

## 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 and stable structures; it is important to use the mounting kits for load cells to compensate for misalignment of the support plates.

### ■ Protection of the cable of the cells

Use water-proof sheathes 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 least 40 times the diameter of the pipe).

### ■ Load cells in parallel

Carry out the parallel connection of the cells by using a water-proof junction box with terminal box. The junction boxes are provided with up to 8 cable glands plus one cable gland for cable exit. The extension cables, connected to the load cells, must be shielded, led alone into the piping or trough and laid as far as

possible from the power cables (in case of 4-wire connections: use cables with 4 x 1 sq.mm minimum cross-section).

### ■ 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.

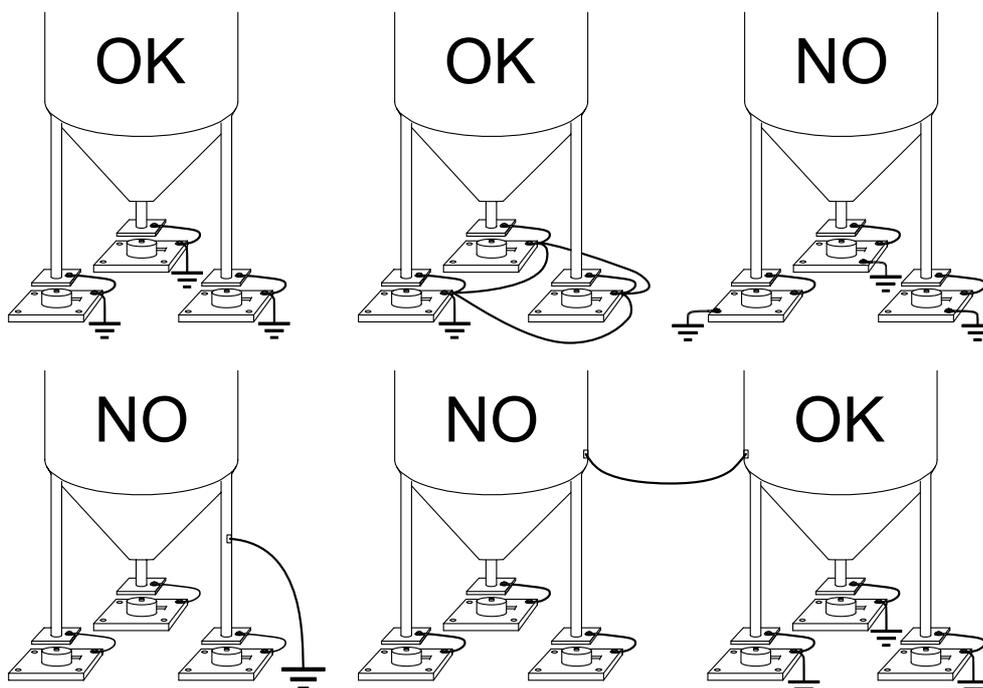
### ■ Wind - knocks - vibrations

The use of mounting kits is strongly recommended to compensate for misalignment of the support plates and especially to achieve optimal accuracy and reliability. To ensure the stability of the structure the system designer must consider further contrivances according to the following conditions: knocks and vibrations, seismic conditions, hardness of support structure, wind effect.

### ■ Earthing the weighing system

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 RECOMMENDATIONS FOR INSTALLATION IS TO BE CONSIDERED MISUSE OF GOODS



## ELECTRONIC INSTRUMENTATION

- The entry into the cable board of cells must be independent (on one side or the other of the board) and directly connected to the terminal board of the device without breaking by bearing terminal boards or passing through troughs containing other cables.
- Use the “RC” filters on the instrument-driven coils of the remote control switches.
- Avoid inverter, if inevitable, use filters and separate with sheets.
- In case of 230 VAC supply, use a 380 / 230 VAC transformer avoiding to use the 380 VAC phase and the neutral.
- The installer of the board is responsible for securing the electrical safety of the indicators.
- It is a good norm to let the indicators always switch on to prevent the formation of condensation.

## LOAD CELLS CHECK

### Load cells RESISTANCE measure by means of digital multimeter:

- Disconnect the load cells from the instrument (or amplifier), make sure that there is not any moistness caused by condensed water or infiltration of water. If so, keep cleaning 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 cells VOLTAGE measure by means of 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 cell connected to the instruments (or amplifier) is 5 VDC  $\pm$ 3% (10 VDC  $\pm$ 3% for instruments series TPS / TPZ).
- Measure the signal between the positive and the negative signal wires directly connected to the multimeter, make sure that there is a signal included between 0 and  $\pm$ 0.5mV.
- Load the cell and make sure that there is a signal increment.

**IN CASE ONE OF THE ABOVE CONDITIONS IS NOT MET, PLEASE CALL THE TECHNICAL ASSISTANCE SERVICE.**