Schlumberger

SCAR

Inline independent reservoir fluid sampling

Applications

- Advanced or routine PVT and compositional analysis
- Flow-assurance measurement acquisition (e.g., asphaltene, wax, and paraffin)
- Heavy oil sampling
- Near-saturated reservoir sampling
- Sulfur- and mercury-species analysis
- Routine, HPHT, high-H_2S, deepwater, and arctic downhole reservoir sampling

Benefits

- Saves rig time for more cost-effective operation
- Enables safer, more efficient sample handling
- Samples reservoir fluid directly in flow stream
- Delivers contamination-free, reservoir-representative fluid samples
- Retrieves samples in single-phase condition, above reservoir pressure, and above asphaltene onset pressure (AOP) without phase split
- Representatively samples trace elements
- Allows sampling during different flow periods

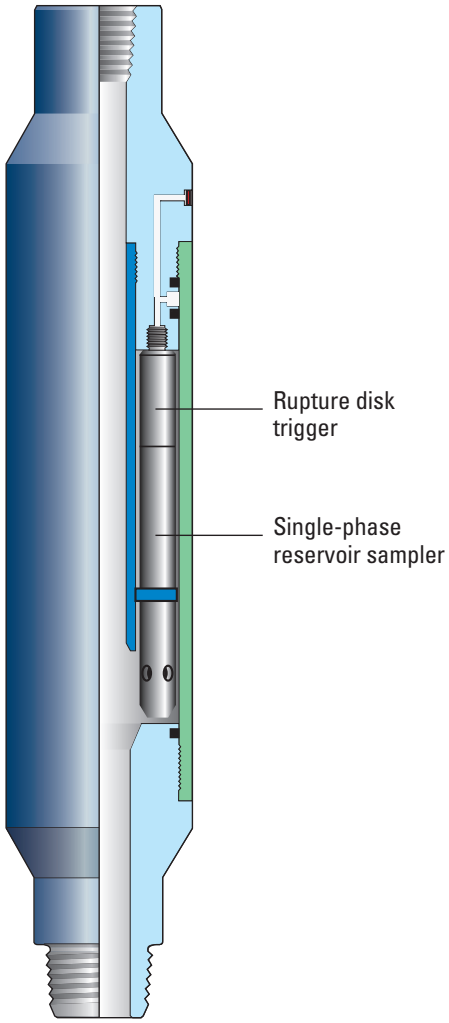
Features

- Independent nitrogen gas charge
- Simultaneous or selective sampler activation
- Downhole sampler self-closure
- No sample flashing
- INCONEL® samplers
- DursanTM nonreactive coating
- Chain-of-custody sample-management tracking
- Dangerous goods and hazardous material labeling and packaging service

SCAR* inline independent reservoir fluid sampling delivers contaminant-free, reservoir representative fluid samples from deep within the reservoir. Samples are collected without flashing directly in the flow stream to eliminate contamination caused by dead volumes. In addition, SCAR sampling enables faster handling at the wellsite with four sample carrier choices.

The system can accommodate up to 10 samplers with options to select from a broad range of size, rating, and activation specifications. Each sampler used in SCAR sampling has its own small, independent gas charge to ensure each individual sample remains at or above reservoir pressure. Nonreactive sample chamber options ensure H_2S, mercaptans, and trace elements are retained so that the sampling system delivers the most representative reservoir fluid samples. Monophasic sampling avoids partitioning of trace components between phases, reducing uncertainty related to trace elements.

Samplers are activated by application of annulus pressure, enabling samples to be taken at any time during the flow period. A single rupture disk can activate all samplers simultaneously, or each sampler can have its own rupture disk trigger for selective firing. Rupture disks are set at an annulus pressure operating range between the tester valve and the reverse circulating valve.



SCAR inline independent reservoir fluid sampling.

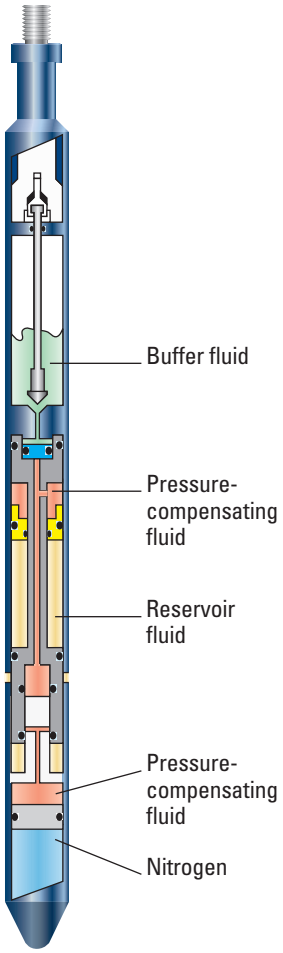
SCAR

Carrier Specifications				
Model	**SCAR-A**	**SCAR-B**	**SCAR-H**	**SCAR-HT**
Max. OD, in [mm]	7.75 [197]	5.5 [140]	7.75 [197]	5.5 [140]
Fishing neck OD, in [mm]	5 [127]	5 [127]	5 [127]	5 [127]
Tool ID, in [mm]	2.25 [57]	2.25 [57]	3.5 [89]	2.25 [57]
Pressure ratings				
Differential, psi [MPa]	10,000 [69]	15,000 [103]	10,000 [69]	15,000 [103]
Max. annular, psi [MPa]	15,000 [103]	20,000 [138]	20,000 [138]	20,000 [138]
Max. tubing, psi [MPa]	15,000 [103]	20,000 [138]	20,000 [138]	20,000 [138]
Temperature rating, degF [degC]	350 [177]	350 [177]	350 [177]	400 [204]
Length, ft [m]	22.5 [6.86]	18.8 [5.7]	21.6 [6.58]	18.8 [5.7]
Sampler	SRS	SLS	SLS	SLS
Number of samplers†	Up to 6	Up to 8	Up to 10	Up to 8
Max. sample volume, galUS [L]	0.951 [3.6]	0.634 [2.4]	0.792 [3]	0.634 [2.4]
Service (NACE MR0175/ISO 15156)	H_2S, acid	H_2S, acid	H_2S, acid	H_2S, acid
Connection	3½ IF or PH-6	3½ IF or PH-6	4½ IF or PH-6	3½ IF or PH-6

†See sampler specifications table.

Sampler Specifications		
Model	**Single-Phase Reservoir Sampler (SRS)**	**Slimline Single-Phase Sampler (SLS)**
Max. OD, in [mm]	1.75 [44.4]	1.2 [30.5]
Pressure ratings		
Test, psi [MPa]	22,500 [155]	30,000 [207]
Working, psi [MPa]	15,000 [103]†	20,000 [138]
Temperature rating, degF [degC]	392 [200]	350 [177]‡
Length, ft [m]	13.7 [4.2]	12.6 [3.8]
Weight, lbm [kg]	77 [35]	30.9 [14]
Sample capacity, fl ozUS [cm^3]	20.3 [606]	10 [296]
Material	17-4 stainless steel or INCONEL 725	INCONEL 718
Service (NACE MR0175/ISO 15156)	H_2S, acid	H_2S, acid
Design code	API Spec 6A, NACE MR0175/ ISO 15156	API Spec 6A, NACE MR0175/ ISO 15156
Certifying authority	Bureau Veritas	Bureau Veritas

†Pressure rating at max. temperature rating is 14,000 psi [96 MPa]
‡Upgrade in SCAR-HT to 410 degF [210 degC]



Single-phase reservoir sampler.

Perform SCAR sampling with the Quartet* downhole reservoir testing system. The Quartet system delivers high-quality pressure measurements and representative fluid samples with maximum safety and efficiency, for altogether better reservoir testing.

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