LAKE MONITORS

HIGH TEMPERATURE

Data Sheet No. H-699

HIGH TEMPERATURE FLOW RATE MONITORS

FOR 1/4 – 2 INCH PIPE SIZES

MULTI-APPLICATION
Uses include: barrel heating fluids, thermal transfer fluids and non-steam water monitoring.

THREE MATERIALS AVAILABLE
Select from aluminum, brass or stainless steel construction to meet system requirements.

UNRESTRICTED MOUNTING
Allows the designer to install the monitor in any orientation – horizontal, vertical or inverted.

GOOD VISCOSITY STABILITY
A sharp-edged orifice provides excellent measurement stability to a minimum of 500 SSU.

RUGGED AND RELIABLE
Designed as a hydraulic service tool, this monitor will provide years of maintenance-free performance.

HIGH PRESSURE OPERATION
The magnetically coupled follower design allows operation to 6000 PSIG and use with opaque liquids.

TWENTY-THREE DIFFERENT PORTS AVAILABLE
Standard selection of NPT, SAE and BSP ports reduces the amount of adapters required for installation.

LOW COST PRECISION
Mid-scale measuring accuracy within ±2.5%. Full-scale accuracy within ±4%.



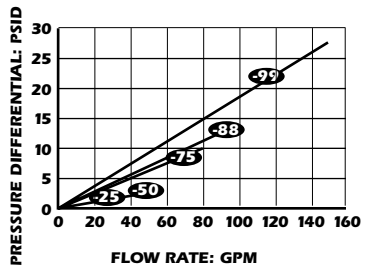
ENGINEERING SPECIFICATION

THE HIGH TEMPERATURE IN-LINE FLOW RATE MONITOR SHALL:

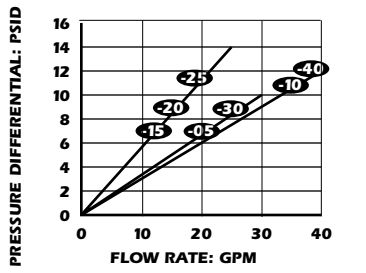
- use the variable annular orifice technique with compression spring recovery.
- not require inlet or outlet straight plumbing, or require vertical pipe mounting.
- have a measuring accuracy of ±2.5% of full scale in the center third of the measuring range, and ±4% of full scale accuracy over the entire flow measuring range.
- have a stainless steel sharp-edged orifice.
- have a minimum temperature rating of: H-series 400ºF (204ºC) or J-series 600ºF (315ºC).
- be Lake Monitors No. H _ _ – _ _ _ – _ _ for 400ºF (204ºC) applications or J _ _ – _ _ _ – _ _ for 600ºF (315ºC) applications.

PRESSURE DIFFERENTIAL VS FLOW RATE

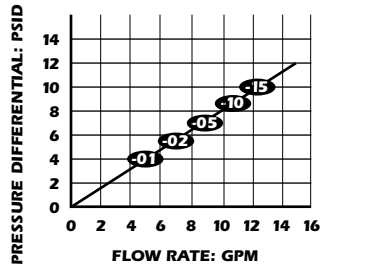
SERIES 5 MONITORS (1-1/4″ - 2″)



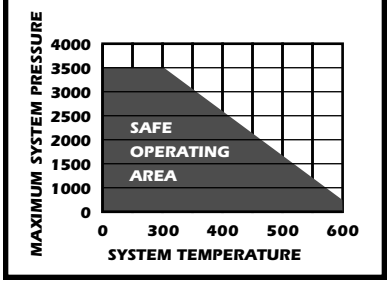
SERIES 4 MONITORS (3/4″ - 1″)



SERIES 3 MONITORS (1/4″ - 1/2″)



TEMPERATURE DERATING FOR ALUMINUM & BRASS MONITORS



LAKE MONITORS

HIGH TEMPERATURE FLOW RATE MONITORS

MATERIALS OF CONSTRUCTION (WETTED COMPONENTS)

	ALUMINUM	BRASS	STAINLESS STEEL
High-pressure casing, end ports and tapered shaft	Aluminum	Brass	#304 Stainless Steel
Seals H-series (400°)	Viton® w/Teflon backup	Viton® w/Teflon backup	Viton® w/Teflon backup
J-series (600°)	Kalrez® w/Teflon backup	Kalrez® w/Teflon backup	Kalrez® w/Teflon backup
Transfer Magnet	Teflon coated Alnico	Teflon coated Alnico	Teflon coated Alnico
Floating Orifice Disk	Stainless Steel	Stainless Steel	Stainless Steel
All other internal parts	Stainless Steel	Stainless Steel	Stainless Steel

MATERIALS OF CONSTRUCTION (NON-WETTED COMPONENTS)

	ALUMINUM	BRASS	STAINLESS STEEL
Window Tube	Pyrex	Pyrex	Pyrex
Window Seals	Teflon	Teflon	Teflon

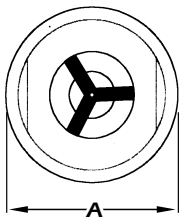
Teflon is a registered trademark of duPont de Nemours & Co.
Viton and Kalrez are registered trademarks of Dow DuPont Elastomers.

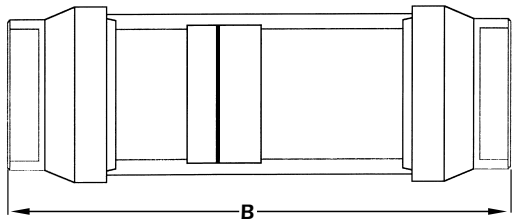
PERFORMANCE

Measuring accuracy:	±2.5% of full-scale in the center third of the measuring range; ±4% of full-scale over the entire scale range.
Repeatability:	±1% of full-scale
Flow measuring range:	0.05-150 GPM (0.2-560 LPM)
Pressure differential:	see graphs
Maximum operating pressure[1]:	aluminum and brass monitors: 3500 PSIG (240 Bar) stainless steel monitors: 6000 PSIG (410 Bar)
Maximum operating temperature:	H-series: 400ºF (204ºC) J-series: 600ºF (315ºC)
Standard calibration fluids:	Oil monitors: DTE 25 @ 110ºF (43ºC), 0.873 sg Water monitors: tap water @ 70ºF (21ºC), 1.0 sg Air monitors: air @ 70ºF (21ºC), 1.0 sg and 100 PSIG (6.8 Bar)

[1]Note: see Temperature/Pressure De-rating chart

MECHANICAL





SIZE CODE

DIM	SERIES 3	SERIES 4	SERIES 5	SERIES 5
A	1-7/8″ (48mm)	2-3/8″ (60mm)	3-1/2″ (90mm)	3-1/2″ (90mm)
B	6-9/16″ (167MM)	7-5/32″ (182mm)	10-1/8″ (258mm)	12-5/8″ (322mm)
PORT SIZES	NPTF: 1/4″, 3/8″, 1/2″ SAE: #6, #8, #10 BSP: 3/8″, 1/2″	NPTF: 3/4″, 1″ SAE: #12, #16 BSP: 3/4″, 1″	NPTF: 1-1/4″, 1-1/2″ SAE: #20 BSP: 1-1/4″	NPTF: 2″ SAE: #32 BSP: 2″

Note: Consult factory for SAE brass monitor requirements.