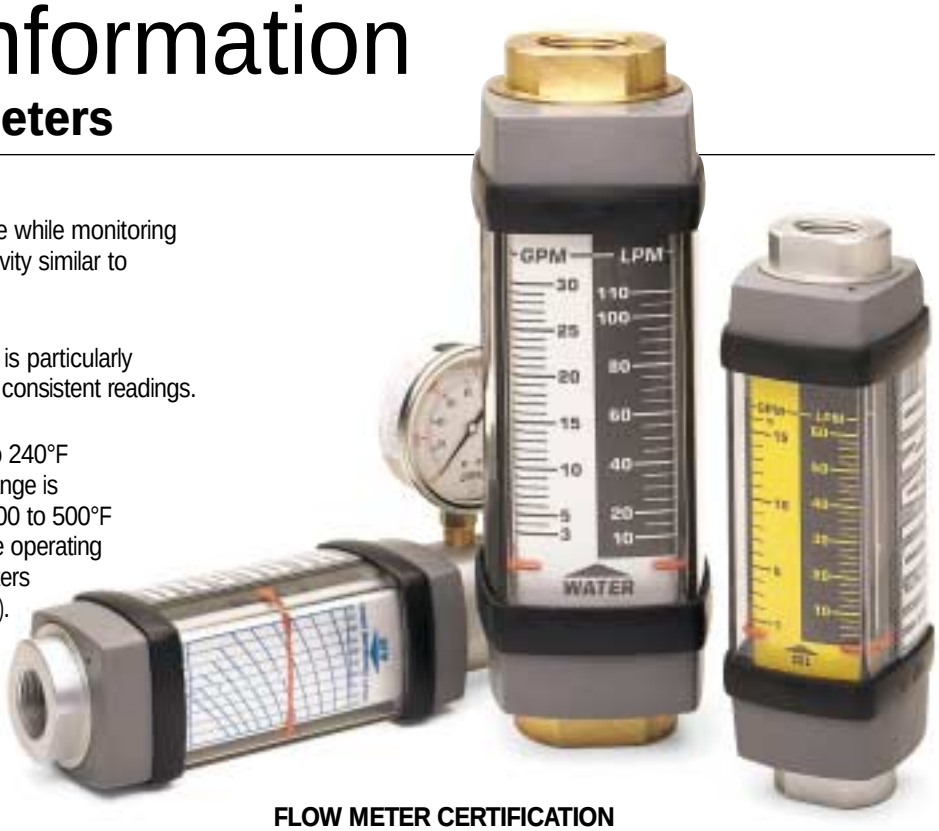
Technical Information

Liquid & Gas Flow Meters



ACCURACY WITHIN ± 2% FULL SCALE:
Flow meter accuracy is within ±2% of full scale while monitoring liquids or gases with viscosity and specific gravity similar to factory calibrated fluids.

REPEATABILITY WITHIN ± 0.5%:
Flow meter repeatability is within ± 0.5%. This is particularly important in cyclical applications, which require consistent readings.

OPERATING TEMPERATURE:
Standard operating temperature range is -20 to 240°F (-29 to 116°C). High Temperature flow meter range is -20 to 400°F (-29 to 204°C) continuous, and 400 to 500°F (204 to 260°C) intermittent. Maximum allowable operating pressure of aluminum and brass body flow meters is reduced for temperatures over 240°F (116°C). Stainless steel flow meters do not require derating. Refer to pressure derating charts in the High Temperature flow meter section (see pages 14, 20, 26 and 30).

OPERATING PRESSURE:
Liquids: Maximum operating pressure of aluminum and brass flow meters is 3,500 psi (241 bar) in 1/4 to 1-1/2 inch sizes and 800 psi (55 bar) for 3 inch meters. Type 303 and 316 stainless steel flow meters have a 6,000 psi (414 bar) maximum operating pressure in 1/4 and 1/2 inch models and 5,000 psi (345 bar) maximum operating pressure in 3/4 to 1-1/2" models. All liquid flow meters are designed with a 3:1 safety factor. High temperature affects maximum allowable operating pressure. Refer to pressure derating charts in the High Temperature flow meter section (see pages 14, 20, 26 and 30).

Air/Gases: Maximum operating pressure of aluminum and brass flow meters is 1,000 psi (69 bar) in 1/4 to 1-1/2 inch sizes and 250 psi (17 bar) for 3 inch meters. Type 303 and 316 stainless steel flow meters have a 1500 psi (103 bar) maximum operating pressure. All air/gas flow meters are designed with a 10:1 safety factor. All pneumatic test kits are limited to a maximum operating pressure of 600 psi (41 bar) by the control valve pressure rating. Consult factory for high pressure use. High temperature affects maximum allowable operating pressure. Refer to pressure derating charts in the High Temperature flow meter section (pages 14, 20, 26 and 30).

Fatigue Rating: per NFPA T2.6.1R1-1991 - C/90 (see page 7 for further details.)

PRESSURE DROP (∆P):
Refer to pages 51 to 56 for Flow vs. Pressure Drop data for oil, phosphate ester, water-based, water, and air.

FILTRATION:
Although Hedland flow meters are more contamination tolerant than most fluid system components, 200 mesh (74 micron) or better filtration is required to assure reliable performance.

CALIBRATION:
All flow meters are calibrated with 0.876 specific gravity, 140 SUS (32cSt) hydraulic oil, irrespective of final fluid use. Optional calibration with water or air is available.

FLOW METER CERTIFICATION
There are three (3) types of certificates available with the Hedland Flow Meter.
1. Certificate of Conformance
2. Calibration Certificate
3. Certified Drawing

Certificate of Conformance: This document states that the specified Hedland Flow Meter meets the performance standards indicated in the Hedland Catalog. The certificate is signed by the Corporate Quality Assurance Manager or authorized delegate and should meet most needs for performance certification.

Calibration Certificate: This document contains the actual flow vs. indicated flow of a specific flow meter. It documents the error of each flow point relative to the tolerance limit of ± 2% full scale.

The master meters used to calibrate flow meters are traceable to the National Institute for Standards and Testing (NIST).

Meter Type	Traceable Range
Petroleum-based	0.02 to 400 GPM/0.08 to 1514 LPM
Water-based	0.02 to 325 GPM/0.08 to 1230 LPM
Air/gas	0.5 to 1000 SCFM/0.24 to 472 LPS

Certified Drawings: Certified assembly prints are available and contain:
1. Final meter assembly with part number and dimensions
2. Parts list by part number and description
3. Authorized drawing signatures

Reproducible ANSI A-D size drawings are available on standard bond, vellum and mylar. Large size drawings can also be reduced to ANSI A or B sizes. ACAD R12, R13 and R14 drawings can be sent by electronic format when requested. See Price and Availability Digest, Form 000141.

Certificate of Origin and Flow Meter Tags also available upon request. See Price and Availability Digest, Form 000141.