



PHARMA DEVILS

ENGINEERING DEPARTMENT

STANDARD OPERATING PROCEDURE

Department: Engineering	SOP No.:
Title: Calibration of Flowmeter	Effective Date:
Supersedes: Nil	Review Date:
Issue Date:	Page No.:

1.0 OBJECTIVE:

To lay down the procedure for Calibration of Flow Meter

2.0 SCOPE:

This standard operating procedure (SOP) is applicable for Calibration of flow meter.

3.0 RESPONSIBILITY:

Executive Engineering will perform the Calibration and prepare the data sheet.

Manger Engineering will check the data sheet and calibration certificate.

Manager QA will verify & approved the data and calibration certificate.

4.0 PROCEDURE:

4.1 Procedure For Calibration

4.1.1 Refer SOP No:..... for calibration due date of field instruments.

4.1.2 Informs to concern department supervisor for the calibration of flow meter.

4.1.3 Take calibrated bucket/container, which is to be used for collection of water at the outlet of flow meter

4.1.4 Pass the water in the flow meter to be calibrated.

4.1.5 Collect the water at the outlet of flow meter in calibrated bucket/container.

4.1.6 Stop the flow of water in the flow meter after collection of required quantity and note down the time taken by it by using calibrated Stop Watch.

4.1.7 Record the reading of flow tantalizer of the flow meter.

4.1.8 Calculate the flow by the collected water and time taken as follow:

4.2.8.1 Collected Water: ----- in Liters

4.2.8.2 Time Taken: ----- in Min.

4.2.8.3 Calculated Total flow in (LPH) =(Collected Water/Time Taken)* 60

4.1.9 Compare the calculated total flow of the water and reading of flow tantalizer. The error should not be more than acceptable limit.

4.1.10 If the error is more than acceptable limit, adjust the calibration factor of the flow meter to read the flow rate correctly.

4.1.11 Recheck the flow meter by repeating the steps 4.2.3 to 4.2.8.

4.1.12 Note down the observations in calibration certificate.

4.1.13 Calculate the % accuracy at full-scale deflection of instrument under calibration by using formula.

S

% Accuracy at FSD = -----X 100



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F.S.

S = Deviation from standard.

F.S = Full scale deflection.

- 4.1.14 Note down % accuracy of F.S.D. in calibration certificate.
- 4.1.15 If Flow meter is beyond repair, dispose it and install another calibrated Flow meter on its location
- 4.1.16 Fill up the calibrated tag and attached with calibrated flow meter
- 4.1.17 Inform to concerned supervisor regarding completion of calibration activity
- 4.1.18 Reinstall the flow meter at its specified location.

4.2 Acceptance Criteria

- 4.2.1 Maximum acceptable error is. $\pm 2\%$ F.S.D

5.0 SAFETY AND PRECAUTIONS:

Not Applicable

6.0 REVISION HISTORY:

Revision No.	Reason for Revision	Superseded from & date
00	New	-----

7.0 REFERENCES:

N/A

8.0 ABBREVIATIONS:

SOP: Standard Operating Procedure.

FSD: Full Scale Deflection.

9.0 ANNEXURE:

Annexure I: Calibration certificate.



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ANNEXURE I CALIBRATION CERTIFICATES

Certificate No.:	Calibration On:
Tested at:	Next Due On:

ITEM DETAILS

Nomenclature: Flow Meter	Location:
ID:	Ambient Temperature:
Range:	RH:
Least Count:	

STANDARDS USED FOR CALIBRATION

S.No	Nomenclature	Certificate No.	Trace ability to	Validity
1	Calibrated Buckets/Container			
2	Stop Watch			

OBSERVED READINGS

S.No	Flow Indicator Reading in (LPH)	Collected Water in (L)	Time Taken in (Min)	Calculated Total flow (LPH)	Accuracy (In % Of FSD)
No.					
1.					
2.					
3.					
4.					
5.					

REMARKS: 1. Maximum accuracy of this meter is within / outside specified limit.
2. All measurement standards used for calibration are traceable to National Standards with unbroken chain.

Calibrated By:

Certified By: