



Hydraulic Systems

Pressure and Temperature Instrumentation

What Are the Best Instruments to Use in Hydraulic Applications?

The best pressure and temperature instruments for hydraulic applications are those specifically designed to withstand the demanding conditions of off-highway vehicles (OHV), hydraulic power equipment, cranes and other fluid power systems. They must also deliver accurate, repeatable measurements over the full service life of the vehicle.

When instruments are not built for harsh environments, premature failure, inaccurate readings or unplanned downtime can occur. This guide highlights common hydraulic applications, their challenges and how the right pressure and temperature instruments can help hydraulic systems perform safely and efficiently.

Mobile Hydraulics and Off-Highway Vehicles: Built for Harsh Environments

These systems are widely used across agricultural, construction, material handling, mining, forestry, performance racing and motorsport applications where they are routinely exposed to shock, vibration, temperature extremes, electromagnetic interference (EMI) and pressure spikes.

High-performance pressure transducers, watertight pressure switches and temperature sensors help ensure consistent operation in braking, steering and other functions where pressure monitoring is critical.



[KTS1
Temperature Sensor](#)

Pressure Transducers:

- [G3](#)
- [KM41](#)
- [KD41](#)
- [G2](#) / [GV](#)

Pressure Switches:

- [Series A-Series \(watertight\)](#)

Temperature Sensors:

- [KTS1](#)

Hydraulic Power Equipment: Managing High Pressure and Rapid Cycling

Torque wrenches, pumps and lift systems often operate at high pressures with frequent pressure cycling or pulsation that can fatigue standard instrumentation, causing drift, mechanical damage or failure.

To address these challenges, hydraulic pressure instruments must be designed for high cycle life and pulsation resistance to help maintain accuracy and reliability.



[S1 OEM Pressure Transducer](#)

Pressure Transducers:

- [S1](#)
- [G2](#)
- [G3](#)
- [KM41](#)

Pressure Gauges:

- [8008A](#)
- [8008S](#)
- [8009S](#)
- [DG25](#)

Load Moment Indicators and Load Weighing Systems: Accuracy Where Safety is Critical

Load moment indicators and load weighing systems are commonly used in cranes, aerial lifts and other safety-critical equipment. In these applications, inaccurate pressure measurement can directly impact load calculations and operational safety.

Pressure transducers selected for these systems must deliver accurate output across wide temperature ranges while maintaining long-term stability. Resistance to pressure spikes, vibration and environmental exposure is essential to ensure dependable performance over time.

Pressure Transducers:

- [S1](#)
- [G2 / GV](#)
- [G3](#)
- [KD41](#)
- [KM41](#)



[KM41 / 45](#)

[OEM Pressure Transducer](#)

Test Kits: Designed to Withstand Field Use

Hydraulic test kits are frequently used during system service, troubleshooting and validation. In the field, these instruments are often subjected to more shock and mishandling than anticipated, which can result in broken components or loss of calibration.

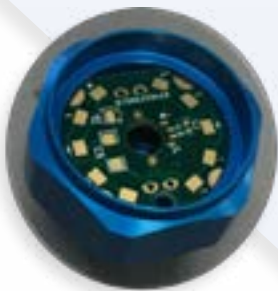
Pressure gauges used in test kits must be rugged enough to tolerate repeated handling while maintaining measurement accuracy. Purpose-built gauges designed for hydraulic service help reduce downtime and ensure dependable readings during maintenance and diagnostics.

Pressure Gauges:

- [DG25](#)
- [8008A](#)
- [8008S](#)
- [8009S](#)



[DG25 Digital Pressure Gauge](#)



Advanced Sensor Technology for Demanding Hydraulic Applications

High pressure, frequent cycling and hydraulic shock can quickly degrade conventional sensor technologies in hydraulic systems. To address these conditions, select Ashcroft pressure transducers utilize [Chemical Vapor Deposition \(CVD\) sensor technology](#), providing excellent cycle life, repeatability and durability through all stainless-steel construction.

Your Partner for Reliable Hydraulic Instrumentation

Ashcroft can help you identify the right pressure and temperature measurement instruments to meet the demands of your hydraulic systems. When standard products are not sufficient, our Custom Engineered Solutions (CESSM) team develops validated, application-specific designs tailored to your performance requirements. We work with you to ensure proper instrument selection, verified performance and long-term reliability in demanding hydraulic environments.



Downloads:

- [5 Mistakes OEMs/System Integrators Make When Selecting Pressure Sensors](#)
- [Download: Checklist for Choosing the Right Partner for OEMs](#)

Related blog articles:

- [How to Select the Right Electrical Connection for Pressure Transducers](#)
- [Top 5 Must Have Hydraulic Pressure Gauge Features](#)
- [How to Protect and Optimize Pressure Instruments in Mobile Hydraulics](#)
- [Choosing the Right Pressure Sensor: 5 Factors to Consider](#)
- [Pressure Transducers for Vulcanizing in Tire Manufacturing and Hydraulic Applications](#)

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