KISTLER-MORSE
Measure of Success

Technical Specifications
Microcell

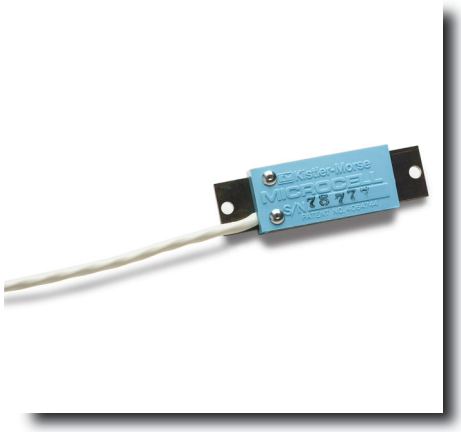
Bolt-on, strain gauge, sensor technology for measuring inventory weights on vessels with pipe leg supporting structures.

When you need weight inventory you want to use a weighing system. With the Microcell — a highly sensitive and thermally stable semiconductor strain gauge sensor, KM 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 pipe leg support structure.

When two Microcells are bolted on opposite sides of the vertical pipe legs of a vessel, it converts the vessel into a weighing system. Adding weight to a vessel compresses the gauge, changing the Microcells 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 pipe 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 & Benefits

Bolt-on Technology
Creates a weighing system by mounting Microcells to the vessel's pipe leg supports.

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.

Specifications:

Mechanical

Stress Level - 3-inch Microcell:
Maximum: 10,000 psi (7.0 kg/mm²)
Recommended:* 5,000 ± 2,500 psi (3.5 ± 1.75 kg/mm²)

Stress Level - 2-inch Microcell:
Maximum: 15,000 psi (10.5 kg/mm²);
Recommended:* 7,500 ± 3,750 psi (5.3 ± 2.6 kg/mm²)
*Consult factory for stress outside recommended range
Fatigue Life: > 20 million cycles; load and unload at 0 to 5,000 psi (0 to 3.5 kg/mm²)

Electrical

Excitation Voltage: Standard 12 VDC, ±5%; maximum 30 VDC
Excitation Current at 12V: 4.0 mA at 0° F (-18° C) to 2.7 mA at 100° F (+38° C)
Insulation Resistance: 2M ohms
Strain Gauge to Sensor Frame Breakdown Voltage: >500 VDC
Red-to-White & Black-to-White Resistance 3-inch Microcell:
Standardized: 8.50K ± 200 ohms at 70° F (21° C)
Non-Standardized: 2.0K ± 200 ohms at 70° F (21° C)
Red-to-White & Black-to-White Resistance 2-inch Microcell: 2.0K ± 200 ohms at 70° F (21° C)

Output (for 12V excitation)

Sensitivity - Carbon Steel 3-inch Microcell:
70 mV ± 1%/1,000 psi (70 mV ± 1%/0.7 kg/mm²)
Sensitivity - Carbon Steel 2-inch Microcell:
56 mV ± 1%/1,000 psi (56 mV ± 1%/0.7 kg/mm²)
Zero-Strain Output: 0 mV ± 25 mV
Nonlinearity: ±0.1% of full-scale output
Repeatability & Hysteresis: 0.05% of full-scale output
Output Impedance - 3-inch Microcell:
Standardized: 7.5K ± 75 ohms at 70° F (21° C)
Non-Standardized: 1000 ± 100 ohms at 70° F (21° C)
Output Impedance - 2-inch Microcell:
1000 ± 100 ohms at 70° F (21° C)

Environmental

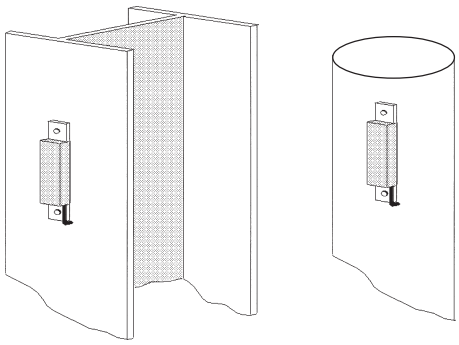
Rating: Designed for rugged, outdoor applications
Temperature Range - Operational: -30° to +150° F (-34° to +66° C)
Temperature Range - Storage: -30° to +150° F (-34° to +66° C)
Temperature Range - Compensated:
Standard: 0° to +100° F (-18° to +38° C)
Mid: +50° to +150° F (+10° to +66° C)
Temperature Effects - Sensitivity Change: 0.02%/° F (0.036%/° C), in compensated temperature range
Temperature Effects - Zero Shift: ±5 mV/100° F (±5 mV/56° C), in compensated temperature range

Physical

Weight: 3 oz (90 gm)
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 gauge, unshielded
Cable Length: 5.5' (1.7m)

Options and Accessories

3-inch Microcells: standardized or non-standardized
version; temperature compensated for standard or mid-temperature ranges
Junction Box: plastic or stainless steel version
KM Test Meter: to simplify sensor installation
Aluminum-Base Microcells: for aluminum support legs, consult factory
Stainless Steel Base Microcells: for stainless steel support legs, consult factory
Installation Hardware



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