

# Expro Petrotech® 20K TCS Carrier



Expro Petrotech Tubing Conveyed Sampling Carrier is a unique tool for bottom hole sampling of HPHT wells. The 20K TCS Carrier can provide 4 x 540 cc (2.16 litres) of single phase reservoir samples. It may also be equipped with quartz memory gauges to measure downhole pressure and temperature.

The carrier is custom made for the non-reactive pressure compensated samplers (PCS), which are ideal for HPHT operations and/or sampling of undersaturated gas / volatile oil reservoirs.

## Features:

### High Pressure & High Temperature

The working pressure and temperature of the TCS Carrier is 20,000 psi @ 350 °F (full differential).

### Triggering functions

The TCS Carrier provides individual triggering of each sampler by use of rupture discs or acoustic telemetry system.

### Non-reactive

The TCS Carrier and PCS samplers provide service in the most hostile well environments, with extreme H<sub>2</sub>S levels.

### Positive displacement operation

A slow positive displacement of the floating pistons ensure no pressure differential across the sample entry ports.

### Single-phase

The PCS tool will allow use of high N<sub>2</sub> 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 carrier tool assembly, four TCS/PCS samplers, transfer bench, lifting and handling equipment, pressurized N<sub>2</sub> and hand tools. DNV 2.7-1 certified.

## Benefits:

Can be operated in extreme wells with high pressure and temperature without compromising the safety.

Activation by individual rupture discs allows the operator to choose the exact time of sampling, and each sampler may be activated individually.

The non-reactive material makes the tool excellent for trace element sampling and sampling in highly corrosive hydrocarbon fluids containing CO<sub>2</sub>, H<sub>2</sub>S and brines. The material of the tool provides insignificant loss of H<sub>2</sub>S from the sample.

With no requirement for re-establishing single-phase at surface, sample transfer is performed rapidly and without jeopardizing the integrity of the sample.

No wireline operations are necessary to collect high quality samples.

## Technical Specification

Sample capacity: ..... 2.16 litres (4 x 540 cc) single phase  
 Full bore ID: ..... 2"  
 OD: ..... 5"  
 Main internal bore offset: ..... 23 mm  
 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. differential pressure external: ..... 15,000 psi @ 350 °F  
 Design specification: ..... ASME Sect. VIII Div. 3 / API 5C3  
 Tensile rating: ..... 325,000 lbf @ 177 °C and 0 psi  
 Make up length: ..... 12.3 m  
 Total weight: ..... 800 kg  
 End connections (both ends): .. Hydril 4.5" 26.5" lb/ft Type 533 (box)  
 Optional: ..... P&T Quartz Gauges / two, each 1.25" OD