

Bolt-on Weighing Cell L-Cell®

Application/Specified usage

- Extremely long-lasting, reliable and compact **dual-axis bolt-on strain gauge sensors**
- For all types of vessels with a leg support structure or mounted on horizontal beams, and for skirted silos
- Level control through dynamic, continuous and accurate weight measurement
- The technology avoids measurement inaccuracies caused by the angle of repose, rat-holing, bridging, moisture content, compaction etc.
- Integrated strain gauges transmit stress changes in the metal caused by any fluctuations in the container contents, as a measuring signal to the control system
- With a fatigue life of > 20 million measuring cycles, high shock resistance, and weather insensitivity, L-Cell® is virtually "indestructible" for almost all applications.

Application Examples

- Precise inventory measuring systems for all types of single or multiple containers
- For metal substructures or skirted silos
- For outdoor and indoor applications
- From 35 t total load (vessel plus contents)
- Mounting on structural profiles, horizontal shear beams, or skirts
- Retrofitting and calibration possible at any filling level

Features

- Durable, reliable measurement: Kistler-Morse pioneered bolt-on technology for storage vessels and silos. This method is still the standard way of measuring load-induced strain for precise quantity measurement in bulk vessels in many markets
- Simple installation, even for retrofitting: Using the installation set and drilling template, the sensors are simply bolted to the structural supports or skirts and connected to the controller via a junction box. There is no need to empty, lift or modify the vessel
- Easy calibration: An empty vessel is not required. Precise calibration can take place at any fill level
- Easy to replace: If damaged due to e.g. mechanical impact, sensors can be easily replaced on-site
- Half-Bridge Strain Gauge Technology
- The L-Cell's exclusive Standardized Axial Strain Sensitivity (SASS®) provides active temperature compensation over a wide temperature range

Options/Accessories

- ATEX Approval
- Junction boxes for up to 4 sensors
- Controllers for 1 to 120 vessels

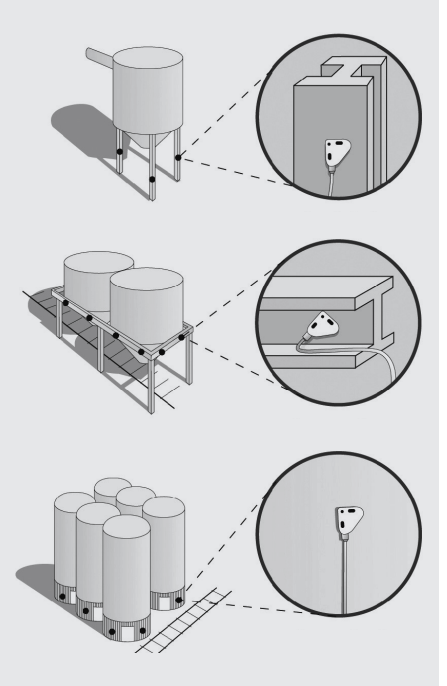
Communication

 10...30 V DC

L-Cell®

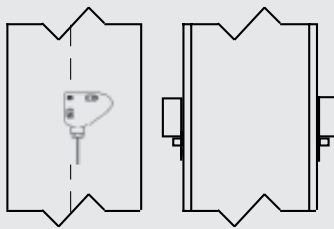


Typical L-Cell installation on different types of vessel structures

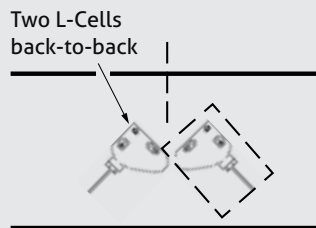


Specification	
Excitation Voltage	12 ($\pm 5\%$)...30 VDC
Excitation Current	12 V: 4.0 mA at -18 °C (0 °F) to 2.7 mA at 30 °C (100 °F)
Strain Gauge to Sensor	
Frame Breakdown Voltage	> 250 VDC
Stress Level	Carbon structures: Maximum: $\pm 15,000$ psi (10.5 kg/mm ²) Recommended: 5,000 \pm 3,500 psi (3.5 \pm 2.5 kg/mm ²) Aluminium structures: Maximum: $\pm 6,500$ psi (4.6 kg/mm ²) Recommended: 3,000 \pm 1,500 psi (2.1 \pm 1.1 kg/mm ²)
Fatigue Life	> 20 million cycles; load & unload at 0 to 7,500 psi (0 to 5.3 kg/mm ²)
Output Sensitivity	Carbon Steel: 35 mV $\pm 1\%$ /1,000 psi (35 mV $\pm 1\%$ /0.7 kg/mm ²) Aluminum: 80 mV $\pm 1\%$ /1,000 psi (80 mV $\pm 1\%$ /0.7 kg/mm ²)
Zero Strain Output	0 mV ± 100 mV
Output Impedance	3.75K Ω ($\pm 1\%$)
Sensitivity Change	0.02 % per degree F (0.036 % per degree C) over the compensated range
Zero Shift	2 mV between -18 and 38 °C (0 and 100 °F)
Operational Temperature range	-34...66 °C (-30...150 °F)
Storage Temperature range	-34...66 °C (-30...150 °F)
Compensated Temperature range	-18...38 °C (0...100 °F)
Cable	3-conductor, 22 gauge, unshielded (15" (4.6 m))
Authorizations	ATEX (optional, system approval requires Stainless Steel Junction Box)

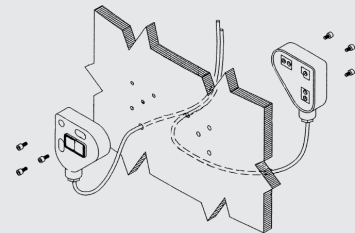
Pairwise mounting arrangement for best performance



Vertical Legs

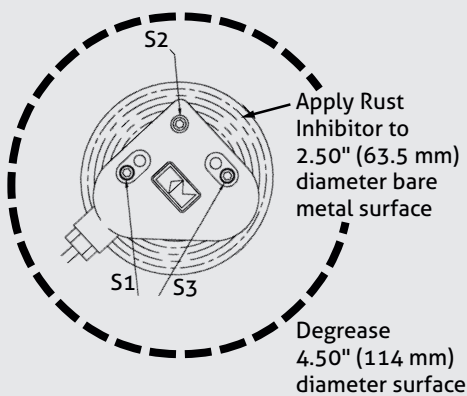


Horizontal Shear Beams

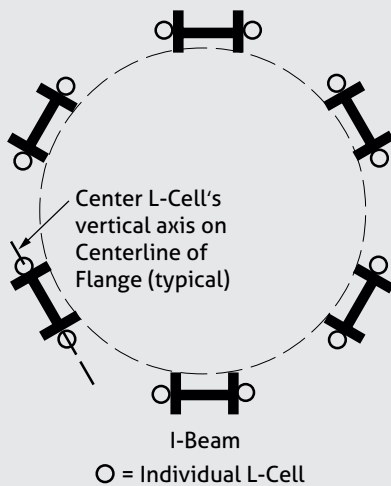


Skirted Silo

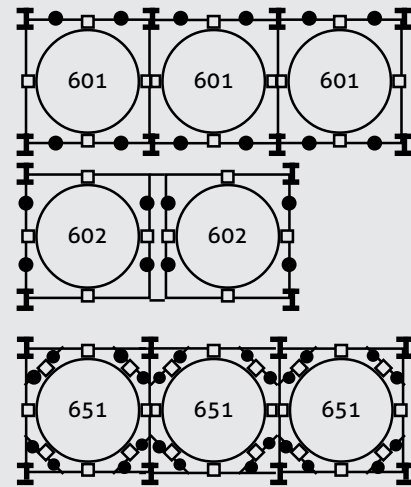
L-Cell Installation Space Requirement



L-Cell Mounting Location on Vertical Legs (example)



L-Cell Mounting Location on Horizontal Shear Beams (example)



● = Individual L-Cell (Standard performance)
○ = Pairwise L-Cell (Best performance)

Note:

For more mounting options please refer to the L-Cell installation and operating manual or contact the Anderson-Negele support.

Transport/Storage



- Do not store outside
- Store in an area that is dry and dust-free
- Do not expose to corrosive media
- Protect against solar radiation
- Avoid mechanical shock and vibration
- Storage temperature -34...66 °C (-30...150 °F)
- Relative humidity max. 98 %

Cleaning/Maintenance



- When using a pressure washer, do not point the nozzle directly at the electrical connections.

Reshipment



- Sensors shall be clean and free of media or heat-conductive paste and must not be contaminated with dangerous media!
- Use suitable transport packaging only to avoid damage of the equipment!

Conventional usage



- Not suitable for applications in safety-relevant system parts (SIL).

Standards and guidelines



- Compliance with the applicable regulations and directives is mandatory.

Note on CE



- Applicable directives: Electromagnetic Compatibility Directive 2014/30/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.

Disposal



- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

Order Code

LC	L-Cell				
	Sensor Type				
	S	Standardized			
	A	Standardized with ATEX Approval (only with stainless steel junction box)			
	Material				
	S	Stainless Steel			
	Cover				
	F	Flat Cover			
	Cable				
	015	4,6 m (15 ft.) of Cable			
	---	Custom Length (in meter, 5...152 (15...500 ft.))			
LC	S	S	F	070	

Accessories

One cable 3-conductor, unshielded, is supplied with each L-Cell

Junction Boxes for vertical L-Cell installation

JB-S-P1	Junction Box Half Bridge, Plastic, 1 hole entry
JB-S-P2	Junction Box Half Bridge, Plastic, 2 hole entry
JB-S-A4	Junction Box Half Bridge, Aluminium, 4 hole entry
JB-S-S1	Junction Box Half Bridge, Stainless Steel, 1 hole entry
JB-S-S2	Junction Box Half Bridge, Stainless Steel, 2 hole entry

Junction Boxes (Reversing) for L-Cell installation on horizontal beams

JB-R-P1	Junction Box Half Bridge, Plastic, 1 hole entry
JB-R-P2	Junction Box Half Bridge, Plastic, 2 hole entry
JB-R-A4	Junction Box Half Bridge, Aluminium, 4 hole entry
JB-R-S1	Junction Box Half Bridge, Stainless Steel, 1 hole entry
JB-R-S2	Junction Box Half Bridge, Stainless Steel, 2 hole entry

Junction Box (various models)

