

ITAG's new rig provides state-of-the-art technology

ITAG TIEFBOHR GMBH & Co. KG designed and operates a new drilling and workover rig (Rig 40) that was designed for operations in Europe. The rig has a five-year contract with **Gaz de France**.

The rig will drill new wells for underground gas storage, sidetrack from existing wells, perform workovers and move leaching strings in salt caverns.

Approximately 10 million Euros were invested in the rig's state-of-the-art technology. It is the first AC-driven land rig in France.

Due to specific requirements for operations in densely populated areas in Europe, ITAG designed the rig with major components from various suppliers in many countries.

The final rig-up and commissioning was performed by ITAG in its own workshop.

In comparison with conventional rigs in this market segment, Rig 40 provides substantially higher flexibility and a hook load of 200 metric tons, which is higher than that of standard mobile rigs.

Because of its modular design, Rig 40 can be easily adapted to match the operator's space requirements.

In view of the space limitations on narrow access roads and small production sites, Rig 40's compact design requires fewer truck loads during rig moves.



The novel hydraulic iron roughneck is mounted stationary on the rig floor, eliminating the rails typically used with iron roughnecks and resulting in increased safety.

The mast is raised vertically on location with the use of a hydraulic cylinder, requiring less space. The bootstrap system employed for the purpose has proved its worth on offshore rigs.

The individual mast segments are fed from below and transported upward in succession until the mast has been completely erected.

The rig is equipped with three sound-proof generator units with an installed power rating of 2,640 kW. The units are characterized by low fuel consumption, among other features.

The stringent requirements imposed by the European standard on exhaust gases are also satisfied.

The entire drive system has been constructed with the use of modern three-phase AC power technology.

Auxiliary equipment, including a well-servicing pump, is of space-saving, sound-proof design and is accommodated in the containerized substructure and connected by permanently installed lines.

The substructure, including the rig floor modules, consists of various containers. A drainage system is integrated in the bridging elements of the substructure for controlled collection and return of fluids from the rig floor. All supply lines are accommodated under the rig floor.

The high substructure also allows for the installation of BOP stacks with high pressure ratings without restrictions.

More space is provided for high wellheads and for BOP stacks with equipment for underbalanced drilling.

With dimensions of 9 sq m, the rig floor also provides better working conditions as well as increased safety for the rig crew.

The driller's stand on the rig



ITAG's Rig 40 features numerous innovations and technologies that make the rig particularly applicable to the region of France where it will be operating under a five-year contract with Gaz de France.

floor is enclosed and air conditioned and provides a full view of the top drive, racking and stabbing board assisted by video cameras. All controls, instruments and monitors are accessible from a seated position and are easily visible.

The driller's console is equipped with state-of-the-art controls and monitoring technology, meeting the demands for display storage, and processing of operational data.

The rig is equipped with a top drive system as well as a rotary table. Both systems allow precise speed and torque monitoring.

A novel hydraulic roughneck with a knuckle-arm mechanism is used for make-up and break-out of the drill string joints.

Because of the stationary installation of the unit, the rails usually present on the rig floor are unnecessary.

The tank system is also of modular

design and can be expanded appropriately to meet different requirements. The tanks are completely covered by gratings for safe accessibility.

The under-floor submerged agitators ensure thorough stirring of the drilling fluid. The flow direction is adjustable, and the noise level is especially low.

The materials to be mixed are fed alternatively from two different hoppers that are “docked” onto the tanks.

These materials can be supplied from conventional sacks as well as from “big bags.”

The modular design of the the mud tank volume, mud pump capacity and rig power provide simple conversion between drilling, workover and pulling mode (moving of leach strings).

Rig 40 offers numerous benefits in comparison with conventional rigs:

- Its compact and space-saving design is well suited for narrow access roads and small drilling locations;
- The freestanding mast requires no guy lines and anchors;
- Set up is flexible and can be laid out for different types of work and easily varied depending upon the specified well service requirements;
- The rig’s design results in fast and cost-effective rig moves with reduced assembly efforts, use of light cranes and truck loads appropriate for transport without the need of special transport permission;
- The efficient drawworks includes fail-safe functions that are joystick operated for sensitive operation;
- The ergonomic design of working areas and handling equipment reduce or eliminate heavy work and the danger of injury;
- The rig features fuel-saving three-phase AC drives with excellent speed/torque control and simplified explosion-proof design;
- The design is compliant with HSE requirements regarding exhaust gases and noise;
- Instrumentation and documentation of operations data is gathered and stored by digital techniques. ■