

# FLOW MEASUREMENT TECHNOLOGY FOR POWER AND ENERGY



## ABOUT AW-LAKE

Founded in 1984, AW-Lake manufactures flow meters as well as flow monitoring equipment that serve industrial plant and hydraulics applications. After a strong start in the Automotive sector, AW-Lake diversified into many other industrial markets, including Oil & Gas, Pharmaceuticals, Medical Equipment, Power Generation, General Manufacturing, and Industrial Processing. AW-Lake participates as a member company of TASI Group's Flow Division, with specialized flow instrumentation companies spanning the globe.



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Gear meters from AW-Lake receive recognition throughout the flow measurement industry for the highest quality products and superior customer service. Founded in 1984, AW-Lake emerged as the leading manufacturer of flow control products in North America. Our positive displacement style meters include spur gear, helical gear, electronic sensors, flow computers, in-line optical sensors and signal conditioners. Common products used for power and energy industries include:

#### Ball Bearing Spur Gear Meters (KG)



- Ranges span from 0.0005 to 120 GPM
- Up to 5,000 PSI
- Lubricating fluids and fuels
- Six flow ranges available
- Bi-Directional
- Aluminum, 303 and 316 Stainless Steel body

#### High Pressure Spur Gear Meters (JVHS)



- Ranges span from 0.003 to 7 GPM
- 15,000 PSI
- Accuracy  $\pm 0.5\%$
- Inconel or Xylan coated bolts
- Bi-Directional
- 316Ti Stainless Steel body

#### Sleeve Bearing Spur Gear Meters (CG)



- Ranges span from 0.001 to 20 GPM
- Up to 5,000 PSI
- Accuracy  $\pm 0.5\%$
- Viscous fluids
- Six flow ranges available
- Bi-Directional
- 303 or 316 Stainless Steel body

#### Subsea PD Flow Meter



- Ranges span from 0.001 to 7 GPM
- Internal Pressure up to 15,000 PSI
- External Pressure up to 8,700 PSI
- 400:1 Turndown with linearization
- Choice of materials for body, rotor, shaft, bearings and seals

AW-Lake offers a wide variety of monitoring devices and controllers to meet your specific system requirements including digital displays to batch controllers. Most oil & gas applications utilize:

#### Meter Mounted Monitors



- CSA, ATEX and IECEx ratings available
- Battery, loop, or 15-24 VDC supply
- HART® communication protocol
- 4-20 mA rate and scaled pulse outputs
- Programmable limits

#### Sensor Options Include:



- Pulse output
- Fiber optic
- mA output
- Voltage output
- Quadrature
- High temperature

#### Custom Engineering and Product Modification

AW-Lake provides custom engineering solutions for your flow metering needs. Our state-of-the-art computer design programs, custom machining facility at sister company KEM Kueppers and highly educated and experienced engineering staff possess the expertise and flexibility to develop your custom project.





Turbine flow meters from AW-Lake meet high performance standards with precision sensors and electronics, crafted in state of the art machining centers. Our company ensures accuracy and repeatability with wet testing on a flow calibrator. With more than 50 years of experience, AW-Lake continually serves global customers in oil & gas, petrochemical, semiconductor, food & beverage, pharmaceutical and process control.

#### Standard Turbine Flow Meter (TRG)



- Ranges span from 0.08 to 200 GPM
- Up to 5,000 PSI
- Water, solvents, fuel & low viscosity fluids
- Accuracy  $\pm 1\%$  of reading
- Bi-Directional
- 316 Stainless Steel body

#### High Pressure Turbine Flow Meters (HM-HP)



- Ranges span from 0.08 to 32 GPM
- 20,000 PSI
- Accuracy  $\pm 1\%$  of reading
- Available in 10 flow ranges
- Bi-Directional
- DIN 1.3980 body

#### Flanged Turbine Flow Meters (HM-F)



- Ranges span from 0.008 to 3,500 GPM
- Up to 15,000 PSI
- Accuracy  $\pm 1\%$  of reading
- Flanged connections plus customized options
- Available in 25 flow ranges
- Bi-Directional
- 316 Ti body

#### Subsea Turbine Flow Meters



- Ranges span from 0.08 to 16 GPM
- Operating Pressure to 20,000 PSI
- External Pressure up to 7,200 PSI
- Amplified pulse or 4-20mA output
- Temperature ranges -40 to 250°F
- 316 Ti body

AW-Lake offers a complete line of compatible electronics for oil & gas including a explosion-proof displays, local meter-mounted and remote displays to meet your specific system requirements.

#### Meter Mounted Monitors



- CSA, ATEX and IECEx ratings available
- Battery, loop, or 15-24 VDC supply
- HART® communication protocol
- 4-20 mA rate and scaled pulse outputs
- Programmable limits
- Stainless steel or aluminum housing

#### HUB-4xEX Hazardous Area Flow Sensor



- Certifications cCSAus, IECEx or ATEX
- Supply voltage 10-24 VDC
- Pulse output
- Temperature ranges -4 to 140°F
- Terminal block or NPT connections
- Type 4X Enclosure
- Stainless steel or aluminum housing

#### Custom Engineering and Product Modification

AW-Lake manufactures turbine meters in our German facility by highly skilled technicians with acute attention to detail. Our engineering teams customize units to suit specific operating conditions with special electronics, array of controllers, transmitters, a vast selection of sensors and variety of materials of construction.





For over 30 years, Litre Meter has supplied businesses worldwide with a large selection of durable, industry-standard flow meters, and electronics. Litre Meter stands out in the upstream oil & gas sector. Their rotary piston flow meter measures very low flow rates, high pressures, relatively coarse filtered fluids, and pulsating flows. In addition to their standard flow meters, Litre Meter has an excellent reputation for designing customized flow measurement solutions.

#### VFF-LF Rotary Piston Flow Meters



- Ranges span from 0.001 to 22 GPH
- 0 to 60,000 PSI
- Accuracy  $\pm 1\%$  of reading
- Wide viscosity range
- Variety of materials and process connections
- Turndown ratio up to 100:1

#### VFF-HF Rotary Piston Flow Meters



- Ranges span from 1 to 4,260 GPH
- Up to 60,000 PSI
- Accuracy  $\pm 1\%$  of reading
- Hazardous area approved
- 316 Stainless Steel body standard
- Temperature ranges -40 to 150°C

#### VFF Measuring Chamber



- Precision turning
- Pressure balanced chamber available
- One moving part
- Low maintenance
- PVD Coated
- Low flow rates at extreme pressures

#### Pelton Wheel Flow Meters



- Ranges span from 0.001 to 8,000 GPH
- Up to 30,000 PSI
- Accuracy  $\pm 2\%$  of reading
- Low viscosity fluids
- Low pressure loss
- Variety of materials and connections
- Sapphire ball bearing

Litre Meter offers safe area, hazardous area displays and instrumentation for use with the VFF and Pelton Wheel flow meters to suit a wide range of process conditions.

#### LM Flow Pod



- Direct or remote mounted
- Programmable card input
- Hart communication protocol standard
- 316 Stainless Steel body
- Certifications - ATEX, IECEx, CSA
- 2 or 4 wire 4-20mA
- Rotatable through 360°
- Standard and high resolution sensing
- 12-30 Vdc
- Toolless assembly; easy wiring

#### Custom Engineering and Product Modification

The Litre Meter company manufactures these flow meters in Buckinghamshire, UK. The wide range of meters feature customization options particularly suited to the harsh environments in the offshore oil & gas market. The materials available for construction, flow rates and pressure ranges set the standard for the demanding and specialized operating conditions used in upstream chemical injection.





AW-Lake offers an extensive line of Variable Area flow meters, as well as Paddle Wheel flow meters. This line of flow meters serves the fluid power, flow control and processing markets with in-line meters, switches/alarms, and transmitters for closed loop piping systems. These high-quality, low-cost flow monitoring products can be utilized in either compressed gas or liquid systems and are available in high pressure (5000 psi) and high temperature (600°F) models. AW-Lake's patented designs allow for installation in any orientation.



- Manufactured and calibrated onsite in Wisconsin, enabling expedited shipping
- Meters for specific applications: pneumatics, high temperature, case drain monitoring, and phosphate ester
- Measuring ranges starting at .05 gpm all the way up to 150 gpm (1.5 -1300 scfm for air meters)



## VARIABLE AREA AND PADDLE WHEEL FLOW METERS

## POWER AND ENERGY INDUSTRIES SERVED



### OIL & GAS

As the leading supplier of offshore chemical injection flow meters, both AW-Lake and LitreMeter understand the unique challenges faced by our Oil & Gas customers. We lead the offshore industry with our gear, turbine and rotary piston flow meters suited to high pressure, EX rated and subsea services. Together we help customers increase efficiency, reduce down-time and operating costs.



### CHEMICAL/PETROCHEMICAL PROCESSING

We manufacture multiple lines of flow instrumentation well suited to the Chemical and Petrochemical industries. From organic chemicals to industrial solvents, resins, and adhesives, we supply meters capable of providing accurate measurement solutions to a wide variety of chemical applications.



### FLUID POWER

Several of AW-Lake's product lines are particularly suited to around-the-clock monitoring of lubrication levels and process fluid quality to maintain optimal performance of hydraulic systems. Our broad line of electronics display flow measurement data at the meter or transmit that data to larger internal systems, computers or PLCs as needed.



