

Accreditation Certificate

Flow Meter Systems Ireland Ltd.

IDA Industrial Estate, Quarters town, Mallow, Co. Cork

Calibration Laboratory

Registration number: **077C**

is accredited by the Irish National Accreditation Board (INAB) to undertake calibration as detailed in the Schedule bearing the Registration Number detailed above, in compliance with the International Standard **ISO/IEC 17025:2005 2nd Edition**

“General Requirements for the Competence of Testing and Calibration Laboratories”

(This Certificate must be read in conjunction with the annexed Schedule of Accreditation)

Date of award of accreditation: **23:12:2002**

Date of last renewal of accreditation: **26:05:2017**

Expiry date of this certificate of accreditation: **26:05:2022**

This Accreditation shall remain in force until further notice subject to continuing compliance with INAB accreditation criteria, ISO/IEC 17025 and any further requirements specified by the Irish National Accreditation Board.

Manager:



Dr Adrienne Duff

Chairperson:



Ms Ita Kinahan

Issued on 26th May 2017

Organisations are subject to annual surveillance and are re-assessed every five years. The renewal date on this Certificate confirms the latest date of renewal of accreditation. To confirm the validity of this Certificate, please contact the Irish National Accreditation Board.

INAB is a signatory of the European co-operation for Accreditation (EA) Testing Multilateral Agreement (MLA) and the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement.

Schedule of Accreditation



(Annex to Accreditation Certificate)

Permanent/Site Laboratory:
Category **A, B**

FLOW METER SYSTEMS IRELAND LTD

Metrology Flow Measuring Devices Calibration Laboratory

Initial Accreditation Date : 11-December-1996 (Category B)
16-April-1999 (Category A)

Postal Address: IDA Industrial Estate, Quartertown, Mallow, Co Cork

Telephone: +353 (22) 50111

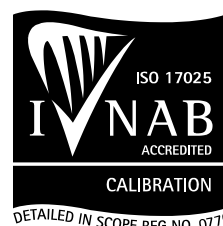
Fax: +353 (22) 50341

E-mail: John.Ferris@flowmeter.ie

Contact Name: John Ferris

Facilities: Public calibration service

Schedule of Accreditation



Permanent/Site Laboratory:
Category A, B

THE IRISH NATIONAL ACCREDITATION BOARD (INAB) is the Irish body for the accreditation of organisations including laboratories.

Laboratory accreditation is available to testing and calibration facilities operated by manufacturing organisations, government departments, educational institutions and commercial testing/calibration services. Indeed, any organisation involved in testing, measurement or calibration in any area of technology can seek accreditation for the work it is undertaking.

Each accredited laboratory has been assessed by skilled specialist assessors and found to meet criteria which are in compliance with ISO/IEC 17025 or ISO/IEC 15189 (medical laboratories). Frequent audits, together with periodic inter-laboratory test programmes, ensure that these standards of operation are maintained.

Calibration Categories:

- Category A:** Permanent calibration laboratory where the laboratory is erected on a fixed location for a period expected to be greater than three years.
- Category B:** Site calibration that is performed by staff sent out on site by a permanent laboratory that is accredited by the Irish National Accreditation Board.
- Category C:** Site calibration that is performed in a site/mobile laboratory or by staff sent out by such a laboratory, the operation of which is the responsibility of a permanent laboratory accredited by the Irish National Accreditation Board.
- Category D:** Site calibration that is performed on site by individuals and organisations that do not have a permanent calibration laboratory. Calibration may be performed using
- (a) portable test equipment
 - (b) a site laboratory
 - (c) a mobile laboratory or
 - (d) equipment from a mobile or site laboratory

Standard Specification or Calibration Procedure Used:

The standard specification or calibration procedure that is accredited is the issue that is current on the date of the most recent visit, unless otherwise stated.

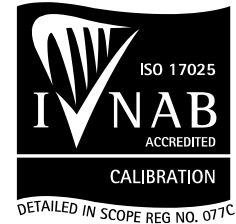
Glossary of Terms

Facilities:

- Public calibration service:** Commercial operations which actively seek work from others.
- Conditionally available for public calibration:** Established for another primary purpose but, more commonly than not, is available for outside work.
- Normally not available for public calibration:** Unavailable for public calibration more often than not.

Laboratory users wishing to obtain assurance that calibration results are reliable and carried out to the Irish National Accreditation Board criteria should insist on receiving an accredited calibration certificate. Users should contact the laboratory directly to ensure that this schedule of accreditation is current. INAB will on request verify the status and scope.

Scope of Accreditation



Flow Meter Systems Ireland Ltd

Site Laboratory:

Category B

Calibration Laboratory

(Nominal temperature for calibration work: $15 \pm 15^\circ\text{C}$)

INAB Classification number (P9) Measured quantity	Range of measurement	Calibration and measurement capability expressed as an uncertainty * (See note)	Method and remarks
134 Flow Measuring Devices .11 Flow meters on road tankers (See Note 3)	Quantity: 500 litre Minimum flow rate: 160 l/min Maximum flow rate: 400 l/min	$\pm 0.1\%$	Documented in house method QT001 Full hose method Empty hose method
134 Flow Measuring Devices .11 Mobile test rig Volume Mass (See Note 4)	Minimum Flow Rate: 0.003 l/s Maximum Flow Rate: 16.7 l/s	$\pm 0.25\%$ $\pm 0.2\%$	Documented in house methods QT003 QT004 Flying start and stop Standing start and stop Flow rate indicator

*** Notes:**

1. All calibrations must be carried out in accordance with procedures agreed by INAB.
2. In accordance with INAB policy, uncertainties are calculated for an estimated confidence level of not less than 95%
3. Volume calibration can be undertaken using Water or Milk as the Calibration Medium.
4. Mass calibration can be undertaken using any suitable liquid.
5. Calibration and Measurement Capability Expressed as an Uncertainty (\pm) to be reported in compliance to clause 6.3 of EA-4/02 "Expression of the Uncertainty of Measurement in calibration".
6. For meters calibrated using a mA output, uncertainty to be added with 0.1%

Scope of Accreditation



Flow Meter Systems Ireland Ltd

Site Laboratory:

Category A& B

Calibration Laboratory

(Nominal temperature for calibration work: 15±15 °C)

INAB Classification number (P9) Measured quantity	Range of measurement	Calibration and measurement capability expressed as an uncertainty * (See note)	Method and remarks
134 Flow Measuring Devices .04 Gas Meters	Calibration of mass flow meters		Documented in house method QT008
	Medium - Air		
	5 ml/min to 500 ml/min	0.36%	
	50 ml/min to 5 l/min	0.36%	
134 Flow Measuring Devices .04 Gas meters	1 l/min to 100 l/min	0.36%	Documented in house method QT008
	6 l/min to 500 l/min	0.46%	
	Calibration of volume flow meters		
	Medium - Air		
	5 ml/min to 500 ml/min	0.54%	
	50 ml/min to 5 l/min	0.54%	
	1 l/min to 100 l/min	0.54%	
	6 l/min to 500 l/min	0.62%	

*** Notes:**

1. All calibrations must be carried out in accordance with procedures agreed by INAB.
2. In accordance with INAB policy, uncertainties are calculated for an estimated confidence level of not less than 95%
3. Calibration and Measurement Capability Expressed as an Uncertainty (±) to be reported in compliance to clause 6.3 of EA-4/02 “Expression of the Uncertainty of Measurement in calibration”.
4. For meters calibrated using a mA output, uncertainty to be added with 0.1%

Scope of Accreditation



Flow Meter Systems Ireland Ltd

Permanent Laboratory:
Category A

Calibration Laboratory

(Nominal temperature for calibration work: $15 \pm 15^\circ\text{C}$)

INAB Classification number (P9) Measured quantity	Range of measurement	Calibration and measurement capability expressed as an uncertainty *	Method and remarks
134 Flow Measuring Devices Balance testline 1500 kg .11	Minimum Flow Rate: 0.1 l/s Maximum Flow Rate: 30 l/s Medium: Water		Documented in house method QT002
.11 Calibration of flow meters (Volume)		$\pm 0.15\%$ $\pm 0.15\%$	Flying start and stop Standing start and stop Flow rate indicator
.11 Calibration of flow meters (Mass)		$\pm 0.15\%$ $\pm 0.15\%$	Flying start and stop Standing start and stop Flow rate indicator
.11 Balance testline 150 kg	Minimum Flow Rate: 0.2 l/min Maximum Flow Rate: 50 l/min Medium: Water		Documented in house method QT005
.11 Calibration of flow meters (Volume)		$\pm 0.15\%$ $\pm 0.12\%$	Flying start and stop Standing start and stop Flow rate indicator
.11 Calibration of flow meters (Mass)		$\pm 0.13\%$ $\pm 0.10\%$	Flying start and stop Standing start and stop Flow rate indicator

*** Notes:**

1. All calibrations must be carried out in accordance with procedures agreed by INAB
2. In accordance with INAB policy, uncertainties are calculated for an estimated confidence level of not less than 95%.
3. Calibration and measurement capability expressed as an uncertainty (\pm) to be reported in compliance with EA-4/02, "Expression of the Uncertainty of Measurement in Calibration".
4. Excluding ultrasonic portable "clamp on" flow measuring devices
5. For meters calibrated using a mA output, uncertainty to be added with 0.1%