

AUTOMATIC VICAT NEEDLE APPARATUS WITH 8 STATIONS FOR CEMENT SETTING TIME TESTING - TTVICAT- AUTO



TTVicat-Auto is a high-precision, fully automated Vicat needle apparatus developed for the determination of initial and final setting times of cement, in accordance with ASTM C191.

Featuring eight independent testing stations, this advanced system streamlines the entire testing process—from sample placement to result recording—while eliminating the need for manual intervention and separate temperature/humidity control chambers.

Designed for research labs, quality control departments, and cement manufacturers, TTVicat-Auto brings together speed, accuracy, and reliability in one compact solution.

APPLICATIONS

How It Works

Operators simply insert up to 8 standard Vicat molds filled with cement paste into the test chamber. After setting test parameters, the system initiates automatic penetration testing using a simulated Vicat method. The system identifies and records the initial set and final set times for each sample based on real-time penetration depth data, while maintaining strict environmental control for temperature and humidity.

All measurements are recorded automatically, with the option to review or print results at any time.

Applications

1. Testing of cement setting time in accordance with ASTM C191
2. Cement and mortar quality control

3. Construction materials research and development
4. Concrete mix design validation
5. Academic and industrial laboratories

TTVicat-Auto brings unparalleled efficiency and accuracy to the cement setting time testing process, supporting consistent and repeatable results across all test stations. With advanced automation and built-in environmental control, it's the perfect solution for modern laboratories aiming to optimize throughput while maintaining compliance with international testing standards.

FEATURES

Key Features

1. Eight-station design for high-throughput testing of cement paste
2. Fully automated testing with programmable test cycles
3. Real-time display of penetration depth, countdown timers, and status per sample
4. Touchscreen interface for easy operation and parameter setting
5. Independent alarms for each sample position upon test completion
6. Built-in temperature and humidity control to ensure standardized testing conditions
7. Precision sensor system with high-accuracy X and Y-axis positioning
8. Fault alarm and self-correction functions for enhanced reliability
9. Automatic data recording and optional result printing

TECHNICAL SPECIFICATIONS

Specification	
Sample Capacity	8 round molds, each with individual automated alert
Test Chamber Conditions	
Temperature	20°C ± 1°C
Humidity	≥90%, automatically controlled
Environment	Free from dust, strong electromagnetic, and radio frequency interference
Measurement Range	0 – 50 mm
Penetration Depth Accuracy	±0.1 mm
Running Time Recording	0 – 24 hours
Motion System	
Drive Mechanism	X and Y axes driven by 16W servo motors
Positioning	Roller screw mechanism for high positioning accuracy
Compressor	V-type frequency conversion compressor
Automatic Functions	
Diagnostics	Self-diagnostic and correction system
Alerts	Fault alarm prompt system
Dimensions	900 × 500 × 640 mm
Weight	65 kg

Specification	
Power Supply	220V, 50Hz (110V available upon request)
Power Consumption	50W (main system), 80W (compressor)



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