

دستگاه چند منظوره سیلابزنی مغزه

Multi Purposes Core Flooding (ASRMF-P-600)



Apex technologies co., designed a special type of core flooding suitable for displacement tests equipment dealing with harsh conditions of oil acidity (high contents of H_2S) to understand the oil trapping mechanisms and effect of wide ranges of EOR methods on secondary, tertiary, etc oil recovery. In details, there are various possible techniques for Enhanced Oil Recovery (EOR) and Improved Oil Recovery (IOR) of depleted reservoir. In general, EOR refers to the process of producing hydrocarbons in an oil field by methods other than the conventional methods utilize reservoir energy and reservoir re-pressurizing schemes. In addition, Improved Oil Recovery (IOR) had a more generalized definition compared with EOR and refers to any processes that promote reservoir performance e.g. well stimulation and water control processes. Unfortunately, conventional production methods will produce about 30% of the initial oil in place from an oil reservoir while the remaining oil, with valuation of nearly 70% of the initial resource, is a large and attractive target for Enhanced Oil Recovery, (EOR) activities. In the light of this huge amount of trapped and unrecovered oil application of EOR, IOR, Enhanced Gas Recovery and, Improved Gas Recovery gain an increasingly attention during the past decades and is still tremendously increasing. This is due to the fact that application of EOR/IOR techniques brings about new opportunities for the industry and at the same time new

challenges that need to be addressed by laboratory studies. Due to technology diversity and different development level of Enhanced Oil Recovery Techniques, and Improved Oil Recovery methods, evaluation and selection of suitable EOR and IOR scenarios is generally complicated and requires good understanding of EOR/IOR techniques as well as reservoir characteristics & optimization.

Regarding this necessity, different types of core flooding equipments with different features and specification compatible with various purposes are designed by our engineers to accurately measure permeability changes to a formation core sample in a high temperature and high pressure environment, while exposing it to a variety of test fluids. A core that is collected from a formation is inserted into a core holder. A computer with special professional software controls the environment within the core holder and the injection rate and/or pressure of fluid into the core. Many different types of tests can be performed with these equipments by changing the test parameters, pressures, pattern of injection, changing the chemicals considering their activity (low or high), etc.

Technical Specifications:

- ✓ Special equipment to simulate the injection of different active and inactive chemicals into core matrix and even perform secondary, tertiary oil recovery processes including gas injection, carbonated water injection, smart water injection, microbial EOR, ... using crude oils with high contents of H₂S
- ✓ Pressure transmitters × 4 (Keller) (is it possible to substitute two pressure transmitters by two Rosemount differential pressures)
- ✓ Online software to log the pressure, displaced volume, injection rate, online permeability and temperature of the system
- ✓ Hand pump equipped with a pressure gauge to control confining pressure × 1
- ✓ Vinci type gas back pressure regulator × 1 (600 bar) (Hastelloy C-276)

Catalogue
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- ✓ Connections and valves: BuTech/Autoclave/Vinci Type/Vindum
- ✓ Core diameter: 1.5" (other diameter are available upon request)
- ✓ Core length: 1" to 4" (other lengths are available upon request)
- ✓ Wetted parts material in contact with acids: Hastelloy C-276
- ✓ Pressure transmitter accuracy: 0.1 % full scale
- ✓ The lowest dead volume among its kind
- ✓ Heating mechanism: slim elements
- ✓ Max. working temperature: 120 °C
- ✓ Easy load hassler core holder × 1
- ✓ Max. working pressure: 600 bar
- ✓ Temperature resolution: 0.1 °C
- ✓ Confining pressure: 600 bar
- ✓ Accumulator × 2 (500 cc)
- ✓ Accumulator × 1 (100 cc)
- ✓ Low dead volume design
- ✓ **High pressure injection pump × 2**
 - Touch panel to control the operational parameters and monitoring the pump performance
 - Operational mode: constant pressure and constant flow rate modes
 - Necessary to inject the fluids into the core holder
 - Displaced volume resolution: 0.001 cc
 - Max. Injection pressure: 600 bar
 - Max. chamber volume: 400 cc
 - Min. flow rate: 0.01 cc/min
 - Max. flow rate: 10 cc/min
 - Weight: 40 kg