Load Cells (Load Transducers)

Kyowa’s load cells offer outstanding and sustained performance over long-term usage even under harsh operating conditions by adopting our independently developed, dedicated strain gages of excellent accuracy, our superior production technologies, calibration equipment of supreme precision, and our rich experience in this field. We offer a full range of models to satisfy all industrial needs, including models for compression and tension applications; explosion-proof models usable in environments containing dangerously explosive liquids, gases, etc.; washer type models for measuring rolling pressure, etc.

Kyowa’s load cells are used in sensing applications ranging from general force measurement in testing or research to measuring and controlling weight (Mass) in tanks, hoppers, mills, vehicles, etc. Discounted pricing is available to clients placing high-volume order. Inquiries are welcome.

Features

- Enable highly accurate measurement
- Stably operate for long-term usage even under harsh conditions
- Ensure long service life against repetitive loads

To Ensure Safe Usage

1. The rated capacity of each load cell is designed for cases of center spindle loads only. In cases involving inclined loads, angular Moments, lateral force or bending Moments, the load cell may be damaged. Contact Kyowa for applications of these types.

2. Loads involving shock or vibration are measured as ‘static load x acceleration.’ When acceleration is unknown, be sure to prepare sufficient rated capacity.

3. With repetitive tensile load & compressive load use at below 1/2 of the rated capacity in order to extend the fatigue life.

4. Special accessories are designed only for use with Kyowa’s load cells.

5. To avoid accidents, make sure to take precautionary measures against unexpected situations caused by a broken load cell.

1) Tension load cells

- Please use special accessories combined by Kyowa for tensile application.
  - Tension load cell special accessories, shackle (TRC, TRD), a hook (THC, THD), and a rotary attachment (RJ) are not applicable to compressive load measurement.

- When suspending a load, in the selection of rated capacity for the load cell, please ensure a full margin of safety, and add safety apparatus in order to prevent dropping, etc. (For static breaking load, see the special accessories combination measurement table.)

- The tension load cell is joined to the counterpart by screws. Be sure to prevent screws from loosening. If set screws are used for this purpose, counter bore the mating parts to fit set screws. Also, check regularly for any loosening of set screws.

2) Compression load cells

- In the event that the strain column of the load cell buckles, the height is reduced by up to several tens of mm. The load is thereafter supported by the outer case. Examine the effect of such dimensional changed on the load cell installation area and equipment.

6. Check periodically to make sure the load cell fixing screws have not become loose. If looseness is found, tighten completely.

7. Contact Kyowa concerning usages involving legal safety factors, etc. (Cranes, etc.)
**Installation of Load Cell and Special Accessories (For Accurate Measurement)**

### Compression Load Cell
1. Fix the steel plate to the load point of measuring object by welding or screwing. Mount the saddle to the steel plate. Grease the saddle to prevent it from rusting.
2. Install the saddle and mount base horizontal to the load cell so that a load is applied vertically to the load cell.
3. Each load cell is designed to detect only the force applied to the central axis. Since installation quality directly affects the measurement accuracy, install it carefully so that inclined loads, angular Moments, lateral force component and bending Moments may not affect the load cell.
4. Load cell is capable of compensating daily temperature changes. However, if it is partially heated, the accuracy may adversely be affected transiently. If it is not avoidable to use at temperatures beyond the operating temperature range, protect the load cell with a heat insulating material to keep it in the operating temperature range.
5. If there is impact or vibration in the loading direction, it is difficult to determine the rated capacity of load cell unless the magnitude of acceleration is known. In this case, select a load cell of which the rated capacity is sufficient enough. If the magnitude of acceleration is known, obtain the product of ‘mass x acceleration’ as the rated capacity. If the tare is included in the mass, determine the rated capacity by adding it to the net weight. For details, see page 9-16.

### Tension Load Cell
1. Using the screw at the center of the top and the bottom, install the tension load cell carefully so that any bending or angular Moments may not be applied to the load cell during measurement. Such a moment not only affects the measurement accuracy but also causes an overload which may lead to breakage of the load cell.
2. For safe operation, select rated capacity sufficient enough to cover unsuspected loads. Also, prepare safety devices against accidental hazards such as dropping.
3. Operation near the rated capacity with a special accessory (TRC, TRD, THC, THD, TU, RJ or the like) attached or an overload may cause a problem on mechanical strength depending on the installation method. For solutions of such a problem, contact us.
4. When mounting the RJ-B rotary attachment, remove the coupling screw of load cell in advance. Proper tightening torque for mounting is shown at the right.
5. When screwing a ball joint into the load cell, take care not to apply any excess torque to the load cell. Especially, a small-capacity load cell may be damaged by an excess torque.