

SURGICAL STAPLER FORCE VERIFICATION

INDUSTRIES: TEST AND MEASUREMENT / MEDICAL AND HEALTHCARE

SUMMARY

Customer Need / Challenge

A large medical manufacturer required a load button load cell for verification of the manual forces needed to activate their surgical stapler. In addition to measuring force to a very precise degree, the cell also needed to be relatively small, easy to mount, and provide reliable accuracy.

Interface Solution

With a small diameter and capacities ranging from 100 – 1k lbf, the Interface LBMU Compression Load Button is ideal for surgical staple testing applications. The cell was mounted to the surgical stapler to enable force verification, and then connected to a 9820 Load Cell Indicator (installed in the customer's test rig) which recorded output.

Results

After data was collected and analyzed, the medical manufacturer was able to optimize their design and minimize the excessive force applied by users (e.g., surgeons). The adjustments minimized hand fatigue and improved the stapler's performance in real-world surgical applications.

MATERIALS

Interface Products

- Model LBMU Compression Load Button, 100 lbf Capacity
- Model 9820 Load Cell Indicator (Shown Mounted in customer test rig)

Alternate Setup

- LBM Compression Load Button
- 9860 High Speed Digital Indicator with data logging
- INF-USB2 USB PC Interface Module with data logging and graphing software

Additional Materials

- Surgical Stapler
- Test Rig

HOW IT WORKS

1. The LBMU Compression Load Button load cell is mounted beneath the surgical stapler to enable force verification.
2. The 9820 Load Cell Indicator is connected to the load cell so that output can be recorded.
3. Testers then activate the stapler to simulate typical use, and the load cell converts applied force into signals, which are then fed to the indicator and displayed on the screen.
4. Data is then collected and analyzed in order to minimize the excessive force applied by users, and improve upon the overall design of the stapler.

