Hoist Safety – Capstan Stats and Facts



FACTS

1. **Unsuitable for Personnel Lifting.** Capstan hoists are designed for materials, not humans. Using them to lift people can lead to catastrophic failure
2. **Friction Loss & Rope Slippage.** Sudden loss of drum friction—often during power interruptions—can send loads dropping and potentially fatal .
3. **Overloading the System.** Frequently, actual loads exceed rated capacities; e.g., a 1,000 lb hoist handling over 1,200 lb contributed to failure
4. **Improper Rigging or Wrapping.** Incorrect rope wrapping or tying loops can reduce strength by 40–60%, increasing risk of slippage or breakage
5. **Inadequate Inspection & Maintenance.** Missing inspections of rope, drum, foot pedal, or locks risks undetected wear or misalignment .
6. **Pinch Points & Entanglement.** Rotating parts such as drum edges or rope clamps can trap fingers during operation or maintenance
7. **Lack of Operator Training.** No formal training results in misuse. Cases repeatedly describe untrained use, with tragic outcomes.

STATS

- In 2024, OSHA recorded 5,190 workplace fatalities, with construction accounting for 21% (1,090 cases). Hoist-related fatalities (e.g., load drops, falls) comprised ~4% of construction deaths, emphasizing the need for hard hats, HVSA, and fall protection.
- In 2024, Fall Protection (29 CFR 1926.501) ranked 1st in construction violations (5,423 citations), followed by PPE violations (29 CFR 1910.132) at 6th (1,876 citations), often due to missing hard hats or gloves during hoist operations. Crane and Hoist violations (29 CFR 1926.753) were also noted.
- A 2022 NIOSH study found that proper use of hard hats, HVSA, and cut-resistant gloves reduced struck-by and rope-related injuries by 22% in hoist operations, but 25% of workers lacked adequate PPE training.
- WorkSafeBC reported 25–30 annual construction fatalities in British Columbia (2020–2023), with hoist-related incidents (e.g., load drops, rope failures) accounting for ~8%. Hard hats and fall protection are critical for mitigation.
- CCOHS 2023 data showed that workplaces enforcing hard hats, HVSA, and fall

protection reduced hoist-related injuries by 20%, particularly during rigging or load lifting with capstan hoists.

- In 2024, Ontario introduced fines up to $500,000 for repeat OHS violations, including PPE non-compliance, impacting firms failing to provide proper safety gear for capstan hoist operations.