TOP LOADING ORIFICE CALIBRATOR

Available Models
PSI-TLOC1, PSI-TLOC2

Accurate flow measurement is fundamental to this method for accurate determination of the extent of pollution in the air. US EPA and other pollution control authorities recommend that an air sampler (particularly high volume sampler) should be calibrated at regular intervals in the field using a calibrated orifice flow rate transfer standard. The orifice transfer standard should be recertified once every year. The set of five multi-hole resistance plates are used to change the flow through the orifice so that several points can be obtained for the air sampler calibration curve

Salient Features

- Designed as per EPA specification
- Precision SS Orifice
- Portable compact light weight Multi-function electronic unit
- Digital display of
  - Flow for STP & operating conditions
  - Differential Pressure across orifice
  - Operating temperature

Change photo

Polltech"s Top Loading Orifice Calibrator is an equipment, designed as per EPA specifications, which makes easy the task of in-field calibration of blower flow meter in High Volume samplers and High Volume PM10 Samplers of Polltech make as well as all other standard makes. Top Loading Orifice Calibrator is a flow transfer standard which can be taken to the field for in in-situ calibration of the samplers without disassembling any flow measuring device of the sampler.

The TLOC assembly is fabricated as per US EPA design. It consists of a base plate, cylindrical pipe, an orifice plate, gaskets and mounting accessories. The base plate matches the filter holder and can be fixed directly to it in place of the pressure plate. It has provision for introducing and holding in place one of the 5 resistance plates at a time. The cylindrical pipe is mounted directly on top of the resistance plate. The transfer standard orifice is fixed on the top of the cylindrical pipe. A pressure tap below the orifice is provided on the cylindrical pipe. This tap is used to measure pressure across the orifice, which is a measure of flow. The cylindrical pipe also has a provision for accommodating a temperature sensor (for TLOC2).

Top Loading Orifice Calibrator model PSI-TLOC1 comprises a base plate, an orifice assembly, a set of five multiple resistance plates a manometer assembly. The manometer assembly employed in model PSI-TLOC1 is a U-Tube Manometer for measurement of differential pressure across orifice. The flow is determined from the calibration graph of flow v/s dp provided with the calibrator.

Top Loading Orifice Calibrator model PSI-TLOC 2 is a very advanced model with digital display of flow at operating conditions as well as corrected for STP conditions. It comprises a base plate, an orifice assembly, a set of five multiple resistance plates and an Electronic unit with a solid state pressure sensor for measurement of Δp.

Electronic unit used in PSI-TLOC2 is a microprocessor based unit which houses the pressure sensor and performs the tasks of interfacing with sensors, timing, computations, flow computations and operator interface. The unit has a provision for showing the flow under operating conditions as well as flow corrected for ASTP conditions i.e. 25^0C & 760 mm Hg absolute pressure.

The Orifice assembly is calibrated with a certified digital flow calibrator and a calibration graph is provided for model PSI-TLOC1. However for advanced model PSI-TLOC2, a ten point calibration table is stored in its non-volatile memory to achieve higher accuracy.

Detailed Technical Specifications

Orifice Assembly

Model → Specification↓	PSI-TLOC1	PSI-TLOC2
Base Plate size	Suitable for 8" x 10" standard filter holder	
Cylindrical housing	With pressure tap nozzle	With pressure tap nozzle & temperature sensor union
Orifice Plate	Precision machined SS as per USEPA mounted on cylindrical housing	
Resistance plates	5 plates – 1 each with 17, 13, 10, 7 & 5 holes for varying flows	
Material of construction	Aluminum with high quality finish	
Dimensions & Weight	Size - 33 x 24 x 19 Cms. Weight- 2.7 Kg.	

Manometer Assembly (PSI-TLOC1)

Functions	Pressure measurement
Flow Range	500 to 2000 LPM
Flow Measurement Accuracy	±2% of Full Scale
Pressure Measurement Range	20 – 0 – 20 cm WC
Manometer Type	U-tube glass
Scale Graduation Resolution	1 mm
Enclosure	Aluminum with acrylic front
Calibration Report	Provided with traceability to National standard
Dimensions & Weight	Size-500 x 80 x 40 mm Weight.-0.9 Kg.

Electronic unit (PSI-TLOC2)

Functions	∆p Pressure measurement, Absolute Pressure measurement Temperature measurement Flow computation at operating conditions Flow computation at STP Operator interface
Flow Range	250 to 2500 LPM with a resolution of 1 LPM
Flow measurement accuracy	±2% of reading with multi point Linearization
DP Pressure Sensor Range **Absolute Pressure Sensor Range**	550 mmWC 1050.0 mbar
Temperature range	5^0C to 50^0C
Display	32 character Alphanumeric LCD
Operating keys	3
Operating Power supply	6 V - 4 x1.5 V Dry Cells or **AC adaptor or rechargeable Li-ion Battery**
Cabinet	High quality ABS
Calibration Report	Provided with traceability to National standard
Dimensions & Weight	210 x 200 x 50 mm 1 kg

Calibration Report

Provided with traceability to National standard

Accessories

TLOC Base plate suitable for fixing to Envirotech Respirable Dust Sampler, Carrying Case made of ABS

Related Products

Low Flow Digital Calibrator Model PSI-DFC1L
Air Flow Calibrator PSI - AFC1L, PSI- AFC1M, PSI- AFC1H
Digital Flow Meter Model PSI-DFM1L, Model PSI-DFM1M, Model PSI-DFM1H
Digital Orifice Flow Calibrator Model PSI – OFC1, Model PSI-OFC2, Model PSI-OFC3
LFE Gas Flow Calibrator Model-PSI-LGFC-1

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