MDT Multisample Module

Schlumberger

The Multisample Module (MRMS) of the MDT* Modular Formation Dynamics Tester can retrieve six representative formation fluid samples on a single trip into the well. Two types of sample bottles can be used in the MRMS:

- Multisample Production Sample Receptacle (MPSR)
- Single-Phase Multisample Module (SPMC).

The MRMS may be fitted with any combination of MPSR and SPMC bottles. A maximum of five MRMS modules (i.e., a total of 30 bottles) can be combined in one toolstring.

The MPSR bottle has a 450-cm^3 [0.12-gal] volume and is approved for transport by the U.S. Department of Transportation (DOT). It can be heated to 200°F [93°C] for recombining the sample but is not suitable for long-term storage. The SPMC has a 250-cm^3 [0.07-gal] volume and can be heated to 400°F [204°C]. It is not DOT transportable and therefore must be transferred at the wellsite. Heating to the reservoir temperature is required for revaporizing condensed liquids in gas condensate samples, and heating to 180°F [82°C] is required for recombining wax precipitants.

The SPMC maintains the sample pressure at or above the reservoir pressure despite the reduction in temperature at the surface. The SPMC must be used to prevent asphaltene solids from precipitating in oil samples because the precipitation of asphaltenes can be irreversible. The opening pressure on MPSR samples is much lower than the reservoir pressure because of the reduction in temperature at the surface. Gas, liquid, and solid phases separate within the MPSR bottle, and the sample cannot be validated, transferred, or analyzed until it has been recombined.

Mechanical Specifications

	MRMS
Temperature rating	392°F [200°C]
Pressure rating	20,000 psi [138 MPa]
Borehole size—min.	5⅝ in. [14.29 cm]
Borehole size—max.	22 in. [55.88 cm]
Outer diameter	5 in. [12.70 cm] (max.)
Length	13.19 ft [4.02 m]
Weight	465 lbm [211 kg] (max.)
Tension†	160,000 lbf [711,710 N]
Compression†	85,000 lbf [378,100 N]

† At 15,000 psi [103 MPa] and 320°F [160°C]. These ratings apply to all MDT modules except the Dual-Packer Module (MPRA). The compressive load is a function of temperature and pressure.

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