

Casters: Do They Matter? Making the Right Selection

Sponsored by:

ICWM

Institute of Caster and Wheel Manufacturers

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Presentation Overview

- Application Considerations
- Casters Engineering
- Wheels
- Options
- Custom Design
- Testing & Industry Standards
- ICWM Companies

Application Considerations

- Environmental Factors
 - Moisture
 - Dirt and Dust
 - Chemicals
 - Temperature
 - Floor Conditions
 - Foreign Debris



Application Considerations

Moisture



Application Considerations

Dirt & Dust



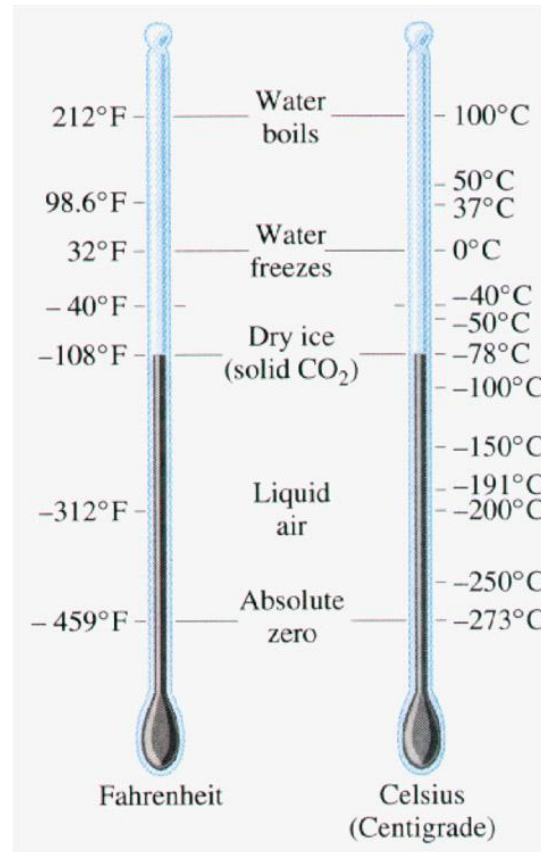
Application Considerations

Chemicals



Application Considerations

Temperature



Application Considerations

Floor Condition



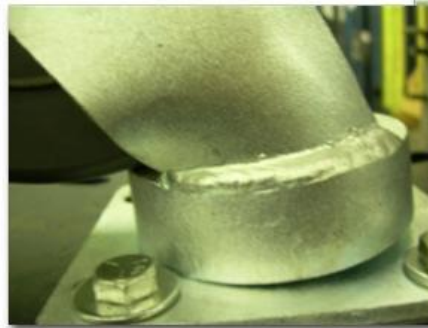
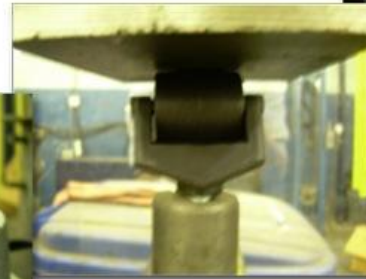
Application Considerations

Foreign Debris



Application Considerations

- Load Factors
 - ▣ Static Load
 - ▣ Dynamic Load
 - ▣ Thrust Loads
 - ▣ Shock Loads
 - ▣ Load Distribution



Application Considerations

Shock Loading



Application Considerations

Load Distribution



Application Considerations

- Speed Factors
 - How Fast?
 - How Often?
 - How Long?



Application Considerations

Mechanically Towed



Application Considerations

- Other Special Factors
 - Ergonomics (Push/Pull)
 - Shock Absorbing
 - Noise Reduction
 - Floor protection
 - Safety!
 - Dimensions (Height)



Application Considerations

Manual Push



Application Considerations

Noise



Application Considerations

Frequency of Use



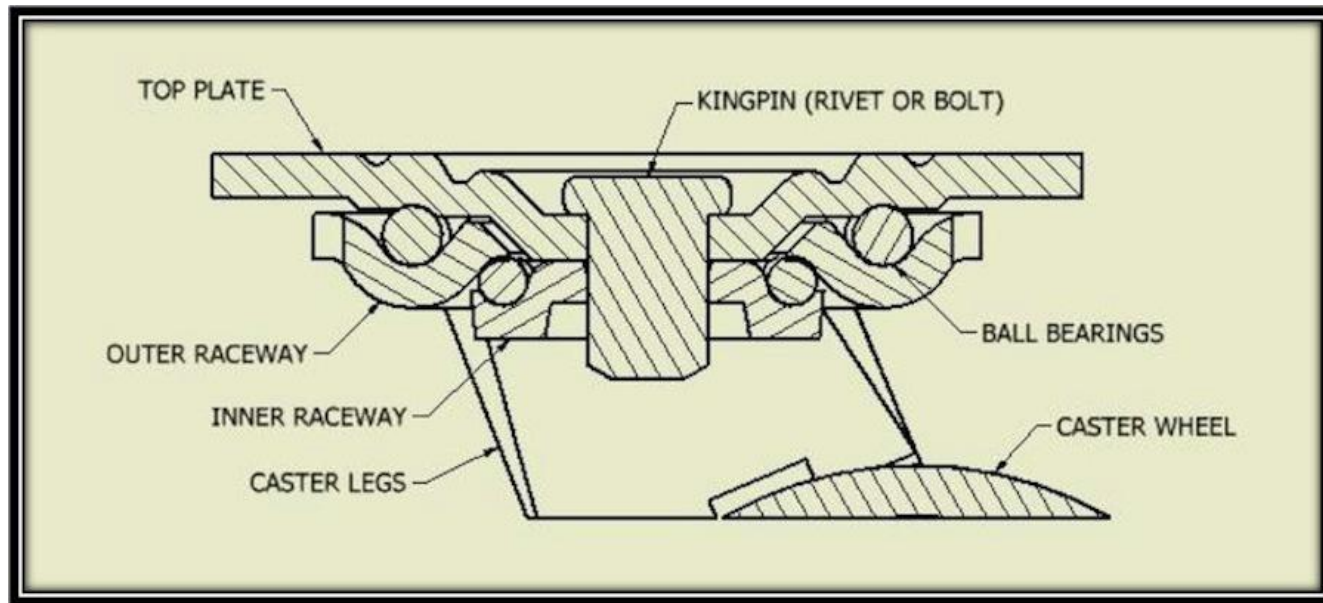
Caster Engineering

Different Casters for Different Results



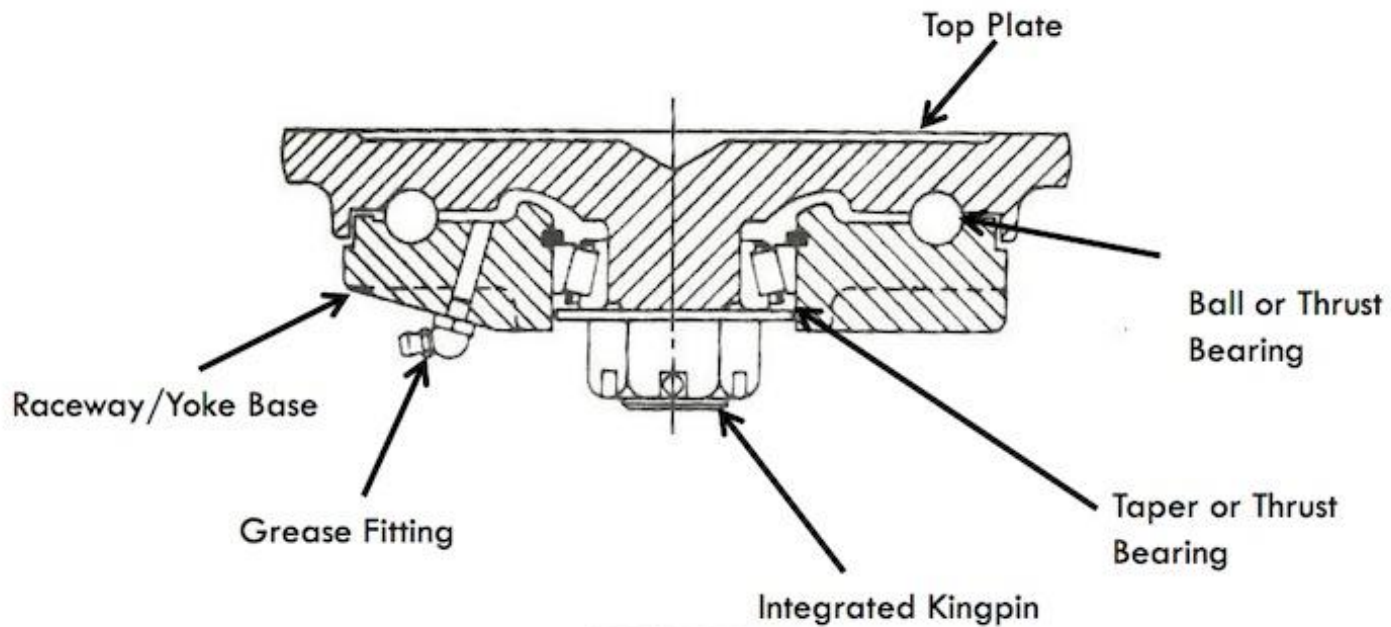
Caster Engineering

Conventional Kingpin



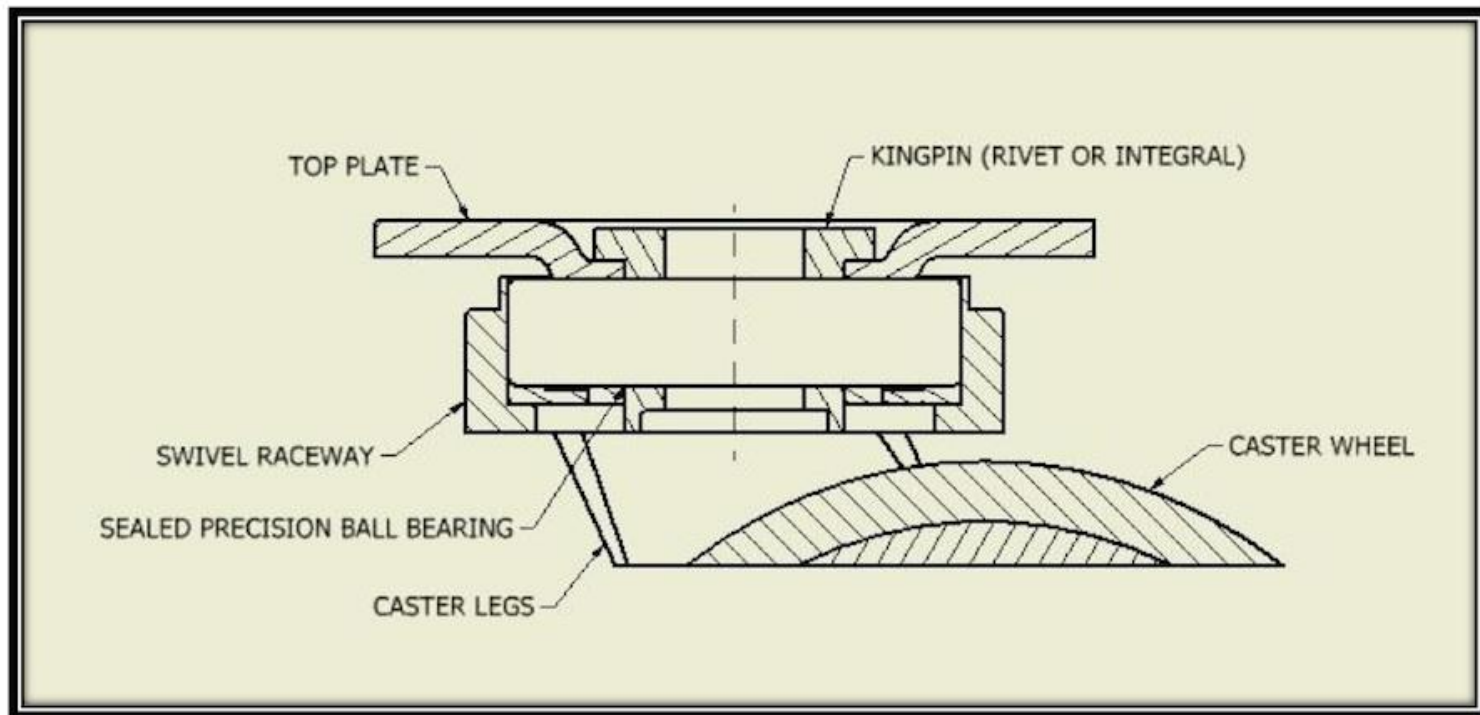
Caster Engineering

Integral Kingpin



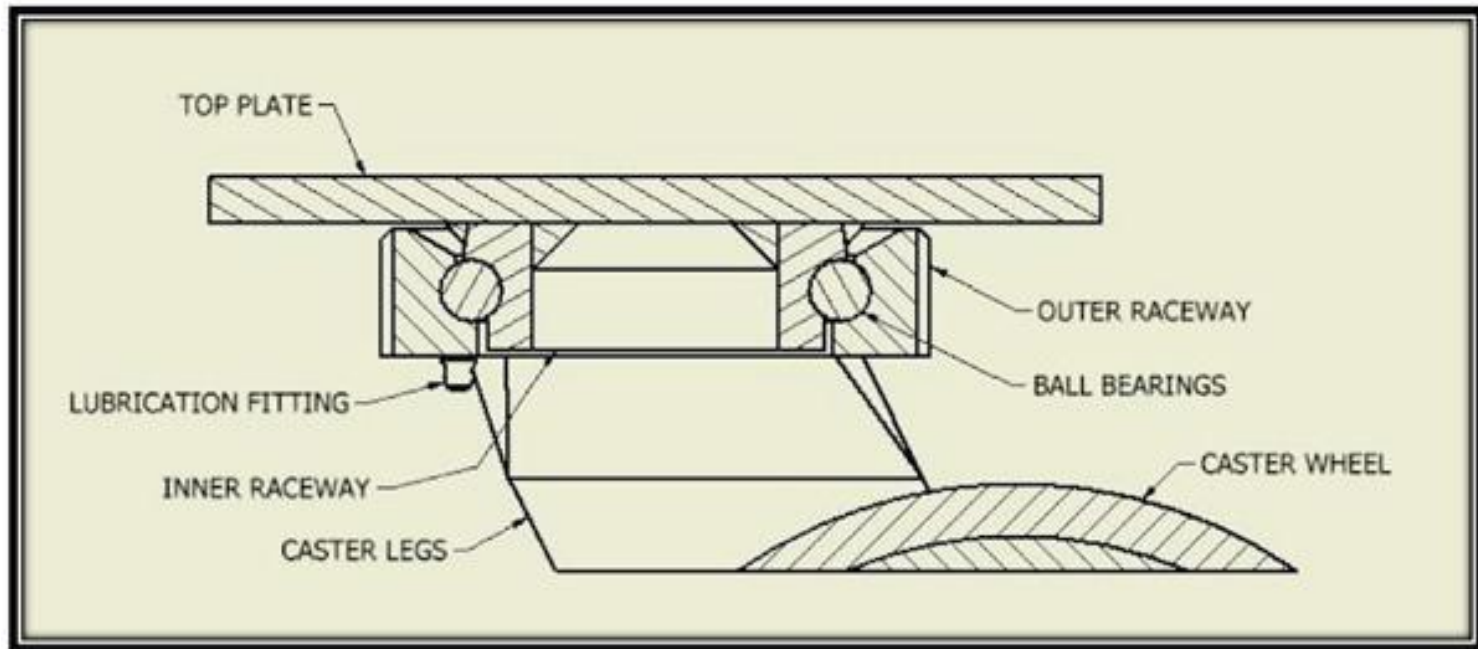
Caster Engineering

Maintenance Free



Caster Engineering

Kingpinless



Caster Engineering

□ Bearing Options

- Plain Bore & Oilite
- Delrin & Celcon
- Annular Ball Bearings
- Straight Roller Bearings (Caged & Sleeved)
- Sealed Precision Bearings
- Tapered Roller Bearings



Wheels

General Concepts

- Larger Diameter = Easier to traverse obstacles and higher overall load capacities
- Wide Tread Width = More load distribution and higher capacities while harder to turn
- Crown Tread vs. Flat Tread
 - ▣ Crown = Easier rolling, more maneuverable
 - ▣ Flat = Better load distribution, potentially higher capacities

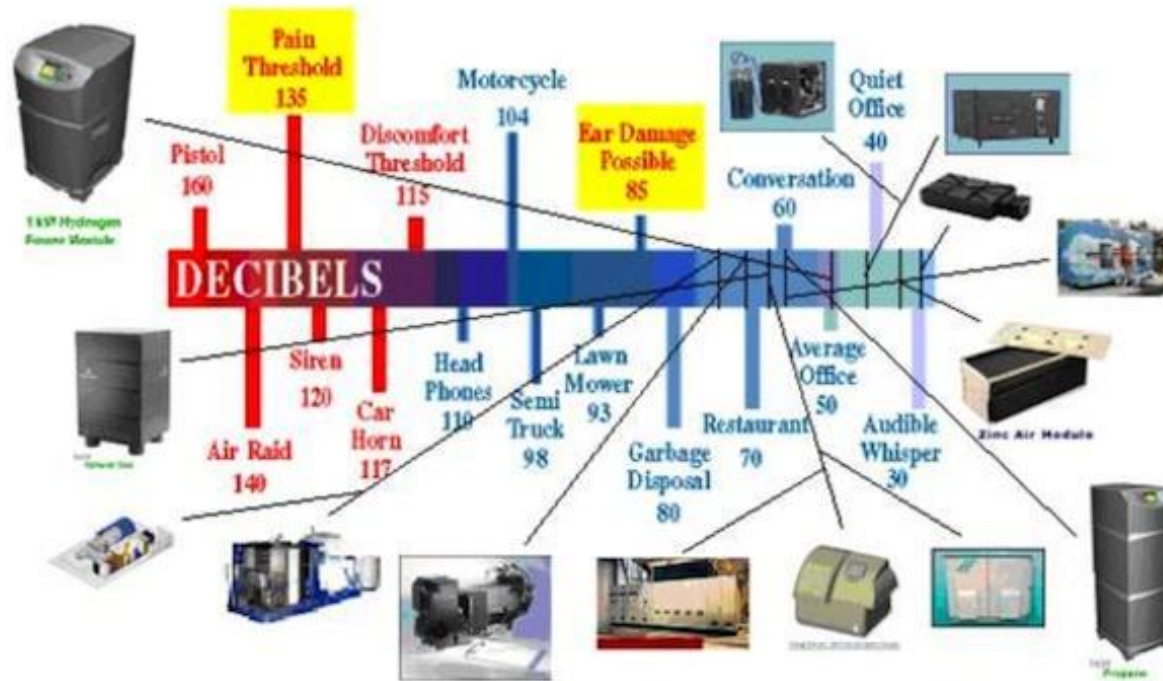
Wheels

Wash Down



Wheels

Noise



Wheels

Floor Protection



Wheels

- Wheel Materials
 - Rubber
 - Polyurethane
 - Hard Tread (Nylon/Plastic/Phenolic)
 - Metal

Wheels

- Rubber Tread
 - Solid Rubber
 - Rubber on Iron
 - Rubber on Aluminum
 - Rubber on Elastomer (TPR)
 - Elastomeric High Tensile Rubber
 - Pneumatic

Wheels

Marks Floor



Wheels

- Polyurethane Tread
 - Solid Polyurethane
 - Polyurethane on Polypropylene
 - Poly on Iron
 - Poly on Aluminum
 - Ultra Thick Poly Wheels
 - Shock Absorbing Poly Wheels



Wheels

Protects Floors



Wheels

- Hard Tread
 - Polyolefin
 - Phenolic
 - Thermoplastic
 - High Temp Nylon
 - Solid Elastomer
 - Reinforced Nylon Wheels



Wheels

Hard Tread – Easy Rolling



Wheels

- Metal Wheels
 - Cast Iron
 - Ductile Iron
 - Machined Steel
 - Forged Steel
 - Exotic Metals
 - Options
 - V-Groove
 - Flanged



Wheels

Damages Floors



Options

□ Brakes

□ Hub Locking Brakes

- Side Wheel Brakes
- T-Handle Brakes

□ Tread Locking Brakes

- Screw Brakes
- Cam Wheel Brakes
- Poly Cam Wheel Brakes

□ Total Lock Brakes



Options

- Swivel Locks
 - Hand Operated
 - Foot Operated
 - Screw Type



Options

Thread Guards



Options

Foot Guards



Options

□ Seals

- Bearing Seals

- Raceway Seals



Options

□ Finishes

- Chrome
- Painted
- Zinc Plate
 - Type I
 - Type II
- Powder Coating
- Custom



Custom Design

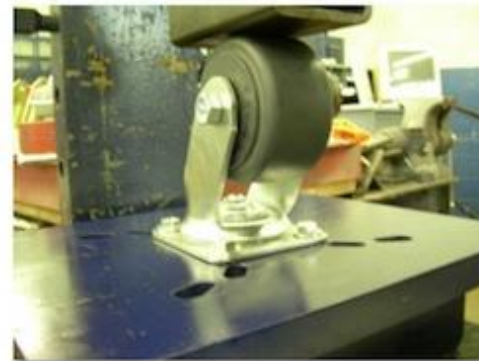
- ❑ Super high capacities
- ❑ Low profile design
- ❑ Custom shock absorbing types
- ❑ Integrated foot guards
- ❑ Custom Brake designs
- ❑ Custom swivel locking types
- ❑ Special wheel configurations

Testing & Industry Standards

- ICWM Testing Standards
 - Load Test
 - Rollability Test
 - Side Load Test
 - Braking and/or Locking Fatigue Test
 - Vertical Impact Test

Testing & Industry Standards

Load Testing



Testing & Industry Standards

Side Load Testing



Testing & Industry Standards

Impact Testing



Testing & Industry Standards

- Additional Testing
 - Debris Testing
 - Brake Performance Test
 - Noise Testing
 - Wheel Tread Adhesion Test
 - Swivel Raceway Durability Testing
 - Hardness Testing
 - Material Analysis
 - Environment (Salt Spray, Temperature, Chemicals)



ICWM Companies



colson



HAMILTON[®]
Casters ★ Trucks ★ PRONTO

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