Quartet
Downhole reservoir testing system
Testing provides key answers for the challenges of today’s complex reservoirs. Merging the broadest portfolio of leading technologies with domain expertise, Schlumberger works with you to get the most-accurate characterization of your reservoir. Our proven downhole technologies help you achieve measurably safer and more efficient reservoir tests that are in tune with your test objectives.

Now, Schlumberger combines four leading downhole technologies into one advanced string design for altogether higher performance during downhole testing.
The Quartet* downhole reservoir testing system combines four leading downhole testing technologies to deliver accurate, deep-reading, high-resolution pressure measurements and contaminant-free, representative reservoir fluid samples.

Each of the four Quartet system technologies is engineered specifically for testing and offers multiple advantages over conventional string configurations, including:

- no drill collars or slip joints
- fewer seals and connections
- multicycle flexibility
- single-trip efficiency
- shorter string design
- less nitrogen
- lower operating pressure
- premium connections.

With the Quartet system, experience an altogether higher-performance reservoir test.
The Quartet system’s simplified design offers multiple advantages over conventional string configurations. Lower operating pressure and less nitrogen increase safety during operations. Eliminated drill collars and slip joints, as well as fewer seals and connections, provide more efficient handling for safer and more cost-effective downhole testing.

90% less nitrogen
75% shorter string
60% fewer connections
50% fewer seals
35% lower operating pressure

Downhole string technology, simplified
CERTIS
HIGH-INTEGRITY RESERVOIR TEST ISOLATION SYSTEM

HIGH-INTEGRITY WELL ISOLATION
Production standards of reservoir test isolation

SINGLE-RUN RETRIEVABILITY
Single-trip testing and retrieval

IRDV
INTELLIGENT REMOTE DUAL VALVE

GREATER COMMAND
Independent, intelligent command without interference

DUAL CONTROL WITHOUT INTERFERENCE
Fast-acting valve operations without indexing

CERTIS
HIGH-INTEGRITY RESERVOIR TEST ISOLATION SYSTEM

■ Production-level sealability
■ Rapid, reliable hydrostatic setting
■ Simplified, shorter string design
■ Single-trip retrieval

IRDV
INTELLIGENT REMOTE DUAL VALVE

■ Low-pressure commands
■ Independent command and control
■ Hydrostatic operations
■ Record of operations
■ Override on command
■ Dual operating mode
Signature
QUARTZ GAUGES

HIGHEST RESOLUTION
Market-leading resolution and stability for more precise reservoir mapping

BEST ACCURACY
Dynamically compensated pressure measurements for reduced uncertainty

SCAR
INLINE INDEPENDENT RESERVOIR FLUID SAMPLING

RELIABLE, SAFER SAMPLE COLLECTION
Contaminant-free samples captured inline and maintained above reservoir pressure in nonreactive chambers

MULTIPLE SAMPLING OPTIONS
Flexible sample collection with reservoir-representative results

- High resolution
- Stable pressure measurement
- Large memory capacity
- Reliable power and memory autonomy

- Inline conveyance
- Nonreactive samplers
- Independent gas charges
- Shorter length
- Flexible sampler activation
CERTIS

Optimal seal integrity without compromise

Best of both worlds
The CERTIS high-integrity reservoir test isolation system is the first of its kind: a retrievable test system that delivers production-level isolation. Its design reduces the number of tools, connections, and seals required downhole and enables setting with no string rotation or mechanical movement.
Retrievable, single-trip, production-level isolation
The CERTIS high-integrity reservoir test isolation system combines the features of a retrievable drillstem test packer with a hydraulic-set permanent packer for single-trip, production-quality well isolation. The system eliminates the need for drill collars and slip joints, and when used as part of the Quartet system, can significantly reduce the number of tools in your downhole test string.

High-integrity well isolation
When the CERTIS system reaches the targeted depth in the wellbore, annulus pressure is applied to activate the hydraulic setting mechanism. Bidirectional slips set, the bypass closes, and the sealing element energizes when hydraulic pressure is applied. The isolation system is locked in the set position by a positive ratchet mechanism, which also retains the applied setting force.

Single-run retrievability
When the isolation system sets and the stringer is released from the packer body, the seals are free to move in the sealbore, operating much like a production packer with a floating seal assembly. A straight pull moves the slips to a relaxed position within the packer body and releases the packer. Continued pulling reopens the packer bypass, eliminating swabbing when coming out of the well.

The CERTIS system combines permanent-packer-level isolation with single-trip retrievability in one simplified solution.
IRDV

High-integrity, independent command and control for reliable reservoir interaction

Always in control
The IRDV intelligent remote dual valve features nitrogen-free, hydrostatically powered testing and circulating valves in one tool. A single command system can operate both valves in a range of conditions and is immune to downhole pressure and temperature fluctuations.
Fast-acting, independent dual-valve control
The IRDV intelligent remote dual valve is operated by the IRIS® intelligent remote implementation system, which uses low-intensity annular pressure pulses. The pulses, or commands, are implemented using downhole hydrostatic pressure to operate the dual valves.

Greater command
The IRDV dual valve flexible command system includes automatic valve sequences for optimal downhole testing operations. Low-pressure commands make for easier communication with the tool and eliminate problems associated with high pressure in the annulus. The IRDV dual valve is not affected by pressure changes caused by other tool operations or common operational procedures. The hydraulic system is automatically referenced with hydrostatic pressure, so the IRDV dual valve can function while descending or ascending in the wellbore.

Dual control without interference
The IRDV dual valve controls two multicycle valves, a tester valve and a circulating valve, combined into one tool. Both valves can be cycled independently or sequentially for more flexible operations. The IRDV dual valve’s simplified mechanical section provides more-reliable control in environments with heavy mud or debris, as most seals and moving parts are bathed in hydraulic oil at hydrostatic pressure. The tool has a proven record where fluids range from clear brines to heavyweight mud systems.

The IRDV dual valve features nitrogen-free, hydrostatically powered testing and circulating valves in one tool that can operate in a range of conditions and is immune to downhole pressure and temperature fluctuations.
Premium pressure measurements for accurate reservoir description

**Measurably better**
The Signature quartz gauge leads the market with field-proven, high-quality pressure measurements. Built around exclusive Schlumberger sensor technology, the Signature gauge delivers the most-accurate, highest-resolution measurements available—helping you see far into the reservoir and detect boundaries.
Accurate, high-resolution measurements
Signature quartz gauges consistently deliver high-quality downhole pressure measurements in any operating environment for the entire test duration. As part of the Quartet system, the gauges continuously detect 1-s recording rate of high-resolution pressure and temperature measurements through the reservoir test. Signature gauges can be integrated with Muzic® wireless telemetry to enable bidirectional communication for real-time pressure data verification while monitoring and controlling your downhole reservoir test. Each gauge can be interrogated independently for pressure or temperature data in both real time and historical modes. These data are wirelessly transmitted for analysis either on site or at a remote office, bringing greater flexibility and efficiency to reservoir testing.

Robust, reliable design
With an all-ceramic multichip module design and welded electronics housing, the Signature quartz gauge delivers dependable measurements that help you meet your test objectives.

High-integrity storage
Signature gauges have a large memory capacity that accommodates high data-sampling rates for a more comprehensive dataset. Their long battery life means you acquire high-quality measurements continuously for the duration of the test. Testing longer lets you see farther into the reservoir and allows boundaries to be more clearly detected for better reserves estimation.
Cleanest, most-representative reservoir samples

Capture reservoir results
SCAR inline independent reservoir fluid sampling delivers representative reservoir fluid samples from deep within the reservoir. Samples are collected directly in the flow stream; each sampler has its own small nitrogen charge, improving safety and ensuring each individual sample remains at or above reservoir pressure.
Contaminant-free, representative fluid samples
SCAR inline independent reservoir fluid sampling delivers reservoir-representative fluid samples from deep within the reservoir. Samples are collected directly in the flow stream with no contamination for more-accurate reservoir characterization.

Multiple sampling options
Samplers are activated using annulus pressure, so samples can be collected at any time during the flow period with flexible sampler activation options. The SCAR system has sampler and sample carrier options with a broad range of sizes, ratings, and activation choices.

Reliable, safer collection
Each of the samplers in the SCAR system has its own small, independent nitrogen gas charge to ensure individual samples remain at or above reservoir pressure. Nonreactive sample chambers ensure trace elements in each sample are retained so that the SCAR system delivers the most-accurate, most-representative downhole fluid samples. In addition, Schlumberger provides a total chain of custody for your samples.
The Quartet downhole reservoir testing system delivers the highest-quality pressure measurements and the most-representative fluid samples with maximum safety and efficiency—all in a single run. During your downhole testing operations on land or offshore, use the Quartet system to reach a better basis for your decisions and be certain*. 

*For more information, visit quartet.com.
Quartet

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