



# Microcell®

Bolt-on, strain gauge, sensor technology for measuring inventory weights on vessels with support structures.

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**TECHNICAL SPECIFICATIONS**



When you need weight inventory you want to use a weighing system. The Microcell® is a highly sensitive and thermally stable semiconductor strain gauge sensor, Kistler-Morse pioneered bolt-on technology for measuring the contents of a wide range of bulk storage vessels. This sensor is still the standard way to measure the weight-induced strain in a vessel with a leg support structure.

When Microcells are bolted on the vertical legs of a vessel, it converts the vessel into a weighing system. Adding weight to a vessel compresses the gauge, changing the Microcell's resistance which produces an electrical output proportional to the material weight change.

The Microcell is quickly and easily installed while the vessel is still in productive use. An empty vessel is not required for installation or calibration. For use on existing vessels with legs, the Microcell is a cost-effective weighing solution compared to having to modify vessels for other types of weighing sensors.

In combination with your existing vessels, the versatility of the Microcell can supply a cost effective, easy to install, easy to maintain, highly reliable industrial strength weighing system. For cost and performance, nothing can compare with the Microcell when weight is needed and weight is wanted.

## FEATURES AND BENEFITS

### Bolt-on Technology

Creates a weighing system by mounting Microcells to the vessel's support structure.

### 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.

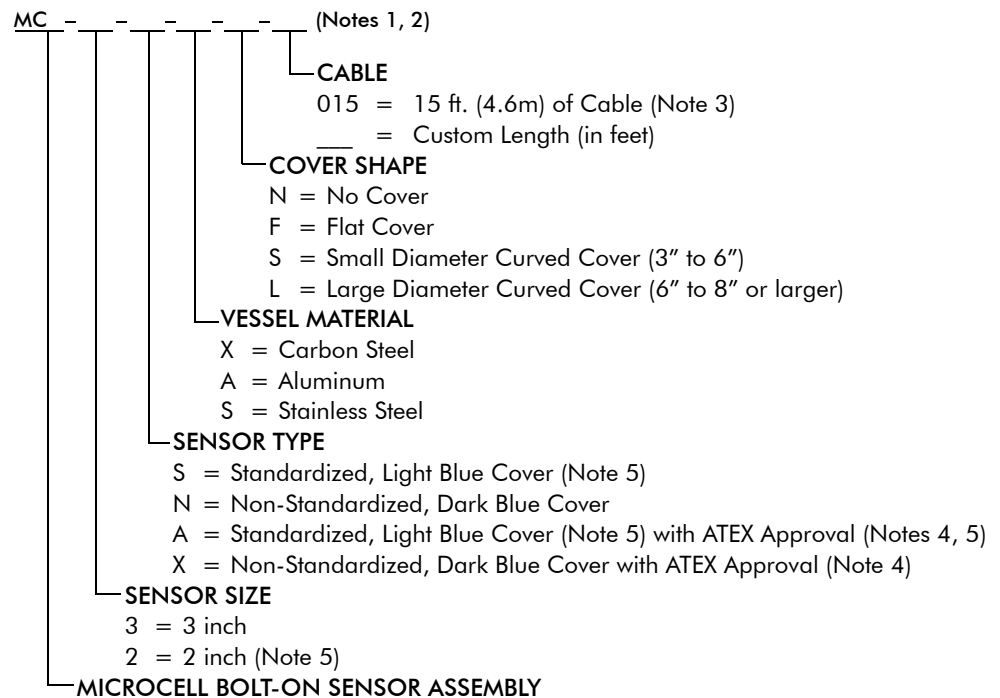
### 75 years MTBF

Unprecedented long-term reliability.

### Unique Design

Continuous weighing that is immune to material characteristics.

## HOW TO ORDER



- Note 1. New installations require an installation kit.
- Note 2. Replacement installations require Sikaflex® sealant, silicone grease and cover.
- Note 3. Lengths available from 5 ft (1.52 m) to 500 ft (152.4 m).
- Note 4. ATEX approved Microcell sensors must be ordered with ATEX approved SS junction boxes.
- Note 5. The 2 inch Sensor Size is not available with Sensor Type S or A.

# SPECIFICATIONS

## FUNCTIONAL

Excitation Voltage	12 VDC, $\pm 5\%$ ; maximum 30 VDC
Excitation Current	12 V: 4.0 mA at 0° F (-18° C) to 2.7 mA at 100° F (30° C)
Insulation Resistance	2 $\mu$ M ohms
Strain Gage to Sensor Frame Breakdown Voltage	>500 VDC
Red to White & Black to White Resistance	3" Microcell: Standardized: 8.50 K $\pm$ 200 ohms at 70° F (21° C) Non-Standardized: 2.0 K $\pm$ 200 ohms at 70° F (21° C) 2" Microcell: 2.0 K $\pm$ 200 ohms at 70° F (21° C)
Stress Level	3" Microcell: Maximum: $\pm$ 10,000 psi (7.0 kg/mm <sup>2</sup> ) Recommended: 5,000 $\pm$ 2,500 psi (3.5 $\pm$ 1.5 kg/mm <sup>2</sup> ) 2" Microcell: Maximum: $\pm$ 15,000 psi (10.5 kg/mm <sup>2</sup> ) Recommended: 7,500 $\pm$ 3,750 psi (5.3 $\pm$ 2.6 kg/mm <sup>2</sup> )
Fatigue Life	>20 million cycles; load & unload at 0 to 5,000 psi (0 to 3.5 kg/mm <sup>2</sup> )

## PERFORMANCE

Output for 12 V Excitation	Sensitivity - Carbon Steel 3" Microcell: 70 mV $\pm$ 1%/1,000 psi (70 mV $\pm$ 1%/0.7 kg/mm <sup>2</sup> )
	Sensitivity - Carbon Steel 2" Microcell: 56 mV $\pm$ 1%/1,000 psi (56 mV $\pm$ 1%/0.7 kg/mm <sup>2</sup> )
	Zero Strain Output: 0 mV $\pm$ 25 mV
Output Impedance and Temperature Effects	3" Microcell: Standardized: 7.50K $\pm$ 75 ohms at 70° F (21° C) Non-Standardized: 1000K $\pm$ 100 ohms at 70° F (21° C)
	2" Microcell: 1000 $\pm$ 100 ohms at 70° F (21° C)
	Sensitivity Change: 0.02% per degree F (0.036% per degree C) over the compensated range
	Zero Shift: $\pm$ 5 mV/100° F ( $\pm$ 5 mV/56° C) in compensated temperature range

## PHYSICAL

Rating	Designed for rugged, outdoor applications, not for high pressure washdown
Temperature Range	Operational: -30° to 150° F (34° to 66° C)
	Storage: -30° to 150° F (34° to 66° C)
	Compensated: Standard 0° to 100° F (-18° to 38° C). Mid +50° to +150° F (+10° to 66° C)
Weight	3 ounces (90 grams)
Steel Base	AISI 1018 carbon steel matched to vessel leg material A36 (Consult factory for aluminum or stainless steel vessel leg support)
Cable	3-conductor, 22 gage, unshielded
Cable Length	15' (4.6 meters)

## OPTIONS

3" Microcells	Standardized or non standardized version; temperature compensated for standard or mid-temperature ranges
Junction Box	Plastic or stainless steel version
Test Meter	To simplify sensor installation
Aluminum Base	For aluminum support legs, consult factory
Stainless Steel Base	For stainless steel support legs, consult factory
Installation Hardware	

## APPROVALS

	ATEX, CE
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