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DEPARTMENT OF
SCIENCE & TECHNOLOGY
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TECHNOLOGY
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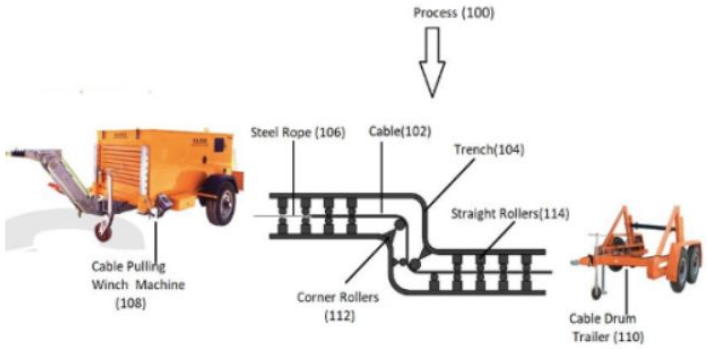
GRANTED

(IN517115)
A load simulator for testing winch machine



NEED

Winch machines used in cable laying often face 30–40% failure in lab tests due to unrealistic load simulations. This leads to unsafe deployments and delayed field operations. But what if testing could mimic field stress exactly—without needing real trenches?

TECHNOLOGY OVERVIEW

This patented load simulator uses a hydraulic motor, programmable logic controller (PLC), and variable pressure valves to mimic real-world load variations during winch testing. It uses trench-specific resistance data—like cable flexibility, bends, and roller positions—to apply dynamically changing loads on the winch, ensuring accurate testing before field use.

TECHNOLOGY KEY FEATURES

Simulates field-like tension using hydraulic motor and real trench data. PLC-driven pressure variation matches site-specific resistance. Enables safer, faster, and more accurate winch machine validation without physical trench setup.

MARKET ANALYSIS

India's hydraulic systems market is growing at 6.4% CAGR; the global industrial machinery testing equipment market is projected to reach $9.5B by 2033 at 5.9% CAGR. Key drivers include smart automation and predictive testing. (Sources: IMARC 2024, Allied Market Research 2023)

Target Industries

1) Machinery OEMs and testing labs validating winches or motors for infrastructure use; 2) Simulation tech integrators building hydraulic testing rigs; 3) Engineering R&D providers for field-ready deployment of cable/winch systems in power, telecom, or metro rail sectors.

AT A GLANCE

- SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities), SDG 8 (Decent Work and Economic Growth)

Read more here

Technology is available for licensing/ co-development.

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