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INFORMATION

Centre for Surface Transportation Technology

Rail Vehicle Squeeze and Tension Frame

CSTT maintains a structural test fixture consisting of twin parallel steel I-beams and two track-supported end pieces with a double-acting hydraulic ram for imparting large longitudinal compression (1,000,000 lb) and tension forces (200,000 lb) onto rail and intermodal vehicles.

Rail vehicle squeeze and tension frame: full-scale testing of railway cars, with up to a million pounds compression

Features

- up to 500 tons (4500 kN) quasi-static compression
- tension capability up to 100 tons (900 kN)
- unique in Canada
- controlled accurate repeatable
- compression or tension

Applications and benefits

- tests carbody structural strength and integrity
- verifies compliance with AAR standards
- tests novel drawbar devices for strength and lateral stability

National Research Council Canada
Conseil national de recherches Canada

Rail vehicle squeeze and tension frame

Specifications

- internal length: approx 100' (33 m). adaptable to fit car length
- internal width: 10' (3.3 m)

Instrumentation and data acquisition

- 250-channel data logging system
- in-house expertise in strain gauge application
- load cells
- displacement sensors

Some current/recent uses

- structural strength tests of freight cars for a variety of manufacturers
- structural strength tests of subway and railway passenger cars
- structural strength tests of intermodal (road/ rail) trailers
- stress analysis of railway tank cars (with finite element models, experimental stress and fatigue analysis)

Centre for Surface Transportation Technology

Canada spends proportionally more on transportation than any other industrialized country. The Centre for Surface Transportation Technology offers its clients unique expertise and facilities to improve the productivity, competitiveness, reliability and safety of railway and road transportation.

Rail and road transportation companies, vehicle designers and manufacturers, military and commercial vehicle owners, lumber and mining companies, consultants and contractors, municipalities, highways departments and regulatory agencies use the Centre for Surface Transportation Technology. CSTT conducts engineering research using full-scale facilities and performs field tests of commercial rail and road vehicles.

The Centre can also be your entry point to an extensive range of other NRC technologies and services, from aerodynamics to machinery monitoring, to advanced manufacturing techniques, to intelligent vision systems. Call us!

Further information

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