

# THE PIPETEMANN

NABL ACCREDITED CALIBRATION LABORATORY  
ADDING ACCURACY TO YOUR EQUIPMENT

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



## CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. BEST DIAGNO LAB, 1B, SAI GURU KRIPA, 1 <sup>ST</sup> FLOOR, REAR BLOCK, NO.47, EAST MADA STREET, THIRUVANMAIYUR, CHENNAI - 600041.	
UNIQUE LAB REPORT NUMBER : ULR-CC231722000003942F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC220954011	DATE OF ISSUE : 13-09-2022
RECEIPT NO : 11168	TEMPERATURE : 25.9 °C
RECEIPT DATE : 12-09-2022	HUMIDITY : 61 %
JOB CARD NO : TPM920092252434	AIR PRESSURE : 962 hpa
JOB CARD DATE : 12-09-2022	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : NAK	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 5 - 50 µl	DENSITY CORRECTION FACTOR [Z] : 1.0033 µl/mg
SERIAL NO : NF461383	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	: TPMCCM22030365
CALIBRATION VALIDITY	: 28-02-2023
TRACEABILITY	: NATIONAL STANDARDS

# THE PIPETEMANN

**NABL ACCREDITED CALIBRATION LABORATORY**  
**ADDING ACCURACY TO YOUR EQUIPMENT**  
**MASS - VOLUME - THERMAL - SPEED - PRESSURE - TIMER - ELECTRO TECHNICAL**



CERTIFICATE NO : TPMCC220954011

**CALIBRATED PARAMETER** : VOLUME  
**NO.OF MEASUREMENTS** : 10

I) **SELECTED VOLUME** : 50  $\mu$ l

49.94 $\mu$ l	50.01 $\mu$ l	49.96 $\mu$ l	50.04 $\mu$ l	50.08 $\mu$ l	50.11 $\mu$ l	50.02 $\mu$ l	49.93 $\mu$ l	49.96 $\mu$ l	50.01 $\mu$ l
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MEAN VALUE : 50.01  $\mu$ l  
 SYSTEMATIC ERROR(es) : 0.01  $\mu$ l  
 RANDOM ERROR (Sr) : 0.06  $\mu$ l

Standard Limit Value  
 ( $\pm 0.5 \mu$ l)  
 ( $\pm 0.2 \mu$ l)

II) **SELECTED VOLUME** : 25  $\mu$ l

25.01 $\mu$ l	25.01 $\mu$ l	25.01 $\mu$ l	24.97 $\mu$ l	25.00 $\mu$ l	25.07 $\mu$ l	25.02 $\mu$ l	25.08 $\mu$ l	25.03 $\mu$ l	25.01 $\mu$ l
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MEAN VALUE : 25.01  $\mu$ l  
 SYSTEMATIC ERROR(es) : 0.01  $\mu$ l  
 RANDOM ERROR (Sr) : 0.03  $\mu$ l

Standard Limit Value  
 ( $\pm 0.5 \mu$ l)  
 ( $\pm 0.2 \mu$ l)

III) **SELECTED VOLUME** : 5  $\mu$ l

4.98 $\mu$ l	5.01 $\mu$ l	5.03 $\mu$ l	5.04 $\mu$ l	5.01 $\mu$ l	5.00 $\mu$ l	4.99 $\mu$ l	5.01 $\mu$ l	5.01 $\mu$ l	5.03 $\mu$ l
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MEAN VALUE : 5.01  $\mu$ l  
 SYSTEMATIC ERROR(es) : 0.01  $\mu$ l  
 RANDOM ERROR (Sr) : 0.02  $\mu$ l

Standard Limit Value  
 ( $\pm 0.125 \mu$ l)  
 ( $\pm 0.075 \mu$ l)

CALIBRATED ON : 13-09-2022

CALIBRATION DUE ON : 12-09-2023

**RESULTS :**

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
50 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l
25 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l
5 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l

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

CALIBRATED BY :

*P.V.*  
 (P.VIGNESH)  
 CALIBRATION ENGINEER

APPROVED BY :

*K.B.P.*  
 (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**

### CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. BEST DIAGNO LAB, 1B, SAI GURU KRIPA, 1 <sup>ST</sup> FLOOR, REAR BLOCK, NO.47, EAST MADA STREET, THIRUVANMAIYUR, CHENNAI – 600041.	
UNIQUE LAB REPORT NUMBER : ULR-CC231722000003943F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC220954012	DATE OF ISSUE : 13-09-2022
RECEIPT NO : 11168	TEMPERATURE : 25.7 °C
RECEIPT DATE : 12-09-2022	HUMIDITY : 66 %
JOB CARD NO : TPM920092252435	AIR PRESSURE : 962 hpa
JOB CARD DATE : 12-09-2022	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : P FACT	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 10 - 100 µl	DENSITY CORRECTION FACTOR [Z] : 1.0033 µl/mg
SERIAL NO : MH423830	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	: TPMCCM22030365
CALIBRATION VALIDITY	: 28-02-2023
TRACEABILITY	: NATIONAL STANDARDS

# THE PIPETEMANN

NABL ACCREDITED CALIBRATION LABORATORY

ADDING ACCURACY TO YOUR EQUIPMENT

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



CC - 2317

CERTIFICATE NO : TPMCC220954012

<b>CALIBRATED PARAMETER</b> : VOLUME									
<b>NO.OF MEASUREMENTS</b> : 10									
I) <b>SELECTED VOLUME</b> : 100 $\mu$ l									
100.11 $\mu$ l	100.10 $\mu$ l	100.02 $\mu$ l	100.10 $\mu$ l	100.16 $\mu$ l	100.17 $\mu$ l	100.01 $\mu$ l	100.06 $\mu$ l	100.09 $\mu$ l	100.25 $\mu$ l
MEAN VALUE : 100.10 $\mu$ l					Standard Limit Value				
SYSTEMATIC ERROR(es) : 0.10 $\mu$ l					(±0.8 $\mu$ l)				
RANDOM ERROR (Sr) : 0.07 $\mu$ l					(±0.3 $\mu$ l)				
II) <b>SELECTED VOLUME</b> : 50 $\mu$ l									
50.12 $\mu$ l	50.08 $\mu$ l	50.10 $\mu$ l	50.16 $\mu$ l	50.11 $\mu$ l	50.10 $\mu$ l	50.09 $\mu$ l	50.12 $\mu$ l	50.18 $\mu$ l	50.11 $\mu$ l
MEAN VALUE : 50.12 $\mu$ l					Standard Limit Value				
SYSTEMATIC ERROR(es) : 0.12 $\mu$ l					(±0.5 $\mu$ l)				
RANDOM ERROR (Sr) : 0.03 $\mu$ l					(±0.2 $\mu$ l)				
III) <b>SELECTED VOLUME</b> : 10 $\mu$ l									
10.00 $\mu$ l	9.98 $\mu$ l	10.02 $\mu$ l	10.03 $\mu$ l	10.05 $\mu$ l	10.03 $\mu$ l	10.01 $\mu$ l	10.02 $\mu$ l	10.05 $\mu$ l	10.04 $\mu$ l
MEAN VALUE : 10.02 $\mu$ l					Standard Limit Value				
SYSTEMATIC ERROR(es) : 0.02 $\mu$ l					(±0.12 $\mu$ l)				
RANDOM ERROR (Sr) : 0.02 $\mu$ l					(±0.08 $\mu$ l)				
CALIBRATED ON : 13-09-2022					CALIBRATION DUE ON : 12-09-2023				
<b>RESULTS :</b>									
RANGE		MEASUREMENT UNCERTAINTY			CMC (approved by NABL)				
100 $\mu$ l		0.05 $\mu$ l			0.04 $\mu$ l				
50 $\mu$ l		0.03 $\mu$ l			0.03 $\mu$ l				
10 $\mu$ l		0.03 $\mu$ l			0.03 $\mu$ l				
With coverage factor k is 2 for effective degrees of freedom is $\infty$ and the confidence level is 95%									
CALIBRATED BY :  (P.VIGNESH) 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 <b>THE PIPETEMANN</b>									
4.This certificate shall not be reproduced except in full without written approval of <b>THE PIPETEMANN</b>									

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## CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. BEST DIAGNO LAB, 1B, SAI GURU KRIPA, 1 <sup>ST</sup> FLOOR, REAR BLOCK, NO.47, EAST MADA STREET, THIRUVANMAIYUR, CHENNAI – 600041.	
UNIQUE LAB REPORT NUMBER : ULR-CC231722000003944F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC220954013	DATE OF ISSUE : 13-09-2022
RECEIPT NO : 11168	TEMPERATURE : 25.5 °C
RECEIPT DATE : 12-09-2022	HUMIDITY : 65 %
JOB CARD NO : TPM920092252436	AIR PRESSURE : 962 hpa
JOB CARD DATE : 12-09-2022	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : MISPA i2	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 2 - 20 µl	DENSITY CORRECTION FACTOR [Z] : 1.0033 µl/mg
SERIAL NO : QW07683	CALIBRATION METHOD : ISO 8655:2002 PART - 6
TIPS USED : 20 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	: TPMCCM22030365
CALIBRATION VALIDITY	: 28-02-2023
TRACEABILITY	: NATIONAL STANDARDS

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



CERTIFICATE NO : TPMCC220954013

<b>CALIBRATED PARAMETER</b> : VOLUME												
<b>NO.OF MEASUREMENTS</b> : 10												
I) <b>SELECTED VOLUME</b> : 20 $\mu$ l												
19.92 $\mu$ l   19.94 $\mu$ l   19.99 $\mu$ l   19.97 $\mu$ l   20.02 $\mu$ l   20.04 $\mu$ l   20.01 $\mu$ l   20.03 $\mu$ l   20.00 $\mu$ l   20.02 $\mu$ l												
MEAN VALUE : 19.99 $\mu$ l												
SYSTEMATIC ERROR(es) : -0.01 $\mu$ l												
RANDOM ERROR (Sr) : 0.04 $\mu$ l												
Standard Limit Value ( $\pm 0.2 \mu$ l) ( $\pm 0.1 \mu$ l)												
II) <b>SELECTED VOLUME</b> : 10 $\mu$ l												
10.01 $\mu$ l   9.99 $\mu$ l   10.02 $\mu$ l   9.99 $\mu$ l   9.98 $\mu$ l   10.01 $\mu$ l   9.99 $\mu$ l   9.98 $\mu$ l   9.99 $\mu$ l   9.99 $\mu$ l												
MEAN VALUE : 10.00 $\mu$ l												
SYSTEMATIC ERROR(es) : 0 $\mu$ l												
RANDOM ERROR (Sr) : 0.01 $\mu$ l												
Standard Limit Value ( $\pm 0.12 \mu$ l) ( $\pm 0.08 \mu$ l)												
III) <b>SELECTED VOLUME</b> : 2 $\mu$ l												
2.00 $\mu$ l   1.99 $\mu$ l   2.00 $\mu$ l   1.98 $\mu$ l   1.97 $\mu$ l   2.00 $\mu$ l   2.00 $\mu$ l   1.99 $\mu$ l   2.00 $\mu$ l   1.98 $\mu$ l												
MEAN VALUE : 1.99 $\mu$ l												
SYSTEMATIC ERROR(es) : -0.01 $\mu$ l												
RANDOM ERROR (Sr) : 0.01 $\mu$ l												
Standard Limit Value ( $\pm 0.05 \mu$ l) ( $\pm 0.05 \mu$ l)												
<b>CALIBRATED ON</b> : 13-09-2022 <b>CALIBRATION DUE ON</b> : 12-09-2023												
<b>RESULTS :</b>												
<table border="1"><thead><tr><th>RANGE</th><th>MEASUREMENT UNCERTAINTY</th><th>CMC (approved by NABL)</th></tr></thead><tbody><tr><td>20 <math>\mu</math>l</td><td>0.04 <math>\mu</math>l</td><td>0.03 <math>\mu</math>l</td></tr><tr><td>10 <math>\mu</math>l</td><td>0.03 <math>\mu</math>l</td><td>0.03 <math>\mu</math>l</td></tr><tr><td>2 <math>\mu</math>l</td><td>0.03 <math>\mu</math>l</td><td>0.03 <math>\mu</math>l</td></tr></tbody></table>	RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)	20 $\mu$ l	0.04 $\mu$ l	0.03 $\mu$ l	10 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l	2 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l
RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)										
20 $\mu$ l	0.04 $\mu$ l	0.03 $\mu$ l										
10 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l										
2 $\mu$ l	0.03 $\mu$ l	0.03 $\mu$ l										
With coverage factor k is 2 for effective degrees of freedom is $\infty$ and the confidence level is 95%												
<b>CALIBRATED BY :</b>  (P.VIGNESH) CALIBRATION ENGINEER												
<b>APPROVED BY :</b>  (K.BALA MAYUR PRIYAN ) TECHNICAL MANAGER												
<b>NOTE :</b> 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 <b>THE PIPETEMANN</b> 4.This certificate shall not be reproduced except in full without written approval of <b>THE PIPETEMANN</b>												

## CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. BEST DIAGNO LAB, 1B, SAI GURU KRIPA, 1 <sup>ST</sup> FLOOR, REAR BLOCK, NO.47, EAST MADA STREET, THIRUVANMIYUR, CHENNAI - 9840624076.	
UNIQUE LAB REPORT NUMBER: ULR-CC316722000000130F	DISCIPLINE : MECHANICAL CALIBRATION PARAMETER : VOLUME
NAME OF EQUIPMENT : MICROPIPETTE	RELEVANT SECTION : 7.8.2 & 7.8.4
CERTIFICATE NO : TPMCC2209468	DATE OF ISSUE : 13-09-2022
RECEIPT NO : 181	TEMPERATURE : 26.5 °C
RECEIPT DATE : 10-09-2022	HUMIDITY : 67 % RH
JOB CARD NO : TPM06409220476	AIR PRESSURE : 1006 hpa
JOB CARD DATE : 10-09-2022	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : MISPA i2	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 20 - 200 µl	DENSITY CORRECTION FACTOR [Z] : 1.0043 µl/mg
SERIAL NO : QW08498	WEIGHING BALANCE : SEMI MICRO BALANCE
TIPS USED : 200 µl	CALIBRATION PROCEDURE No': 7.2.1.1-1
CALIBRATION LOCATION: AT LAB	CONDITION OF DUC RECEIVED: GOOD
METHOD OF CALIBRATION: Based on ISO 8655:2002 PART - 6 standard our calibration procedure is applied for micropipette calibration.	
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (11 µl - 10000 µl)	

### DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION

MASTER EQUIPMENT	: SHIMADZU
SL.NO	: D316301053
RESOLUTION	: 0.00001g upto 102g & above is 0.0001g
CALIBRATED BY	: THE PIPETEMANN (MASS), COIMBATORE
CERTIFICATE NUMBER	: TPMCCM22010354
CALIBRATION VALIDITY	: 17.01.2023
TRACEABILITY	: NATIONAL STANDARDS

# THE PIPETEMANN<sup>TM</sup>

NABL ACCREDITED CALIBRATION LABORATORY  
 ADDING ACCURACY TO YOUR EQUIPMENT  
 MICROPIPETTES - GLASSWARE - WEIGHING BALANCE - WEIGHTS



CERTIFICATE NO : TPMCC2209468

<b>CALIBRATED PARAMETER : VOLUME</b>										
<b>NO.OF MEASUREMENTS : 10</b>										
I) SELECTED VOLUME : 200 µl										
199.83 µl	199.72 µl	199.81 µl	200.05 µl	200.33 µl	200.60 µl	200.42 µl	199.83 µl	199.81 µl	200.05 µl	
MEAN VALUE : 200.04 µl							Standard Limit Value			
SYSTEMATIC ERROR(es) : 0.04 µl							(± 1.6 µl)			
RANDOM ERROR (Sr) : 0.31 µl							(± 0.6 µl)			
II) SELECTED VOLUME : 100 µl										
99.83 µl	99.91 µl	100.09 µl	100.02 µl	99.97 µl	99.98 µl	100.33 µl	100.39 µl	100.22 µl	100.20 µl	
MEAN VALUE : 100.09 µl							Standard Limit Value			
SYSTEMATIC ERROR(es) : 0.09 µl							(± 0.8 µl)			
RANDOM ERROR (Sr) : 0.19 µl							(± 0.3 µl)			
III) SELECTED VOLUME : 20 µl										
19.94 µl	19.97 µl	19.92 µl	19.88 µl	19.97 µl	19.95 µl	19.88 µl	19.84 µl	19.79 µl	19.87 µl	
MEAN VALUE : 19.90 µl							Standard Limit Value			
SYSTEMATIC ERROR(es) : -0.10 µl							(± 0.2 µl)			
RANDOM ERROR (Sr) : 0.06 µl							(± 0.1 µl)			
CALIBRATED ON : 13-09-2022					CALIBRATION DUE ON : 12-09-2023					
<b>RESULTS :</b>										
		RANGE			MEASUREMENT UNCERTAINTY			CMC (approved by NABL)		
		200 µl			0.94 µl			0.94 µl		
		100 µl			0.26 µl			0.26 µl		
		20 µl			0.26 µl			0.26 µl		
With coverage factor k is 2 for effective degrees of freedom is ∞ and the confidence level is 95%										
CALIBRATED BY :					APPROVED BY :					
(M.MUTHUMASANAM) CALIBRATION ENGINEER					(M.VINOTHKUMAR) DEPUTY TECHNICAL MANAGER					
NOTE : 1.The recalibration interval should be determined on the user requirement 2.Master equipments used for calibration are traceable to National standards 3.The calibration reported are valid at the time of and under the stated conditions of the measurement 4.Results presented in this certificate relate only to the item mentioned & calibrated at <b>THE PIPETEMANN</b> 5.This certificate shall not be reproduced except in full without written approval of <b>THE PIPETEMANN</b> 6.All precautions have been taken to avoid any error or omission while calibrating the DUC and issuing the certificate. 7.The volume/mass measurement are recorded as observed. Hence the results are reported without any adjustment. 8.DUC: Device under Calibration CMC :Calibration Measurement Capability										



**CALIBRATION CERTIFICATE**

CUSTOMER ADDRESS : M/s. BEST DIAGNO LAB, 1B, SAI GURU KRIPA, 1 <sup>ST</sup> FLOOR, REAR BLOCK, NO.47, EAST MADA STREET, THIRUVANMIYUR, CHENNAI - 9840624076.	
UNIQUE LAB REPORT NUMBER: ULR-CC316722000000131F	DISCIPLINE : MECHANICAL CALIBRATION PARAMETER : VOLUME
NAME OF EQUIPMENT : MICROPIPETTE	RELEVANT SECTION : 7.8.2 & 7.8.4
CERTIFICATE NO : TPMCC2209469	DATE OF ISSUE : 13-09-2022
RECEIPT NO : 181	TEMPERATURE : 26.5 °C
RECEIPT DATE : 10-09-2022	HUMIDITY : 66 % RH
JOB CARD NO : TPM06409220477	AIR PRESSURE : 1005 hpa
JOB CARD DATE : 10-09-2022	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : DRAGON LAB	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 100 - 1000 µl	DENSITY CORRECTION FACTOR [Z] : 1.0043 µl/mg
SERIAL NO : YE181AG0181957	WEIGHING BALANCE : SEMI MICRO BALANCE
TIPS USED : 1000 µl	CALIBRATION PROCEDURE No': 7.2.1.1-1
CALIBRATION LOCATION: AT LAB	CONDITION OF DUC RECEIVED: GOOD
METHOD OF CALIBRATION: Based on ISO 8655:2002 PART - 6 standard our calibration procedure is applied for micropipette calibration.	
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (11 µl - 10000 µl)	

**DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION**



MASTER EQUIPMENT	: SHIMADZU
SL.NO	: D316301053
RESOLUTION	: 0.00001g upto 102g & above is 0.0001g
CALIBRATED BY	: THE PIPETEMANN (MASS), COIMBATORE
CERTIFICATE NUMBER	: TPMCCM22010354
CALIBRATION VALIDITY	: 17.01.2023
TRACEABILITY	: NATIONAL STANDARDS

# THE PIPETEMANN<sup>TM</sup>

NABL ACCREDITED CALIBRATION LABORATORY  
 ADDING ACCURACY TO YOUR EQUIPMENT  
 MICROPIPETTES - GLASSWARE - WEIGHING BALANCE - WEIGHTS



CERTIFICATE NO : TPMCC2209469

<b>CALIBRATED PARAMETER : VOLUME</b>		
<b>NO.OF MEASUREMENTS : 10</b>		
I) SELECTED VOLUME : 1000 µl		
1001.31 µl	1001.79 µl	1003.31 µl
1002.82 µl	1003.30 µl	1003.82 µl
1004.01 µl	1003.40 µl	1003.30 µl
1003.00 µl		
MEAN VALUE : 1003.00 µl	Standard Limit Value	
SYSTEMATIC ERROR(es) : 3.00 µl	(± 8.0 µl)	
RANDOM ERROR (Sr) : 0.85 µl	(± 3.0 µl)	
II) SELECTED VOLUME : 500 µl		
501.43 µl	501.20 µl	501.64 µl
500.80 µl	501.21 µl	502.10 µl
502.02 µl	501.80 µl	501.43 µl
501.81 µl		
MEAN VALUE : 501.54 µl	Standard Limit Value	
SYSTEMATIC ERROR(es) : 1.54 µl	(± 4.0 µl)	
RANDOM ERROR (Sr) : 0.41 µl	(± 1.5 µl)	
III) SELECTED VOLUME : 100 µl		
100.04 µl	99.95 µl	100.05 µl
100.08 µl	100.13 µl	100.16 µl
100.23 µl	100.05 µl	100.06 µl
100.12 µl		
MEAN VALUE : 100.08 µl	Standard Limit Value	
SYSTEMATIC ERROR(es) : 0.08 µl	(± 0.8 µl)	
RANDOM ERROR (Sr) : 0.08 µl	(± 0.3 µl)	
CALIBRATED ON : 13-09-2022	CALIBRATION DUE ON : 12-09-2023	
<b>RESULTS :</b>		
RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
1000 µl	0.94 µl	0.94 µl
500 µl	0.94 µl	0.94 µl
100 µl	0.26 µl	0.26 µl
With coverage factor k is 2 for effective degrees of freedom is ∞ and the confidence level is 95%		
CALIBRATED BY :  (M.MUTHUMASANAM) CALIBRATION ENGINEER		APPROVED BY :  (M.VINOTHKUMAR) DEPUTY TECHNICAL MANAGER
NOTE : 1.The recalibration interval should be determined on the user requirement 2.Master equipments used for calibration are traceable to National standards 3.The calibration reported are valid at the time of and under the stated conditions of the measurement 4.Results presented in this certificate relate only to the item mentioned & calibrated at <b>THE PIPETEMANN</b> 5.This certificate shall not be reproduced except in full without written approval of <b>THE PIPETEMANN</b> 6.All precautions have been taken to avoid any error or omission while calibrating the DUC and issuing the certificate. 7.The volume/mass measurement are recorded as observed. Hence the results are reported without any adjustment. 8.DUC: Device under Calibration CMC :Calibration Measurement Capability		

## CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. BEST DIAGNO LAB, 1B, SAI GURU KRIPA, 1 <sup>ST</sup> FLOOR, REAR BLOCK, NO.47, EAST MADA STREET, THIRUVANMIYUR, CHENNAI - 9840624076.	
UNIQUE LAB REPORT NUMBER: ULR-CC316722000000129F	DISCIPLINE : MECHANICAL CALIBRATION PARAMETER : VOLUME
NAME OF EQUIPMENT : MICROPIPETTE	RELEVANT SECTION : 7.8.2 & 7.8.4
CERTIFICATE NO : TPMCC2209467	DATE OF ISSUE : 13-09-2022
RECEIPT NO : 181	TEMPERATURE : 26.7 °C
RECEIPT DATE : 10-09-2022	HUMIDITY : 65 % RH
JOB CARD NO : TPM06409220475	AIR PRESSURE : 1006 hpa
JOB CARD DATE : 10-09-2022	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : BIOHIT PROLINE	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 500 µl - FIXED VOLUME	DENSITY CORRECTION FACTOR [Z] : 1.0043 µl/mg
SERIAL NO : 12534512	WEIGHING BALANCE : SEMI MICRO BALANCE
TIPS USED : 1000 µl	CALIBRATION PROCEDURE No':7.2.1.1-1
CALIBRATION LOCATION: AT LAB	CONDITION OF DUC RECEIVED: GOOD
METHOD OF CALIBRATION: Based on ISO 8655:2002 PART - 6 standard our calibration procedure is applied for micropipette calibration.	
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (11 µl - 10000 µl)	

### DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION

MASTER EQUIPMENT	: SHIMADZU
SL.NO	: D316301053
RESOLUTION	: 0.00001g upto 102g & above is 0.0001g
CALIBRATED BY	: THE PIPETEMANN (MASS), COIMBATORE
CERTIFICATE NUMBER	: TPMCCM22010354
CALIBRATION VALIDITY	: 17.01.2023
TRACEABILITY	: NATIONAL STANDARDS

# THE PIPETEMANN<sup>TM</sup>

NABL ACCREDITED CALIBRATION LABORATORY

ADDING ACCURACY TO YOUR EQUIPMENT

MICROPIPETTES - GLASSWARE - WEIGHING BALANCE - WEIGHTS



CC - 3167

CERTIFICATE NO : TPMCC2209467

**CALIBRATED PARAMETER** : VOLUME

**NO.OF MEASUREMENTS** : 10

I) **SELECTED VOLUME** : 500  $\mu$ l

498.23 $\mu$ l	500.95 $\mu$ l	501.06 $\mu$ l	501.95 $\mu$ l	501.26 $\mu$ l	500.96 $\mu$ l	501.28 $\mu$ l	501.65 $\mu$ l	502.03 $\mu$ l	501.35 $\mu$ l
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MEAN VALUE : 501.07  $\mu$ l

SYSTEMATIC ERROR(es) : 1.07  $\mu$ l

RANDOM ERROR (Sr) : 0.34  $\mu$ l

Standard Limit Value

( $\pm$  4.0  $\mu$ l)

( $\pm$  1.5  $\mu$ l)

CALIBRATED ON : 13-09-2022

CALIBRATION DUE ON : 12-09-2023

**RESULTS :**

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
500 $\mu$ l	0.94 $\mu$ l	0.94 $\mu$ l

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

CALIBRATED BY :

(M.MUTHUMASANAM)  
CALIBRATION ENGINEER

APPROVED BY :

(M.VINOTHKUMAR)  
DEPUTY TECHNICAL MANAGER

- NOTE :
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  - 2.Master equipments used for calibration are traceable to National standards
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  - 8.DUC: Device under Calibration CMC : Calibration Measurement Capability