

Well Flow Management

Fluids Sampling and Analysis

20K TCS System

Expro's Tubing Conveyed Sampling System (TCS) is a unique tool for bottom hole sampling of HP/HT wells. It provides 4 x 600cc (2.4l) of single-phase reservoir samples and can be equipped with quartz memory gauges to measure downhole pressure and temperature.

The system uses sour service pressure compensated chambers which are ideal for HP/HT operations and/or sampling of under saturated gas/volatile oil reservoirs.

Features

- **HP/HT:** the working pressure and temperature is 20,000psi and 350°F (full internal differential pressure)
- **Triggering functions:** individual triggering of each chamber by use of rupture discs
- **Sour service:** can provide service in the most hostile well environments with extreme H₂S levels
- **Positive displacement operation:** a slow positive displacement of the floating pistons ensures no pressure differential across the sample entry ports
- **Single-phase:** the sampling tool uses high N₂ charge pressures for single-phase sampling of high shrinkage reservoir fluids
- **Full bore:** the carrier ID is full bore 2 1/4" with a maximum eccentric offset of less than 1"
- **Integrated bottom hole sampling service:** custom designed transport basket including all necessary equipment such as transfer bench, lifting and handling equipment, pressurised N₂ and hand tools (DNV 2.7-1 certified)

Benefits

- Can be operated in extreme wells with high pressure and temperature without compromising safety
- Activation by individual rupture discs allows the operator to choose the exact time of sampling, and each sampler may be activated individually
- The sour service material makes the tool excellent for trace element sampling and sampling in highly corrosive hydrocarbon fluids containing CO₂, H₂S and brines. The material of the tool provides insignificant loss of H₂S from the sample.
- With no requirement for re-establishing single-phase at surface, sample transfer is performed rapidly and without jeopardising the integrity of the sample
- No wireline operations are necessary to collect high quality samples





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Technical specifications	
Sample capacity	2.4 liters (4 x 600 cc) single phase
Full bore ID	2 1/4"
OD	5 1/2"
Main internal bore offset	23mm / 0.9"
Max. temperature	177°C / 350°F
All fluid exposed parts according to:	NACE MR-175 / ISO 15156 (2003)
Max. differential pressure internal	20,000 psi @ 350°F max.
Max. differential pressure external	15,000 psi @ 350°F
Design specification	ASME Sect. VIII Div. 2 / API 5C3
Tensile rating	325,000 lbf @ 177°C and 0 psi
Make up length	12.3m
Total weight	800 kg
End connections (both ends)	Hydril 4 1/2" 26 1/2" lb/ft Type 533 (box)
Optional	P&T Quartz Gauges / two each 1 1/4" OD

For more information contact your local Expro representative or email fluids@expro.com