

Perfection in fluids.

The right *flow*
by German engineering.



SMF[®] - MFC | Mobile Flow Calibrator

Compressed air operation

Data Sheet EPE-160352





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Made in
GERMANY



Similar to Figure

Technical data

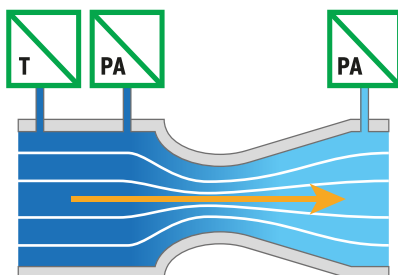
Mass flow with air	0.2...100 kg/h
Volumen flow	0.1...18 m³/h
Accuracy	up to 0.3% (Version A) up to 0.4% (Version B)
Medium	atm. air, compressed air, natural gas, hydrogen, other gases
Dimensions (L x W x H)	500 x 400 x 420 mm
Weight	approx. 40 kg

Measurement sizes

Pressure abs. in front of nozzle	P_{NOZZLE}
Pressure abs. behind nozzle	P_{NOZZLE}
Pressure abs. in front of DUT	P_{DUT}
Temperature in front of nozzle	T_{NOZZLE}
Temperature in front of DUT	T_{DUT}
Rel. humidity DUT	rH_{DUT}
Pressure abs. environm.	P_{amb}
Temperature environm.	T_{amb}
Rel. humidity environm.	rH_{amb}



This is only an **example** interpretation and is of course individually adaptable to your needs.



Measurement principle

Sonic Master Flow®

Mobile flow calibration with sonic nozzles

Operation with air or other gases in overpressure
3 sonic nozzles with inlet pressure control
Mass flows up to 100 kg/h

Description

The system generates a precise air mass or air volume flow for the calibration of flow devices. Another characteristic is the regulation of an exact test pressure over a test item and the measurement of the resulting air volume flow through this test item. This measurement is made via the nozzles which are operated in the "critical state" (this is speed of sound in the narrowest section of the nozzle). With measured volume flow through the test item and the compensation (measurement of the temperature in front of the item) of temperature effects, the software calculates the effective cross section of the item. This method is used to determine the cross-section (effective area) or diameter determination of hard-to-reach holes that can not be determined by geometric measurement methods. The components are, for example, components for gas turbines, burners, injection nozzles or aircraft engines.

The system is controlled by a PC with precise measurement data acquisition hardware and measurement and control software under LabVIEW.

Advantages

- ✓ Compact design
- ✓ Integrated inlet section
- ✓ Highest accuracy - up to 0.15% MV
- ✓ Approved by the PTB as a calibration standard
- ✓ Representation of volume flow or mass flow
- ✓ Flexible adaptation of nozzles to customer requirements
- ✓ Gas meter calibration up to G 65
- ✓ Best long-term stability - recalibration period up to 10 years for laval nozzles



Standard solutions

Application examples:



Gas- and flow measurement

Calibration test bench for gas meters, MFM, MFC, LFE, venturi nozzles



Automotive: Testing of manufacturing tolerances of oil wells in engine casings, cylinder heads, etc.; Adjustment level for valves, actuators, flow meters, ...



Automation: Adjustment level for valves, actuators, flow meters, ...



Aviation: Inspection of injectors for engines, testing the internal geometry of turbine blades



Power plant technology: Testing of burner sections, inspection of the internal geometry of turbine blades



Top-Innovator
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For special requirements we are happy to advise you. Subject to change. / EPE-160352 / Last update: 01/2018 / V01
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