

Harness Durability Testing Load Cell

Industry: Industrial Automation, Test and Measurement

Summary

Customer Challenge

Harnesses are often used to strap humans of various weights to safety equipment or sports gear. Harness manufacturers must determine load and durability factors for harnesses and their attachment points.

Interface Solution

A drop test apparatus uses an Interface 1200 Standard Precision LowProfile® Load Cell attached to a cable and loaded harness. The loaded harness is dropped from a specified height to measure the force generated during sudden stop at maximum cable extension.

Results

Engineers determine the total force on the harness for various body weights dropped from maximum usage heights to set harness limits. Tests can be repeated numerous times to determine fatigue and durability limits.

Materials

- 1200 Standard Precision LowProfile® Load Cell
- REB-101 Heat Treated Steel Rod End Bearings
- INF-USB3 Universal Serial Bus Single Channel PC Interface Module with supplied software
- Customer PC or Laptop

How It Works

1. Test engineers place the harness to be tested on a dummy of known weight.
2. The loaded harness is attached to one end of a cable. Ideally this is the same type of cable used to attach the harness to the sports equipment or safety device. The other end of the cable is attached to the bottom of 1200 Standard Precision LowProfile® Load Cell is fitted with a rod end bearing.
3. The top of the 1200 attaches to the cross beam of a drop test apparatus, either directly or via another cable.
4. The loaded harness is winched to the top of the drop test apparatus, and then dropped. When the cable fully extends, the load cell measures initial and subsequent forces experienced as the loaded harness stops and bounces.
5. The load cell sends force measurement data to a laptop through an INF-USB3 Universal Serial Bus Single Channel PC Interface.

