

COMPRESSION TEST PLANT



The Vector Compression Test Plant is a state-of-the-art testing system designed to deliver precise, repeatable results for a wide range of construction materials. Engineered with robust microprocessor-controlled, servo-hydraulic technology, this plant meets the demands of modern testing laboratories and production facilities. Its compact design ensures efficient use of space while providing the high performance required for advanced material testing.



VTR-1037



Vector Compression Test Plant

Advanced Testing Solution

Key Benefits

- Easy programming and user-friendly operation simplify daily testing routines.
- A space-saving, compact unit allows for installation in diverse environments.
- The ability to measure Young's modulus extends the range of material properties that can be accurately assessed.
- A closed-loop servo-hydraulic control system guarantees precision in every test.
- PC integration via software enables seamless control, data capture, and real-time result evaluation.
- Future-proof design with flexible software extensions allows for continuous performance improvements.
- High torsional stiffness, with less than 1 mm expansion at full load, ensures consistent load transfer and reliable measurements.

Design & Operation

At the heart of the plant is a torsion-resistant, four-column load frame with backlash-free braced columns, engineered to provide exceptional stability and long-term durability. The bottom-mounted plunger drive, featuring a hardened piston with a protective cover, stroke indicator, and limit switch, is designed for precision. Both the piston and cylinder are finely ground to ensure smooth operation and accurate load application. The pressure plates are also hardened and ground to perfection; the upper plate features a tilting capability via a ball seat, while the lower plate is equipped with a crosshair and centering ring to facilitate precise specimen positioning.

Control & Automation

The plant operates on a sophisticated microprocessor-based system that drives the servo-hydraulic controls, providing a closed-loop control mechanism that delivers consistent and repeatable results. Operators can easily set up test parameters and initiate tests using an intuitive control unit. When specimens are correctly positioned, the system automatically performs a rapid approach followed by a controlled loading phase until the specimen fails. Test parameters and results are automatically saved and can be reviewed via integrated PC software, streamlining data management and reporting. This seamless automation minimizes manual intervention, allowing for efficient workflow and reducing the possibility of human error.

Safety & Flexibility

Safety is integral to the design of the Vector Compression Test Plant. Built-in features such as maximum pressure valves, limit switches for piston stroke, and an emergency stop button provide robust protection against overload and unforeseen operational issues. Removable, transparent safety doors further enhance operator protection while maintaining visibility during testing. The software-controlled maximum load settings add an extra layer of safety by ensuring that tests remain within predefined limits, aligning with industry standards for operator safety.

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Customization & Accessories

Understanding that testing requirements can vary widely, Vector offers a comprehensive range of accessories and optional extensions to adapt the Compression Test Plant to your specific needs. A variety of pressure plates are available to accommodate different test specimen sizes and shapes. Additional accessories, including various hydraulic components and custom mounting solutions, allow you to tailor the system to both standard and specialized testing applications. This flexibility makes the plant suitable for testing concrete, cement mortars, masonry units, and other construction materials with the highest degree of precision.

Versatility & Performance

Designed with high torsional stiffness to minimize expansion under full load, the Vector Compression Test Plant ensures that every test is conducted with unmatched accuracy. The integration of advanced software enables detailed evaluation of test data, including real-time graphical displays of load versus time. With the capacity to perform automated tests reliably, even operators with limited technical training can achieve high-quality results. This combination of user-friendly operation, robust safety features, and versatile testing capabilities makes the plant an ideal solution for both routine quality control and advanced research applications.

Conclusion

The Vector Compression Test Plant represents the pinnacle of modern testing technology. It combines rigorous engineering with intuitive software control, offering a versatile, future-proof solution that meets the evolving needs of today's testing environments. With its emphasis on safety, accuracy, and ease of use, this system is the preferred choice for laboratories and facilities that demand reliable performance and comprehensive testing capabilities. Choose Vector for precision testing that stands up to the highest standards of quality and innovation.

Key Features

Servo-Hydraulic Precision: Closed-loop servo-hydraulic control system ensures highly accurate and repeatable test results.

Robust Load Frame: Torsion-resistant, four-column design with backlash-free bracing for long-term stability and precise load application.

Wide Testing Capability: Supports testing of concrete, cement mortars, masonry units, and other construction materials.

Advanced Control & Automation: Microprocessor-based system automates testing phases, minimizes manual intervention, and reduces human error.

PC Integration: Compatible with PC software**, enabling real-time monitoring, automated data capture, and comprehensive result analysis.

Safety Features: Includes emergency stop, maximum pressure valves, limit switches for piston stroke, and transparent safety doors.

Efficient Data Management: Automated test logging and report generation ensure seamless workflow and compliance with industry standards.

User-Friendly Operation: Easy programming and intuitive control unit allow efficient testing, even for operators with minimal technical expertise.

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Industries

Construction and Building Materials: Testing of concrete, cement, and mortar for strength and durability assessments.

Civil Engineering: Material evaluation for infrastructure projects and research applications.

Masonry and Structural Components: Quality control testing of bricks, masonry units, and prefabricated elements.

Material Science Laboratories: Advanced research on mechanical properties of construction materials.

Industrial Quality Assurance: Ensuring compliance with national and international testing standards in material production.

TECHNICAL SPECIFICATION

Parameter	Specification
Capacity Options	1500 kN, 2000 kN and 3000 kN
Control System	Closed-loop servo-hydraulic control
Load Frame	4 columns; torsion-resistant; backlash-free braced columns
Piston Drive	Bottom-mounted; hardened; finely ground; stroke indicator; limit switch
Pressure Plates	Upper: tiltable 3° via ball seat; Lower: crosshair; centering ring
Hydraulic Pump	Radial piston pump; 1.4 L/min; max. 450 bar
Torsional Stiffness	Maximum expansion \leq 1.0 mm at full load
PC Integration	Automatic test parameter & result capture
Safety Features	Maximum pressure valves; piston stroke limit switch; emergency stop button
Accessories	Various pressure plates; optional extensions available
Hardness of Blocks	55 HRC