floXlab

AVS-A

Acoustic Velocity System

P & S wave velocity and dynamic elastic constants of rock cores

AVS-A — turnkey bench-top acquisition setup with PC + Applilab

Geotechnical & Rock Mechanics Testing Equipment

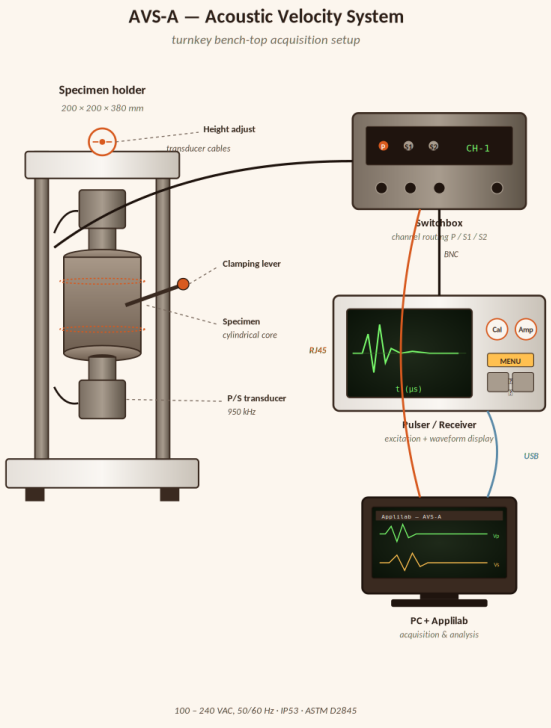
Overview

What the AVS-A does, in brief

- Ultrasonic pulse-transmission through rock cores
- Measures P-wave (Vp) and S-wave (Vs) velocities
- Computes dynamic Young's, shear, bulk moduli & v
- Three modes — compressional P, shear S1 and S2
- 1 MHz transducers — high-resolution time-of-flight
- Fast-loading specimen holder with centring collars
- Turnkey acquisition with PC + Applilab software
- Compliant with ASTM D2845 — IP53 rated

Main Components

Bench-top setup — annotated diagram



Specimen Holder

Fast-loading frame, 200 × 200 × 380 mm

P / S Transducers

1 MHz resonance — P, S1 and S2 modes

Pulser / Receiver

Excitation electronics + waveform display

Switchbox

Routes signals across P / S1 / S2 channels

PC + Applilab Software

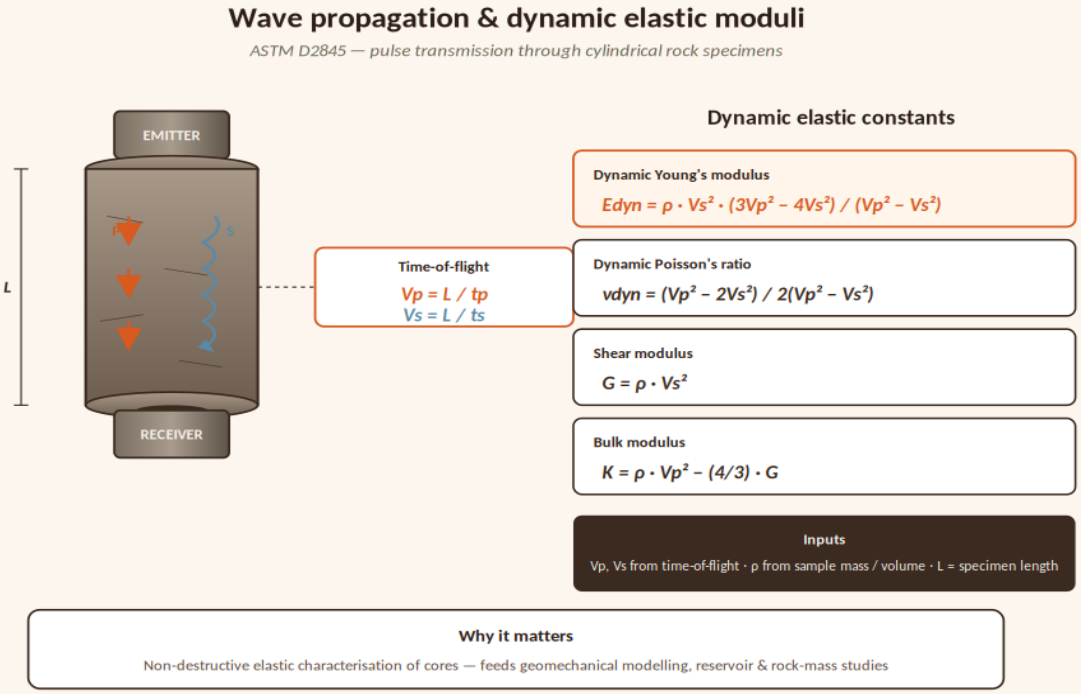
Automated acquisition, analysis & reporting

Centring Collars & Lever

Precise alignment and grip of specimen

Measurement Principle

Pulse transmission — ASTM D2845



How the test works

- Cylindrical core machined and centred in holder
- Acoustic gel applied at both transducer faces
- Pulser excites at 1 MHz, P or S mode
- Receiver captures the transmitted waveform
- Time-of-flight tp and ts read on oscilloscope
- Vp = L/tp, Vs = L/ts → dynamic moduli computed

Technical Specifications

Test method	Acoustic velocity — ASTM D2845	**Output**	Vp, Vs, Edyn, vdyn, G, K
Standards	ASTM D2845	**Specimen holder**	200 × 200 × 380 mm
Test cycle	Pulse transmission — P and S waves	**Pulser/receiver**	340 × 215 × 215 mm
Resonance freq.	1 MHz	**Switchbox**	200 × 200 × 400 mm
Wave modes	Compressional P, shear S1 and S2	**Operating range**	5 – 40 °C, indoor use
Protection	IP53 — coupling gel supplied	**Power supply**	100 – 240 VAC, 50/60 Hz

Applications

Where the AVS-A delivers value

Tunnelling & TBM

Dynamic moduli for geomechanical modelling of reservoirs and underground works

Mining

Rock-mass characterisation for mining geomechanics and slope studies

Civil Engineering

Calibration of seismic data with laboratory velocities on cores

Quarrying & Aggregates

Petrophysical correlations between Vp, Vs and porosity, anisotropy

Geomechanics R&D

Dynamic vs static moduli comparison studies in research laboratories

Field & Lab Use

Non-destructive QC of cores prior to triaxial or compression tests

Get in Touch

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