

## LOAD CELLS

### ■ Sizing of load cells capacity

For safety reasons, in case of static weighing, it is advisable to use the load cells at a maximum of 70-80% of its nominal capacity (assuming that the load is uniformly distributed over the entire weighed structure); depending on the handling mode of the load to weigh, consider to further reduce the % of load with respect to the nominal capacity (ex.: forklifts handling, bridge cranes, etc.).

In case of weighing with dynamic loads, the installer has to estimate the thrust speed, the acceleration, the frequency, etc.

### ■ Installing load cells

The load cells must be placed on rigid, stable in-line structures; it is important to use the mounting kits for load cells, in order to compensate for any misalignments of the support plates.

### ■ Connecting several cells in parallel

Connect several cells in parallel by using - if necessary - a watertight junction box with terminal box. The cell connection extension cables must be shielded, led individually into their piping or conduit and laid as far as possible from the power cables (in case of 4-wire connections, use cables with 4x1 mm<sup>2</sup> minimum cross-section).

### ■ Protection of the cell cable

Use water-proof sheaths and joints in order to protect the cables of the cells.

### ■ Mechanical restraints (pipes, etc.)

When pipes are present, we recommend the use of hoses and flexible couplings with open mouthpieces with rubber protection; in case of hard pipes, place the pipe support or anchor bracket as far as possible from the weighed structure (at a distance at least 40 times the diameter of the pipe).

### ■ Welding

Avoid welding with the load cells already installed. If this cannot be avoided, place the welder ground clamp close to the required welding point to prevent sending current through the load cell body.

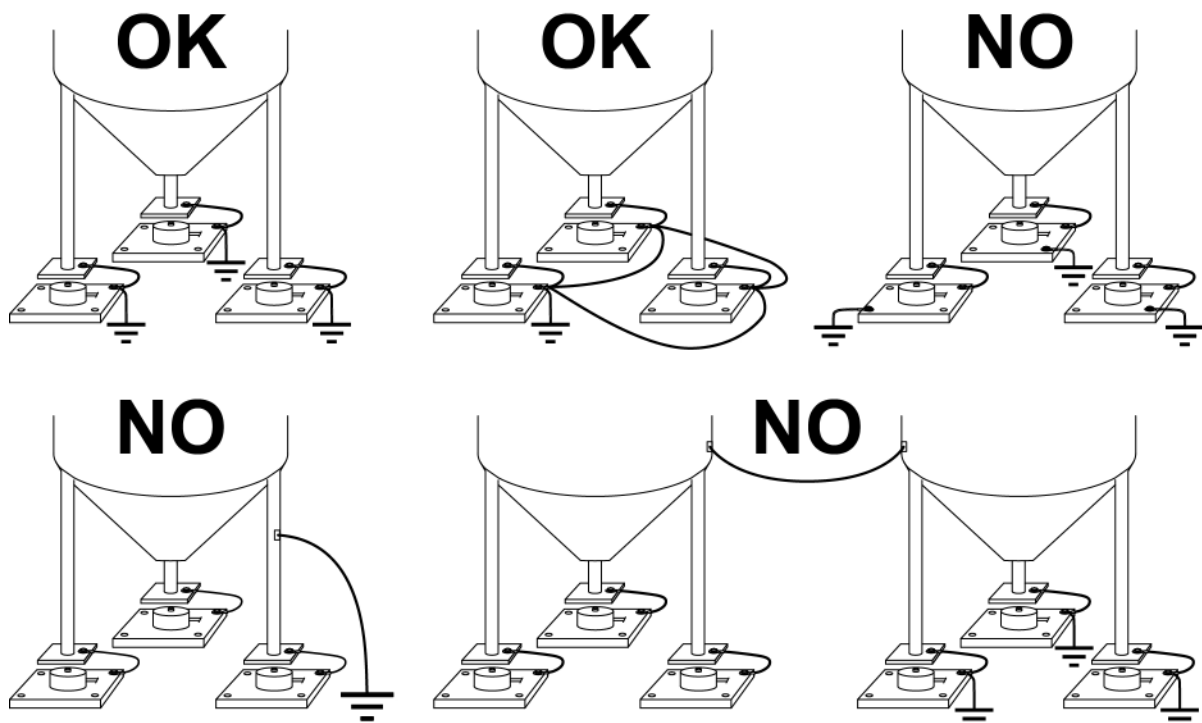
### ■ Windy conditions - knocks - vibrations

The use of mouting kits is strongly recommended for all load cells, in order to compensate for any misalignments of the support plates. The system designer must ensure that the plant is protected against lateral shifting and tipping relating to: shocks and vibration; windy conditions; seismic conditions in the installation setting; stability of the support structure.

### ■ Earthing the weighed structure

By means of a copper wire with suitable cross-section, connect the cell upper support plate with the lower support plate, then connect all the lower plates to a single earthing system. Electrostatic charges accumulated because of the product rubbing against the pipes and the weighed container walls are discharged to the ground without going through or damaging the load cells. Failure to implement a proper earthing system might not affect the operation of the weighing system; this, however, does not rule out the possibility that the cells and connected instrument may become damaged in the future. It is forbidden to ensure earthing system continuity by using metal parts contained in the weighed structure.

## FAILURE TO FOLLOW THE INSTALLATION RECOMMENDATIONS WILL BE CONSIDERED A MISUSE OF THE EQUIPMENT



## ELECTRONIC INSTRUMENTATION

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- The cell cable must be individually led to its panel input and not share a conduit with other cables; connect it directly to the instrument terminal strip without breaking its route with support terminal strips.
- Avoid inverters in the instrument panel; if inevitable, use special filters for the inverters and separate them with sheet metal partitions.
- In case of 230 VAC supply, use a 380 / 230 VAC transformer avoiding to use the 380 VAC phase and the neutral.
- The panel installer must provide electric protections for the instruments (fuses, door lock switch etc.).
- It is advisable to leave the equipment always switched on to prevent the formation of condensation.

## LOAD CELLS CHECK

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### Load cell resistance measurement (use a digital multimeter):

- Disconnect the load cells from the instrument and check that there is no moisture in the cell junction box caused by condensation or water infiltration. If so, drain the system or replace it if necessary.
- The value between the positive signal wire and the negative signal wire must be equal or similar to the one indicated in the load cell data sheet (output resistance).
- The value between the positive excitation wire and the negative excitation wire must be equal or similar to the one indicated in the load cell data sheet (input resistance).
- The insulation value between the shield and any other cell wire and between any other cell wire and the body of the load cell must be higher than 20 MΩ.

### Load cell voltage measurement (use a digital multimeter):

- Take out the load cell to be tested from underneath the container, or alternatively, lift the container support.
- Make sure that the excitation of two wires of the load cell connected to the instrument (or amplifier) is 5 VDC  $\pm 3\%$ .
- Measure the response signal between the positive and the negative signal wires by directly connecting them to the tester, and make sure that it is comprised between 0 and  $\pm 0.5$  mV.
- Apply load to the cell and make sure that there is a signal increment.

**IF ONE OF THE ABOVE CONDITIONS IS NOT MET, PLEASE CONTACT THE TECHNICAL ASSISTANCE SERVICE.**