



CERTIFICATE OF CALIBRATION

FT-Q-25		Page 1 of 2	
ULR No.	: CC21442300000783F	Date of Issue	: 10-02-2023
Certificate No.	: TVCSPL 23/02/235-02	Recom. Due Date	: 08-02-2024
Date of Calibration	: 09-02-2023	Customer Details	: M/s.FEROKE NEETHI MEDICAL LAB FEROKE KOZHIKODE.
Customer Details	: M/s.FEROKE NEETHI MEDICAL LAB FEROKE KOZHIKODE.	SRF No.	: 235
		Calibrated at	: Lab
		Date of Receipt	: 09-02-2023
		Cond. On Receipt	: Satisfactory
Details of Test Instrument:			
Description	: Micropipette	Model No.	: ERBAPETTE
Range	: 100-1000µl	Serial No.	: 011612817
Least Count	: 5µl	Id. No.	: --
Make	: ERBAPETTE	Accuracy	: --
Location	: --		
Details of Standard Used			
Name	: Weighing Machine	Certificate No.	: TVCSPL 22/03/334-03
		Valid upto	: 28/Feb/23
		Traceability	: TVCSPL, Chennai.
Work Instruction	: WI-M-03		
Environmental Details	: Temperature : 25±2°C	Relative Humidity	: 50±10 % RH
<b>MECHANICAL CALIBRATION</b>			
(Volume)			
<b>Calibration Results</b>			
I. Lower Volume :	100 µl	No. of Measurements :	10
100.05	100.06	100.00	99.92
100.03	100.09	100.00	100.07
100.11	100.14		
Mean Value :	100.05 µl		
<b>Error Limits(±)</b>			
Systematic Error :	0.05 µl	0.80 µl	
Systematic Error :	0.05 %	0.80 %	
Random Error :	0.06 µl	0.30 µl	
Random Error :	0.06 %	0.30 %	
Measurement Uncertainty :	± 0.15 µl		

Calibrated by :  
Vishnu Priyai  
Ms.K.Vishnu Priyai  
(Calibration Engineer)

Authorised by:  
Anand Manoharan  
Mr.Anand Manoharan  
(QM & TM)







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<b>MECHANICAL CALIBRATION</b>			
(Volume)			
<b>Calibration Results</b>			
2. Middle Volume :	500 $\mu$ l	No. of Measurements : 10	
<input type="text" value="501.31"/>	<input type="text" value="500.10"/>	<input type="text" value="499.99"/>	<input type="text" value="500.51"/>
<input type="text" value="500.73"/>	<input type="text" value="500.01"/>	<input type="text" value="500.04"/>	<input type="text" value="499.20"/>
<input type="text" value="499.33"/>	<input type="text" value="499.92"/>		
Mean Value :	<input type="text" value="500.12"/> $\mu$ l		
<b>Error Limits(<math>\pm</math>)</b>			
Systematic Error :	<input type="text" value="0.12"/> $\mu$ l	<input type="text" value="4.00"/> $\mu$ l	
Systematic Error :	<input type="text" value="0.02"/> %	<input type="text" value="0.80"/> %	
Random Error :	<input type="text" value="0.62"/> $\mu$ l	<input type="text" value="1.50"/> $\mu$ l	
Random Error :	<input type="text" value="0.12"/> %	<input type="text" value="0.30"/> %	
Measurement Uncertainty :	<input type="text" value="± 0.18"/> $\mu$ l		
3. Nominal Volume :	1000 $\mu$ l	No. of Measurements : 10	
<input type="text" value="1002.64"/>	<input type="text" value="1002.31"/>	<input type="text" value="1002.90"/>	<input type="text" value="1002.33"/>
<input type="text" value="1001.92"/>	<input type="text" value="1002.13"/>	<input type="text" value="1004.65"/>	<input type="text" value="1003.51"/>
<input type="text" value="1002.97"/>	<input type="text" value="1003.22"/>		
Mean Value :	<input type="text" value="1002.86"/> $\mu$ l		
<b>Error Limits(<math>\pm</math>)</b>			
Systematic Error :	<input type="text" value="2.86"/> $\mu$ l	<input type="text" value="8.00"/> $\mu$ l	
Systematic Error :	<input type="text" value="0.29"/> %	<input type="text" value="0.80"/> %	
Random Error :	<input type="text" value="0.80"/> $\mu$ l	<input type="text" value="3.00"/> $\mu$ l	
Random Error :	<input type="text" value="0.08"/> %	<input type="text" value="0.30"/> %	
Measurement Uncertainty :	<input type="text" value="± 0.19"/> $\mu$ l		

Remarks

1. The reported Expanded Uncertainty is calculated at 95.45 % C.L. with coverage factor  $k=2$
2. The above Micropipette was within the error limits

\* End of Certificate \*

Calibrated by :

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Ms.K.Vishnu Priyai  
(Calibration Engineer)

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Mr. Anand Manoharan  
(QM & TM)

