

Heart Valve Durability Tester Model MDS



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<http://www.blockwise.com>

Model MDS is the easiest-to-setup heart valve durability testing equipment. Because a single specimen is tested on each machine, process adjustments or failures of the valve or the machine do not affect other tests in progress.

This machine provides accelerated wear testing of a single heart valve specimen by pumping water through the valve and controlling the pressure difference across the valve. The pump is an unsealed piston-in-cylinder driven by a flexure-guided solenoid actuator.

Control of the piston pump, temperature, and systemic pressure regulator are implemented by an embedded controller and operator-interface screen and keyboard on the testing station.

Data collection and calibration functions are implemented by a separate, PC-based data acquisition software that communicates with several testing stations simultaneously.

Test specimens can be easily removed and replaced in less than 5 minutes.

The machine is designed to facilitate customer compliance with test standards and regulatory guidance.



The tester utilizes an innovative system for expanding the width of the pressure spike. "Differential pressure greater the defined pressure for 5% or more of the duration or each cycle" can achieved with a much lower peak pressure than with competing machines.



Features:

- Flexure-guided, uncommutated solenoid actuator designed for infinite fatigue life.
- Solenoid motor is operated as a position servo, providing flexible software control of frequency and piston amplitude.
- Unsealed piston & cylinder eliminates wear and fatigue that would be present with bellows, diaphragms, or piston seals.
- Easy visibility of test specimen. Machine accommodates clear plastic, easily-replaceable test sections.
- Bubble-trapping spaces are minimized. Debubbles in seconds.
- Water temperature is controlled.
- Auto-tuning mode automatically adjusts pump amplitude to achieve set heart valve differential pressure.
- Pressure transducers remain installed during testing.

Specifications:

Max Piston Amplitude	4.5mm (9mm pk-to-pk)
Temperature Control Accuracy	+/-1 deg C
Actuator Frequency	5-17Hz
Systemic Pressure Range	0-150 mmHg