



SOUTHWEST RESEARCH INSTITUTE®

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Institute Quality Systems
Institute Calibration Laboratory
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Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Cost Center / Customer: DIV20 / DON BANNON

Mail Stop: B51

Manufacturer/Model: BIOS / DCL-M

Description: FLOW METER

Serial Number: 1098

Asset Number: 011734

Procedure: FLOW, GAS - 6 JUL 09

Work Order: 303094039

Date Issued: 27-Apr-2010

Date Calibrated: 27-Apr-2010

*** Date Due :** 27-Apr-2011

**** Results:** FOUND-LEFT

Temperature: 68.0 °F

Humidity: 40 %RH

Barometer: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: STP 70 Deg F 29.92 InHg 30 PSI - Cal'd at 0.1SLM 0.3SLM, 1.0SLM, 2.5LPM, and 4.0LPM

Standards Used

<u>Asset #</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>Cal Date</u>	<u>Due Date</u>
007502	SIERRA	101 Cal Bench	GAS FLOW CALIBRATION SYSTEM	13-Nov-2009	13-Nov-2010

Walt Hill

Laboratory Manager

Scott Kester

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303094039	Mfr.	Bios	Technician	SRK
Asset No.	011734	Model	DCL-ML	Type Data:	Found-left
Serial No.	1098	Type.	Flow Meter	Cal Date.	27-Apr-10

Remarks:

STP 70°F Pm= 739.79 mm Hg Pressure in 30 psi
 29.92 in Hg Tc= 20 K= 21.111 Accuracy = 2 % Rdg

Function/Range	Test Point	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
Flow Rate	slm	slm	slm	slm	slm		
	0.0977	0.0973	0.0004	0.0020	0.00038	Pass	20%
	0.3000	0.2985	0.0015	0.0060	0.0011	Pass	25%
	0.9848	0.9800	0.0048	0.0200	0.0038	Pass	24%
	2.5001	2.4975	0.0026	0.0500	0.0095	Pass	5%
	4.0001	3.9924	0.0077	0.0800	0.015	Pass	10%

END OF REPORT