Lake Monitors
Basic In-line Liquid Flow Rate Monitors
FOR 1/4" – 2" PIPE SIZES

CHOICE OF THREE MATERIALS OF CONSTRUCTION
Select from aluminum, brass or stainless steel to meet system and media compatibility requirements.

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

SUPERIOR EXTERIOR DESIGN
Weather-tight for use outdoors and/or on systems where wash downs are required.

GOOD VISCOSITY STABILITY
A sharp-edged stainless steel orifice provides excellent measurement stability for viscosities from 0-500 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 and rigid pressure vessel design allows operation to 6000 PSIG and use with opaque liquids.

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
Basic in-line monitors are also available in bidirectional and reverse flow versions.

ENGINEERING SPECIFICATION

THE IN-LINE FLOW RATE MONITOR SHALL:
• 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 third.
• Have a stainless steel sharp-edged orifice.
• Have a weather-tight external construction.
• Be Lake Monitors No. B _ _ - _ _ - _ _

Ideal for monitoring case drain flows, pump performance and media flows through hydraulic circuits and sub-circuits.

www.lakemonitors.com
### Basic In-line Liquid Flow Rate Monitors

#### MATERIALS OF CONSTRUCTION (WETTED COMPONENTS)

<table>
<thead>
<tr>
<th></th>
<th>ALUMINUM</th>
<th>BRASS</th>
<th>STAINLESS STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-pressure casing,</td>
<td>Aluminum</td>
<td>Brass</td>
<td>#303 Stainless Steel</td>
</tr>
<tr>
<td>end ports and tapered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>shaft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seals</td>
<td>Buna-N® (STD), FKM or FFKM</td>
<td>Buna-N (STD), FKM or FFKM</td>
<td>FKM with PTFE backup (STD), Buna-N®, EPR or FFKM</td>
</tr>
<tr>
<td>Transfer Magnet</td>
<td>PTFE coated Alnico</td>
<td>PTFE coated Alnico</td>
<td>PTFE coated Alnico</td>
</tr>
<tr>
<td>Floating Orifice Disk</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>All other internal parts</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
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</table>

Buna-N is a registered trademark of Chemische Werke Huls

#### MATERIALS OF CONSTRUCTION (NON-WETTED COMPONENTS)

<table>
<thead>
<tr>
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<th>ALUMINUM</th>
<th>BRASS</th>
<th>STAINLESS STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window Tube</td>
<td>Polycarbonate (STD)</td>
<td>Polycarbonate (STD)</td>
<td>Polycarbonate (STD)</td>
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<tr>
<td>Window Seals</td>
<td>Buna-N® (STD), PTFE</td>
<td>Buna-N® (STD), PTFE</td>
<td>Buna-N® (STD), PTFE</td>
</tr>
</tbody>
</table>

#### 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: .05-150 GPM (0.2-560 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), see our High Temperature data sheet.
- Standard calibration fluids: Oil monitors: DTE 25® @ 110ºF (43ºC), 0.873 sg Water monitors: tap water @ 70ºF (21ºC), 1.0 sg
- Filtration requirements: 74 micron filter or 200 mesh screen minimum

*Accuracy is ±4% Full-scale across entire range for “BI” option.

TE 25 is a registered trademark of Exxon Mobil.

#### MECHANICAL SIZE CODE

<table>
<thead>
<tr>
<th>DIM</th>
<th>SERIES 3</th>
<th>SERIES 4</th>
<th>SERIES 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1-7/8” (48mm)</td>
<td>2-3/8” (60mm)</td>
<td>3-1/2” (90mm)</td>
</tr>
<tr>
<td></td>
<td>3-1/2” (90mm)</td>
<td>10-1/8” (258mm)</td>
<td>12-5/8” (322mm)</td>
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<tr>
<td>B</td>
<td>6-9/16” (167mm)</td>
<td>7-5/32” (182mm)</td>
<td>10-1/8” (258mm)</td>
</tr>
<tr>
<td>Port Sizes</td>
<td>NPTF: 1/4”, 3/8”, 1/2”</td>
<td>NPTF: 3/4”, 1”</td>
<td>NPTF: 1-1/4”, 1-1/2”</td>
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<tr>
<td></td>
<td>SAE: #6, #8, #10</td>
<td>SAE: #12, #16</td>
<td>SAE: #20, #24</td>
</tr>
<tr>
<td></td>
<td>BSP: 3/8”, 1/2”</td>
<td>BSP: 3/4”, 1”</td>
<td>BSP: 1-1/4”, 1-1/2”</td>
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<td></td>
<td>NPTF: 2”</td>
<td>SAE: #32</td>
<td>BSP: 2”</td>
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</tbody>
</table>

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**

FLOW RATE: GPM

**SERIES 4 MONITORS**

FLOW RATE: GPM

**SERIES 3 MONITORS**

FLOW RATE: GPM

www.lakemonitors.com

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