



YEA

☎ : 033 2677 1411/1412, 2667 1909

YOUNG ENGG. & CALIBRATION SERVICES PVT. LTD.

Admn. Office & Lab : Kamardanga Road (Opp. Tarama Ashram), Ichapur, Howrah - 711 104

E-mail : calibration@yeagroup.org ★ Visit us at : www.yeagroup.org

CIN : U74140WB2005PTC106389 ★ Toll Free Help Desk : 1800 345 9001

Calibration Certificate

Certificate No.: YEA(C)/ 231223A/1959/002
ULR No. : CC222123000082705F

Dated : 30.12.2023

Calibrated for : ICTC, Tlabung CHC
Dist.: Lunglei, Mizoram,
Pin - 796751.

Calibrated on.	Next Calibration Due On.	Page No.	No. of Pages
25.12.2023	25.12.2024	1	3

Description of Instrument

Name : Micro Pipette
Identification : ICTC/TLB/MP-01
Range : 40 - 200 µl
Least Count : 1 µl
Make : Exacta

Service Request No. / Order Reference

: 231223A/1959/001-004

Receipt of Instrument

: 23.12.2023

Location where calibration performed

: At permanent laboratory

Applicable Specification of Instrument to be Calibrated : Not Specified

Condition of Instrument to be Calibrated

: Satisfactory

Basis of Calibration

: Comparison method with reference to YEA/WI/M-47

Environmental Condition during Calibration

: *Temp.* : (23±4)°C *RH* : (50±10)%

Equipment used for Calibration

: Standard Electronic Balance & Distilled Water

Traceability

: To National Standard vide Certificate No:
YEA(C)/231216/Y001/001 valid till 15.12.2024

Measurement Uncertainty

: The figures are stated in the result at coverage factor
 $k = 2$ corresponding to confidence probability of
95% for normal distribution.

Laboratory Identification

: Sticker is affixed for authentication of calibration.

The above Instrument/Equipment/Machine has been calibrated

The results are given in the page 2 to 3 ...of the certificate.

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YEA(C)/F-08



CC-2221



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Certificate No.: YEA(C)/ 231223A/1959/002

ULR No. : CC222123000082705F

Calibrated By : S. Das

Date: 30.12.2023

Page 2 of 3 Pages

Calibration Results

Mechanical Calibration

A) Calibration Result of Micro Pipette :

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	40	39.995	40.019	-0.019	0.025	0.019
2		40.009				
3		40.027				
4		40.008				
5		39.993		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		40.004				
7		40.062				
8		40.048				
9		40.003		0.500	0.200	
10		40.048				

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	100	99.965	100.001	-0.001	0.031	0.023
2		100.015				
3		99.988				
4		99.979				
5		99.954		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		100.025				
7		100.032				
8		99.988				
9		100.029		0.800	0.300	
10		100.042				

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Certificate No.: YEA(C)/ 231223A/I959/002

ULR No. : CC222123000082705F

Calibrated By : S. Das

Date: 30.12.2023

Page 3 of 3 Pages

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	200	200.102	200.152	-0.152	0.035	0.026
2		200.170				
3		200.157				
4		200.104		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
5		200.180				
6		200.193		1.600	0.600	
7		200.168				
8		200.180				
9		200.165				
10		200.106				

DUC : Device Under Calibration

REMARKS : The above Micro Pipette has been calibrated and the readings are tabulated above.

NOTES : This certificate refers to the results tabulated at the time of calibration only for the above mentioned item submitted for calibration and this should not be reproduced, other than in full except with prior written approval from the head of calibration laboratory.

Authorised By

A. Das

Manager Calibration

*** End of the Calibration Certificate ***





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CIN : U74140WB2005PTC106389 ★ Toll Free Help Desk : 1800 345 9001

Calibration Certificate

Certificate No.: YEA(C)/ 231223A/1959/003

ULR No. : CC222123000082706F

Dated : 30.12.2023

Calibrated for : ICTC, Tlabung CHC

Dist.: Lunglei, Mizoram,

Pin - 796751.

Calibrated on.	Next Calibration Due On.	Page No.	No. of Pages
25.12.2023	25.12.2024	1	3

Description of Instrument

Name : Micro Pipette
Identification : ICTC/TLBMP-02
Range : 100 - 1000 µl
Least Count : 5 µl
Make : Erba Biohit (Sl. No. : 0048683)

Service Request No. / Order Reference

: 231223A/1959/001-004

Receipt of Instrument

: 23.12.2023

Location where calibration performed

: At permanent laboratory

Applicable Specification of Instrument to be Calibrated

: Not Specified

Condition of Instrument to be Calibrated

: Satisfactory

Basis of Calibration

: Comparison method with reference to YEA/WI/M-47

Environmental Condition during Calibration

: *Temp.* : (23±4)°C *RH.* : (50±10)%

Equipment used for Calibration

: Standard Electronic Balance & Distilled Water

Traceability

: To National Standard vide Certificate No:
YEA(C)/230925/Y001/001 valid till 24.09.2024
YEA(C)/231216/Y001/001 valid till 15.12.2024

Measurement Uncertainty

: The figures are stated in the result at coverage factor
 $k = 2$ corresponding to confidence probability of
95% for normal distribution.

Laboratory Identification

: Sticker is affixed for authentication of calibration.

The above Instrument/Equipment/Machine has been calibrated

The results are given in the page 2 to 3 ...of the certificate.

Cont.....2

YEA(C)/F-08





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Certificate No.: YEA(C)/ 231223A/I959/003

ULR No. : CC222123000082706F

Calibrated By : S. Das

Date: 30.12.2023

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Calibration Results

Mechanical Calibration

A) Calibration Result of Micro Pipette :

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	100	100.123	100.097	-0.097	0.033	0.024
2		100.141				
3		100.076				
4		100.088				
5		100.056		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		100.136				
7		100.131				
8		100.086				
9		100.052		0.800	0.300	
10		100.084				

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	500	499.772	499.797	0.203	0.030	0.024
2		499.821				
3		499.759				
4		499.791				
5		499.819		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		499.767				
7		499.840				
8		499.821				
9		499.759		4.000	1.500	
10		499.821				

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Certificate No.: YEA(C)/ 231223A/1959/003

ULR No. : CC222123000082706F

Calibrated By : S. Das

Date: 30.12.2023

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Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (cs)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	1000	999.524	999.550	0.450	0.035	0.027
2		999.546				
3		999.567				
4		999.607				
5		999.522		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		999.593				
7		999.585		8.000	3.000	
8		999.522				
9		999.515				
10		999.524				

DUC : Device Under Calibration

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Calibration Certificate

Certificate No.: YEA(C)/ 231223A/I959/004
ULR No.: CC222123000082707F

Dated : 30.12.2023

Calibrated for : ICTC, Tlabung CHC
Dist.: Lunglei, Mizoram,
Pin - 796751.

Calibrated on.	Next Calibration Due On.	Page No.	No. of Pages
25.12.2023	25.12.2024	1	3

Description of Instrument

Name : Micro Pipette
Identification : ICTC/TLB/MP-03
Range : 5 - 50 µl
Least Count : 0.5 µl
Make : Erba Biohit (Sl. No. : 7102769)

Service Request No. / Order Reference

: 231223A/I959/001-004

Receipt of Instrument

: 23.12.2023

Location where calibration performed

: At permanent laboratory

Applicable Specification of Instrument to be Calibrated

: Not Specified

Condition of Instrument to be Calibrated

: Satisfactory

Basis of Calibration

: Comparison method with reference to YEA/WI/M-47

Environmental Condition during Calibration

: *Temp.* : (23±4)°C *RH* : (50±10)%

Equipment used for Calibration

: Standard Electronic Balance & Distilled Water

Traceability

: To National Standard vide Certificate No:
YEA(C)/230925/Y001/001 valid till 24.09.2024

Measurement Uncertainty

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ULR No.: CC222123000082707F

Calibrated By : S. Das

Date: 30.12.2023

Page 2 of 3 Pages

Calibration Results

Mechanical Calibration

A) Calibration Result of Micro Pipette :

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	5.0	4.964	4.979	0.021	0.033	0.024
2		4.981				
3		5.003				
4		4.955				
5		4.974		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		5.000				
7		4.951				
8		4.923				
9		5.029				
10		5.017				
				0.125	0.075	

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	25.0	24.993	25.037	-0.037	0.038	0.028
2		25.025				
3		24.987				
4		24.985				
5		25.055		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		25.069				
7		25.051				
8		25.089				
9		25.066				
10		25.051				
				0.500	0.200	

contd. 3





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Page 3 of 3 Pages

Calibrated By : S. Das

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μ l)	(μ l)	(μ l)	(μ l)	(μ l)	($\pm \mu$ l)
1	50.00	49.977	50.019	-0.019	0.033	0.024
2		50.006				
3		50.040				
4		49.987		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
5		50.041				
6		49.981		0.500	0.200	
7		49.992				
8		50.053				
9		50.045				
10		50.065				

DUC : Device Under Calibration

REMARKS : The above Micro Pipette has been calibrated and the readings are tabulated above.

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