

CM-15/CM-25 CalMaster Specifications Calibration Transfer Standard

A user friendly transfer standard for the fast and accurate calibration of production leak detectors. NIST traceable. Can be used to calibrate pressure, flow, or vacuum type leak detectors.

**World Leader in
Leak Detection
Technology**

**ISO 9001 Registered
ISO 17025 Accredited**

**Turnkey, Single
Source Capabilities**

InterTech has the in-house resources required to assume single source responsibility for its products while maintaining outstanding quality and meeting delivery commitments.

Instrumentation
Air Leak Test Systems
Helium Leak Test Systems
Assembly and Test Systems
Functional Test Systems

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May be covered by one or more of the following U.S. patents:
No. 5,363,689
No. 5,161,410
No. 5,546,789
No. 6,279,383
No. 6,422,550

Specifications subject to change without notice

Document Revision:
CM-15-/CM-25 rev. 5
October 22, 2010



Two flow ranges are available:

CM-15: 0.25 – 19.99 sccm (standard flow range)

CM-25: 0.025 – 1.999 sccm (micro flow range)

Calibration Certificate with calibration data is provided

InterTech Development Company
7401 North Linder Avenue, Skokie, IL 60077
TEL: 847-679-3377 FAX: 847-679-3391

Letter of Calibration
IDC CALMASTER

Customer Name: Ford Motor Company **Job No.:** 10-9583

InterTech Development Company certifies that the completed CalMaster has been calibrated and correlated at several points of flow rate using the InterTech Flow Standard which is controlled per IDC calibration system requirements and traceable to the National Institute of Standards & Technology. The expanded uncertainty, U = 1.2% of reading, was calculated using a coverage factor, k, equal to 2 giving a confidence interval of approximately 95%. The CM15 measurements were found to be within the 2.5% tolerance allowed (taking into account the uncertainty of each measurement).


LABORATORY ACCREDITED BUREAU
ACCREDITED ISO/IEC 17025
Certificate # L2197 Calibration

Model Number: CM-15
Serial Number: 1071-2940
Calibration Date: 10/19/2010
Next Calibration Due Date: / /

InterTech Development Company
Reviewed By: _____

Richard Nix
Director of Operations
ISO/IEC 17025 Quality Manager

**ISO 9001:2000 Registered
ISO/IEC 17025 Accredited**
Page 1/4

Customer: Federal Mogul		Job #: 10-9583			
Serial Number: 1071-2940		Humidity: % 17.13			
Date: 10/19/2010		Temperature: °C 23.49			
		Barometer: Kpa 99.20			
31 PSI Nominal	CM15 Nominal sccm	CM15 Actual sccm	Master Actual sccm	Deviation sccm	Deviation % Reading 2.5 % max
	2.00	2.00	2.032	-0.032	-1.600
	4.00	4.00	4.052	-0.052	-1.300
	6.00	6.00	6.078	-0.078	-1.300
	10.00	10.00	10.115	-0.115	-1.150
	17.00	17.00	17.150	-0.150	-0.882
10.5 PSI Nominal	CM15 Nominal sccm	CM15 Actual sccm	Master Actual sccm	Deviation sccm	Deviation % Reading 2.5 % max
	2.00	2.00	2.033	-0.033	-1.650
	4.00	4.00	4.055	-0.055	-1.400
	6.00	6.00	6.078	-0.078	-1.300
	10.00	10.00	10.105	-0.105	-1.050
	17.00	17.00	17.143	-0.143	-0.841

STANDARDS USED:
Laminar Flow System: Metram Instrument Model S320, SN 782620-P1, Cal Date 09/15/10
Laminar Flow Element: Metram Instrument Model 50MK10-7, SN 782620-P4, Cal Date 09/15/10
Laminar Flow Element: Metram Instrument Model 50MK10-8, SN 782620-P5, Cal Date 09/15/10

The above instrumentation from Metram Process Technologies is calibrated under ISO/IEC 17025:2005 standards

The expanded measurement uncertainty, 1.2% of reading represents best measurement capability and was calculated using a coverage factor, k, equal to 2 giving a confidence interval of approximately 95%.

The standards and calibration program are based on the guidelines of ISO/IEC 17025 and ISO9001:2000
InterTech Development Company is the original equipment manufacturer of CM15 CalMaster.
Calibration certificate is not to be reproduced without written approval of InterTech Development Co.

Calibration performed by: _____ Date: _____

Comments: _____ page 1/1

InterTech

CM-15/CM-25

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Technology

The InterTech CM-15 & CM-25 CalMasters are used to induce airflow leaks in calibrating leak detectors. The instruments use a proprietary mass flow sensor to measure the flow of air from the leak detector's calibration port or leak test fixture.

- In calibration mode, the calibration port is connected to the inlet (PRESSURE) port of the CalMaster.
- Air flows through a precision needle valve, across the mass flow sensor and out to atmosphere.
- This flow is measured and displayed on the DRO (digital read out).
- The leak rate is adjusted by varying the setting of the needle valve.
- Calibration of vacuum type leak detectors is similar, except the calibration port is connected to the CalMaster outlet (VACUUM) port, and the inlet (PRESSURE) port is left open to atmosphere.
- Calibration of downstream (bell jar) leak detectors - a supply pressure must be connected to the inlet (PRESSURE) port, while the outlet (VACUUM) port is connected to the calibration port on the leak fixture. This will simulate a leak flow in to the bell jar.

Display

3-1/2" digital LCD display
Low battery indicator (display on meter)

Controls

Flow Adjustment
Zero adjust & power on-off

Operation

Dry air used for calibration – alternative gases are available (ie. Nitrogen)

CM-15 (0.25 - 19.99 sccm)

Flows under 0.50 sccm, up to 10 psig maximum operating pressure

Flows between 0.50 - 2.00 sccm, up to 50 psig maximum operating pressure

Flows between 2.00 - 19.99 sccm, up to 90 psig maximum operating pressure

CM-25 (0.025 - 1.999 sccm)

Flows under 0.500 sccm, up to 10 psig maximum operating pressure

Flows between 0.500 - 1.999 sccm, up to 50 psig maximum operating pressure

Calibration Accuracy: Traceable to a 0.2% primary standard

Repeatability: 0.05% of Full Scale

Ambient Temperature: 40° F (4° C) to 105° F (40° C)

Proof Pressure Rating: PRES connection: 250 PSIG (17 bar), VAC connection: 5 psig (0.35 bar)

Accessories

AC power adapter (110v or 220v available), (2) 1/8" quick connect stems (Swagelok P/N SS-QC4-S-200 and SS-QM2-S-200) with 3 feet of plastic tubing and 1/8" knurled nut (Swagelok P/N SS-200-1K)

Specifications

Air Supply: Instrument grade air, filtered to 5 micron

Battery Power: Standard 9V Alkaline (50 hours of life at continuous operation)

Pressure & Vacuum Connections: Two 1/8" stainless steel tube fittings (Swagelok P/N SS-200-61)

Dimensions: 7.5" L x 4.3" W x 3.125" H (190 x 109 x 79 mm)

Weight: 1.8 LBS (820g)

User Tube Connections and Sizes

Air Supply & Vacuum Source Port: 1/8 inch (standard) / 4 mm (metric) tube