floXlab

Your supplier of high-pressure laboratory instruments and advanced geotechnical testing equipment

AVS 700

Acoustic Velocity System

A high-pressure laboratory system for compressional and shear-wave velocity measurement coupled with brine-saturated core resistivity — for dynamic elastic constants, formation factor and acoustic impedance under simulated reservoir conditions.

ACOUSTIC VELOCITY • RESISTIVITY • ELASTIC CONSTANTS

Overview

Acoustic & resistivity measurements under simulated reservoir conditions.

70 MPa

Axial / Confining / Pore pressure

120 °C

Operating temperature

1.5"

Specimen diameter (1" / 1.5" / 30 mm)

4"

Maximum specimen length

WHAT AVS 700 DELIVERS

MEASURES

- P, S1 & S2 wave travel time
- 2-point & 4-point brine-saturated core resistivity
- Pressure, temperature, frequency

DETERMINES

- Compressional & shear acoustic velocities (Vp, Vs1, Vs2)
- Dynamic elastic constants
- Formation Factor & acoustic impedance

BUILT FOR

- Reservoir characterization
- Multi-physics petrophysical studies
- Stainless steel / Hastelloy wetted parts

Measurement Principles

Two coupled measurement physics on the same core sample under controlled stress and temperature.

Acoustic Velocity Principle

PULSER / RECEIVER + PIEZOELECTRIC PLATENS

- **Compressional & shear waves**
  P, S1 and S2 waves propagated through the core sample.
- **Acoustic velocities**
  Vp, Vs1, Vs2 calculated from the measured travel times.
- **Dynamic elastic constants**
  Poisson's ratio, Young's modulus, bulk and shear modulus, Lamé's constant, compressibility, acoustic impedance.

VELOCITY

$$V = L / t$$

Velocity = Length / Travel time

Three propagation modes: P, S1, S2

Resistivity Principle

LCR METER · 2-POINT & 4-POINT CONFIGURATIONS

- **Brine-saturated core resistivity**
  Measure R_o vs pressure, temperature and frequency (12 Hz – 10 kHz).
- **4-point configuration**
  Two axial current electrodes (i_1, i_2) and two lateral voltage electrodes (v_1, v_2) reduce contact resistance errors.

FORMATION FACTOR

$$FF = R_o / Rw$$

Brine-saturated core / Brine resistivity

LCR meter: 12 Hz – 10 kHz

System Architecture

Integrated HP/HT vessel, acoustic and resistivity instrumentation, manual pressurization and unified control station.

01 HP / HT Pressure Vessel

Stainless-steel triaxial vessel with isolated piston, temperature probe and core inlet/outlet — operating up to 70 MPa and 120 °C. Heater and cooling jacket optional.

02 Acoustic Platens

Isolated platens with P, S1, S2 piezoelectric transducers and dedicated acoustic feedthrough — for compressional and dual-shear-wave propagation through the sleeved core.

03 Resistivity Platens (option)

Electrically-isolated electrodes for 2-point or 4-point configuration — two axial current and two lateral voltage electrodes for accurate, low-error measurements.

04 Pulser / Receiver

High-speed generator and oscilloscope acquisition for travel-time determination of P, S1 and S2 waveforms.

05 Pumps & Brine Accumulator

Manual axial and confining pumps with brine piston accumulator — independent control of axial, confining and pore pressure.

06 Computer Station & Software

Synoptic display and acquisition control. Computes Vp, Vs1, Vs2, dynamic elastic constants, R_o and Formation Factor with full report generation.

Get in Touch

Speak to our specialists about your application — every AVS 700 system is configured to your research.

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