

TECHNICAL REFERENCE · PRINT & KEEP

Casters for Heavy Static Loads: Why Wheels Fail When

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Quick answer. Casters under heavy static loads fail by cold-flow, raceway brinelling, and bolt creep, not rolling wear. Spec to the static rating (typically 2 to 3× the dynamic rating), Shore 95A minimum polyurethane, and tapered-roller raceways. Divide equipment weight by 3, not 4: a 10,000 lb machine loads each caster to 3,333 lb.

Rig and Raceway Spec

Static Load per Caster	Raceway Type	Construction	Rig Plate	Typical Part Family
up to 1,200 lb	Double-ball	Conventional kingpin	1/4 inch plate	Medium duty
1,200 to 2,500 lb	Double-ball, HD	Kingpinless optional	5/16 inch plate	Heavy medium duty
2,500 to 4,000 lb	Tapered-roller	Kingpinless preferred	3/8 inch plate	Heavy duty
4,000 to 8,000 lb	Tapered-roller	Kingpinless required	1/2 inch plate	Extra heavy duty
8,000 to 20,000 lb	Forged raceway	Welded forged rig	3/4 to 1 inch plate	Super heavy duty

Static-Load Spec Decision Table

Load per Caster	Wheel	Raceway	Mount Bolts	Floor Protection
500 to 1,200 lb	5 inch x 2 inch, 95A polyurethane on iron	Double-ball	4x SAE Grade 5, 3/8-16	None (bare concrete OK)
1,200 to 2,500 lb	6 inch x 2 inch, 95A polyurethane on iron	Double-ball, HD	4x SAE Grade 8, 1/2-13	None if concrete sound
2,500 to 4,000 lb	8 inch x 2 inch, 95A or phenolic	Tapered-roller	6x SAE Grade 8, 1/2-13	Load plate if epoxy or wood floor
4,000 to 8,000 lb	8 inch x 3 inch, phenolic or forged steel	Tapered-roller	6x SAE Grade 8, 5/8-11	Load plate standard, 12 x 12 x 1/4 inch
8,000 to 20,000 lb	10 to 12 inch forged steel, wide face	Forged raceway	8x SAE Grade 8, 3/4-10	Load plate 16 x 16 x 3/8 inch required



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