

Quartet-HT

High-performance downhole reservoir testing system for ultrahigh-temperature conditions

APPLICATIONS

- Downhole reservoir testing
- Deviated and deepwater wells
- HPHT and hostile wells

BENEFITS

- Enhances efficiency with single-trip operation
- Saves time with faster rig-up and rig-down
- Reduces the number of string components and connections for faster handling
- Isolates at production level with sealability qualified to ISO 14310 V3 standards
- Increases the cost-effectiveness of operations through multicycle flexibility
- Enhances safety with less nitrogen, lower operating pressure, fewer seals, and no string manipulation required for packer setting
- Mitigates risk by improving test results for more-accurate characterization

FEATURES

- All-ceramic multichip module (MCM) electronics
- High-resolution quartz sensors
- Lower operating pressure
- Premium connections
- Multicycle flexibility
- No drill collars or slip joints
- Fewer seals and connections
- Shorter string design
- Less nitrogen
- Single-trip efficiency

The Quartet-HT* high-performance downhole reservoir testing system allows you to isolate, control, measure, and sample—at temperatures reaching 410 degF [210 degC] and all in a single trip.

In addition, the Quartet-HT configuration offers every advantage that the Quartet* high-performance downhole reservoir testing system has over conventional technologies. Advantages include a lower operating pressure, less nitrogen, premium connections, no drill collars or slip joints, and fewer seals and connections while also delivering the benefits of durable 100% ceramic MCM electronics and high-resolution quartz-sensor pressure measurements. The Quartet-HT system lets you run the tools deeper and closer to your reservoir for more-accurate reservoir characterization and an altogether higher-performance reservoir test.

The Quartet-HT system integrates four leading technologies:

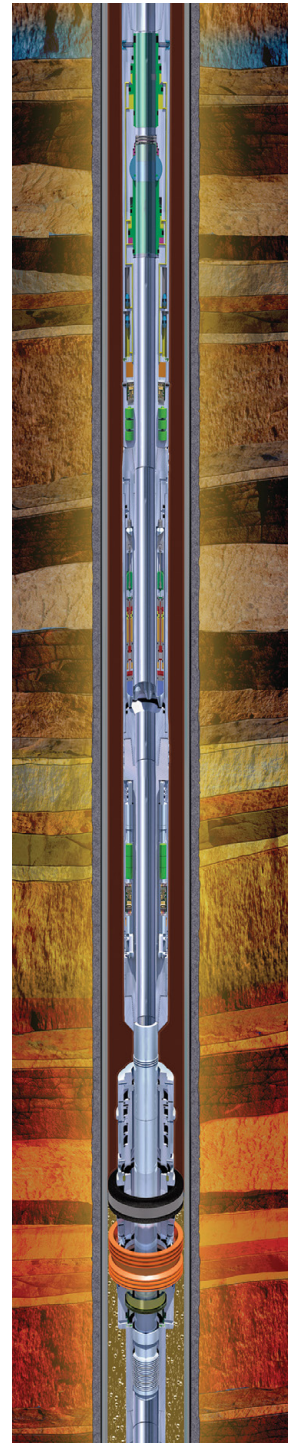
- CERTIS* high-integrity reservoir test isolation system
- IRDV* intelligent remote dual valve
- Signature* quartz gauges
- SCAR* inline independent reservoir fluid sampling.

Isolate with the CERTIS system

The CERTIS system combines many features of a conventional retrievable test packer with those of a permanent downhole packer, including a built-in floating seal assembly that eliminates the need for drill collars and slip joints. The versatile system allows the selection of optimal perforating gun sizes to achieve better reservoir connectivity, and its design enables setting, testing, and retrieval in a single run. Because the CERTIS system is set without string rotation or mechanical movement, operations are faster and involve less risk, especially in subsea environments.

Control with the IRDV tool

The IRDV intelligent remote dual valve is operated by the IRIS* intelligent remote implementation system, which uses low-intensity pressure-pulse commands that are measured by high-resolution quartz sensors. These low-pressure commands are implemented using downhole hydrostatic pressure to operate the tester valve and circulating valve, and no nitrogen charge is required. Both valves are operated independently without interfering with the operation of other tools in the test string. In addition, the IRDV tool is immune to downhole pressure and temperature fluctuations. The IRDV tool as part of the Quartet-HT system uses 100% ceramic MCM electronics to ensure reliable operation at ultrahigh temperatures.



The Quartet-HT high-performance downhole reservoir testing system.

Quartet-HT

Measure with Signature quartz gauges

The Signature quartz gauge consistently delivers the most-accurate, highest-resolution downhole pressure measurements in ultrahigh-temperature environments for the entire test duration. High-resolution measurements are captured for better quantification of reservoir properties, enabling confident testing. Its large memory capacity accommodates high data-sampling rates for the most-comprehensive dataset, and long battery life means that high-quality measurements are continuously acquired for the entire test duration.

Sample with the SCAR system

SCAR sampling delivers reservoir-representative fluid samples from deep within the reservoir, as samples are collected directly in the flow stream to eliminate contamination caused by dead volumes. Each Inconel sampler has an independent gas charge to enable the retrieval of high-shrinkage reservoir fluids at or above reservoir pressure. Samplers can be actuated simultaneously or selectively using surface commands via annular pressure. Nonreactive coating of the sample chambers is available to address challenging questions relating to H₂S and other trace element species concentrations.

www.slb.com/Quartet-HT

Schlumberger