

Load Cell Selection Guide



RICE LAKE[®]
WEIGHING SYSTEMS

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How Do I Know What Load Cell I Need?

Choosing the right load cell for your application can be overwhelming. There are as many types of load cells as there are applications to use them. When you call to place an order for a load cell, the first question you may be asked is:

"What is the application or, what is being weighed?"

This first question will help decide which follow-up questions to ask, such as:

"Is the load cell a replacement or is it for a new system?"

"What type of weighing system is the load cell for, a scale system or an integrated system?"

"Is it static or in-motion?"

"What is the application environment?"

"Does it need to be Legal for Trade approved?"

Having a general understanding of load cells will help you answer some of these questions before contacting your scale dealer or manufacturer to make the load cell buying process easier.

What are load cells?

All digital scales use load cells to measure an object's weight. Electrical current runs through load cells and when a load, or force, is applied to the scale, the load cells will bend or compress slightly. This changes the electrical current in the load cell. A weight indicator measures the electrical current change and displays it as a digital weight value.

Different Types of Load Cells

While all load cells work the same way, different applications require specific finishes, styles, ratings, approvals, sizes and capacities.



S-beam
25-40,000 pounds



Single-ended Beam
1,000-20,000 pounds



Double-ended Beam
1,000-200,000 pounds



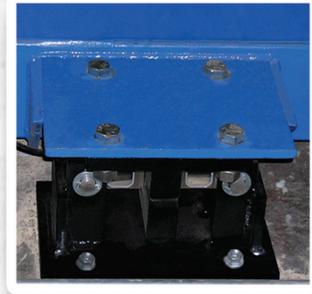
Single Point
1-1,000 kilograms

What type of seal does the load cell need?

There are a variety of techniques to seal a load cell, protecting the electrical parts inside. Your application will determine which of the following seal type is needed:

- Environmentally Sealed
- Welded Seal
- Hermetically Sealed

Load cells also have an IP rating indicating what type of protection the load cell enclosure gives the electrical parts. The IP rating is determined by how well the enclosure protects against outside elements such as dust and water.



What are weigh modules?

Weigh module kits are integrated weighing systems that include load cells, load cell cables, load cell mounts and a junction box. Generally, weigh modules can be broken down into three broad categories: suspended, vessel and truck scale weigh modules.

Suspended weigh modules use s-beam load cells and measure weight through tension as the cell is stretched. These weigh modules are ideal for hanging or suspended tanks and hoppers.

Vessel weigh modules are available in several different configurations and capacities. This type of integrated

weighing system can be used with a variety of fixed containers, including vessels, tanks and some conveyor weighing.

Truck scale weigh modules are primarily used in vehicle weighbridges to measure the weight of trucks over the scale. While they're designed for vehicle scale applications, truck scale weigh modules can actually be used in a range of industrial applications, including bulk material management, ingredient batching, and vibration mixers and tanks.

Load Cell Construction/Material

Load cells can be constructed from many materials. Aluminum is usually used for single point load cells with low capacity requirements. The most popular option for load cells is tool steel. Finally, there is a stainless steel

option. Stainless steel load cells can also be hermetically sealed to protect electrical parts, making them suitable for high moisture or corrosive environments.



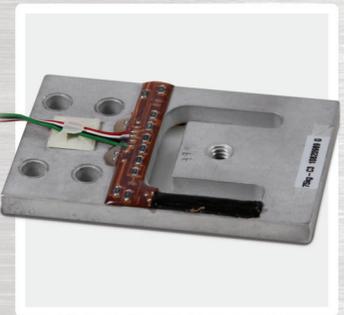
Rocker Column
50,000-100,000 pounds



Compression Canister
20,000-500,000 pounds



Tension/Compression
1-10 kilograms and 5-500 pounds



Planar Beam
7.5-150 kilograms

What approvals are needed?

The type of load cell approval you need depends on what you will be weighing and why. If a product is being sold by its weight, the load cell must be Legal for Trade approved. If you are unsure of the approval type needed, discuss the application with your scale dealer to determine what approvals you need. Rice Lake Weighing Systems' load cells have one or more of the following approvals:

- NTEP: Approval for equipment used in Legal for Trade applications (specific to the USA)
- FM Approved: Approval for property loss prevention and safety equipment in commercial/industrial facilities
- FM Approved cUS: Approval for equipment meeting the requirements of FM Approvals and the Standards Council of Canada
- OIML: Approval for equipment used in Legal for Trade applications (International)
- ATEX: Approval for equipment in explosive environments

Scale system vs. integrated system load cells?

In an integrated system, load cells are integrated or added to a structure, like a hopper or a tank, turning the structure into a weighing system. A traditional scale system usually includes a dedicated platform where objects are placed to be weighed, then removed, such as a bench scale at a deli counter. Both systems will measure the weight of items, but only one was originally built to do so.

Knowing how you will weigh items will help your scale dealer determine if you'll need load cells for a scale system or load cells for an integrated system.

What to know before you purchase a load cell

The next time you need to order a load cell, have answers to the following questions ready before you contact your scale dealer to help guide your decision.

- What is the application?
- What type of weighing system will I need?
- What material does the load cell need to be constructed of?
- What is the minimum resolution and maximum capacity I need?
- What approvals does my application require?

Choosing the right load cell can be complicated, but it doesn't have to be. You are the expert on your application—you don't need to be a load cell expert, too. Having a general understanding of load cells will help you know how to begin the search, making the entire process easier.

Rice Lake Weighing Systems has the largest selection of load cells available to meet the needs of any application and our knowledgeable technical support representatives help make the process even easier. To go www.ricelake.com/lcwm to learn more about load cells from Rice Lake Weighing Systems.



Need a custom solution?

There are some applications that will require an engineering consult. A few questions to consider when discussing a custom solution are:

- Will the load cell be exposed to strong or frequent vibrations?
- Will the equipment be exposed to corrosive materials?
- Will the load cell be exposed to high heat?
- Will this application require extreme weight capacities?

Your dealer will know if your application isn't standard and would benefit from an engineering consult.

SALES AND TECHNICAL ASSISTANCE

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