

Extrude Hone

Flow Measurement System

MICROFLOW TEST

High precision flow measurement technology in a robust, production-ready system

This new MICROFLOW TEST design is the result of decades of fuel system processing experience on large scale automated systems. The new MICROFLOW TEST brings the same precision processing of a fully automated measure system, now packed into a smaller package as a stand alone machine.

The small scale robust design is scalable to your production requirements and delivers a combination of high precision, reliability, accuracy, and ease of use.

For manufacturers of precision fuel system components requiring precision flow measurement of components, the MICROFLOW TEST system is capable of maintaining repeatability of $\pm 0.25\%$ and accuracy of $\pm 0.1\%$.



Features and Benefits

- **Pressure and temperature compensation**
- **Accuracy of $\pm 0.1\%$ of measured value**
- **Flow rate displayed in mass or volumetric flow with user configurable units**
- **Robust industrial design setup for production environment**
Remote service tracking and standardized components brings production stability.
- **Flexible manufacturing capability**
Modular design enables scalable production to meet varying production needs.
- **Automation ready**
Easily integrate into part handling and robotic cells.
- **Easy to use, easy setup**
Intuitive controls and HMI.



MICROFLOW TEST Machine Specifications

Loading height from floor 1050mm (41.50")

Overall size 750mm (30") W x 2030mm (80") L x 2200mm (85") H

Weight approx. 1250 kg

Testing Capacity (Standard Range)

Maximum test pressure 14 MPa

Minimum test pressure 10 MPa
(NOTE: At pressures <10 MPa flow correlation may diminish.)

Pressure control $\pm 0.1\%$

Calibration fluid temperature range 20–40° C controlled to $\pm 1.5^\circ$ C

Available Flow Ranges for Optimum Performance

	flow rate range	maximum error
Option 1	10–275 GPM	± 0.19 – $\pm 0.10\%$
Option 2	200–2500 GPM	± 0.13 – $\pm 0.10\%$
Option 3	850–8500 GPM	± 0.14 – $\pm 0.10\%$

Process Methods

Flow measurements are accomplished by flowing calibration fluid through the part being tested at a precise pressure and measuring the mass flow rate using a Coriolis meter placed downstream. Compensations for pressure and temperature are performed so that the displayed measurements correspond to specified measurement conditions.

As an option, backpressure (up to 7 MPa) can be generated to meet measurement requirements (for instance, to avoid cavitation issues or to characterize part geometry more completely). While pressures above 0.17 MPa downstream of the part can be controlled automatically, downstream pressures below 0.17 MPa depend on the Coriolis meter that is being used.

The minimum flow rate for each meter is chosen to give a small maximum error. The maximum flow rate for each meter is chosen to give a maximum pressure drop of about 0.17 MPa. In the event the pressure drop is too high, the next larger meter should be used.

Calibration Fluid

VISCOR 1487 (ISO 4113 compliant), other fluids available.

NOTE: Specifications and availability are subject to change without notice.

Flow Test Fluid Supply

Fluid tank 40 liter reservoir with flooded suction pumps.

Motors 5 hp (3,7 kW) motor for test fluid pressure supply.
1 hp (0,8 kW) motor for clamping and hydraulic circulation.

Indicators Temperature and fluid levels are displayed on HMI.

Filtration High pressure — 3 μ m canister type with dirty filter indicator.
Low pressure — 1 μ m canister type with dirty filter indicator.

Noise Maximum working noise level is 75 dBA.

Location Inside machine base.

Cooling A water-/oil-type heat exchanger sized to remove required heat at maximum ambient temperature of 40° C.

Fittings Straight-thread, o-ring, seal-type SAE J1926-1 (ISO 11926-1).

Pneumatics

5 bar minimum input pressure.

Equipped with automatic pressure release at E-Stop.

Equipped with input pressure switch to ensure incoming pressure is suitable for operation.

Electrical

Input power 200–480 VAC, 3 Phase, 50/60 Hz

Input current 50/25 A depending on input voltage

Controls

Programmable Logic Controller (PLC) Allen Bradley/Siemens

Software Allen Bradley/Siemens

Human Machine Interface (HMI) 10" industrial touch screen

Remote connectivity Fast ethernet switch enables remote access to PLC and HMI.

Data collection Production data logging and process data filing.

Chilled Water

Supplied by customer as specified by Kennametal Extrude Hone – incoming at 10°.

