

TECHNICAL REFERENCE · PRINT & KEEP

# Why Swivel Casters Fail in Industrial Facilities

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

**Quick answer.** Swivel casters fail in six modes: kingpin fatigue (29% of field returns), swivel bearing collapse (22%), rig cracking (18%), flutter (11%), lock and galling (8%), and tread delamination (6%). The dominant root cause is an undersized rig for actual shock load. Upgrading to a kingpinless forged rig eliminates the top failure mode entirely.

## The 6 Swivel Caster Failure Modes

| Failure Mode             | Share of Returns | Avg Time-to-Failure | Primary Root Cause                   |
|--------------------------|------------------|---------------------|--------------------------------------|
| Kingpin fatigue/fracture | 29%              | 8-14 months         | Undersized rig for shock load        |
| Swivel bearing collapse  | 22%              | 6-10 months         | Bearing dust ingress                 |
| Rig cracking             | 18%              | 10-18 months        | Stamped rig + repeated shock         |
| Swivel flutter at speed  | 11%              | Ongoing from day 1  | Wrong offset or wheel diameter       |
| Swivel lock/galling      | 8%               | 3-12 months         | Water ingress, missing lubrication   |
| Tread delamination       | 6%               | 2-6 months          | Wrong compound for shock environment |
| Other/misdiagnosed       | 6%               | Varies              | Mostly wheel wear, not swivel        |

## Rig Cracking and Deformation

| Rig Type           | Shock Resistance | Fatigue Life            | Cost      | When to Use                    |
|--------------------|------------------|-------------------------|-----------|--------------------------------|
| Stamped steel      | Low              | 12-18 mo on rough floor | Baseline  | Light duty, smooth floors      |
| Reinforced stamped | Medium           | 18-30 mo                | +15%      | Medium duty, moderate shock    |
| Forged kingpinless | High             | 5-10 years              | +40-60%   | Heavy industrial, rough floors |
| Forged kingpin     | High             | 3-7 years               | +30-50%   | Heavy but smoother floors      |
| Machined stainless | High + corrosion | 10+ years               | +200-300% | Washdown, corrosive            |



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