

دستگاه تعیین اشباعیت سنگ با کمک دین استارک  
Dean Stark Saturation Measurement (DSS-01)



Distillation extraction (Dean stark) enables the determination of fluid saturation in a core sample by virtue of a solvent vaporization and condensation process. This method relies on the miscibility to oil and immiscibility to water of solvents such as toluene. Initially, the saturated sample is weighed. It is then placed in a glass tube connected at the bottom to an externally heated, solvent-containing flask and to a fluid separation system at the top. By heating the system, the in-situ water vaporizes, condenses in the condenser tube and is collected in a graduated receiver. The vaporized solvent also condenses, soaks the sample, and extracts the oil, which falls into the solvent flask. The experiment continues until the extracted solvent displays its original color. The sample is then oven dried and weighed again. The weight measurements (saturated core, dry core, produced water) can be inputted into the mass balance equation to deduce the produced oil volume. The apparatus consists of a distillation/extraction glassware unit and a heating mantle with thermostatic controller. The glassware for a single sample is composed of a boiling flask with extractor, sample support screen, volumetrically graduated water receiving tube, condenser and desiccant drying tube. A flexible plastic tubing connects the condenser to the water cooling unit. All these constituents are supported by a mounting rack.

### *Technical Specifications:*

- ✓ Three series sample cleaning sequence
- ✓ 500 cc Heating mantle (heating places: 3): 1
  - Body: Steel, with chemically resistant powder coating.
  - Cover: High-grade stainless steel.
  - Asbestos-free ceramic wool. (fiber glass)
  - Ni-chrome wire
  - Woven glass fiber mat
  - Up to 300 °C, Maximum
  - AC 110~220V (or 220~230V), 50/60Hz
  - Weight: 5 Kg
  - Power: 800 W
- ✓ Holder: 2
- ✓ Core diameter: 1 and 1.5”
- ✓ Core length: up to 3.5”
- ✓ Thimble volume: 250 cc
- ✓ Liquid volume accuracy: 0.2 cc
- ✓ Chiller system with tunable inlet temperature for circulating water coolant. This system is designed and constructed based a refrigeration system which can reduce the coolant temperature to desired value with minimum value of 10 °C. In details, an insulated heat exchanger capable the operator to eliminate the heat from the water used for cooling the soxhlet solvents.