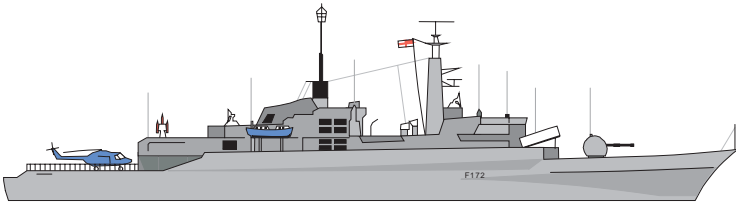
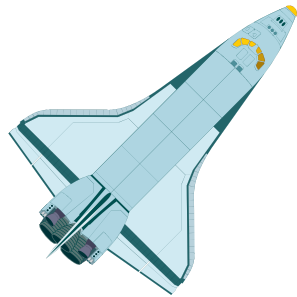


Applications
Booklet
*Lake Solutions
for Flow Monitoring
Applications!*



Lake offers flow monitoring products for a wide variety of applications. In addition to performance requirements, identifying the following will ensure the proper flow meter for a particular application is selected.

- ✓ **Fluid Media Type/Material Compatibility**
- ✓ **Maximum Pressure and Temperature**
- ✓ **Flow Range Requirements**
- ✓ **Line Size and Port Type**

Custom/Unique Application?

Lake can customize many of its standard products to meet special requirements and applications. **Call 800.850.6110 for Assistance!**

Flow Meters



Lake's In-line Flow Meters are an affordable way to accurately measure flow rates in a wide variety of applications. In addition to Basic Flow Meters for water and oil applications, Lake meters are available in Pneumatic, Phosphate Ester and High/Ultra-High Temperature versions. Lake's product offering also includes its Case Drain Monitors and Visi-Rate Meters.

Flow Alarms

Lake's Flow Alarms are often utilized in mobile hydraulic equipment, as well as industrial cooling and lubrication applications. Available with single or dual switch options, Lake Flow Alarms can protect expensive equipment and reduce downtime by signalling an alarm if an increase or decrease in flow rate is detected.



Application Assistance? Contact Lake Monitors at 800.850.6110

Flow Transmitters

Lake's Flow Transmitters accurately measure and transmit flow rate data to a PLC or other receiving device making them ideal for batching, industrial process control, mobile hydraulic equipment and computer-controlled hydraulic systems monitoring applications.



FlowStat® Flow Sensors



Used to detect decreases in flow rates, as well as measure and transmit data to a PLC, Lake's FlowStat® Sensors are perfect for chiller/cooling circuits, HVAC, medical equipment, batching and industrial process control applications. For compatibility with virtually any fluid media, they're offered in stainless steel or polypropylene construction.

Hydraulic System Test Analyzers

Lake's Hydraulic System Test Analyzers can diagnose faults in hydraulic circuits, determine hydraulic horsepower and test for component wear such as hydraulic valve and cylinder leakage. A complete troubleshooting system, the analyzer consists of a flow meter, glycerine-filled pressure gauge, bi-metal temperature gauge and a precision needle-type load valve.



The following applications represent just a number of the many that Lake Monitors may offer the perfect flow monitoring solution. And as always, feel free to utilize Lake's technical expertise as a resource in determining the best product for your application.

Application

Measure the rate of flow to bearings since too much or too little flow can cause damage and/or downtime.

Main Markets: Industrial Maintenance

Lake Solution: Basic Flow Meters
Flow Alarms

Keep in Mind: Maintaining proper lubricant flow to bearings can prevent expensive repairs.

Application

Detect low-flow rates for lubricating liquids.

- A) Paper mills usually have from 200 to 700 lube points on their equipment.
- B) Steel Mills spray hot oil on coil steel to prevent scaling.
- C) Copper Mills have equipment with large bearings that need high-temperature monitoring.
- D) Grain mills use synthetic liquids and propylene glycol to cool operating equipment.

Main Markets: See A-D above.
Also Stationary and Mobile Concrete Mixers

Lake Solution: Flow Alarms

Keep in Mind: The switch contact on the flow alarm can be used to sound an alarm or turn on a light when the flow rate drops below a predetermined set point.

Application

Monitor and/or control the flow of process water in paper mills.

Main Markets: Pulp and Paper

Lake Solution: Basic Flow Meters
Flow Transmitters
FlowStat® Sensors

Keep in Mind: Watch for material compatibility issues if additives are present in the process water.

Application

Monitor air consumption in blow molding processes.

Main Markets: Blow Molding

Lake Solution: Pneumatic Flow Meters
Flow Transmitters

Keep in Mind: When sizing the meter, be sure to apply the appropriate pressure correction factor for the elevated pressures that are present in this application.

Application

Monitor the coolant to welding machines. Robotic welders have a need to signal the operators when coolant ceases to flow due to a crimped or plugged line.

Main Markets: Automotive
General Manufacturing
Industrial Automation

Lake Solution: FlowStat® Sensors with relay output
Flow Alarms

Keep in mind: Be sure to specify a meter with suitable materials of construction based on the coolant that is being used.

Application

Monitor the flow of coolants to milling heads will help prevent scrap on automatic machines.

Main Markets: Machining
General Industrial

Lake Solution: FlowStat® Sensors
Flow Alarms
Flow Transmitters

Application

Monitor coolant to grinding machines to protect from damage.

Main Markets: Manufacturing
General Industrial
Machining

Lake Solution: FlowStat® Sensors
Flow Alarms
Flow Transmitters

Keep in Mind: Coolant must be free of magnetic debris.

Application

Determine the speed of conveyors. There is a direct relationship between the rate of flow to a hydraulic motor and its speed.

Main Markets: Material Conveying
Mining
Industrial Equipment OEMs
Manufacturing

Lake Solution: Flow Transmitters
Basic Flow Meters

Keep in Mind: A special FPM (feet per minute) scale can be created if relationship between speed and flow rate is known.

Application

Signal that foreign matter has entered a rock crushing machine. (Reduced flow of hydraulic fluid indicates that the crusher has stopped moving.)

Main Markets: Heavy Equipment
Mining
Construction

Lake Solution: Flow Alarms
Flow Transmitters
Basic Flow Meters

Application

Hydraulic motors can be monitored by using flow meters as a hydraulic tachometer. The rate of flow through the meter would have direct relationship to the RPM speed of the motor.

Main Markets: Power Transmission
Heavy Equipment
Mining

Lake Solution: Basic Flow Meters
Flow Alarms
Flow Transmitters

Keep in Mind: A special RPM scale can be created.

Application

Measure the movement of pistons in cylinders used in hydraulic rams, presses and robotics.

Main Markets: Fluid Power
Industrial Hydraulics
Heavy Equipment
Robotics

Lake Solution: Basic Flow Meters
Flow Alarms
Flow Transmitters

Keep in Mind: A special FPM (Feet per Minute) scale can be created.

Application

Measure coolant flow to die cast machines. 75 GPM flow rates at 2500 psi are not uncommon.

Main Markets: Casting

Lake Solution: Flow Alarms
Flow Transmitters
FlowStat® Sensors

Keep in Mind: FlowStat® Sensors best with lower pressure set-ups

Application

Control the flow of hot oil circulating to transformers.

Main Market: Power Distribution
Maintenance
Electrical Equipment

Lake Solution: Basic and High Temperature Flow Meters
Flow Alarms
Flow Transmitters

Keep in Mind: Often used in conjunction with thermocouples and other temperature sensors.

Application

Properly monitor coolant flow to die cast molds to guarantee good quality parts since there can be hot spots or cold flows.

Main Markets: Casting/Foundry

Lake Solution: Flow Alarms and Transmitters
FlowStat® Sensor

Keep in Mind: FlowStat Sensors best with lower pressure setups

Application Assistance? Contact Lake Monitors at 800.850.6110

Application

Monitor the flow of hot oil to plastic injection mold barrels.

Main Markets: Molding Equipment OEM's
Manufacturing

Lake Solution: High and Ultra-High Temperature Flow Meters

Keep in Mind: This is typically a high-temperature application.

Application

When seeds are sprayed with nutrients before planting, the amount of liquid flowing to the sprayers should be monitored.

Main Markets: Farming/Agricultural

Lake Solution: FlowStat® Sensors
Flow Transmitters
Basic Meters

Keep in Mind: Material compatibility based on fluid media.

Application

Monitor the flow of liquid nitrogen or other chemicals used in fertilizer spraying.

Main Markets: Farming/Agricultural

Lake Solution: FlowStat® and FlowStat ES Sensors
Flow Transmitters and Alarms

Application

Signal the fact that water has stopped flowing to water pumps, which may indicate system is out of water.

Main Markets: Process Control
General Industrial

Lake Solution: FlowStat® Sensor with Relay Output
Flow Alarms
Flow Transmitters

Application

Flow meter products for Original Equipment Manufacturers who desire to have products with their or their customer's logo, as well as detailed instructions for use printed on the scale.

Main Markets: Hydraulic
Maintenance/Test
MRO

Lake Solution: All Lake Products

Application

Flow meters can be used as "tachometers" on motors for concrete pumps to provide flow rate reading of cubic feet of concrete per minute.

Main Markets: Heavy Equipment OEMs
Construction

Lake Solution: Flow Meters
Flow Alarms
Flow Transmitters

Keep in Mind: This is usually a high-pressure application.

Application

Measure the flow of liquid fire-fighting foam additives. Lake products have been used in US Forestry Service operations.

Main Markets: Heavy Equipment/Truck Outfitting
Fire Equipment OEMs

Lake Solution: Flow Meters
Flow Alarms
Flow Transmitters
FlowStat® Sensors

Keep in Mind: Calibrations required for both foam and propellant.

Application

Monitor the flow rate of accelerator fluid used in the mixing of concrete.

Main Markets: Heavy Equipment
Truck Outfitting
Construction

Lake Solution: Flow Transmitters
FlowStat® and FlowStat ES Sensors

Keep in Mind: Various media and filtration particle tolerance requirements.

Application

Monitor the rate of flow when spraying mineral oil in grain elevators to help reduce the risk of explosions.

Main Markets: Process Control

Lake Solution: All Lake Products

Keep in Mind: “Non-electrical” products may be needed to meet compliance with explosion proof requirements.

Application

Monitor the rate of flow to hydraulic equipment and signal that a dredging machine has jammed or is malfunctioning. Reduced flow indicates a malfunction.

Main Markets: High Pressure Hydraulics
Mining
Construction

Lake Solution: Flow Alarms
Flow Transmitters
Basic Meter

Application

Monitor flow rates to prevent damage and assure maximum performance in hydraulic equipment including hydraulic booms, saws, drills, augers and compactors, as well as power packs, concrete hammers, snow removal equipment and salt spreaders.

Main Markets: Mobile Hydraulics
Construction

Lake Solution: Flow Meters
Flow Alarms
Flow Transmitters

Keep in Mind: May need “non-electrical” products for compliance.

Application

Flow meters can be used as power steering analyzers. This equipment could be used by operators of large truck fleets, and/or by major automotive manufacturers.

Main Markets: Maintenance/Test Tools
Automotive

Lake Solution: Hydraulic Test Analyzers
Basic Flow Meters

Application Assistance? Contact Lake Monitors at 800.850.6110

Application

Monitor the flow of fuel oil to furnaces.

Main Markets: HVAC
Process Control

Lake Solution: Flow Meters
Flow Alarms
Flow Transmitters

Keep in Mind: Special calibrations may be required.

Application

Monitor the flow of cooling fluid to lasers.

Main Markets: Process Control
Telecommunications
Laser Cutting Equipment OEMs

Lake Solution: FlowStat® Sensors
Flow Alarms
Flow Transmitters
Basic Flow Meters

Application

Monitor and control the flow of cooling water to the helium compressors in Magnetic Resonance Imaging (MRI) machines. In major hospitals all over America, Lake's FlowStat Sensors are currently being used for this application.

Main Markets: Process Control
Medical Systems
Chillers

Lake Solution: FlowStat® Sensor

Application

Monitor the flow rate of fuel usage to diesels.

Main Markets: Automotive
Marine
Military
Heavy Equipment

Lake Solution: Most Lake Flow Meter Products

Application

Monitor the flow rate of liquid petroleum gas (LPG) to assure maximum performance.

Main Markets: HVAC
Process Control
Mobile Home Manufacturers
Heavy Equipment OEM's

Lake Solution: Flow Alarms
Flow Transmitters
Basic Flow Meters

Keep in Mind: Meters may need to be "explosion proof."

Application

Monitor the flow of chemicals in chemical processing systems.

Main Markets: Process Control
Petrochem

Lake Solution: Most Lake Products

Keep in Mind: Material compatibility

Application

Monitor the flow of coolants to foundry crucibles.

Main Markets: Casting and Foundry

Lake Solution: Flow Transmitters
Flow Alarms
FlowStat® Sensors
Basic Meters

Application

Monitor the flow of high temperature fluids to 600 degrees fahrenheit. Typical applications can include molding/casting extrusion.

Main Markets: High-Pressure Hydraulics
Heavy Equipment

Lake Solution: Ultra High-Temperature Flow Meters

Application

Monitor the flow of gasoline, kerosene and methanol used in stationary diesels, pumps, hips and locomotives.

Main Markets: Heavy Equipment
Process Control
Mobile Equipment

Lake Solution: All Lake Flow Meter Products

Application

Monitor and control the flow of paint in spraying operations.

Main Markets: Process Control
Automation

Lake Solution: Flow Transmitters
Flow Alarms
Basic Flow Meters

Keep in Mind: “Explosion-proof” requirements

Application

Monitor the media flow associated with snow-making equipment.

Main Markets: Recreational/Ski Resorts
Amusement Parks

Lake Solution: Basic Flow Meters

Application

Hydraulic schools and laboratories often use “student-proof” flow meters for training and educational purposes.

Main Markets: Education

Lake Solution: All Lake Products

Keep in Mind: Good exposure of Lake to future engineers/technicians.

Application

Used underwater to monitor the flow of liquids through under-water piping.

Main Markets: Process Control
Construction
Oil Drilling/Exploration

Lake Solution: Basic Flow Meters

Application

Monitor the flow of deionized water used in nuclear reactors and high-performance computers.

Main Markets: Process Control/Municipal

Lake Solution: Flow Transmitters
Flow Alarms
FlowStat® Sensors
Basic Flow Meters

Application

Monitor flow rates in air compressors, often to verify consumption upon start-up, or to modulate a variable speed compressor

Main Markets: Process Control
Construction
Power/Utility

Lake Solution: Flow Transmitters
Flow Alarms
Pneumatic Meters

Application

Measure the flow of aviation fuels, rocket fuels and Skydrols. The Jet Propulsion Laboratory (JPL) has used Lake products for this specialized application.

Main Market: Aerospace

Lake Solution: Flow Transmitters
Flow Alarms
Basic Flow Meters
Phosphate Ester Flow Meters

Keep in Mind: Requires custom calibration.

Application

Monitor the flow on the settings on pneumatic devices.

Main Markets: Process Control
General Industrial

Lake Solution: Pneumatic Flow Meters
Flow Transmitters
Flow Alarms

Application

**Monitor the flow of anhydrous ammonia, glycols and refrigerants.
NASA has used Lake products for this application.**

Main Markets: Aerospace/Government Contract

Lake Solution: Flow Transmitters
Flow Alarms
FlowStat® Sensors
Basic Flow Meters

Application

Monitor the flow in shipboard hydraulic systems.

Main Markets: Heavy Equipment
Marine Industry

Lake Solution: Basic Meters
Flow Alarms and Transmitters

Application

Monitor the flow of cold water used in chiller systems.

Main Markets: Process Control and Chiller OEMs

Lake Solution: FlowStat® Sensors
Flow Transmitter and Alarms,
Basic Flow Meters

Application

Monitor the flow to or from reverse osmosis systems.

Main Markets: Water Treatment

Lake Solution: FlowStat® and FlowStat ES Sensors

Keep in Mind: Higher flow rates required for large scale operations.

Application

Monitor/control the flushing of printed circuit boards during manufacture.

Main Markets: Contact Manufacturing
Electronics

Lake Solution: FlowStat® Sensors
Flow Transmitters
Basic Flow Meters

Application

Monitor the flow rate of lubricating oils used in mining equipment.

Main Markets: Heavy Equipment
Mining Equipment OEMs

Lake Solution: Flow Transmitters
Flow Alarms
Basic Flow Meters
High-Temperature Flow Meters

Keep in Mind: Mining processes use some of the same equipment as oil drilling.

Application

Determine the correct rate of flow when spraying a wetting agent on coal dust in coal mines to reduce the chance of an explosion.

Main Markets: Heavy Equipment
Mining

Lake Solution: Basic Flow Meters
Flow Alarms
FlowStat® Sensors

Keep in Mind: “Explosion proof” requirements.

Application

Flow monitoring of various liquids used in basic test benches.

Main Markets: Process Control
Instrumentation
Test Equipment

Lake Solution: All Lake Products

Keep in Mind: Typically used during manufacturing tests.
Not for instrument calibration.

Application

Monitor and signal flow rates to process control computers, controllers and recorders.

Main Markets: Process Control
Manufacturing/General Industrial

Lake Solution: Flow Alarms
Flow Transmitters
FlowStat® Sensors

Keep in Mind: FlowStat with pulse output used for cost-effectiveness.

Application

Monitor the flow of water used in high-pressure pipe cleaning.

Main Markets: Maintenance
Car Washes
Process Control
MRO

Lake Solution: Flow Transmitters
Flow Alarms
Basic Flow Meters

Keep in Mind: All variable area meters are rated to at least 3500 psi maximum. Some applications may require even higher-pressure capabilities.

Application

Monitor the flow of whiting liquid used in paper mills.

Main Markets: Pulp/ Paper Industry

Lake Solution: Basic Flow Meters
FlowStat® Sensors

Keep in Mind: Stainless steel construction best for this application.

Application

Monitor the flow of dual lines to assure proper proportional mixing of paints, inks, etc.

Main Markets: Process Control

Lake Solution: Flow Transmitters
FlowStat® Sensors

Application

Monitor and control the flow of chemicals used in plating.

Main Markets: Process Control
Manufacturing

Lake Solution: FlowStat® Sensors
Flow Transmitters

Keep in Mind: Any material compatibility issues.

Application

Monitor the flow of water used in grouting or drilling systems.

Main Markets: Heavy Equipment/Manufacturing

Lake Solution: Basic Meters
Flow Transmitters
FlowStat® Sensors

Keep in Mind: Proper filtration is verified.

Application

Monitor the flow of liquids used in regeneration or heating loops.

Main Markets: General Industrial

Lake Solution: Basic Meters
Flow Transmitters
FlowStat® Sensors

Application

Monitor the flow of water in water-cooled heat sink application.

Main Markets: Electrical Equipment OEMs

Lake Solution: Basic Flow Meters
Flow Alarms
Flow Transmitters
FlowStat® Sensors

Application

Monitor the flow in hydraulic equipment that is used to drive the turntable for oil drilling rigs.

Main Markets: Oil Drilling/Exploration

Lake Solution: Basic Meters with Bi-directional
or Reverse Flow Option

Keep in Mind: For fully reversible pumps, bi-directional line is ideal.

Application

Monitor the flow of air to “air bearings.” Used to modulate the correct air flows and pressures.

Main Markets: Power Transmission
Process Control

Lake Solution: Pneumatic Flow Meters
Flow Alarms
Flow Transmitters

Application

Monitor the flow of oil in portable filtering system.

Main Markets: MRO

Lake Solution: Basic Flow Meters

Application

Monitor the flow in hydraulic solar systems that heat water for home use.

Main Markets: Process Control
Construction

Lake Solution: FlowStat® and FlowStat ES Sensors

Application

Monitor the flow of hydronic heating fluids

Main Markets: Process Control
Construction

Lake Solution: All Lake Products

Application

Monitoring low of case drains for hydraulic pumps and motors.

Main Markets: Fluid Power
General Maintenance

Lake Solution: Case Drain Monitors
Basic Flow Meters

