Lake Monitors
Phosphate Ester Flow Rate Monitors

FOR 1/8" – 2" PIPE SIZES

STYLE P

Compatible with aviation lubricants such as Skydrol®, as well as fire-retardant fluids such as Pydraul®, Fyrquil® and Houghton 900 series.

CHOICE OF THREE MATERIALS OF CONSTRUCTION

Select from aluminum, brass or stainless steel to meet system requirements.

UNRESTRICTED MOUNTING

Allows the designer to install the monitor in any orientation — horizontal, vertical or inverted.

MULTI-USE

Factory calibrated for phosphate esters, these versatile monitors can be used to verify hydraulic power unit outputs, as well as test machinery and tools for proper fluid flow rates.

RUGGED AND RELIABLE

These monitors are constructed with all metal pressure vessels that allow safe, permanent installation in industrial systems.

HIGH PRESSURE OPERATION

The magnetically coupled follower design allows operation to 6000 PSIG.

24 DIFFERENT PORTS AVAILABLE

Standard selection of NPT, SAE and BSP ports reduces the amount of adapters required for installation.

LOW COST ACCURACY

±2.5% of range accuracy in center third of scale; ±4% in upper and lower thirds.

BI-DIRECTIONAL AND REVERSE FLOW OPTION OFFERED

Phosphate ester monitors are also available in bi-directional and reverse flow versions. Contact Lake Monitors for more information.

ENGINEERING SPECIFICATION

THE PHOSPHATE ESTER IN-LINE FLOW RATE MONITOR SHALL:

- Include a direct-reading scale corrected for phosphate ester media.
- Use the variable annular orifice technique with compression spring recoil.
- 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% in upper and lower thirds.
- Have a stainless steel sharp-edged orifice.
- Be Lake Monitors No. P _ _ – _ _ _ – _ _

Phosphate Ester Flow Rate Monitors

MATERIALS OF CONSTRUCTION (WETTED COMPONENTS)

	ALUMINUM	BRASS	STAINLESS STEEL
High-pressure casing, end ports and tapered shaft	Aluminum	Brass	#303 Stainless Steel
Seals	EPR, w/Teflon® backup Virton® or Kalrez®	Teflon® coated Alnico	EPR, w/Teflon® backup Virton® or Kalrez®
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

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

MATERIALS OF CONSTRUCTION (NON-WETTED COMPONENTS)

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

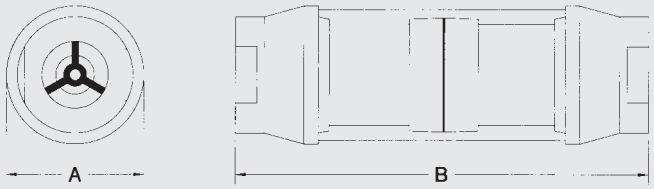
PERFORMANCE

Measuring accuracy:	±2.5% of full-scale in the center third of the measuring range; ±4% in upper and lower thirds
Repeatability:	±1% of full-scale
Flow measuring range [1]:	0.1-130 GPM (0.4 – 490 LPM)
Pressure differential:	See graphs on the right for typical pressure differentials. For specific differential information, refer to Lake data sheet PDDS-404.
Maximum operating pressure:	aluminum and brass monitors: 3500 PSIG (240 Bar) stainless steel monitors: 6000 PSIG (410 Bar)
Maximum operating temperature:	240ºF (116ºC) Note: For operation to 600ºF (316ºC), Note: For operation to 600°F (316°C) alternate o-ring material will be required.
Standard calibration fluids:	DTE 25® @ 110ºF (43ºC), 0.873 sg Monitors are density corrected to 1.15 sg
Filtration requirements:	74 micron filter or 200 mesh screen minimum

*[1] To determine approximate measuring ranges multiply the range listed in the Liquid Flow Rate section of Lake's Guide to standard monitor numbers by 0.93. For example, a P3A6WB10 would have a scale range to 10 GPM *0.93 = 9.3 GPM at full scale.*

DTE 25 is a registered trademark of Exxon Mobil

MECHANICAL SIZE CODE



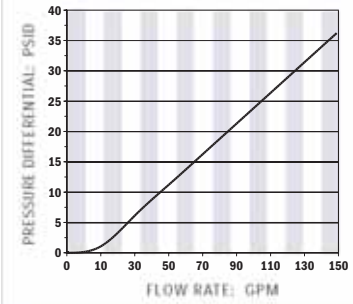
DIM	SERIES 2	SERIES 3	SERIES 4	SERIES 5	SERIES 5
A	1-1/4" (32mm)	1-7/8" (48mm)	2-3/8" (60mm)	3-1/2" (90mm)	3-1/2" (90mm)
B	4-13/16" (122mm)	6-9/16" (167mm)	7-5/32" (182mm)	10-1/8" (258mm)	12-5/8" (322mm)
Port Sizes	NPTF: 1/8", 1/4"	NPTF: 1/4", 3/8", 1/2" SAE: #6, #8, #10 BSP: 3/8", 1/2"	NPTF: 3/4", 1" SAE: #12, #16 BSP: 3/4", 1"	NPTF: 1-1/4", 1-1/2" SAE: #20, #24 BSP: 1-1/4", 1-1/2"	NPTF: 2" SAE: #32 BSP: 2"

Note: Consult factory for SAE brass monitor requirements.

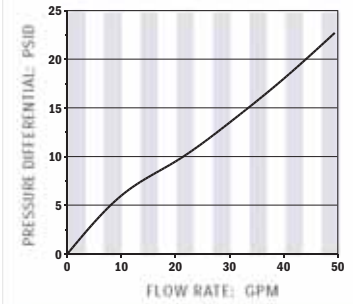
TYPICAL PRESSURE DIFFERENTIALS

For specific differential graphs, refer to Lake data sheet PDDS-404.

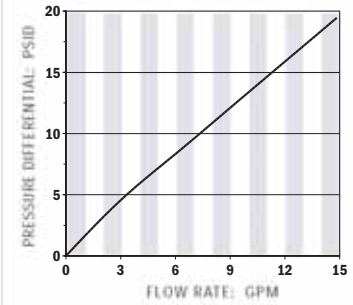
SERIES 5 MONITORS 1-1/4" - 2"



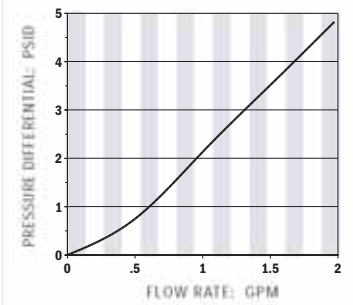
SERIES 4 MONITORS 3/4" - 1"



SERIES 3 MONITORS 1/4" - 1/2"



SERIES 2 MONITORS 1/8" - 1/4"



LAKE MONITORS INC
Division of Total Automated Solutions, Inc.

www.lakemonitors.com

LAKE MONITORS, 2013 South 37th Street, Milwaukee, WI 53215
414.671.3577 / 800.850.6110 / Fax: 414.671.5253

