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Core Lab

Rotating Disc Acid Reaction System, CRS-100 Datasheet

Drilling & Stimulation Properties



Rotating Disc Acid Reaction System, CRS-100

Rotating Disc Acid Reaction System, CRS-100, is a computer controlled acid reaction system that allows for the controlled reaction of reservoir rock samples with acid fracture fluids and the timed sequential collection of reactant fluid. From the chemical analysis of the reactant and the experimental and sample collection data from the CRS-100 the reaction rates of carbonate and dolomite samples can be calculated and the results used in the design of effective acid stimulation treatments of wells. The CRS-100 features a 3,000 psig (21 MPa) pressure vessel as standard with a 1 in. rotating disc, magnetic drive system, temperature control system, fraction collector and data acquisition and control software. Pressure, temperature, acid displacement and test duration are software controlled. The software permits the collection of a number of reactant samples at preselected time intervals.



The CRS-100 has been specifically designed to measure rock/acid reaction rates using common oil industry acids (Hydrochloric, Hydrofluoric, Acetic etc.) at pressures of 3,000 psig standard and 5,000 psig and 7,240 psig as options and temperatures up to 250 °C.

The equipment comprises a standard 500 ml capacity Hastelloy B acid cell with 500 ml and 1,000 ml options, to hold a core sample disk, which is rotated by the magnetic drive mechanism. Acid is loaded into the pre-charge cell and displaced, by gas drive, into the measurement cell immersing the sample an exact and known depth. Prior to displacement both acid cells are either heated or cooled to the required temperature and when displaced into the primary cell pressurized to the desired pressure. Effluent samples are automatically displaced to and collected in the software controlled fraction collector.

All operations, including pressure, temperature, rotation speed, acid displacement, sample collection and test duration are controlled by the operating software.



Technical Specifications:

- Material: Hastelloy C and B
- Capacity to mount up to 4 Corrosion Coupons
- Reactor Vessel Capacity: Standard 500 ml; Optional 300 ml and 1,000 ml available
- Pre-Heater Vessel Capacity: Standard 600 ml; Optional 400 ml and 1,100 ml available
- Pressure Rating: Standard 3,000 psi; Optional 5,000 psi and 7,240 psi available
- Temperature Rating: 250 °C
- Rotating Speed: 100 to 2,000 rpm