Perfection in fluids.
The right *flow*
by German engineering.

ep-e.com

# SMF®- MFC | Mobile Flow Calibrator

# Vakuum operation

## Data Sheet EPE-147164


Made in
GERMANY

# SMF® - MFC | Mobile Flow Calibrator
# Vacuum operation

EPE-147164

ep-e.com

Made in GERMANY


Similar to Figure

## Sonic Master Flow®

## Mobile flow calibration with sonic nozzles

**Operation with vacuum pump and atmospheric suction**
**Up to 8 sonic nozzles can be combined**
**Flow range 18 m³/h**

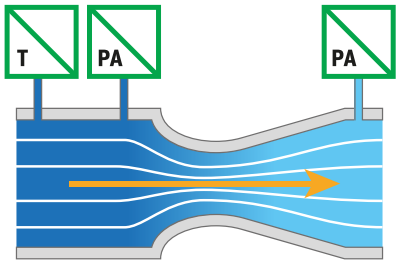
## Technical data

| | |
|---|---|
| **Volume flow** | 0.0025...18 m³/h |
| **Accuracy** | bis 0.2% (PTB)<br>bis 0.3% (DAkkS) |
| **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

| | |
|---|---|
| **Absolute pressure - environment** | $p_{amb}$ |
| **Temperature – environment** | $T_{amb}$ |
| **Absolute pressure – in front of nozzle** | $p_{NOZZLE\ UP}$ |
| **Temperature – in front of nozzle** | $T_{NOZZLE}$ |
| **Rel. humidity – in front of nozzle** | $rH_{NOZZLE}$ |
| **Absolute pressure - downstream nozzle** | $p_{NOZZLE\ DOWN}$ |

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




Measurement principle

## Description

The series of SMF® nozzle test benches is specially designed for calibration with gases. Depending on customer requirements, up to 8 sonic nozzles can be combined. The resulting different circuits allow flow generation of $2^8 = 256$ different flows. With the nozzles, a precise flow can be stably set in a very short time (about 500 ms). The system is manufactured in block construction and equipped with appropriate sensors (temperature, pressure and humidity) for density determination. A vacuum pump, or the connection to the in-house vacuum network, ensures the creation of the necessary critical pressure ratio downstream of the nozzles. Alternatively, the operation can be realized with overpressure. 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 10
- ✓ Best long-term stability - recalibration period up to 10 years for laval nozzles

## Standard solutions
## Application examples:

- Gas- and flow measurement: Calibration stand for gas meters, MFM, MFC, LFE, venturi nozzles
- Automotive: Adjustment test bench for valves, actuators, flowmeters, HFM, ...
- Filter technology: Test bench for filters
- Valve technology: Characteristic line test bench for valves
- Chemical / Process Engineering: Dosing of process gases
- Pharma: Inhaler test

TOP 100 Top-Innovator 2016



**TOP-INNOVATOR 2016: EP Ehrler Prüftechnik is one of the most innovative companies in the German SME segment.**

+49 (0) 79 32 . 6 06 66 - 0 / +49 (0) 79 32 . 6 06 66 - 11 / info@ep-e.com / www.ep-e.com