

TECHNICAL REFERENCE · PRINT & KEEP

Dynamic Load Rating for Casters Sizing & Spec

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Quick answer. Dynamic load rating is a caster's capacity under continuous rolling at a defined speed and distance, and it is the correct design number for cart loads, not the higher static rating. Dynamic is typically 50-75% of static. Apply a 1.5x-2x safety factor above peak working load and compare the result to the dynamic rating.

Dynamic vs Static Load Rating

Wheel Material	Static Rating	Dynamic Rating	Ratio
Forged Steel	10,000 lb	7,500 lb	75%
Cast Iron	5,000 lb	3,750 lb	75%
Polyurethane on Iron	4,000 lb	2,400 lb	60%
Solid Polyurethane	2,500 lb	1,500 lb	60%
Phenolic	2,500 lb	1,500 lb	60%
Solid Rubber	1,000 lb	500 lb	50%
Pneumatic	500 lb	300 lb	60%

Dynamic Rating Selection Math

Step	Calculation	Example
Start	Payload + cart	4,000 + 500 = 4,500 lb
Per caster (4-caster)	4,500 / 4	1,125 lb each
Worst case (1.4x)	1,125 × 1.4	1,575 lb
Safety factor (1.5x)	1,575 × 1.5	2,363 lb
Compare to dynamic	Need ≥2,363 lb dynamic	Select 2,500 lb dynamic
Check static	Verify static is 1.3x+ dynamic	Confirm 3,500+ lb static



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