyurethane, rubber	Durable with controlled traction	Very soft tread under heavy load (flat-spot risk)
Rough concrete / joints	Larger polyurethane, pneumatic	Handles vibration, debris, and obstacles	Small hard wheels (chatter + harsh ride)
Epoxy / sealed floors	Non-marking polyurethane, soft rubber	Protects finish, quieter	Nylon, iron (scratch risk)
Hardwood / tile	Soft rubber, non-marking PU	Reduces scuffs and point-loading	Hard plastics, steel