



# 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/1963/001  
ULR No. : CC222123000082839F

Dated : 30.12.2023

Calibrated for : ICTC, District Hospital, Lawngtlai  
Dist.: Lawngtlai, Mizoram,  
Pin - 796891.

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/LTL/MP-01  
 Range : 40 - 200 µl  
 Least Count : 1 µl  
 Make : Exacta

Service Request No. / Order Reference : 231223A/1963/001-005

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.

Cont...2

YEA(C)F-08



CC-2221



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Certificate No.: YEA(C)/ 231223A/I963/001

ULR No. : CC222123000082839F

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
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	40	40.127	40.120	-0.120	0.021	0.016
2		40.103				
3		40.118				
4		40.145				
5		40.096		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
6		40.118				
7		40.126				
8		40.084				
9		40.148		0.500	0.200	
10		40.132				

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	100	100.124	100.111	-0.111	0.031	0.023
2		100.105				
3		100.140				
4		100.142		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
5		100.135				
6		100.085				
7		100.059				
8		100.081				
9		100.088		0.800	0.300	
10		100.149				

contd. 3





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Certificate No.: YEA(C)/ 231223A/1963/001

ULR No. : CC222123000082839F

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
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	200	200.105	200.137	-0.137	0.024	0.018
2		200.138				
3		200.166				
4		200.153				
5		200.138		Standard Limit Value as Per ISO 8655 - 2 : 2002		
6		200.103		(± $\mu$ l)		
7		200.163		1.600	0.600	
8		200.156				
9		200.138				
10		200.105				

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/1963/002

Dated : 30.12.2023

ULR No. : CC222123000082840F

Calibrated for : ICTC, District Hospital, Lawngtlai

Dist.: Lawngtlai, Mizoram,

Pin - 796891.

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/LFLMP-02

*Range*

: 40 - 200  $\mu$ l

*Least Count*

: 1  $\mu$ l

*Make*

: Exacta

**Service Request No. / Order Reference**

: 231223A/1963/001-005

**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(C)/F-08



CC-2221



# YEA

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Certificate No.: YEA(C)/ 231223A/1963/002

ULR No. : CC222123000082840F

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
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	40	40.046	40.023	-0.023	0.031	0.023
2		39.994				
3		40.008				
4		40.045		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
5		39.986				
6		40.024		0.500	0.200	
7		39.996				
8		40.008				
9		40.045				
10		40.082				

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	100	100.088	100.013	-0.013	0.041	0.031
2		99.975				
3		99.953				
4		100.035		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
5		100.015				
6		99.988		0.800	0.300	
7		99.972				
8		100.052				
9		100.015				
10		100.035				

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Certificate No.: YEA(C)/ 231223A/I963/002

ULR No. : CC222123000082840F

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
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	200	199.990	200.028	-0.028	0.030	0.022
2		200.004				
3		200.046				
4		200.029		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
5		200.005				
6		200.068		1.600	0.600	
7		200.023				
8		200.001				
9		200.035				
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/1963/003  
 ULR No. : CC222123000082841F

Dated : 30.12.2023

 Calibrated for : ICTC, District Hospital, Lawngtlai  
 Dist: Lawngtlai, Mizoram,  
 Pin - 796891.

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

**Description of Instrument**

<i>Name</i>	: Micro Pipette
<i>Identification</i>	: ICTC/LTL/MP-03
<i>Range</i>	: 2 - 200 µl
<i>Least Count</i>	: 1 µl
<i>Make</i>	: Handypette (Sl. No. : 011802045)

**Service Request No. / Order Reference** : 231223A/1963/001-005

**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.


CC-2221

Contd...2



Certificate No.: YEA(C)/ 231223A/1963/003

ULR No. : CC222123000082841F

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
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	20	20.015	20.024	-0.024	0.032	0.024
2		20.006				
3		19.994				
4		20.018				
5		20.029		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
6		20.036				
7		20.095				
8		20.002		0.200	0.100	
9		20.055				
10		19.993				

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\mu$ l)	( $\pm \mu$ l)
1	100	100.162	100.100	-0.100	0.034	0.025
2		100.088				
3		100.099				
4		100.109				
5		100.088		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu$ l)		
6		100.063				
7		100.054				
8		100.089		0.800	0.300	
9		100.150				
10		100.099				

cont. 3







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Page 3 of 3 Pages

Sl. No.	DUC Value	Standard Value	Mean Value	Systematic Error (es)	Random Error (cv)	Measurement Uncertainty
	( $\mu\text{l}$ )	( $\mu\text{l}$ )	( $\mu\text{l}$ )	( $\mu\text{l}$ )	( $\mu\text{l}$ )	( $\pm \mu\text{l}$ )
1	200	200.102	200.147	-0.147	0.035	0.026
2		200.138				
3		200.187				
4		200.166		Standard Limit Value as Per ISO 8655 - 2 : 2002 ( $\pm \mu\text{l}$ )		
5		200.105				
6		200.138		1.600	0.600	
7		200.167				
8		200.186				
9		200.102				
10		200.180				

DUC : Device Under Calibration

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

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