

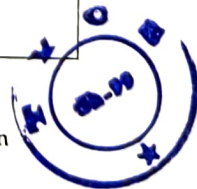


CERTIFICATE OF CALIBRATION

FT-Q-25		Page 1 of 2	
ULR No.	: CC21442300000246F	Date of Issue	: 14-01-2023
Certificate No.	: TVCSPL 23/01/061-01	Recom. Due Date	: 12-01-2024
Date of Calibration	: 13-01-2023	Customer Details	: M/s. Raha diagnostics Oppo Community Health centre, Vadakkekad, Thrissur.
SRF No.	: 061	Calibrated at	: Lab
Date of Receipt	: 13-01-2023	Cond. On Receipt	: Satisfactory
Details of Test Instrument:			
Description	: Micropipette	Model No.	: ---
Range	: 100-1000µl	Serial No.	: ---
Least Count	: 5µl	Id. No.	: ---
Make	: Erba	Accuracy	: As per Manual
Location	: Lab		
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>			
1. 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 :  
*K. Kameswaran*  
 Mr.K.Kameswaran  
 (Calibration Engineer)

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





ULR No. :	CC214423000000246F	Page 2 of 2	
Certificate No. :	TVCSP1 23/01/061-01		
<b>MECHANICAL CALIBRATION</b>			
(Volume)			
<b>Calibration Results</b>			
<b>2. Middle Volume :</b>	<b>500     <math>\mu</math>l</b>	<b>No. of Measurements :     10</b>	
501.31	500.10	499.99	500.51
500.73	500.01	500.04	499.20
499.33	499.92		
<b>Mean Value :</b>	<b>500.12     <math>\mu</math>l</b>		
<b>Error Limits(<math>\pm</math>)</b>			
<b>Systematic Error :</b>	<b>0.12     <math>\mu</math>l</b>	<b>4.00     <math>\mu</math>l</b>	
<b>Systematic Error :</b>	<b>0.02     %</b>	<b>0.80     %</b>	
<b>Random Error :</b>	<b>0.62     <math>\mu</math>l</b>	<b>1.50     <math>\mu</math>l</b>	
<b>Random Error :</b>	<b>0.12     %</b>	<b>0.30     %</b>	
<b>Measurement Uncertainty :</b>	<b><math>\pm</math> 0.18     <math>\mu</math>l</b>		
<b>3. Nominal Volume :</b>	<b>1000     <math>\mu</math>l</b>	<b>No. of Measurements :     10</b>	
1002.64	1002.31	1002.90	1002.33
1001.92	1002.13	1004.65	1003.51
1002.97	1003.22		
<b>Mean Value :</b>	<b>1002.86     <math>\mu</math>l</b>		
<b>Error Limits(<math>\pm</math>)</b>			
<b>Systematic Error :</b>	<b>2.86     <math>\mu</math>l</b>	<b>8.00     <math>\mu</math>l</b>	
<b>Systematic Error :</b>	<b>0.29     %</b>	<b>0.80     %</b>	
<b>Random Error :</b>	<b>0.80     <math>\mu</math>l</b>	<b>3.00     <math>\mu</math>l</b>	
<b>Random Error :</b>	<b>0.08     %</b>	<b>0.30     %</b>	
<b>Measurement Uncertainty :</b>	<b><math>\pm</math> 0.19     <math>\mu</math>l</b>		

Remarks

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

\* End of Certificate \*

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Mr.K.Kameswaran  
(Calibration Engineer)

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*...redefining the true value*





CERTIFICATE OF CALIBRATION

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Date of Calibration	: 13-01-2023	Customer Details	: M/s. Raha diagnostics Oppo Community Health centre, Vadakkekad, Thrissur.
SRF No.	: 061	Calibrated at	: Lab
Date of Receipt	: 13-01-2023	Cond. On Receipt	: Satisfactory
Details of Test Instrument:			
Description	: Micropipette	Model No.	: ---
Range	: 1000 µl	Serial No.	: YE195A1042257
Least Count	: --	Id. No.	: --
Make	: Dragon Lab	Accuracy	: As per Manual
Location	: Lab		
Details of Standard Used			
Name	: Weighing Machine	Certificate No.	: TVCSPL 22/03/334-02
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>			
1. Nominal Volume :	1000 µl	No. of Measurements :	10
<input type="text" value="1002.64"/>	<input type="text" value="1002.32"/>	<input type="text" value="1002.90"/>	<input type="text" value="1002.34"/>
<input type="text" value="1001.91"/>	<input type="text" value="1002.16"/>	<input type="text" value="1004.63"/>	<input type="text" value="1003.51"/>
<input type="text" value="1002.99"/>	<input type="text" value="1003.25"/>		
Mean Value :	<input type="text" value="1002.86"/> µl		
<b>Error Limits(±)</b>			
Systematic Error :	<input type="text" value="2.86"/> µl	<input type="text" value="8.00"/> µl	
Systematic Error :	<input type="text" value="0.29"/> %	<input type="text" value="0.80"/> %	
Random Error :	<input type="text" value="0.80"/> µl	<input type="text" value="3.00"/> µl	
Random Error :	<input type="text" value="0.08"/> %	<input type="text" value="0.30"/> %	
Measurement Uncertainty :	<input type="text" value="± 0.19"/> µl		

Remarks

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

\* End of Certificate \*

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Date of Calibration	: 13-01-2023	SRF No.	: 061
Customer Details	: M/s. Raha diagnostics Oppo Community Health centre, Vadakkkad, Thrissur.	Calibrated at	: On-Site
		Date of Receipt	: 13-01-2023
		Cond. On Receipt	: Satisfactory
<b>Details of Test Instrument:</b>			
Description	: Centrifuge	Model No.	: 80-2
Range	: 1000 - 4000 RPM	Serial No	: 1211
Least Count	: 100 RPM	Identification No.	: ---
Make	: LabTech	Accuracy	: As Per Manual
Working range	: --	Location	: Lab
<b>Details of Standard Used</b>			
Name	Certificate No.	Valid upto	Traceability
Digital Tachometer	HT/CC/220901-26/001	31-Aug-23	HI TECH
Work Instruction	: WI-R-05		
Environmental Details	: Temperature: 25±5 °C	Relative Humidity:	40-70 % RH

### MECHANICAL CALIBRATION

(Acceleration & Speed)

#### Calibration Results

Sr.No.	Test Reading	Standard Reading	Error	Uncertainty
	RPM	RPM	RPM	±RPM
1	1000	1001	1	2.5
2	2000	2003	3	2.5
3	3000	3005	5	2.8
4	4000	4006	6	2.9

**Remarks:-**

1. Standard reading given was the average of 3 measurements
2. The reported Expanded Uncertainty is calculated at 95.45 % C.I. with coverage factor  $k=2$

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