

Question	Answer
Q What is the difference between a sanitary load cell, a wash down load cell and a dry bulk material load cell?	A A <u>sanitary load</u> cell is designed to perform and survive in areas requiring the most stringent CIP/SIP – hot, high-pressure water, steam, cleansing chemicals. Its surface areas are minimized and crevices eliminated to prevent bacterial hiding places as well as make the actual cleaning process simple and quick. It is the ultimate in “clean-ability” for a load cell. A <u>wash down</u> load cell can withstand the identical cleaning process of the sanitary load cell, but will have areas that require more attention during the cleaning process. A <u>dry bulk material</u> load cell is used in areas that are not normally wet or continually washed down. Dust and powders may normally accumulate on the surfaces during normal operation. There are areas that would accumulate material and access to clean it 100 percent is difficult. All of the Load Disc family of load cells are sealed for reliability under a variety of applications.
Q What are the primary differences between the LDII, LD360s, LD3xi and LD3xiC?	A The LD360s maintains the noted features of the LDII – its compact, rugged design and high output signal, but also... <u>The LD360s:</u> <ol style="list-style-type: none">Takes the “clean-ability” of the LDII to a much higher standard by eliminating the familiar LDII “groove” in the body of the load cell.Vessel hold down is built into the load cell.Eliminates the need for proper load cell orientation for best system performance, which makes installation easier with less coordination required between tank vendors and installers.Provides new hardware options that incorporate built-in shimming (up to 7.5K capacity) to make installations simpler than ever before.Features an optional NEMA-6P rated cabling system that matches its own NEMA-6P rating. The traditional NEMA-4X junction box, the historical “weak link” in load cell systems due to water seepage, has been eliminated. By eliminating this weak link, the weighing system’s reliability improves dramatically.Offers improved performance in extreme temperatures, quicker recovery from a system wash down, and 0.08% and 0.2% accuracies. <u>The LD3xi:</u> <ol style="list-style-type: none">Is a full bridge, four wire, high accuracy (0.03%) load cell that shares the same clean-ability, and ease of installation as the LD360s -<ol style="list-style-type: none">Optional built-in shimming hardware.Eliminates the need for load cell orientation.Built-in vessel hold down.The LD3xi can be ordered with an optional NEMA-6P cable system.The LD3xi will fit in most existing LDII systems, but will require replacing all the load cells as a system.

- Q** Can I use the LD3xiC in a sanitary wash down application?
- A** The LD3xiC is constructed of stainless steel and sealed. But like any load cell not designed for the rigors of a sanitary area, the exposed hardware that keeps the vessel locked down hampers cleaning and eventually requires additional maintenance and attention to keep the system functioning properly. The LD360s and LD3xi are much better suited for these types of applications as this external hardware is eliminated yet still provides the vessel with hold down security.
- Q** Can you mix an LD360s, LDII, LD3xi, or LD3xiC on the same vessel?
- A** The LD360s and LDII are half bridge load cells that are electrically interchangeable between each other. You can use the LD360s on the same vessel with LDII cells. Note: there is a height difference at the higher capacities, and top plate hardware is different. Check the TI drawings for details.
- The LD3xi & LD3xiC are full bridge load cells and are electrically interchangeable between each other. They cannot be used on the same vessel with the LD360s or LDII. The LD3xi & LD3xiC also have different heights, mounting patterns and hardware and would not be direct replacements for each other. Check the TI drawings for details.
- Q** What top plates or top plate hardware are interchangeable between the LD360s, LDII, LD3xi, and the LD3xiC?
- A** None. The top plate hardware assemblies (including center hex bolts) are numbered to correspond with the load cell model numbers to prevent interchanging. i.e., a UA360 is used only on the LD360s and is not the same as the UA1 for the LDII or the UA3xi for the LD3xi. See TI drawings for more information.
- The LD360s with a UA360 top plate is interchangeable with an LDII with a UA1 top plate as a system. Note: there is a height difference between the cells at the higher capacities. See TI drawings for more information.
- The LD360s with a UA360 top plate is interchangeable with the LDII with a TP1 top plate and TP1 spacer pad. Note: there is a height difference between the cells at the higher capacities. See TI drawings for more information.
- The mounting bolthole patterns are identical between the LD360s, LDII and LD3xi.
- The LD3xiC uses an external vessel hold down system, which differs from the LD360s, LDII and LD3xi in height and mounting hole patterns

Q What is the built-in leveling option used on the LD360s (capacities up to 7.5K) and LD3xi?

A Because the world (especially a plant floor) isn't flat, shimming is required to level all of the vessel legs to the load cells. The LB1 Leveling Base plate helped in many installations, but if not done properly or if the supporting grout was already set in place, further shimming is often required. To make this job easier, the leveling feature allows the installer to turn a nut under the plate to close up any gap up to 1/8-inch. The jam nut prevents the leveling nut from loosening. The leveling hardware is available on all capacities on the LD3xi and up to 7.5K on the LD360s.

This built-in leveling feature is not available in the LDII & LD3xiC because of the internal differences between the two designs.

Q How easy is it to replace a load cell if I ever need to?

A When installed on framework, it is a simple matter. Remove the bolts on the damaged cell, loosen the bolts on the remaining cells and lift the vessel just enough to take the weight off the bad cell and slide it out from under the tank.

For tanks installed on the plant floor (concrete, tiled, pier block), KM has hardware available for the LD360s, LD3xi and LDII (Leveling Base Plates) that provides simple removal as if they were installed on framework. There is no need to lift the tank and cell hardware off the anchor bolts. And since the vessel hold down is internal to these load cells, there is no external hold down hardware that needs to be removed and readjusted.

The 3xiC with its external hold down hardware has a different design to facilitate easy removal when installed on the plant floor. Lift the vessel up until it contacts the uplift stops in the cell mounting hardware. The bad cell can then clear its holding pins and slide out from under its hardware.

Q What is the accuracy difference between the LDII, LD360s, LD3xi and LD3xiC?

A The LD360s can be ordered with either 0.08 or 0.2% rating, and two temperature ranges.

The LDII can be ordered with either a 0.1 or 0.2% accuracy rating, and three temperature ranges.

The LD3xi and LD3xiC have a 0.03% rating, and one temperature range.

Q What will affect the weighing system accuracy?

A The accuracy of any weighing system is a function of the load disc accuracy, piping, and plumbing, support foundation, calibration, etc. With proper installation and flexible connections, the system can approach the rated load cell accuracy.



Q Do I need to orient the load cells a certain way?

A The LD360s and LD3xi do not require any special orientation or position for best performance or vessel hold down security.

The LDII must be installed in a certain manner to provide the best system performance. The LD3xiC requires orientation to provide secure vessel hold down.

Q How do I select the proper Load Disc capacity for my application?

A This question can be answered several different ways depending on the application.

1. On a typical vessel with a center of gravity approximately centered between the legs you use the following:
 - a. Determine the maximum weight value of material (live load) and the tare weight (dead load) of the vessel. The dead load is the weight of the vessel when it is empty. This is important because the load cells will support this weight also.
 - b. Add the live load to the dead load and divide the results by the number of support legs.
 - c. Use this value to determine the proper capacity to use. The capacity selected should be as close to the supported load as possible. It is not necessary to oversize the load cell if the supported load is only 20% over the capacity of the LD360s or LDII load cells.

Example:

The maximum material weight will be 3000 pounds and the vessel has a tare weight of 700 pounds. The weight is supported on 4 legs.

$$3000 + 700 = \frac{3700}{4} = 925 \text{ lbs}$$

The proper Load Cell would be 1,000lbs(1K) per leg.

Q My load per leg exceeds the load cell capacity. Do I need to upsize to the next capacity?

A You can use the Load Discs up to 1.25 times their rated capacity in normal weighing situations. In seismic or high wind load areas, you will need to verify that the structural limits of the load cell will meet the design loads of the vessel structure.

Q Are the J-Boxes wired up the same way with all of the KM Load Discs?

A Both the LDII and LD360s use a similar 3-wire system between them. The RED (+EX) wire on the LDII is BROWN for the LD360s. The WHITE (+SIG) and BLACK (-EX) wires are the same. The BLUE and GRAY wires (LD360s) are not used. They both can use the same J-Box PCB. The LD360s has a watertight molded J-Box as an option.

The LD3xi & LD3xiC use an identical 4-wire system: RED (+EX), WHITE (+SIG), BLACK (-EX) and YELLOW (-SIG). They cannot use the same J-Box PCB as the 3-wire LDII and LD360s. An optional molded watertight J-box and cabling system is available for the LD3xi. The RED (+EX) wire is BROWN and the YELLOW (-SIG) is BLUE for the watertight cable option. The GRAY wire is not used.

Q Will all KM Load Discs work with all KM controllers?

A All of the newer KM controllers can handle half and full bridge sensors. Some controllers can only handle one type of sensor (full or half) per controller or input card. Contact KM sales for more information.

Q Do I have to use a Trim Box with the Load Discs?

A No. Only the LD3xi & LD3xiC can use a Trim Box. It is available as an option.

Q Can I Use the KM test meter on the LD3xi or LD3xiC the same way I can with the LDII and LD360s?

A No. Because the LD3xi & LD3xiC are full bridge, it has two signal output wires instead of one so the meter won't work. The KM meter can be used as a power supply for the LD3xi/LD3xiC to provide excitation to the sensor so a Fluke digital meter can be used to check the output voltage. See LD3xi/LD3xiC manual for details.

Q Do all of the Load Discs have the same length cables?

A No. The LD360s has a 13-foot (4m) quick-disconnect cable. The LDII has a 10-foot (3m) cable.

The LD3xi & LD3xiC use a 16-foot (5m) cable as standard. A 13-foot (4m) optional quick-disconnect cable is available on the LD3xi.

