CERTIFICATE OF CALIBRATION

ISSUED BY YOUNG CALIBRATION LIMITED
DATE OF ISSUE: 04/04/17
CERTIFICATE NUMBER: C53180

Young Calibration Ltd
5 Cecil Pashley Way
Shoreham Airport
Shoreham-by-Sea
West Sussex, BN43 5FF

+44 (0)1273 455572
enquiries@youngcalibration.co.uk
www.youngcalibration.co.uk

0604
Document : YCF/023
Issue Number : 2.9
Page 1 of 1 Page
Approved Signatory

□ A. Young □ M. Hindle
□ N. Mardon □ C. Millard

Customer:	Fasinternational Srl	Manufacturer & Model:	MKS 1179
Customer Address:	Via Selvanesco, 75/77 20142 Milano (MI) Italy	UUT Description:	Mass Flow Controller
		Customer ID Number:	n/a
For and on behalf of:	Consorzio L.E.A.P	Serial Number:	G505988G20
Address:	Via Nino Bixio 27/c 29121, Piacenza	Equipment Condition:	Used / As Received / Final
		Nominal Calibration Range:	0 to 2000 scc/min
Purchase Order Number:	201700332 (424)	Calibration Fluid:	Dry Air
Date of Receipt:	29 March 2017	Calibration Fluid Temperature:	18.5 to 19.1 °C
YCL Project Number:	YC/39140	Calibration Location:	YCL Laboratory
Calibration Date:	04 April 2017	Laboratory Temperature:	18.1 to 19.4 °C
Requested Due Date:	n/a	Laboratory Barometric Pressure:	1024.8 to 1026.0 mbarA
Calibration Performed By:	C. Millard	Laboratory Relative Humidity:	59.1 to 60.3 %RH
Calibration Procedure:	Procedure 53O	Reference Equipment:	YC/010/211 to 217

Calibration Method & Notes

The UUT (unit under test) was mounted in the Young Calibration Low Gas Flow Calibration Rig and was calibrated using a series transfer method. Clean, dry air was blown through the UUT to the desired flowrate.

When stabilised conditions were observed, the measurements conditions were recorded. The flowrate was adjusted to the next condition, and once steady state conditions were achieved, the results were again recorded, this procedure being repeated until the calibration was complete. The UUT results are derived from the average of at least 9 readings.

The standard flowrate is referenced to conditions of 1013.25 mbarA and 0 °C

Calibration Results

Standard Flowrate (scc/min)	UUT Output (V)	UUT Output Uncertainty (± V)
0.00	0.000	0.007
409.77	1.017	0.007
809.63	2.006	0.007
1210.89	3.003	0.007
1628.63	4.032	0.007
2016.09	4.995	0.007

Temperature of gas at the UUT : 18.6 - 18.9 °C
Pressure at the UUT : 1025.3 - 1025.4 mbarA

The uncertainty of the above flowrate measurements under laboratory conditions is ± 1.0 % (+ UUT Uncertainty)

The uncertainties reported refer to the measured values only and not to the ability of the instrument to maintain its calibration.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements. UKAS is one of the signatories to the Multilateral Agreement of the European co-operation for Accreditation (EA) for the mutual recognition of calibration certificates issued by accredited laboratories.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes.