

The Load Cell Do's & Don'ts Guide

Here at FUTEK, we are always impressed with the number of [applications our Load Cells](#) are utilized in. From the doctor who wants to calculate the [force required to dislocate a jaw](#) to then engineers who place our sensors in extreme [thermal conditions for Cryogenic Applications](#), our FUTEK engineers love the challenge. Of course, we would like to think that everyone knows how to handle these intricate products but accidents do happen and mistakes are made. With the help of this document, we hope engineers and technicians can avoid some common mistakes.

Proper care of your Load Cell

It goes without saying that a Load Cell is an extremely sensitive product. Thus, proper handling will be essential from installation to usage. Here are some useful tips to consider:

- Selecting the right capacity for your load cell is very critical. We've provided a good outline on the variables you should consider when selecting a Load Cell, and we can't emphasize enough that selecting the right capacity is very important. [How to Select A Load Cell Guide](#)
- Use stable power supply to prevent high voltage surges.
- Do not remove or tamper with the covers of your sensor.
- Monitor the temperature of the environment to ensure that it does not exceed the Sensors operating temperature.
- All FUTEK models have specifications sheets located on www.futek.com where complete specifications are detailed. You can access this 24/7 online.
- Your sensor package should have included a Calibration Certificate. This is a very important document detailing the calibration data unique to your sensor. If you lose it, you may access it online here: <http://www.futek.com/cert.aspx>

Mounting / Installation

The Mounting/Installation of the sensor presents plenty of opportunities where potential mistakes can be made. Here are some useful tips to consider:

- Use flat, parallel and clean mounting surfaces. A dirty environment or an uneven surface can easily distort your data.
- In order to prevent overload, monitor your sensor (if possible) by connecting it to a display during installation. This will help you avoid zero distortion and monitor the sensor to ensure that no dynamic overloading occurs.
- If you're bolting your sensor down, make sure you do not apply too much torque. Even a small bolt that is 3/8" can easily exert 30,000 lbs of force.
- Make sure that the load you apply on your Load Cell is applied in-line. Meaning, you don't want the load to be placed on the Load Cell at an uneven angle. Besides damaging the Load Cell you'll distort your measurement.

- If several bolts are used to mount the sensor, make sure to tighten them down in a 12 o'clock, 6 o'clock, 9 o'clock, and 3 o'clock in a cross like manner (the same technique that is used when bolting your tires).

Overloading

One of the most common mistakes that occurs is Overloading of a sensor. This is particularly an issue for low capacity sensors. When you are working with a low capacity sensor, you must take the utmost caution during handling and installation to make sure the sensor is not damaged. Here are some common tips.

- For Hydraulic or Pneumatic Pressure applications, slowly monitor the load on the Load Cell to avoid a dynamic overload
- Avoid placing heavy fixtures on the Load Cell that may overload it. Again, very critical for low capacity models.
- If you think the Load Cell was overloaded, check the zero.
- Do not apply excessive torque or create a torque through the sensor when attaching the fixtures.
- A great guide example of a low capacity Load Cell is our [LSB200 Installation Guide](#).

Connection & Cable

The Load Cell cable can also pose challenges to some applications so please consider the following:

- Do not pull or yank on the Load Cell cable.
- Pinching and flexing the cable may cause damage, especially if it's left in such a position for extended periods.
- The Load Cell spec sheet addresses the wiring code so refer to it if you are uncertain.
- In an environment with a high amount of moisture or humidity, create a drip loop on the cable to prevent any water from flowing into the sensor. (visual example provided here [LSB200 Installation Guide](#).)