Cert No. CC-2543

Medical Engineering & Services
Things Beyond Thoughts

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Kokkalai,Thrissur-21. Ph: 0487 2420367
Email: mescalibration.tsr@gmail.com
Visit us @www.mescalibration.com

CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/058-01	ULR Number	:	CC254324000000353F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**19/03/2024**	SRF Number	:	**058**
Next Calibration Due	:	**18/03/2025**	Date of Issue	:	**19/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	YN21BG0013026
Make / Model	:	Mispa i 2	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	1 µl
Range	:	20 - 200 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.5	55	1007	26.3

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	20	19.95	0.05	0.40	0.03	0.20	0.819
2	100	100.11	-0.11	1.40	0.19	0.60	0.902
3	200	200.42	-0.42	12.00	0.32	4.00	1.099

Notes: -

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- The measurement uncertainty is estimated at a confidence level of 95.45% with coverage factor k=2.
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- Calibration certificate issued for scientific or industrial purpose only.
- Acceptable error limit is given as per ISO 8655-2:2002(E) Guidelines
- Calibration is carried out as per ISO 8655-6 Guidelines;MES work procedure: MES/WP/VOLUME.

Calibrated by
Prabin KP
(Calibration Engineer)

MEDICAL ENGINEERING & SERVICES THRISSUR-1

Authorized Signatory
Binoj Thomas
(Technical Manager)

Cert No. CC-2543

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/058-03	ULR Number	:	CC254324000000355F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**19/03/2024**	SRF Number	:	**058**
Next Calibration Due	:	**18/03/2025**	Date of Issue	:	**19/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	YN21BAG0013028
Make / Model	:	Mispa i 2	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	1 µl
Range	:	20 - 200 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.9	57	1007	26.7

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	20	19.97	0.03	0.40	0.03	0.20	0.819
2	100	100.27	-0.27	1.40	0.04	0.60	0.821
3	200	200.46	-0.46	12.00	0.32	4.00	1.091

Notes: -

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/058-02	ULR Number	:	CC254324000000354F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**19/03/2024**	SRF Number	:	**058**
Next Calibration Due	:	**18/03/2025**	Date of Issue	:	**19/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	YE20BAS0077285
Make / Model	:	Dragon Lab	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	0 µl
Range	:	50 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.7	58	1007	26.5

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	50	50.04	-0.04	0.50	0.06	0.20	0.183

Notes: -

- The results in this certificate are only related to DUC submitted calibration and valid at the time of calibration under stated condition of measurements
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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/053-03	ULR Number	:	CC254324000000316F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**14/03/2024**	SRF Number	:	**053**
Next Calibration Due	:	**13/03/2025**	Date of Issue	:	**14/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	YE202AM0110224
Make / Model	:	Dragon Lab	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	5 µl
Range	:	100 - 1000 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.7	57	1007	26.5

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	100	100.32	-0.32	1.40	0.02	0.60	4.083
2	500	502.05	-2.05	12.00	0.06	4.00	4.085
3	1000	1004.20	-4.20	12.00	0.12	4.00	4.093

Notes: -

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/053-04	ULR Number	:	CC254324000000317F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**14/03/2024**	SRF Number	:	**053**
Next Calibration Due	:	**13/03/2025**	Date of Issue	:	**14/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	YE175AB0105015
Make / Model	:	Erba Mannheim	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	1 µl
Range	:	10 - 100 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.9	55	1007	26.7

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	10	9.96	0.04	0.12	0.02	0.08	0.817
2	50	50.07	-0.07	0.50	0.04	0.20	0.820
3	100	100.25	-0.25	1.40	0.05	0.60	0.823

Notes: -

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- Calibration is carried out as per ISO 8655-6 Guidelines;MES work procedure: MES/WP/VOLUME.

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/053-05	ULR Number	:	CC254324000000318F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**14/03/2024**	SRF Number	:	**053**
Next Calibration Due	:	**13/03/2025**	Date of Issue	:	**14/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	387464
Make / Model	:	Hemostar	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	0 µl
Range	:	100 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
27.3	57	1007	27.1

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	100	100.28	-0.28	1.40	0.06	0.60	0.179

Notes: -

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/053-06	ULR Number	:	CC254324000000319F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**14/03/2024**	SRF Number	:	**053**
Next Calibration Due	:	**13/03/2025**	Date of Issue	:	**14/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	PW13793
Make / Model	:	Themo Scientific/ Finnpipette F3	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	10 µl
Range	:	500 – 5000 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
27.5	56	1007	27.3

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	500	502.21	-2.21	12.00	0.01	4.00	8.165
2	2500	2511.53	-11.53	40.00	0.09	15.00	8.176
3	5000	5022.62	-22.62	40.00	0.33	15.00	8.226

Notes: -

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/053-02	ULR Number	:	CC254324000000315F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**14/03/2024**	SRF Number	:	**053**
Next Calibration Due	:	**13/03/2025**	Date of Issue	:	**14/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	YN4A009301
Make / Model	:	Mispa i 2	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	1 µl
Range	:	20 - 200 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.5	56	1007	26.3

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	20	19.95	0.05	0.40	0.01	0.20	0.817
2	100	100.20	-0.20	1.40	0.09	0.60	0.838
3	200	200.42	-0.42	12.00	0.32	4.00	1.095

Notes: -

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- Calibration is carried out as per ISO 8655-6 Guidelines;MES work procedure: MES/WP/VOLUME.

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(Calibration Engineer)

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CALIBRATION CERTIFICATE

Certificate Number	:	MES24/03/053-01	ULR Number	:	CC254324000000314F
Customer Details	:	**SPARSHA DIAGNOSTICS, UPPER BENDOOR, MANGALORE.**			
Date of Calibration	:	**14/03/2024**	SRF Number	:	**053**
Next Calibration Due	:	**13/03/2025**	Date of Issue	:	**14/03/2024**

DETAILS OF DEVICE UNDER CALIBRATION(DUC)

Nomenclature	:	Micropipette	Serial No.	:	NK479663
Make / Model	:	Matrix Gel System	ID No.	:	-
Equipment Condition	:	Good	Resolution	:	0 µl
Range	:	50 µL	Location	:	Central Laboratory

DETAILS OF MASTER EQUIPMENT USED

Nomenclature	:	Electronic Precision Balance	Range	:	0 – 210 gm
Make	:	Boeco Germany	Readability	:	0.01/0.1 mg
Model	:	BBC-22	Serial No.	:	27104178
Certificate No.	:	TVCSPL 23/10/1135-01	Calibration Due Date	:	02.10.2024

ENVIRONMENTAL CONDITIONS

Temperature(°C)	Relative Humidity (%)	Atmospheric Pressure (mbar)	Water Temperature(°C)
26.3	58	1007	26.1

CALIBRATION RESULTS

Discipline : **Mechanical** Parameter : **Volume**

Sl. No.	Set Volume	Standard Value	Systematic Error	Acceptable Systematic Error	Random Error	Acceptable Random Error	Expanded Uncertainty
	µl	µl	µl	± µl	µl	± µl	± µl
1	50	50.06	-0.06	0.50	0.05	0.20	0.131

Notes: -

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- Acceptable error limit is given as per ISO 8655-2:2002(E) Guidelines
- Calibration is carried out as per ISO 8655-6 Guidelines;MES work procedure: MES/WP/VOLUME.

Calibrated by
Prabin
Prabin KP
(Calibration Engineer)

MEDICAL ENGINEERING & SERVICES THRISSUR-1

Authorized Signatory
Binoj Thomas
(Technical Manager)

ULR No. : CC214424000001742F Page 2 of 2

Certificate No. : TVCSPL 24/03/0362-01

MECHANICAL CALIBRATION

(Volume)

Calibration Results

2. Middle Volume : 10 µl **No. of Measurements :** 10

10.02	10.04	9.96	10.03
9.88	10.02	9.97	9.92
10.00	9.97		

Mean Value : 9.99 µl

			Error Limits(±)	
Systematic Error :	-0.01	µl	0.12	µl
Systematic Error :	-0.14	%	1.20	%
Random Error :	0.05	µl	0.08	µl
Random Error :	0.52	%	0.80	%

Measurement Uncertainty : ± 0.26 µl

3. Nominal Volume : 20 µl **No. of Measurements :** 10

19.97	19.91	20.09	19.95
19.98	20.00	19.97	20.04
19.93	20.06		

Mean Value : 19.99 µl

			Error Limits(±)	
Systematic Error :	-0.01	µl	0.20	µl
Systematic Error :	-0.03	%	1.00	%
Random Error :	0.06	µl	0.10	µl
Random Error :	0.29	%	0.50	%

Measurement Uncertainty : ± 0.26 µl

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
3. Masters are Traceable to SI Units.

* End of Certificate *

Calibrated by :
M.Jeevitha
Ms.Jeevitha
(Calibration Engineer)

Authorised by:
D.Vetri Selvi
(QM & TM)

TRUEVALUE CALIBRATION SERVICES PVT LTD.,

CC-2144

CERTIFICATE OF CALIBRATION

FT-Q-25

ULR No.	:	CC214424000001742F			
Certificate No.	:	TVCSPL 24/03/0362-01	Date of Issue	:	17-03-2024
Date of Calibration	:	15-03-2024	Recom. Due Date	:	14-03-2025
Customer Details	:		SRF No.	:	0362
M/s. Sparsha Diagnostics,			Calibrated at	:	Lab
Mangalore - 575 002.			Date of Receipt	:	15-03-2024
			Cond. On Receipt	:	Satisfactory

Details of Test Instrument:

Description	:	Micropipette	Model No.	:	Mispa-i-series
Range	:	2-20µl	Serial No.	:	OW12967
Least Count	:	0.02µl	Id. No.	:	--
Make	:	Agappe	Accuracy	:	As per Manual
Location	:	Central Laboratory			

Details of Standard Used :

Name	Certificate No.	Valid upto	Calibrated at
Weighing Machine	TVCSPL 24/03/0260-01	04-03-2025	CC-2144
Weighing Machine	TVCSPL 24/02/0219-03	23-02-2025	CC-2144

Work Instruction : WI-M-03

Environmental Details : Temperature : 25±2°C Relative Humidity : 50±10 % RH

MECHANICAL CALIBRATION

(Volume)

Calibration Results

1. Lower Volume : 2 µl **No. of Measurements :** 10

1.951	1.952	1.972	1.991
1.954	1.992	1.966	1.961
1.976	2.003		

Mean Value : 1.972 µl

			Error Limits(±)	
Systematic Error :	-0.03	µl	0.08	µl
Systematic Error :	-1.42	%	4.00	%
Random Error :	0.02	µl	0.04	µl
Random Error :	0.93	%	2.00	%

Measurement Uncertainty : ± 0.094 µl

Calibrated by :
M.Jeevitha
Ms.Jeevitha
(Calibration Engineer)

T.V.C.S.P.L. CH-99

Authorised by:
D.Vetri Selvi
(QM & TM)