

Slimline Single-Phase Reservoir Fluid Sampler

Collect contaminant-free, representative, single-phase HPHT fluid samples

 **Temperature:**
354 degF [179 degC]

 **Test Pressure:**
30,000 psi [207 MPa]

 **Working Pressure:**
20,000 psi [138 MPa]

 **Sample Capacity:**
18.3 in³ [300 cm³]

Applications

- Advanced or routine PVT and compositional analysis
- Flow assurance measurement (asphaltene, wax, and paraffins)
- Heavy oil sampling
- Near-saturated reservoir sampling
- Sulfur- and mercury-species analysis
- Routine, HP, HT, high-H₂S, deepwater, and arctic downhole reservoir sampling

How it improves wells

By enabling reservoir fluid sampling directly in the flow stream, the slimline single-phase reservoir fluid sampler (SLS) captures contamination-free representative fluids, which are maintained in single phase during retrieval to surface. The optional high-shrinkage chamber (HSC) further reinforces recovery performance for highly compressible sample fluids. These sampling capabilities make it possible to conduct accurate advanced and routine PVT and compositional analyses on the entire range of reservoir fluids, even from demanding environments such as HPHT, high-H₂S, and deepwater reservoirs.

How it works

The slimline single-phase reservoir fluid sampler (SLS) is an advanced HPHT-rated system for subsurface sampling applications. Each INCONEL® SLS independently maintains every sample in single-phase condition and above reservoir pressure as the tool is retrieved to surface because it has its own small nitrogen gas charge. When the optional HSC is used instead of the nitrogen chamber of the SLS for operations with highly compressible sample fluids, the extended

chamber enables maintaining the sample at a higher surface pressure with a lower charge pressure. Samples are collected directly in the flow stream with no contamination for more accurate reservoir characterization, including

- GOR value
- trace elements
- different flow periods.

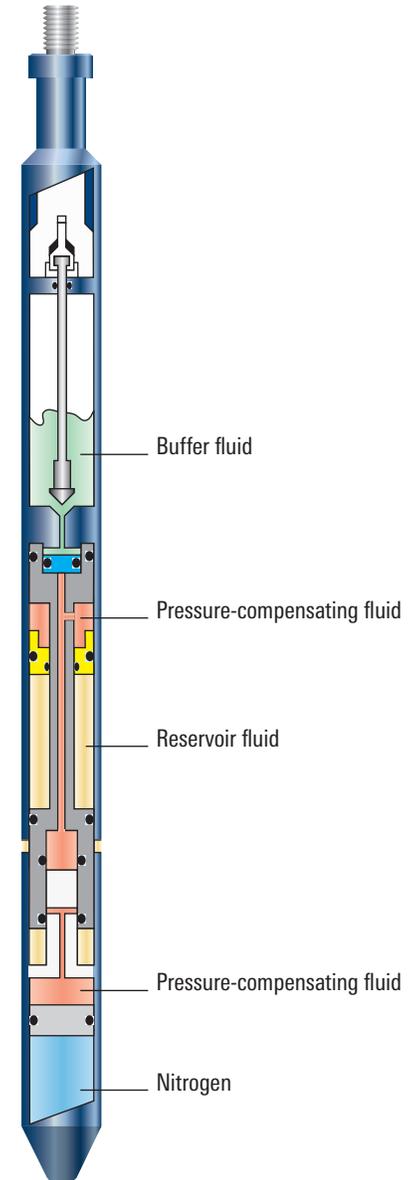
Challenging questions related to H₂S and the concentration of other sulfur species can be reliably addressed by applying unique, latest-generation, nonreactive coatings such as Dursan®. When applied to the SLS sampling tools, this coating inhibits the loss of H₂S, increases durability, and eliminates the need for frequent recoating; as a result, reliable data can be obtained when critical decision making is required.

The SLS is conveyed with the SCAR* inline independent reservoir fluid sampling system during downhole reservoir testing operations. SCAR sampling enables obtaining high-quality PVT samples when running wireline is not cost-effective, practical, or safe. By eliminating the need for wireline intervention, SCAR sampling provides potential rig-time savings of 8 to 24 h during an offshore bottomhole sampling project.

The SLS technology is based on the original mercury-free single-phase reservoir sampler (SRS), which has been successfully operated for almost 20 years. The reliability of the SRS and SLS has established these technologies as the benchmark tools for all subsurface sampling operations.

The SLS allows controlled, contaminant-free reservoir-representative fluid samples without sample flashing. The unaltered sample is retrieved at the surface in single-phase state, requiring no recombination before transfer. Because samples need not be recombined, the sample transfer takes minutes instead of hours.

The SLS mercury-free, pressure-compensating bottomhole sampling tool can be operated in configurations of up to eight tools in each SCAR sampling assembly. As a component of Symphony* live downhole reservoir testing



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united by Muzic* wireless telemetry, samplers are activated using wireless commands or annulus pressure to rupture disks. This activation enables collecting samples at any time during the flow period. Samplers can be simultaneously or selectively activated for more flexibility during operations. In addition, Schlumberger provides a total chain of custody for your samples.

Slimline Single-Phase Reservoir Fluid Sampler

Features

- Samplers positioned directly inline of flow stream
- Independent nitrogen gas charge
- Simultaneous or selective firing using annular pressure or wireless commands
- Downhole self-closure of samplers
- No sample flashing
- INCONEL samplers
- Dursan nonreactive coating
- Mercury-free operation
- Fast sample validation, analysis, expertise, and support with chain-of-custody sample-management tracking
- Dangerous goods and hazardous material labeling and packaging service
- Fluids- and reservoir-domain expertise and support

Specifications

	SLS-20K	SLS-HSC
Length, ft [m]	12.1 [3.7]	13.7 [4.1]
Max. OD, in [mm]		1.2 [30.5]
Sample capacity, in ³ [cm ³]		18.3 [300]
Material		Inconel 718
Test pressure, psi [MPa]		30,000 [207]
Working pressure, psi [MPa]		20,000 [138]
Working temperature, degF [degC]		354 [179]
Service (NACE MR0175/ISO 15156)		H ₂ S, acid
Design code	API Spec 6A, NACE MR0175, ISO 15156	
Certifying authority	Bureau Veritas	

All specifications are subject to change without notice.

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