

Power Screws and Bolted Connections

ME4020 - Applied Machine Design

Mechanical Engineering

Tennessee Technological University

Power Screws

Power Screws

- Overview
- Threads for Power Transmission
- Applications
- Force and Torque Analysis
- Friction and Efficiency

Overview

A power screw is a machine component that converts rotational motion into linear motion. This is necessary in variety of applications.



Leadscrews are used to raise and lower the front door of the Boeing 747-8F Freighter aircraft

Overview

Advantages:

- large mechanical advantage possible
- capable of lifting or moving large loads
- suitable for precision motion control
- self locking or back-drivable

Disadvantages:

- Low Efficiency due to high friction
- High wear possible

Overview

Threads for Power Transmission

Threads for Power Transmission

Threads for Power Transmission

Applications

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Applications

Force and Torque Analysis

Friction and Efficiency

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