EMC Vessel Weighing Systems

Accurate Tank, Silo and Vessel Contents Measurement Systems
EMC Vessel Weighing Systems

Weighing offers high accuracy and repeatability when measuring the contents of tanks, silos and other vessels. EMC’s Vessel Weighing products combine to provide simple and economical systems which are supported by EMC’s extensive experience, and essential specialist engineering advice to ensure a successful installation.

Typical installations include the weighing and supporting of large milk powder and flour silos, vegetable oil tanks, small tanks for mixing and batching applications, hygienic and hazardous environments, etc.

The size and type of vessel, its support structures and pipe connections, movement during filling, environmental aspects, etc, are all factors that have to be considered in the design of a Vessel Weighing System, as they can have a significant impact on the accuracy and reliability.

As an aid to ensuring each system meets requirements, customers will generally be asked to complete EMC’s Vessel Weighing Technical Questionnaire covering all the relevant factors. Please request a copy.

Loadcell Mounts

Loadcell Mounts provide a ready-made solution for tank and vessel weighing.

In many applications, installation is simply a case of bolting the Mount between the floor and vessel leg, however, some installations require more engineering to ensure reliability and accuracy.

For best accuracy we usually recommend that one Mount is installed on each leg of the vessel (e.g, for a 2 tonne vessel with 3 legs we suggest 3 x 1000kg capacity mounts).

A variety of Loadcell Mounts are available, each designed for different applications:

**DSM Mounts**
- Designed for large vessels, DSM Mounts have built-in vertical and horizontal seismic restraints. Suitable for vessels that are subject to movement or agitation.
  - Capacities from 450kg to 34 tonne
  - Powder Coated or Welded Sealed Stainless Steel models available
  - Matched outputs for multiple loadcell arrangements
  - Double ended shear-beam loadcells, high 3mV/V output, accuracy: ±0.03%

**Silokit Mounts**
- The Silokit-R is an economical alternative to the DSM Mount with lower accuracy. Suitable for large vessels with no movement or agitation.
  - Capacities from 5 tonne to 30 tonne
  - Stainless Steel construction
  - Lift-off prevention and resistant to lateral forces
  - Stainless Steel Compression loadcells, 2mV/V output, accuracy: ±0.05%

**Stabiflex Mounts**
- Fully stainless steel and zinc plated steel Stabiflex-F Mounts are ideal for vessel weighing in standard, hygienic, Ex rated, wash down and harsh environments.
  - Capacities from 100kg to 5 tonne
  - Provides excellent vessel stability
  - Integrated ball and cup decoupling system enables quick loadcell replacement
  - Stainless Steel Bending Beam loadcells, 2mV/V output, accuracy: ±0.017%

**Isoflex Mounts**
- Isoflex Mounts are designed for medium sized Tanks and Hoppers in general industrial situations where no movement or agitation occurs.
  - Capacities from 250kg to 2 tonne
  - Zinc plated steel plates with rubber pad for vibration and shock absorption
  - Stainless Steel Shear Beam loadcells, 3mV/V output, accuracy: ±0.017%

**Rubberkit Mounts**
- Designed for small Vessels the compact Rubberkit-FX provides easy installation and accurate weighing.
  - Capacities from 20kg to 200kg
  - Stainless steel upper and lower plates
  - Upper plate includes rubber support to compensate for any misalignment
  - Stainless Steel Bending Beam loadcells, 2mV/V output, accuracy: ±0.017%
EMC ModWeigh MW61 Weigher System

EMC ModWeigh MW61 Weigher Systems utilise digital technology to provide users with a modular system that is highly accurate, cost-effective and easy to use. The MW61 can be used with any loadcell based weighing system such as Silo and Tank Weighing, Batch Weighing and Platform Scales. The unit is fully digital with no potentiometers or DIP switches. Basic calibration is done by pushbutton on the unit, or full calibration facilities are achieved remotely using the EMC MW99d3 Weight Indicator.

When calibrated remotely, the calibration may be done by entering loadcell capacity and sensitivity which allows the calibration of systems without the use of test weights. No need to empty the vessel, do a tare, refill the vessel, etc. For multiple vessels, the Modbus interface enables economical installation of several transmitters, with just a single indicator necessary for calibration and set-up. ModWeigh is 12-24Vdc powered and analogue outputs are standard.

Each ModWeigh system includes:

MW61 P-Module
A removable module that plugs in to the transmitter module. It determines the device functions and holds calibration settings. A programmed P-Module can simply be plugged into a new unit at any time and the calibration settings are automatically loaded - no time-consuming configuration of the instrument is necessary.

Transmitter
Four versions, with up to 8 digital inputs and 8 digital outputs, are available, in either DIN rail or Field housings.

Indicator
The MD1 Weight Indicator displays the weight, setup and calibration, and also provides a status display of the operating system. It features a colour graphics LCD display with easy to use menu selection.

Accessories
A variety of connectors, cables and options for system optimisation.

ModWeigh Key Features
- Digital high accuracy design (no pots or DIP switches)
- Excitation for up to 10 x 350 loadcells
- 6 or 4 wire loadcell connection
- Update rate 100 times per second
- 4-20mA output is standard
- Removable P-Module holds calibration settings
- Up to 8 digital inputs and 8 digital outputs
- Field software upgrades

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Loadcells
Only the highest quality loadcells, from the world’s leading manufacturers, are fitted in EMC Loadcell Mounts to ensure the best in reliability and accuracy (from ±0.017%).
Capacities range from 25kg to 34 tonne or more, and models include:
- double-ended shear beam
- standard shear beam
- compression
- S-beam
- bending beam

Loadcells are available in various materials such as Tool Steel and Stainless Steel and with specifications to suit the specific application and environment, e.g:
- IP66 / IP68 sealed models for hygienic or wash-down applications
- with hazardous area certification (ATEX approvals)
- with OIML certification for use in Trade Approved applications, etc.

Options
Weight Indicator
As an alternative to the ModWeigh MW61, and depending on application requirements, EMC can also offer the EMC 2000 Series of Weight Indicators and Batch Controllers. These provide a variety of features and functions which may be required in some processes.

Junction Box
In many situations Field Mount ModWeigh Transmitters are used for terminating the loadcell cables. Where this is not possible we offer the EMC 581 Junction Box for connecting up to four loadcells in parallel.

Specifically designed for vessel weighing systems with multiple loadcells, the IP66 rated EMC 581 enables single cable connection from the box to the indicator. It also provides an easy testing point for checking loadcell outputs in the field.