



# Technical Specifications

*L-Cell*

**Next generation bolt-on weight measurement with active temperature compensation for bulk material vessel inventories.**

Developed from many years' experience with bolt-on strain gauge technology, this uniquely designed, highly sensitive, thermally stable, dual axis strain gage sensor is bolted directly to the vessel's support structure. The L-Cell measures changes in stress in the vessel support member and provides a change in voltage output in direct proportion to the weight of material.

The L-Cell's exclusive *Standardized Axial Strain Sensitivity (SASS®)* provides active temperature compensation over a wide temperature range. Seasonal and transient environmental effects are minimized as the L-Cell does not rely on typical passive resistor networks.

The L-Cell is quickly and easily installed while the vessel is still in productive use. For use on existing vessels, the L-Cell is a very cost-effective weighing solution when compared to modifying or lifting vessels if using other types of weighing sensors.

In combination with your existing vessel's H-beam support legs, shear beam cross supports, or support skirt, the versatility of the L-Cell can supply a cost effective, industrial strength weighing system. The L-Cell is also easy to install, easy to maintain, and highly reliable.



## Features & Benefits

### **Bolt-on Technology**

Creates a weighing system by mounting L-Cells on the structural support members of the vessels legs, shear beam supports, or structural skirt.

### **Simple Mounting**

No specialized tools for installation.

### **Uses Existing Vessel Structure**

No need to empty vessel or take out of production to install or service.

### **75 Years MTBF**

Unprecedented long term reliability.

### **Unique Design**

Dual sensing elements that reject temperature induced errors.

# Specifications

## Mechanical

### Stress Level - Carbon Steel Applications:

Maximum:  $\pm 15,000$  psi (10.5 kg/mm<sup>2</sup>)

Recommend:  $5,000 \pm 3,500$  psi ( $3.5 \pm 2.5$  kg/mm<sup>2</sup>)

### Stress Level - Aluminum Applications:

Maximum:  $\pm 6,500$  psi (4.6 kg/mm<sup>2</sup>)

Recommend:  $3,000 \pm 1,500$  psi ( $2.1 \pm 1.1$  kg/mm<sup>2</sup>)

Consult factory for stress levels outside the recommended range

**Fatigue Life:** In excess of 20 million cycles; load and unload at 0 to 7,500 psi (0 to 5.3 kg/mm<sup>2</sup>)

## Electrical

**Excitation Voltage:** Standard 12 Vdc ( $\pm 5\%$ )

**Excitation Current @ 12V:** 11.8 mA at 0° F (-18° C) to 8.4 mA at 100° F (38° C)

**Insulation Resistance:** 2M ohms

**Strain Gage to Sensor Frame Breakdown Voltage:** >250V

**Red to White Resistance:** 4K ohms  $\pm 200$  ohm at 77° F (25° C) pre-installed

**Black to White Resistance:** 4K ohms  $\pm 200$  ohm at 77° F (25° C) pre-installed

## Output (for 12V excitation)

**Sensitivity - Carbon Steel:** 35 mV  $\pm 1\%$ /1,000 psi (35 mV  $\pm 1\%$ /0.7 kg/mm<sup>2</sup>)

**Sensitivity - Aluminum:** 80 mV  $\pm 1\%$ /1,000 psi (80 mV  $\pm 1\%$ /0.7 kg/mm<sup>2</sup>)

**Zero-Strain Output:** 0 mV  $\pm 100$  mV

**Nonlinearity and Hysteresis:**  $\pm 0.2\%$  of full scale output  $\pm 525$  mV @ 15,000 psi

**Repeatability:** 0.1% of full scale output

**Output Impedance:** 3.75K ohms ( $\pm 1\%$ )

## Environmental

**Rating:** Designed for rugged, outdoor applications, not for high pressure washdown

### Temperature Range - Operational:

-30° to 140° F (-34° to 60° C)

### Temperature Range - Storage:

-30° to 140° F (-34° to 60° C)

## Environmental (continued)

### Temperature Range - Compensated:

0° to 100° F (-18° to 38° C)

### Temperature Effects - Sensitivity Change:

0.02% per degree Fahrenheit (0.036% per degree Celsius) over the compensated range

### Temperature Effects - Zero Shift:

$\pm 2$  mV between 0° and 100° F (-18° and 38° C)

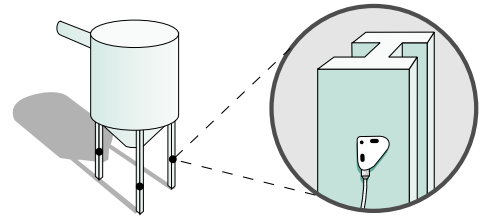
## Physical

**Weight:** 1.4 ounces (40 grams)

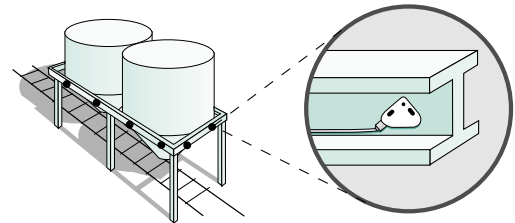
**Steel Base:** 17-4 PH stainless steel

**Cable:** 3-conductor, 22 gage, unshielded

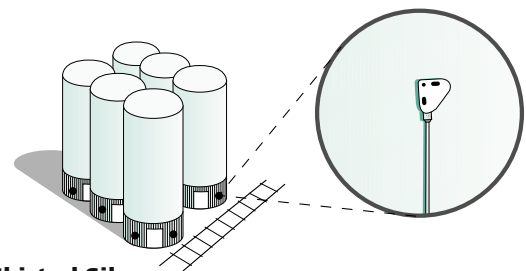
**Cable Length:** 15 feet (4.6 meters)



Vertical Column



Horizontal Beam



Skirted Silo

P/N 97-7026

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