

Short description

Force measurement within hydraulic cylinder



Liebherr's components product segment is increasingly focusing on sensor solutions and their efficient use in hydraulic cylinders. One driver, for example, is force-measurement within the cylinder. It is always advantageous, when precise and dynamic values of the forces prevailing within the hydraulic cylinder are required. This is the case, when monitoring loads in excavators and cranes. In this way, dangerous situations during crane operation can be avoided and the efficiency of the machine can be improved. The prevailing force in the cylinder is conventionally determined indirectly via the oil pressure. These measured values are prone to error due to internal friction, for example. This is why Liebherr relies on direct force-measurement via strain with the force-measurement sensor.

The internal measuring points track both tensile and compressive forces regardless of lateral forces and torques. This ensures significantly more precise and dynamic measurement results and establishes the conditions for higher productivity and safety in daily use in various applications.

Small sensor, huge advantages

- Precise and dynamic measurements
- Compressive forces can be measured regardless of lateral forces
- Forces measurable in end position
- Increase in performance of assistance and automation solutions
- New possibilities in the field of condition monitoring
- Development of joint solutions according to customer requirements

LIEBHERR

The way to the future

We monitor today...

Accurate and dynamic measurements enable reliable monitoring and precise data. In addition, force measurement can be used to make predictions about the condition of the machine and provide an understanding to improve the machine. This data analysis in turn leads to an increase in performance and can lead to greater efficiency. Force measurement thus forms the basic building block for revealing the machine's most important data and creates the prerequisite for predictive maintenance.

...we enable predictive maintenance in the future...

The data collected with the help of force measurement provides a basis in the area of predictive maintenance for hydraulic cylinders. The precise measurement of real forces helps to detect component stresses at an early stage and to determine forecasts for the service life of the machine.

...and support full automation

Force measurement also forms a basis for further digital solutions in the future. Topics such as more efficient assistance systems and automated machine control can play a major role here.



Into the future via a close collaboration

The potential of force measurement can only be tested for its exact properties and behaviour through comprehensive field tests under real operating conditions. Liebherr works closely with its customers to identify suitable solutions for all relevant application areas. Users can benefit from a tailored consultation with our hydraulics experts and from their assistance throughout the entire development process. Please do not hesitate to contact us if you are interested.