



|                                                                                                           |                                  |                                                                                                                                          |                     |
|-----------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| <b>ULR-CC25482600006352F</b>                                                                              |                                  | <b>Certificate Number : CFC2026-791-FL/1</b>                                                                                             |                     |
| <b>Date of Issue : 03.04.2026</b>                                                                         |                                  |                                                                                                                                          |                     |
| <b>Customer Name And Address</b>                                                                          |                                  | M/S. VSAN ELECTRICALS AND SENSORS<br>No-10,RajaRajan Nagar Extension , Krishna Industrial Estate<br>Vanagaram, Chennai, Tamil Nadu 60009 |                     |
| Customer Reference                                                                                        |                                  | Equipment Received on : 28.03.2026                                                                                                       |                     |
| <b>Details of the Instrument</b>                                                                          |                                  |                                                                                                                                          |                     |
| Location                                                                                                  | --                               |                                                                                                                                          |                     |
| Machine Name / Number                                                                                     | --                               |                                                                                                                                          |                     |
| Description                                                                                               | Mass Flowmeter                   |                                                                                                                                          |                     |
| Make                                                                                                      | VSAN Electricals & Sensors       |                                                                                                                                          |                     |
| Model                                                                                                     | VSAN-150-Y-2-U-2-H2.5-PE-I-0.2-D |                                                                                                                                          |                     |
| Serial Number                                                                                             | H80053-150                       |                                                                                                                                          |                     |
| Identification Number                                                                                     | --                               |                                                                                                                                          |                     |
| Range                                                                                                     | 600 TPH                          |                                                                                                                                          |                     |
| Operating Range                                                                                           | --                               |                                                                                                                                          |                     |
| Resolution                                                                                                | 0.01/0.1 TPH                     |                                                                                                                                          |                     |
| Size                                                                                                      | DN 150                           |                                                                                                                                          |                     |
| Medium                                                                                                    | Water                            |                                                                                                                                          |                     |
| Accuracy                                                                                                  | ±0.05%                           |                                                                                                                                          |                     |
| Equipment received on                                                                                     | 28.03.2026                       |                                                                                                                                          |                     |
| Condition of the equipment on receipt                                                                     | Good                             |                                                                                                                                          |                     |
| Calibration Procedure Number                                                                              | CFC/WI-F02                       |                                                                                                                                          |                     |
| Method of Calibration                                                                                     | Gravimetric method               |                                                                                                                                          |                     |
| Date of Calibration                                                                                       | 31.03.2026                       |                                                                                                                                          |                     |
| Date of Next Calibration Suggested                                                                        | 31.03.2027                       |                                                                                                                                          |                     |
| <b>Calibration Environments</b>                                                                           |                                  |                                                                                                                                          |                     |
| Temperature                                                                                               | 28.1°C                           |                                                                                                                                          |                     |
| Relative Humidity                                                                                         | 52%                              |                                                                                                                                          |                     |
| <b>Master Instrument Details</b> (The Standards used are traceable to National / International Standards) |                                  |                                                                                                                                          |                     |
| <b>Nomenclature</b>                                                                                       | <b>Certificate No.</b>           | <b>Validity</b>                                                                                                                          | <b>Traceability</b> |
| Electronic Weighing Balance                                                                               | EWS-0326-232                     | 26.03.2027                                                                                                                               | MARUTI              |
| Electronic Weighing Balance                                                                               | EWS-0326-233                     | 26.03.2027                                                                                                                               | MARUTI              |
| Pressure Transmitter                                                                                      | CFC2025-2646-PL/1                | 03.11.2026                                                                                                                               | NAGMAN              |
| Temperature Indicator with Sensor                                                                         | CFC2025-2646-TL/2                | 03.11.2026                                                                                                                               | NAGMAN              |
| Universal Frequency Counter/Timer                                                                         | 2361225-E03                      | 19.12.2026                                                                                                                               | NORTH LAB           |

**Remarks**

1. The above UUC was calibrated at Lab.
2. UUC is defined as Unit Under Calibration.
3. The above equipment was calibrated by Mr.K.Ramalingam.
4. The calibration certificate shall not be reproduced except in full without written approval of CFC.
5. The calculated expanded uncertainty includes repeatability, resolution & uncertainty on measurements.
6. The measurement results relate only to the item calibrated.
7. The decision rule will be applied based on Statement of Conformity requested by the Customer.
8. The results are provided as observed without any adjustments.
9. The Uncertainty stated is the expanded uncertainty of measurement obtained by multiplying the standard uncertainty by the coverage factor correspond to confidence level of 95%. & k = 2.72.
10. No deviation or exclusion from the calibration method.
11. The results are found compliance to manufacturer specifications.

**Checked By**  
  
K.Ramalingam  
Assistant Manager

Digitally signed by DS NAGMAN  
 CALIBRATION SERVICES LLP 03  
 Reason: Calibration Certificate  
 Location: CHENNAI  
 Date: 2026-04-03 09:50+05:30



**Authorised Signatory**  
  
D.Arun  
Technical Manager



CFC/FT-01/7.8/R8

**CALIBRATION CERTIFICATE**  
*Centre for Calibration*  
**NAGMAN CALIBRATION SERVICES LLP**

No.168/7, Chennai-Bangalore National Highway,  
Chembarambakkam, Chennai - 600 123. Tamil Nadu, INDIA.  
Email : cfcchennai@nagman.com, calibration@nagman.com  
Website : www.nagman-calibration.com



**ULR-CC254826000006352F**

**Certificate Number : CFC2026-791-FL/1**

**A. METHOD OF CALIBRATION :**

- i The meter to be calibrated was installed in a standard test line of water flow laboratory. The line was flooded and entrapped air cleared using Headers. Constant Head Tank/ Direct pumping were the flow source for the calibration.
- ii. Direct pumping was employed to obtain higher flow rates. When flow conditions had stabilised, the actual flow rate was determined by collecting water for a measured time interval in the weighing system.
- iii. A high precision frequency counter was used to determine the time of collection. Digital Multimeter was used to acquire and average the current or pulse output of the test meter. The temperature of water was determined using on-line RTD's and density using Density meter. Line Pressure is monitored during calibration using Pressure devices.
- iv. The flow rate, k-Factor and percentage error in total flow and flow rate obtained from current or pulse output were then computed as given in the sample calculations.
- v. This procedure was repeated for the other flow rates covering the entire flow range.

**Checked by**

K.Ramalingam  
Assistant Manager

**Authorised Signatory**

D.Arun  
Technical Manager



CFC/FT-01/7.8/R8

**CALIBRATION CERTIFICATE**  
*Centre for Calibration*  
**NAGMAN CALIBRATION SERVICES LLP**

No.168/7, Chennai-Bangalore National Highway,  
 Chembarambakkam, Chennai - 600 123. Tamil Nadu, INDIA.  
 Email : cfcchennai@nagman.com, calibration@nagman.com  
 Website : www.nagman-calibration.com



CC-2548

ULR-CC254826000006352F

Certificate Number : CFC2026-791-FL/1

**NOMENCLATURE**

|        |                                                                |
|--------|----------------------------------------------------------------|
| Pup    | Pressure at the upstream side of the UUC (bar)                 |
| W1     | Initial mass of the weigh tank (kg)                            |
| W2     | Final mass of the weigh tank (kg)                              |
| W      | New mass of the water collected (kg)                           |
| B      | Buoyancy correction factor = 1.00106                           |
| t      | Time of collection of water (s)                                |
| $\rho$ | Density of water at line temperature (kg/m <sup>3</sup> )      |
| Qa     | Actual volume flow rate determined by gravimetric method (t/h) |
| Qc     | Flow rate obtained from Test Flow Meter (t/h)                  |

|                     |                                                                |     |
|---------------------|----------------------------------------------------------------|-----|
| Qa, Actual flowrate | $\frac{(W_2 - W_1) \times 1.00106 \times 3600}{t \times 1000}$ | t/h |
|---------------------|----------------------------------------------------------------|-----|

|             |                                   |   |
|-------------|-----------------------------------|---|
| % Dev in Qc | $\frac{(Qc - Qa)}{Qa} \times 100$ | % |
|-------------|-----------------------------------|---|

**Checked by**

K.Ramalingam  
 Assistant Manager

**Authorised Signatory**

D.Arun  
 Technical Manager

Page 03 of 05



CFC/FT-01/7.8/R8

**CALIBRATION CERTIFICATE**  
Centre for Calibration  
**NAGMAN CALIBRATION SERVICES LLP**

No.168/7, Chennai-Bangalore National Highway,  
Chembarambakkam, Chennai - 600 123. Tamil Nadu, INDIA.  
Email : cfcchennai@nagman.com, calibration@nagman.com  
Website : www.nagman-calibration.com



CC-2548

ULR-CC254826000006352F

Certificate Number : CFC2026-791-FL/1

**CALIBRATION DATA****Fluid Flow - Flow Measuring Devices**

**Flow Element** : Mass Flowmeter  
**Size** : DN 150  
**Flow Range** : 600 TPH

**Calibration Fluid** : Water

| SL. No. | Pup  | W1 | W2   | t         | T    | Density           | Qa       | Qc    | Dev in Qc | Exp.Unc<br>± |
|---------|------|----|------|-----------|------|-------------------|----------|-------|-----------|--------------|
|         | bar  | kg | kg   | s         | °C   | kg/m <sup>3</sup> | t/h      | t/h   | %         | %            |
| 1       | 0.26 | 3  | 568  | 55.687476 | 28.5 | 996.14            | 36.5640  | 36.58 | 0.044     | 0.21         |
| 2       | 0.27 | 5  | 573  | 55.860833 | 28.5 | 996.14            | 36.6441  | 36.66 | 0.044     |              |
| 3       | 0.26 | 2  | 576  | 56.513403 | 28.5 | 996.14            | 36.6035  | 36.62 | 0.045     |              |
| 4       | 0.51 | 4  | 2198 | 61.457099 | 28.5 | 996.14            | 128.6552 | 128.7 | 0.035     | 0.23         |
| 5       | 0.52 | 8  | 2167 | 60.524820 | 28.5 | 996.14            | 128.5529 | 128.6 | 0.037     |              |
| 6       | 0.52 | 5  | 2185 | 61.209523 | 28.5 | 996.14            | 128.3513 | 128.4 | 0.038     |              |
| 7       | 1.26 | 3  | 4985 | 59.571001 | 28.5 | 996.14            | 301.3918 | 301.5 | 0.036     | 0.24         |
| 8       | 1.27 | 6  | 4897 | 58.539269 | 28.4 | 996.17            | 301.1015 | 301.2 | 0.033     |              |
| 9       | 1.27 | 7  | 4963 | 59.221729 | 28.4 | 996.17            | 301.5871 | 301.7 | 0.037     |              |
| 10      | 2.52 | 22 | 7262 | 61.281999 | 28.4 | 996.17            | 425.7633 | 425.9 | 0.032     | 0.20         |
| 11      | 2.53 | 14 | 7218 | 61.055580 | 28.4 | 996.17            | 425.2173 | 425.4 | 0.043     |              |
| 12      | 2.53 | 16 | 7236 | 61.159090 | 28.4 | 996.17            | 425.4405 | 425.6 | 0.038     |              |
| 13      | 2.96 | 18 | 9538 | 62.126892 | 28.4 | 996.17            | 552.2299 | 552.4 | 0.031     | 0.25         |
| 14      | 2.96 | 6  | 9426 | 61.452726 | 28.4 | 996.17            | 552.4238 | 552.6 | 0.032     |              |
| 15      | 2.96 | 12 | 9412 | 61.368268 | 28.4 | 996.17            | 552.0096 | 552.2 | 0.034     |              |

**Checked by**

K.Ramalingam  
Assistant Manager

**Authorised Signatory**

D.Arun  
Technical Manager

Page 04 of 05



CFC/FT-01/7.8/R8

**CALIBRATION CERTIFICATE**  
*Centre for Calibration*  
**NAGMAN CALIBRATION SERVICES LLP**

No.168/7, Chennai-Bangalore National Highway,  
Chembarambakkam, Chennai - 600 123. Tamil Nadu, INDIA.  
Email : cfcchennai@nagman.com, calibration@nagman.com  
Website : www.nagman-calibration.com

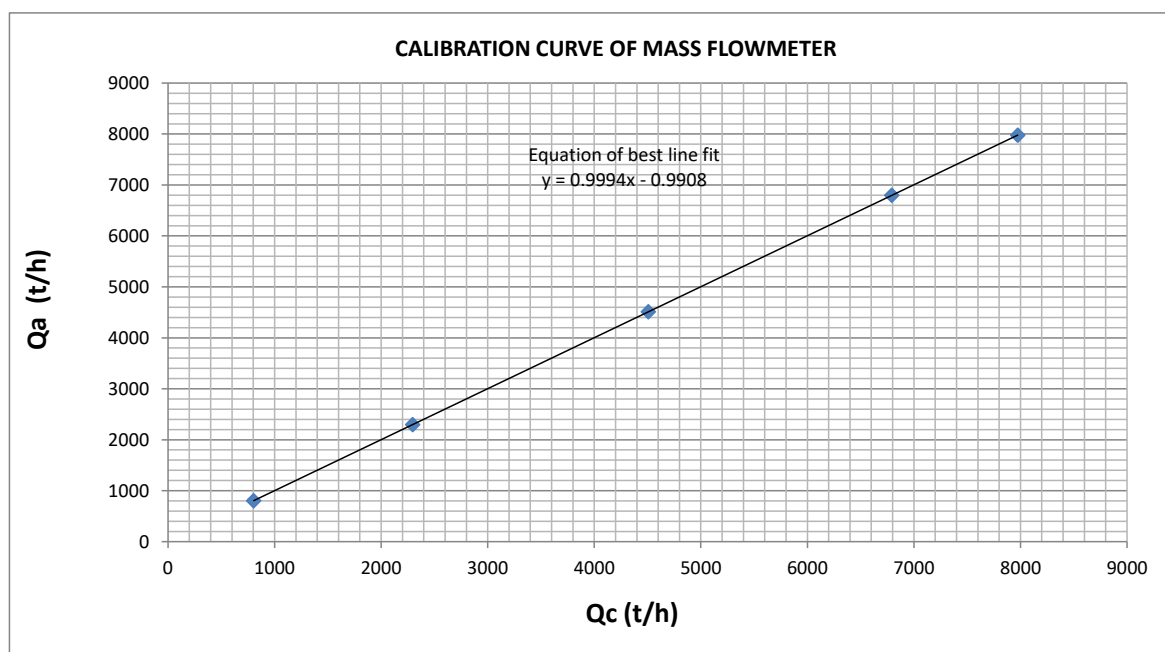


CC-2548

ULR-CC254826000006352F

Certificate Number : CFC2026-791-FL/1

**CALIBRATION DATA CHART**



**Checked by**

K.Ramalingam  
Assistant Manager

**Authorised Signatory**

D.Arun  
Technical Manager

Page 05 of 05

----- End of the Report -----

Signature Is not required as it is generated through software