

Tabletop Precision Universal Testing Machines

AUTOGRAPH AGS-V Series



Versatile Support, Built for You.

Shimadzu Corporation started manufacturing testing machines more than 100 years ago. We have always advanced and grown together with our customers. We created the new AUTOGRAPH from the desire that all those performing tests can perform their work in a safer, more efficient manner.

The AUTOGRAPH AGS-V is always on the side of our customers.

Operator-Friendly Design with Enhanced Safety

Boost Productivity with Enhanced Usability Features

Cutting-Edge Specifications for a New Era of Testing Quality



Operator-Friendly Design with Enhanced Safety

Protection Cover

Protects Operators from Debris

The protection cover is provided as standard on the front of the test space. Manufactured from high-durability polycarbonate, it blocks ruptured sample fragments and protects operators.

Unintended Operation Prevented with an Interlock

With the interlock function, test and return operations cannot be performed if the protection cover is open, reducing the risk of accidents.

Raising/Lowering Cover with Free Stop Function

The raising/lowering cover has a free stop function that allows it to be stopped at the desired position.



Intelligent Crosshead

Prevents Jig Impacts

The intelligent crosshead always recognizes its current position. If jigs get too close to each other due to an operational error, an impact warning is issued, and the crosshead is stopped automatically.

Contact Detection and Instantaneous Emergency Stop

The machine status is diligently monitored even when the crosshead is moved with the protection cover open, such as when adjusting the position of test jigs or attaching samples. If the machine detects test force changes due to contact with jigs or hands, the crosshead performs an emergency stop.

Overload Detection Function

If the machine detects a test force exceeding the load cell capacity, the crosshead stops automatically. This reduces the risk of load cell damage from overloads during jog operation and during testing. (Note that the possibility of damage cannot be completely eliminated.)

Stroke Limit Switch

Press, Set the Position, Release

A stroke limit switch, which sets the limits of crosshead movement, prevents crosshead and jig impacts. A spring mechanism inside the switch fixes the position when it is released, thereby preventing incorrect settings due to operational errors, such as forgetting to fix it.



Boost Productivity with Enhanced Usability Features

Operation Controller

User-Friendly Interface

Equipped with a color liquid crystal touch panel that displays the most appropriate buttons and information in accordance with the situation. Various operations and information can be displayed, such as adjusting the distance between jigs before a test and checking measurement values during testing.

Machine Self-Diagnosis Function

Sensor amplifier calibration information, testing machine operation status, power supply voltage, communication status, etc., are constantly monitored. There is immediate notification in the event of a fault. Also, it is equipped with a function that checks the number of hours of instrument usage and the number of times the instrument has been used. When a prescribed value is reached, the operator is notified. This is useful for scheduling maintenance and contributes to greater uptime.



Stand-Alone Testing Function

Testing can be performed with the operational controller only, without using a computer.

- Tensile, compression, and bending test conditions can be configured directly from the touch panel.
- The measurement results are saved on a USB flash drive.

Note: Prepare the USB flash drive separately.

Voice Operation Is Supported

* Sound can be muted.

Voice notification is played before crosshead operation, preventing operator errors.

Operation Sound Can Be Selected in Accordance with the Environment

* Sound can be muted.

Autograph-specific operation sounds have been designed. You can choose between "pleasant sound for comfortable operation" and "sound that is easy to hear in noisy conditions."





Selectable Displays

An easy-to-see format can be selected for the measurement value display details during a test. If measurement values are displayed over two lines, the measurement values can be checked visually, even from a distance.



Automation of the Test Force Electrical Calibration Function

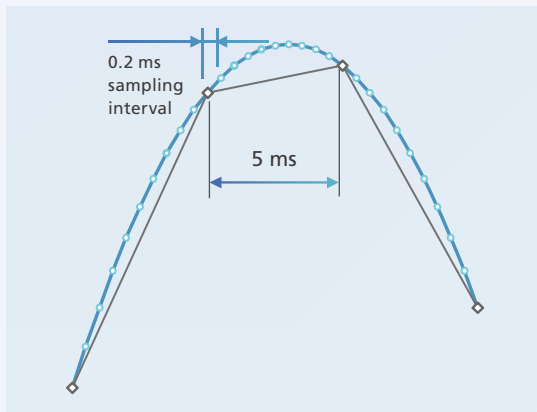
Test force electrical calibration, which must be performed when starting the test machine, is performed automatically.



Multi-Table

Testing can be performed efficiently with minimal movement by using a multi-table where tools and samples used in testing can be placed.

Cutting-Edge Specifications for a New Era of Testing Quality



High-Speed Data Sampling: 5 kHz

The high-speed sampling function has been enhanced from 1 ms to 0.2 ms. Rapid or minute changes can now be recorded.

Wide Range of Testing Speeds and High-Speed Crosshead Return

The test speed range is 0.0005 to 1500 mm/min, so tests can be performed under more test conditions. Also, the crosshead return speed has been increased to 1650 mm/min, which contributes to reducing customers' test takt time.

Test Force Accuracy Guaranteed Range: 1/1000

The test force accuracy guaranteed range has been enlarged to 1/1000, which widens the data confidence interval. The test force rise portion also can be analyzed with confidence. Tests that required replacing multiple load cells depending on the test force can now be performed with fewer load cells, freeing the operator from the difficult replacement operation.

Expandability to Enable Various Measurements

By adding an optional board, measurements can be made using the Shimadzu strain gauge type extensometer. Also, both analog and digital signals can be input, enabling various types of measurements.





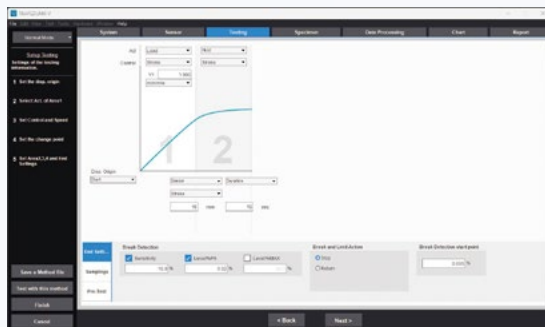
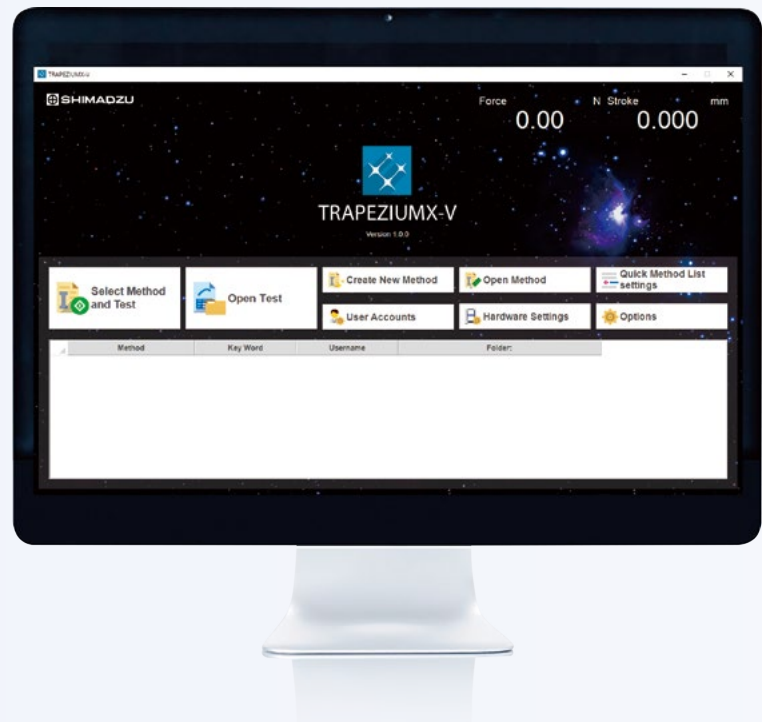
SHIMADZU



TRAPEZIUM X-V

Simple Yet Versatile

The dedicated, multi-functional TRAPEZIUM X-V software is simple to use, and the results you want can be quickly derived.



Single Lite Software NEW

This brings together all the necessary functions for tension, compression, and bending tests, and it is simple to use.

Choice of Versatile Software

Single Software

This is used for common uniaxial tests. It can be used in tensile, compression, bending, and peeling tests.

Cycle Software

Tests can be performed with repeated ups and downs, such as durability tests.

Control Software

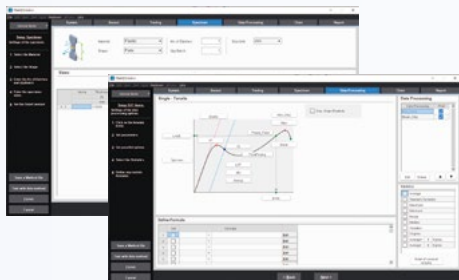
This is software for creating your own test machine operating patterns.

Texture Software

This is software for measuring the properties of foods and pharmaceuticals.

Spring Software

This is dedicated software for measuring the properties of springs.



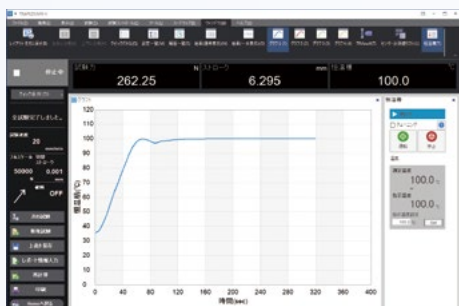
Setting Conditions with Confidence Using a Visual Wizard

- Conditions can be set while viewing the overall flow with the Test Conditions Wizard.
- Easy-to-understand illustrations are used in test control, samples, and data processing item windows. Settings are very easy.



Obtaining Test Evidence with the USB Camera Function

- A video can be taken coupled with the start and finish of the test using a USB-connected camera.
- Samples can be observed using the video replay function coupled to the stress-strain curve.
- Static images extracted from videos can be included in reports as evidence of performing the test.



Controlling the Test Machine with Software

Using the software, the temperature of the TCE-N300A thermostatic chamber, which controls the test atmosphere temperature, can be set, and temperature data can be acquired. There is also a function to automatically start a test when the target temperature has been reached.



High-Level Data Reliability Supported

LabSolutions™ AG, which complies with regulations and guidance in the pharmaceutical and medical equipment fields, can be used. With this software, data can be managed safely and reliably on a network system.

Powerful Accessories for Various Testing Requirements

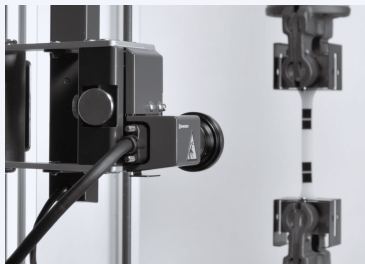
Capability to Support a Wide Variety of Tests

Pneumatic Flat Grip

By opening and closing the grip face by pneumatic pressure, this grip can hold the test specimen with one touch. This maintains a stable gripping force, even with soft samples whose thickness at the grip varies during the test.

DSES-1000 Long-Travel Extensometer for Soft Samples

This is a long-travel extensometer that can measure displacement up to failure in tensile tests on soft materials such as rubber. The arms are clamped to the top and bottom gauge lines of the sample with one touch, and the top and bottom arms independently follow the extension of the sample.



TRViewX Non-Contact Video Extensometer

This test device cannot be used with protection covers. This is a high-precision non-contact extensometer that measures the strain of a sample from images taken. It is compatible with samples on which a contact-type extensometer cannot be attached, ranging from general materials to films.



SIE-560A/560SA Automatic Extensometer

This extensometer has various automatic functions, such as automatic detection of the grip position and moving the extension measurement arms between the positions. When the test is completed, it can automatically detach from the sample and return to the initial position. This allows the operator to operate the testing machine as semi-automatic, leaving everything to the testing machine after the sample is attached. The lineup also includes a high-precision type with measurement accuracy of $\pm 1 \mu\text{m}$.



SG Strain Gauge Type Extensometer

This is widely used as a manual extensometer. Various products are available in accordance with different requirements, such as compliance with ISO, JIS, and ASTM standards, distance between gauge lines, and testing in high-temperature environments.



Atmosphere Test Devices

This test device cannot be used with safety covers. Various test devices are available for tensile, compression, and bending tests in atmospheres other than room temperature, ranging from high temperatures to low temperatures.

Main Unit Extensions

Expandability to Satisfy a Wide Range of Needs

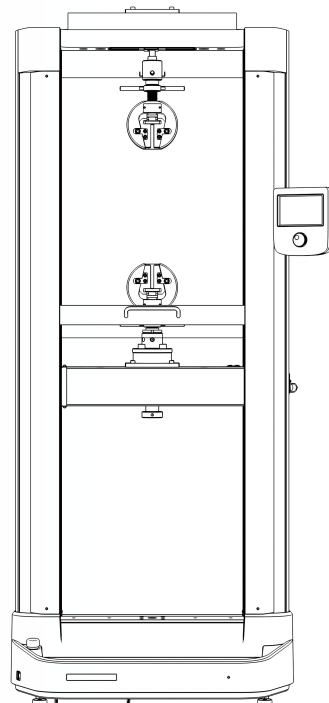


Post Height Extension Specifications

The overall height of the testing machine main unit can be extended, as can the testing stroke. As a result, tests to failure can be performed on rubber and plastics, which undergo large amounts of deformation. The lineup includes +250 mm extension and +500 mm extension.

Load-Resistant Yoke Specifications

By strengthening the yoke at the top of the testing machine, tests can be performed in the space at the top of the testing machine. Tests can be easily performed with the operator standing. Also, because it is installed on the floor, it can be installed even if the height of the testing room is low.



Specifications

1. Model Name			AGS-1NVD/ 2NVD/5NVD	AGS-10NVD/ 20NVD/50NVD	AGS-100NVD	AGS-500NVD	AGS-1kNVD	AGS-5kNVD	AGS-10kNVD
2. Load Capacity			1 N/2 N/5 N	10 N/20 N/50 N	100 N	500 N	1 kN	5 kN	10 kN
3. Loading Method			Direct high-precision constant-speed strain control method using precision ball screw drive with no backlash						
4. Test Force	Accuracy	High-Precision Type 1/500	Within ±0.5 % of the displayed test force (within the range of 1/1 to 1/500 of the rated load cell capacity) JIS B7721 class 0.5, EN 10002-2 grade 0.5, ISO 7500-1 class 0.5, BS 1610 class 0.5, complies with ASTM E4 (*1)						
		Wide-Range Accuracy Type 1/1000	Within ±1 % of the displayed test force (within the range of 1/1 to 1/1000 of the rated load cell capacity) JIS B7721 class 1, EN 10002-2 grade 1, ISO 7500-1 class 1, BS 1610 class 1, complies with ASTM E4 (*1)						
		Standard Accuracy Type 1/500	Within ±1 % of the displayed test force (within the range of 1/1 to 1/500 of the rated load cell capacity) JIS B7721 class 1, EN 10002-2 grade 1, ISO 7500-1 class 1, BS 1610 class 1, complies with ASTM E4 (*1)						
	Test Force Calibration		Select from automatic test force calibration, tension, or tension and compression.						
5. Crosshead Speed Range			0.0005 to 1,500 mm/min (can be set as desired, not in steps)						
	Maximum Return Speed		1,650 mm/min						
6. Crosshead Speed Accuracy (*2)			±0.1 %						
7. Crosshead Speed and Allowable Test Force			Up to the load cell capacity for all speeds						
8. Distance between Crosshead and Table (Tensile stroke) (*3)			—	1,180 mm (945 mm, SCG)	1,180 mm (920 mm, SCG)	1,180 mm (915 mm, SCG)	1,180 mm (910 mm, SCG)	1,180 mm (760 mm, MWG)	1,180 mm (740 mm, MWG)
9. Effective Test Width			425 mm						
10. Crosshead Position Detection	Measurement Method		Optical encoder						
	Display Method		Digital display (display resolution: 0.001 mm)						
	Positional Accuracy		Within ±0.1 % or within ±0.01 mm of indicated value, whichever is greater						
11. Sampling Rate			Maximum 0.2 msec						
12. Test Condition Files			40 files						
13. Standard Functions			• Load cell property value automatic read in function • Test force display function, stroke display function • External analog output (optional, 2 channels) • External analog input (optional, 2 channels) • External digital input (optional, 4 channels)			• Automatic test force / strain control function (autotuning) • Test force automatic zero function • Test force automatic calibration function • Failure detection function, automatic return function • Protection cover with interlock function (*4) • Load cell overload detection function • Touch load detection function			
14. Accessories	Load Cell		1 N/2 N/5 N	10 N/20 N/50 N	100 N	500 N	1 kN	5 kN	10 kN
	Other		Power supply cable (2.4 m), rotation rod, DVD media (manual and other electronic data), Safety precautions sheet, Operation controller, Safety glasses, Safety gloves						
15. Size, Weight	Standard Model		W657 mm × D525 mm × H1,562 mm, Approx. 80 kg (100 V), 75 kg (200 V)						
	250 mm Extension Model		W657 mm × D525 mm × H1,812 mm, Approx. 85 kg (100 V), 80 kg (200 V)						
	500 mm Extension Model		W657 mm × D525 mm × H2,062 mm, Approx. 90 kg (100 V), 85 kg (200 V)						
16. Power Supply Requirements			1φ 100 to 115 V (100 V), 1φ 200 to 230 V (200 V) 50/60 Hz 900 VA (100 V), 1.2 kVA (200 V) Power supply voltage fluctuations shall be within ±10 % of the installation value, and type D grounding (100 Ω or less) shall be provided.						
17. Power Consumption			100 V: 650 W, 200 V: 600 W						

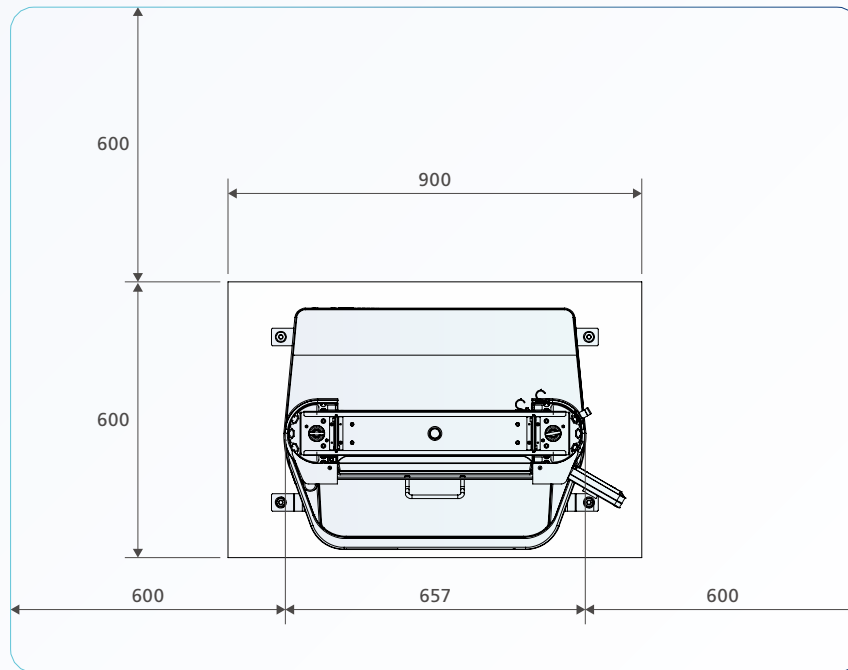
(*1) In the JIS B7721, EN 10002-2, ISO 7500-1, ASTM E4 standards, testing is recommended after installation of the testing machine.

(*2) The crosshead speed accuracy is calculated from the amount of crosshead movement within a prescribed time under steady state conditions of 0.5 mm/min to 500 mm/min.

(*3) The tensile stroke is the effective stroke when SCG (screw-type flat grips) or MWG (non-shift wedge-type grips) grips are installed.

(*4) There are options and jigs that cannot be used in conjunction with the protection cover. For more details, please contact us.

Installation Space



Options

Jog Controller

S346-55922

This enables the position of the crosshead to be manually controlled.

Optional Board

S336-03985

By adding a strain gauge type extensometer amplifier, control I/O port, and sensor I/O port (digital input, analog input), measurement functions other than test force can be added.

Control I/O Extension Box

S346-55920-11

This expands the main unit control I/O ports to 4 ports. Multiple optional items connected to the control I/O port can be used simultaneously. (An optional board is required to use the control I/O Extension box.)

Sensor I/O Extension Box

S346-55920-12

This expands the main unit sensor I/O ports to 2 ports. Multiple optional items connected to the sensor I/O port can be used simultaneously. BNC cables can be used for analog input/output (2 ports each). (An optional board is required to use the sensor I/O extension box.)

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