

Calibration Certificate

Calibration certificate number: 3421 A ULR (Unique Lab Report) number: CC26902000003421F Page 02 of 02

Result summary and verification:

The systematic error (A) and the random error (s) of the volumetric device are compared to ISO 8655-2:2002 (E) acceptance specifications. The expanded measurement uncertainty (U) is accounted, when assessing the status (PASSED or FAILED).

Applied Decision rule: **PASSED** means Systematic error (A) + Expanded measurement uncertainty (U) < ISO 8655-2 specification (A)
FAILED means Systematic error (A) + Expanded measurement uncertainty (U) > ISO 8655-2 specification (A)

Channel 1

Volume (µl)	Mean volume (µl)	A (µl)	ISO 8655-2 Specification A (±µl)	Status	s (µl)	ISO 8655-2 Specification s (±µl)	Status	U (±µl)
10 µl	9.96	-0.04	0.8 µl	PASSED	0.04	0.3 µl	PASSED	0.04
50 µl	50.03	0.03	0.8 µl	PASSED	0.06	0.3 µl	PASSED	0.08
100 µl	100.11	0.11	0.8 µl	PASSED	0.06	0.3 µl	PASSED	0.12


Measurement results:

Number of measurements	Channel 1 (Volume)		
	10 µl	50 µl	100 µl
1	9.95	50.05	100.18
2	9.99	49.94	100.10
3	9.95	50.06	100.06
4	9.95	50.09	100.08
5	10.01	50.04	100.18
6	9.94	50.05	100.14
7	9.92	50.12	100.09
8	9.91	50.03	100.18
9	9.95	49.93	99.99
10	10.03	49.98	100.10

Comments:

Device conformity status (considering applied Decision rule): PASSED

Calibration Laboratory Manager:
(Signature and Date)


Pramod Jadhav

26/10/20
Date



THE PIPETEMANN

NABL ACCREDITED CALIBRATION LABORATORY
ADDING ACCURACY TO YOUR EQUIPMENT

MASS - VOLUME - THERMAL - SPEED - PRESSURE - TIMER - ELECTRO TECHNICAL



CERT. NO. CC - 2317

CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. ALPHA CLINICAL LABORATORY & ECG CENTRE,
NO:17/1,BAZAAR STREET,
MUTHAPUDUPET,
I A F, AVADI,
CHENNAI 600055
Phone No. : 9941500551

UNIQUE LAB REPORT NUMBER : ULR-CC231720000003360F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC201043867	DATE OF ISSUE : 10-10-2020
RECEIPT NO : 9426	TEMPERATURE : 24.5 °C
RECEIPT DATE : 10-10-2020	HUMIDITY : 53 %
JOB CARD NO : TPM856102042290	AIR PRESSURE : 959 hpa
JOB CARD DATE : 10-10-2020	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : LABMATE	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 5-50 µl	DENSITY CORRECTION FACTOR [Z] : 1.0037 µl/mg
SERIAL NO : 0E504386	CALIBRATION METHOD : ISO 8655:2002 PART - 6
TIPS USED : 200 µl	WEIGHING BALANCE : MICRO BALANCE
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (1 µl - 10000 µl)	

DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION

MASTER EQUIPMENT : SARTORIUS MICRO BALANCE
SL.NO : 28001417
RESOLUTION : 0.000001g upto 6.1g
CALIBRATED BY : THE PIPETEMANN(MASS),COIMBATORE
CERTIFICATE NUMBER : TPMCCM20030243
CALIBRATION VALIDITY : 04-03-2021
TRACEABILITY : NATIONAL STANDARDS

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THE PIPETEMANN

NABL ACCREDITED CALIBRATION LABORATORY

ADDING ACCURACY TO YOUR EQUIPMENT

MASS - VOLUME - THERMAL - SPEED - PRESSURE - TIMER - ELECTRO TECHNICAL



CERT. NO. CC - 2317

CERTIFICATE NO : TPMCC201043867

CALIBRATED PARAMETER : VOLUME

NO.OF MEASUREMENTS : 10

I) **SELECTED VOLUME** : 50 μ l

50.08 μ l	50.05 μ l	50.08 μ l	50.06 μ l	50.07 μ l	50.05 μ l	50.06 μ l	50.05 μ l	50.06 μ l	50.07 μ l
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MEAN VALUE : 50.06 μ l

SYSTEMATIC ERROR(es) : 0.06 μ l

RANDOM ERROR (Sr) : 0.01 μ l

Standard Limit Value

($\pm 0.5 \mu$ l)

($\pm 0.2 \mu$ l)

II) **SELECTED VOLUME** : 25 μ l

24.99 μ l	24.96 μ l	24.98 μ l	24.96 μ l	24.97 μ l	24.96 μ l	24.96 μ l	24.97 μ l	24.96 μ l	24.99 μ l
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MEAN VALUE : 24.97 μ l

SYSTEMATIC ERROR(es) : -0.03 μ l

RANDOM ERROR (Sr) : 0.01 μ l

Standard Limit Value

($\pm 0.5 \mu$ l)

($\pm 0.2 \mu$ l)

III) **SELECTED VOLUME** : 5 μ l

5 μ l	5 μ l	5.01 μ l	4.99 μ l	5 μ l	4.98 μ l	5 μ l	5.01 μ l	4.98 μ l	5 μ l
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MEAN VALUE : 5.00 μ l

SYSTEMATIC ERROR(es) : -

RANDOM ERROR (Sr) : 0.01 μ l

Standard Limit Value

($\pm 0.125 \mu$ l)

($\pm 0.075 \mu$ l)

CALIBRATED ON : 10-10-2020

CALIBRATION DUE ON : 09-10-2021

RESULTS :

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
50 μ l	0.01 μ l	0.01 μ l
25 μ l	0.01 μ l	0.01 μ l
5 μ l	0.01 μ l	0.01 μ l

With coverage factor k is 2 for effective degrees of freedom is ∞ and the confidence level is 95%

CALIBRATED BY :

(M. DHARMARAJ)
CALIBRATION ENGINEER

APPROVED BY :

(K. BALAMAYURPRIYAN)
TECHNICAL MANAGER.

- NOTE : 1. Master equipments used for calibration are traceable to National standards
2. The calibration reported are valid at the time of and under the stated conditions of the measurement
3. Results presented in this certificate relate only to the item mentioned & calibrated at **THE PIPETEMANN**
4. This certificate shall not be reproduced except in full without written approval of **THE PIPETEMANN**



Calibration Certificate

Calibration certificate number: 3421 A ULR (Unique Lab Report) number: CC269020000003421F Page 01 of 02

Customer: Alpha clinical laboratory & ECG centre,
No 17/1, Bazaar street,
Muthapudupet,
I.A.F. Avadi,
Chennai -600055.
Phone No: 9941500551.

Through: Thermo Fisher Scientific India Pvt. Ltd., Pipette Division, Nashik.

Calibration details:

Calibration and Certificate issue date: 26/10/20 Lab work order number: 20/10-01 Calibrated by: Sagar Gosavi
Calibration location: Thermo Fisher Scientific India Pvt. Ltd. – Calibration Laboratory, D-96, MIDC Satpur, Nashik – 422 007.

Next calibration date (as per Customer's request): 26/10/21

Device information:

Description:	Finnpipette F3 10-100µl	Number of channels:	1
Catalogue number:	4640040	Serial number:	RW10755
Manufacturer:	Thermo Fisher Scientific	Tip used:	Finntip 250 Universal
		Customer's asset ID:	--

Environmental condition:

Air Temperature:	26.12 °C	Air Pressure:	942.1 hPa
Water Temperature:	26.05 °C	Relative Humidity (%RH):	59.4 %
Z correction factor (µl/mg):	1.0042	Y correction factor ((1/K)xK):	1.00040

Master equipment details (Traceable to National and International standards):

Equipment	Lab ID	Serial number	Model number	Calibration date	Calibration due date	Calibrated by with NABL certificate number
Micro Balance (Mettler Toledo)	QP-01	B115129039	XP26PC	13/11/19	12/11/20	Mettler Toledo, Mumbai (CC-2523)
Universal measuring instrument with sensors for environmental parameters (Almemo)	QP-10	H19070544	2590-4AS	07/10/20	06/10/21	Autocal, Nashik (CC-2052)

Measurement procedure:

The pipette calibration work instruction (LD-03/WI-01) of Thermo Fisher calibration laboratory follows the guidelines of the ISO 8655-6 standard. The device is calibrated for delivery (Ex) of the test liquid. The used test liquid is distilled water fulfilling ISO 3696 requirements. Calculations are done using the following formula: $V(\mu l) = m(mg) \times Z(\mu l/mg) \times Y((1/K) \times K)$. The mass / volume conversion is done using the Z factor (Annex A in EN ISO 8655-6). The obtained results are converted to correspond the reference temperature of 27°C using the Y factor. With variable volume devices nominal volume, 50 % of the nominal volume and 10% of the nominal volume or the minimum volume of the range (the higher value is used) are calibrated. With fixed volume devices, the nominal volume is calibrated. Ten measurements are performed at each calibrate volume. The test device is held at the calibration laboratory for minimum of two hours to reach the temperature equilibrium. The environmental conditions of the laboratory are monitored and recorded during the calibration procedure. The stated uncertainty is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor $k = 2$.

This corresponds the confidence level of 95%. The uncertainty budget is defined by lab internal procedure following the guidelines of ISO/TR 20461.

Device conformity status (considering applied Decision rule): PASSED

Calibration Laboratory Manager:
(Signature and Date)

Pramod Jadhav

26/10/20
Date

