

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. THOMAS DIAGNOSTIC & RESEARCH CENTRE, Dr.PHILIP A THOMAS, 50-A, MELAPUDUR MAIN ROAD, MELAPUDUR, SANGILYANDAPURAM, TIRUCHIRAPPALLI 620001 Phone No.: 0431-2414628	
UNIQUE LAB REPORT NUMBER : ULR - CC231719000004381F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC190938970	DATE OF ISSUE : 23-09-2019
RECEIPT NO : 8533	TEMPERATURE : 26.0 °C
RECEIPT DATE : 23-09-2019	HUMIDITY : 52 %
JOB CARD NO : TPM330091937393	AIR PRESSURE : 962 hpa
JOB CARD DATE : 23-09-2019	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : BIOHIT PROLINE	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 10 µl - Fixed Volume	DENSITY CORRECTION FACTOR [Z] : 1.0037 µl/mg
SERIAL NO : 12648882	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	: TPMCCM19030170
CALIBRATION VALIDITY	: 05-03-2020
TRACEABILITY	: NATIONAL STANDARDS

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CERTIFICATE NO: TPMCC190938970

CALIBRATED PARAMETER : VOLUME
NO.OF MEASUREMENTS : 10

I) NOMINAL VOLUME : 10 μ l

10.03 μ l	10.03 μ l	10.01 μ l	10.01 μ l	10.02 μ l	10.02 μ l	10.03 μ l	10 μ l	10.02 μ l	10.02 μ l
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MEAN VALUE : 10.02 μ l
 SYSTEMATIC ERROR(es) : 0.02 μ l
 RANDOM ERROR (Sr) : 0.01 μ l

Standard Limit Value
 ($\pm 0.12 \mu$ l)
 ($\pm 0.08 \mu$ l)

CALIBRATED ON : 23-09-2019

CALIBRATION DUE ON : 22-03-2020

RESULTS :

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
10 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 :

APPROVED BY :

(R.JANARTHANAN)

(K.BALA MAYUR PRIYAN)

DEPUTY TECHNICAL MANAGER

TECHNICAL MANAGER

NOTE : 1.Master equipments used for calibration are traceable to National standards
 2.The calibration results reported are valid at the time of and under the stated condition of the measurement
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CUSTOMER ADDRESS : M/s. THOMAS DIAGNOSTIC & RESEARCH CENTRE, Dr.PHILIP A THOMAS, 50-A, MELAPUDUR MAIN ROAD, MELAPUDUR, SANGILYANDAPURAM, TIRUCHIRAPPALLI 620001 Phone No.: 0431-2414628	
UNIQUE LAB REPORT NUMBER : ULR-CC231720000001198F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC200341705	DATE OF ISSUE : 11-03-2020
RECEIPT NO : 9087	TEMPERATURE : 26.2 °C
RECEIPT DATE : 11-03-2020	HUMIDITY : 52 %
JOB CARD NO : TPM330032040128	AIR PRESSURE : 964 hpa
JOB CARD DATE : 11-03-2020	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : QUALIPETTE	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 100 - 1000 µl	DENSITY CORRECTION FACTOR [Z] : 1.0042 µl/mg
SERIAL NO : CR08634	CALIBRATION METHOD : ISO 8655:2002 PART - 6
TIPS USED : 1000 µl	WEIGHING BALANCE : SEMI MICRO BALANCE
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (1 µl - 10000 µl)	

DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION

MASTER EQUIPMENT	: SARTORIUS
SL.NO	: 19402655
RESOLUTION	: 0.00001 g upto 80 g & above is 0.0001 g
CALIBRATED BY	: THE PIPETEMANN(MASS),COIMBATORE
CERTIFICATE NUMBER	: TPMCCM19050185
CALIBRATION VALIDITY	: 03-05-2020
TRACEABILITY	: NATIONAL STANDARDS

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CERT. NO. CC - 2317

CERTIFICATE NO : TPMCC200341705

CALIBRATED PARAMETER : VOLUME

NO.OF MEASUREMENTS : 10

I) SELECTED VOLUME : 1000 μ l

994.55 μ l	994.53 μ l	994.51 μ l	994.54 μ l	994.58 μ l	994.62 μ l	994.67 μ l	994.72 μ l	994.64 μ l	994.68 μ l
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MEAN VALUE : 994.60 μ l

SYSTEMATIC ERROR(es) : -5.4 μ l

RANDOM ERROR (Sr) : 0.07 μ l

Standard Limit Value

(\pm 8.0 μ l)

(\pm 3.0 μ l)

II) SELECTED VOLUME : 500 μ l

498.2 μ l	498.24 μ l	498.28 μ l	498.3 μ l	498.37 μ l	498.39 μ l	498.42 μ l	498.45 μ l	498.48 μ l	498.53 μ l
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MEAN VALUE : 498.37 μ l

SYSTEMATIC ERROR(es) : -1.63 μ l

RANDOM ERROR (Sr) : 0.11 μ l

Standard Limit Value

(\pm 4.0 μ l)

(\pm 1.5 μ l)

III) SELECTED VOLUME : 100 μ l

99.68 μ l	99.73 μ l	99.74 μ l	99.77 μ l	99.81 μ l	99.83 μ l	99.84 μ l	99.87 μ l	99.89 μ l	99.93 μ l
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MEAN VALUE : 99.81 μ l

SYSTEMATIC ERROR(es) : -0.19 μ l

RANDOM ERROR (Sr) : 0.08 μ l

Standard Limit Value

(\pm 0.8 μ l)

(\pm 0.3 μ l)

CALIBRATED ON : 11-03-2020

CALIBRATION DUE ON : 10-09-2020

RESULTS :

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
1000 μ l	0.07 μ l	0.07 μ l
500 μ l	0.10 μ l	0.10 μ l
100 μ l	0.04 μ l	0.04 μ l

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

CALIBRATED BY :

S. Loganathan
(S.LOGANATHAN)

CALIBRATION ENGINEER

APPROVED BY :

K. Bala Mayur Priyan
(K. BALA MAYUR PRIYAN)
TECHNICAL MANAGER

- NOTE : 1.Master equipments used for calibration are traceable to National standards
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CERT. NO. CC - 2317

CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. THOMAS DIAGNOSTIC & RESEARCH CENTRE, Dr.PHILIP A THOMAS, 50-A, MELAPUDUR MAIN ROAD, MELAPUDUR, SANGILYANDAPURAM, TIRUCHIRAPPALLI 620001 Phone No.: 0431-2414628	
UNIQUE LAB REPORT NUMBER : ULR - CC231720000001199F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC200341706	DATE OF ISSUE : 11-03-2020
RECEIPT NO : 9087	TEMPERATURE : 26.9 °C
RECEIPT DATE : 11-03-2020	HUMIDITY : 53 %
JOB CARD NO : TPM330032040129	AIR PRESSURE : 962 hpa
JOB CARD DATE : 11-03-2020	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : BIOHIT PROLINE	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 10 µl - Fixed Volume	DENSITY CORRECTION FACTOR [Z] : 1.0039 µl/mg
SERIAL NO : 12629926	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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CERT. NO. CC - 2317

CERTIFICATE NO: TPMCC200341706

CALIBRATED PARAMETER : VOLUME

NO.OF MEASUREMENTS : 10

I) NOMINAL VOLUME : 10 μ l

9.97 μ l	9.98 μ l	9.98 μ l	9.99 μ l	9.99 μ l	10 μ l	10 μ l	10.01 μ l	10.01 μ l	10.03 μ l
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MEAN VALUE : 10.00 μ l

Standard Limit Value

SYSTEMATIC ERROR(es) : 0 μ l

(± 0.12 μ l)

RANDOM ERROR (Sr) : 0.02 μ l

(± 0.08 μ l)

CALIBRATED ON : 11-03-2020

CALIBRATION DUE ON : 10-09-2020

RESULTS :

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
10 μ l	0.02 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 :

APPROVED BY :

(R.JANARTHANAN)

(K.BALA MAYUR PRIYAN)

DEPUTY TECHNICAL MANAGER

TECHNICAL MANAGER

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UNIQUE LAB REPORT NUMBER : ULR-CC231720000002920F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC200943427	DATE OF ISSUE : 09-09-2020
RECEIPT NO : 9349	TEMPERATURE : 25.1 °C
RECEIPT DATE : 08-09-2020	HUMIDITY : 56 %
JOB CARD NO : TPM330092041850	AIR PRESSURE : 960 hpa
JOB CARD DATE : 08-09-2020	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : ERBA	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 100 - 1000 µl	DENSITY CORRECTION FACTOR [Z] : 1.0037 µl/mg
SERIAL NO : 011614927	CALIBRATION METHOD : ISO 8655:2002 PART - 6
TIPS USED : 1000 µl	WEIGHING BALANCE : SEMI MICRO BALANCE
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (1 µl - 10000 µl)	

DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION

MASTER EQUIPMENT	: SHIMADZU
SL.NO	: D450020184
RESOLUTION	: 0.00001g upto 82g & above is 0.0001g
CALIBRATED BY	: THE PIPETEMANN (MASS), COIMBATORE
CERTIFICATE NUMBER	: TPMCCM20020237
CALIBRATION VALIDITY	: 07-02-2021
TRACEABILITY	: NATIONAL STANDARDS


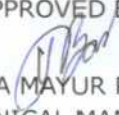
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CERTIFICATE NO : TPMCC200943427

CALIBRATED PARAMETER : VOLUME		
NO.OF MEASUREMENTS : 10		
I) SELECTED VOLUME : 1000 µl		
995.77 µl	995.73 µl	995.85 µl
995.87 µl	996.38 µl	996.28 µl
996.27 µl	996.28 µl	996.18 µl
996.28 µl	996.18 µl	996.28 µl
MEAN VALUE : 996.09 µl	Standard Limit Value	
SYSTEMATIC ERROR(es) : -3.91 µl	(±8.0 µl)	
RANDOM ERROR (Sr) : 0.25 µl	(±3.0 µl)	
II) SELECTED VOLUME : 500 µl		
498.54 µl	498.65 µl	498.59 µl
498.65 µl	498.55 µl	498.64 µl
498.55 µl	498.65 µl	498.55 µl
498.65 µl	498.55 µl	498.7 µl
MEAN VALUE : 498.61 µl	Standard Limit Value	
SYSTEMATIC ERROR(es) : -1.39 µl	(±4.0 µl)	
RANDOM ERROR (Sr) : 0.06 µl	(±1.5 µl)	
III) SELECTED VOLUME : 100 µl		
100.07 µl	99.98 µl	100.02 µl
99.98 µl	99.98 µl	100.09 µl
99.96 µl	99.78 µl	99.98 µl
99.98 µl	100.02 µl	
MEAN VALUE : 99.99 µl	Standard Limit Value	
SYSTEMATIC ERROR(es) : -0.01 µl	(±0.8 µl)	
RANDOM ERROR (Sr) : 0.08µl	(±0.3 µl)	
CALIBRATED ON : 09-09-2020	CALIBRATION DUE ON : 08-03-2021	
RESULTS :		
RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
1000 µl	0.10 µl	0.07 µl
500 µl	0.10 µl	0.10 µl
100 µl	0.04 µl	0.04 µl
With coverage factor k is 2 for effective degrees of freedom is ∞ and the confidence level is 95%		
CALIBRATED BY :  (M.VINOOTH KUMAR) CALIBRATION ENGINEER		APPROVED BY :  (K.BALA MAYUR PRIYAN) 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		