

EiWIS

EXaL Intelligent Weight Information System



WIPANO

Gefördert durch:



Bundesministerium
für Wirtschaft
und Energie

aufgrund eines Beschlusses
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Operational disturbances in production wells are not justifiable from a safety point of view and are associated with high costs.

In recent years, damage events have repeatedly occurred at various locations as a result of an increase in the tensile force on the production tubing up to critical axial load caused by temperature changes, pressure changes hydromechanics, alternating loads and rock mechanical processes. These damage events were the trigger for the development of **a new type of weight monitoring system EiWIS (EXaL Intelligent Weight Information System)** for monitoring the behaviour of the production tubing.

The task of the **EiWIS** system is to detect load changes on the production tubing during operation by measuring and monitoring the axial loads at an early stage and thus exclude damage to the production string. The intelligent support element of the **EiWIS** (patent pending) can be used in all common land bolts and rams of tension and tubing spools at wellheads of different manufacturers for supporting and monitoring of the production tubing under mechanical pretension.

For this purpose, the production tubing with hanger is placed on the top of the membrane of the intelligent support element in the tension or tubing spool of the wellhead. Via the hydraulic fluid the force is transferred to a pressure sensor and the load is constantly measured and recorded, detecting any changes. Tests carried out with the **EiWIS** proofed the long-term stability, linearity, and a hysteresis near to zero.

If the load deviates from a pre-defined value by more than a predetermined tolerance value, e.g. due to temperature fluctuations or tectonic movements that affect the riser pipe underground, such a change is immediately detected and shown, so that appropriate precautions can be taken.

With the **EiWIS** system it is possible to record and store the data for a monitoring of the production tubing. It is possible to evaluate the acquired data, e.g. together with measured flow rates, temperature and/or pressure values from the borehole, and give information's like when predetermined threshold values are exceeded, automatically at specific intervals or manually on request.

This makes it possible to collect reliable, real-time information about the forces acting on the production tubing and make it available for future evaluation. It allows to take appropriate precautions in the event of changes to prevent damages to the production tubing.

