

Calibration CertificateCertificate No.: YEA(C)/ 231223A/I962/002
ULR No. : CC222123000082837F

Dated : 30.12.2023

Calibrated for : ICTC, District Hospital, Kolasib
Dist.: Kolasib, Mizoram,
Pin - 796081.

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/KLB/MP-01
Range : 40 - 200 μ l
Least Count : 1 μ l
Make : Exacta

Service Request No. / Order Reference : 231223A/I962/001-003**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 \pm 4) $^{\circ}$ C *RH* : (50 \pm 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.

Cont.....2





YEA

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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

Certificate No.: YEA(C)/ 231223A/1962/002

ULR No. : CC222123000082837F

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	40	40.096	40.106	-0.106	0.028	0.021
2		40.104				
3		40.118				
4		40.126				
5		40.076				
6		40.166				
7		40.114				
8		40.083				
9		40.072				
10		40.105				
				Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
				0.500	0.200	

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	100.035	100.084	-0.084	0.032	0.023
2		100.079				
3		100.088				
4		100.079				
5		100.066				
6		100.054				
7		100.117				
8		100.081				
9		100.088				
10		100.149				
				Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
				0.800	0.300	

cont...3





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Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μl)	(μl)	(μl)	(μl)	(μl)	($\pm \mu\text{l}$)
1	200	200.057	200.057	-0.057	0.030	0.022
2		200.088				
3		200.048				
4		200.074		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu\text{l}$)		
5		200.006				
6		200.065		1.600	0.600	
7		200.006				
8		200.085				
9		200.064				
10		200.079				

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 ***



Calibration Certificate

Certificate No.: YEA(C)/ 231223A/I962/003

Dated : 30.12.2023

ULR No.: CC222123000082838F

Calibrated for : ICTC, District Hospital, Kolasib

Dist.: Kolasib, Mizoram,

Pin - 796081.

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/KLB/MP-02
Range : 5 - 50 µl
Least Count : 0.5 µl
Make : Erba Biohit (Sl. No. : 7102644)

Service Request No. / Order Reference : 231223A/I962/001-003

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 : 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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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	4.933	4.993	0.007	0.032	0.023
2		4.955				
3		5.003				
4		4.982				
5		5.019		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		4.990				
7		4.979				
8		5.022				
9		5.031				
10		5.020				
				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	24.889	24.957	0.043	0.031	0.023
2		24.983				
3		24.963				
4		24.943				
5		24.990		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu$ l)		
6		24.964				
7		24.959				
8		24.993				
9		24.935				
10		24.954				
				0.500	0.200	

cont...3





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Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	(μl)	(μl)	(μl)	(μl)	(μl)	($\pm \mu\text{l}$)
1	50.0	50.000	49.982	0.018	0.029	0.021
2		49.989				
3		49.971				
4		49.957		Standard Limit Value as Per ISO 8655 - 2 : 2002 ($\pm \mu\text{l}$)		
5		49.979				
6		49.998		0.500	0.200	
7		49.941				
8		49.977				
9		49.962				
10		50.044				

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