AW-LAKE
PROCESS FLOW MEASUREMENT

APPLICATION SPOTLIGHT

AW-Lake Flow Meters Used for Hydraulic Power Units

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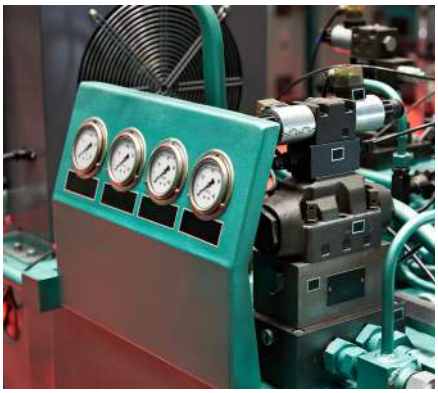

APPLICATION:

A Hydraulic Power Unit (HPU) is a critical component in hydraulic systems, responsible for converting mechanical energy into hydraulic energy to drive equipment such as cylinders, motors, and actuators. These systems are widely used in industries such as oil & gas, construction, and aerospace to ensure smooth and precise operation of machinery. Flow meters play a vital role in HPUs by monitoring fluid movement, providing real-time data, and ensuring system efficiency.

PRODUCT SUPPLIED:

- Positive Displacement Gear Meters
- Turbine Flow Meters
- Variable Area Flow Meters
- Ultrasonic Flow Meters

CHALLENGE:

HPUs operate in demanding environments where precise flow control is essential. Without proper monitoring, hydraulic systems can experience inefficiencies, excessive wear, overheating, and even catastrophic failures. Companies often struggle with:

- Detecting flow inconsistencies that can lead to pressure fluctuations.
- Preventing leaks and ensuring optimal energy efficiency.
- Automating system performance for better control and diagnostics.
- Managing varying load conditions across different applications.

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SOLUTION:

To address these challenges, AW-Lake provided a range of flow meter solutions tailored to the needs of HPUs. The choice of flow technology depended on factors such as system energy efficiency, load variability, and accuracy requirements.

1. **Turbine Flow Meters** were implemented to provide highly accurate flow readings in applications requiring precise measurement of hydraulic oil flow rates. These meters offer excellent response times and integrate seamlessly with control systems for real-time monitoring.

2. **Positive Displacement Flow Meters** were selected for applications where a bit more viscous fluids were used. Their ability to maintain accuracy regardless of changes in viscosity ensured stable system performance. They also perform well under start/stop processes.

3. **Ultrasonic Flow Meters** were deployed in systems where non-invasive monitoring was preferred, reducing pressure drop and enabling easy maintenance.

4. **Variable Area Flow Meters** provided cost-effective flow monitoring solutions for applications where simple visual indication of flow rate was sufficient.

Each flow meter was integrated into the hydraulic system to provide real-time feedback to PLCs and HMIs. This data allowed for automated system adjustments, early detection of leaks, and overall optimization of system efficiency.

RESULTS:

- **Improved system efficiency** by reducing energy losses and optimizing flow control.
- **Enhanced reliability** by preventing pressure fluctuations and detecting leaks before they caused major failures.
- **Increased automation** through real-time data integration with control systems.
- **Cost savings** due to reduced downtime and extended equipment lifespan.

By implementing AW-Lake's flow meters in HPU systems, customers are able to achieve better performance, reduce maintenance costs, and improve operational safety across a range of industries.