C224-E057C

SHIMADZU
Excellence in Science

Precision Universal Tester

Autograph AGS-X Series

Autograph

AGS-X Series

PRACTICAL TESTING SOLUTIONS

10 kN

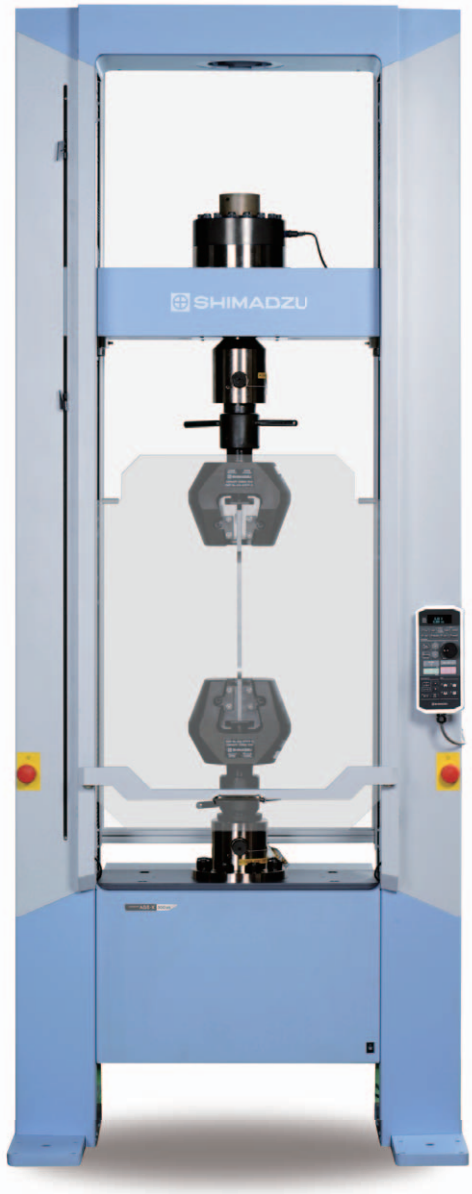
20 kN

50 kN

The Shimadzu Autograph AGS-X series provides superior performance and practical testing solutions for a wide array of applications. Offering high-level control and intuitive operation, the AGS-X series sets a new standard for strength evaluations while providing the utmost in safety considerations in a modern, stylish design.

The AGS-X comes standard with industry-leading TRAPEZIUM X data processing software. Offering comprehensive functions, TRAPEZIUM X offers an unparalleled level of operation. TRAPEZIUM LITE X, Shimadzu's entry-level data processing software, provides enhanced productivity and efficiency for quality control operations.

100 kN



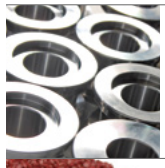
300 kN

Convincing Cost Performance

New AGS-X Provides Practical, Affordable Testing Solutions

Easy Control of Stress and Strain

Offers real-time auto tuning of control parameters, based on measured test force and strain data. Safely make comparisons to unknown sample data without the need for preliminary tests. In addition, the AUTOTUNING FUNCTION easily performs strain control, an ISO 6892-2009 requirement.

		Required Needs
	IRON & STEEL	In addition to conventional stress control, tensile testing with strain control is increasingly in demand. ISO 6892 JIS Z2241
	PLASTICS & RESIN	Measuring the modulus of elasticity in the ultra-small strain domains proscribed by ISO and JIS standards has become a necessity. ISO 527 ISO 178 JIS K7171
	CERAMICS	Many samples are damaged by microscopic displacements, so accurate control is needed, right from the start of testing.

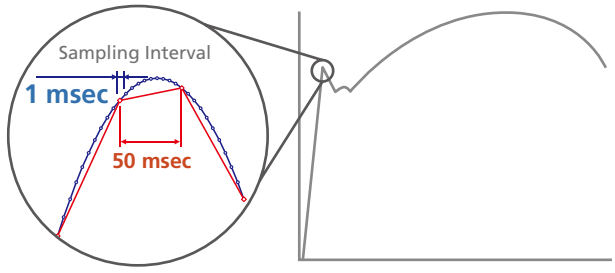
Achieve an Accurate S-S Curve with High-Precision Load Cells

±0.5 Load Cell Precision

from 1/500 to 1/1 Load Cell Precision Range

1 msec (1000 Hz) High-Speed Sampling

The wide, guaranteed load cell precision range of 1/500 to 1/1 improves testing efficiency and ensures that virtually all of your testing can be performed without switching the load cell or jig.
Furthermore, high-speed sampling of 1msec ensures no missed strength changes.



Improved Safety

SAFETY FUNCTION / ONE-TOUCH STROKE LIMIT

The safety function stops the testing machine if force changes exceed a certain level during specimen setting or return. In addition, setting stroke limiters is easy with one touch of the switch.

SAFETY COVER

Controls scattering of the test specimen during testing. The interlock improves safety: operators can open and close it easily with the slide mechanism.

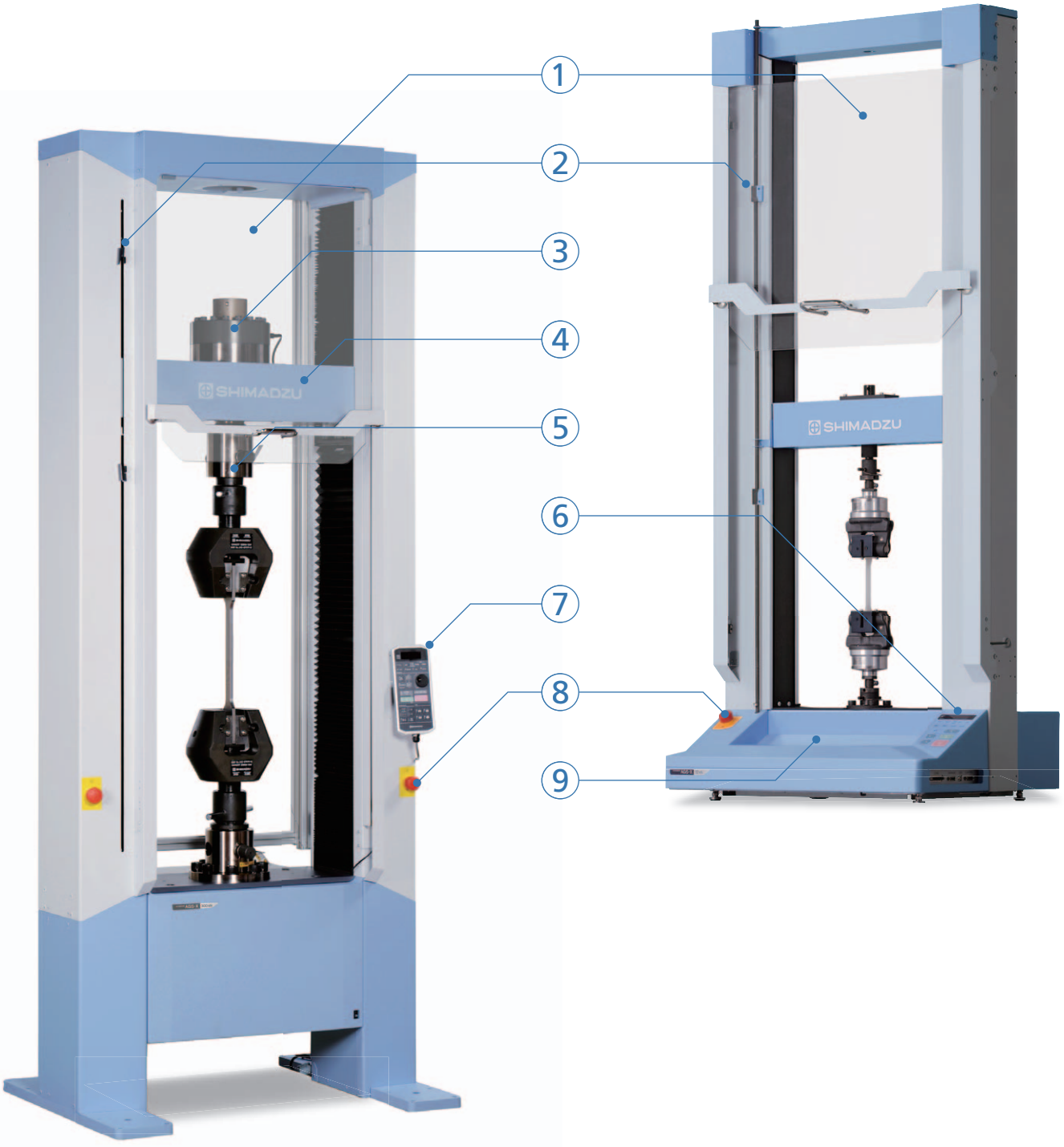
DUAL EMERGENCY-STOP SWITCHES

Features emergency-stop switches on both sides (20 kN–300 kN frame).


SHIMADZU
AUTOGRAPH AGS-X 100 kN

Smarter Work Space

New and enhanced functions support easier, more efficient testing



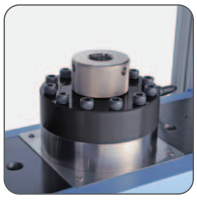
① Safety Guard to Protect Against Flying Debris

A vertically sliding safety guard is available. Opens easily with one hand. When the safety guard is open, an interlock function disables testing and return movement.

② One-Touch Stroke Limiters

Pinch and slide; release to lock.
One-touch stroke limiters **permit simple one-touch adjustment and firm locking** of the crosshead stroke limit positions.

③ Load Cell



For the range of 1/500 to 1/1 of the load cell rating, a single load cell that guarantees test force accuracy to ±0.5% of the indicated value (for high-precision type) covers an extensive testing range. The load cell rated value is stored in the calibration cable and automatically recognized when the cable is connected.

④ Crosshead

NEW

Achieves a 1,600 mm/min testing speed and a 2,200 mm/min return speed (20 kN frame), significantly reducing the time required to conduct repetitive testing.

⑤ Common Joint for Both Tensile and Compression Tests (20–300 kN frame)

NEW

Adopts a single joint for both tension and compression tests.
This makes it easier to exchange jigs. In addition, the joint is set with a nut placed in the upper part of the loading cell, which allows for safe detachment of the joint on the table.

⑥ Built-in Main Operation Panel (for 10 kN frame)

Call up test methods from TRAPEZIUM LITE X to conduct testing.
Naturally, AGS-X can be used as a standalone tester to test specimens using methods created with the tester itself.

⑦ Main Operation Panel

NEW

The main operation panel enables the development and storing of test conditions, allowing testing without having to connect to a PC.
Perform various operations with the jog wheel, such as opening and shutting the button for automatic grips or the automatic extensometer.
The main operational panel is movable, allowing convenient adjustment of the angle.

- The controller is needed separately for the automatic opening and shutting of jigs.

⑧ Emergency Stop Button

Reliably cuts off power to the servo amplifier, **instantaneously stopping** crosshead movement in the event of an emergency.

⑨ Multipurpose Tray (Desk-top frame)

Large space in front of the instrument.
Perfect for placing jigs,
arranging specimens, or taking notes.

Jog Controller (option for 10 kN frame)

Allows hand-held control of the crosshead position. **The jog dial makes fine positioning a breeze, particularly when setting the start position for bending and compression tests.**

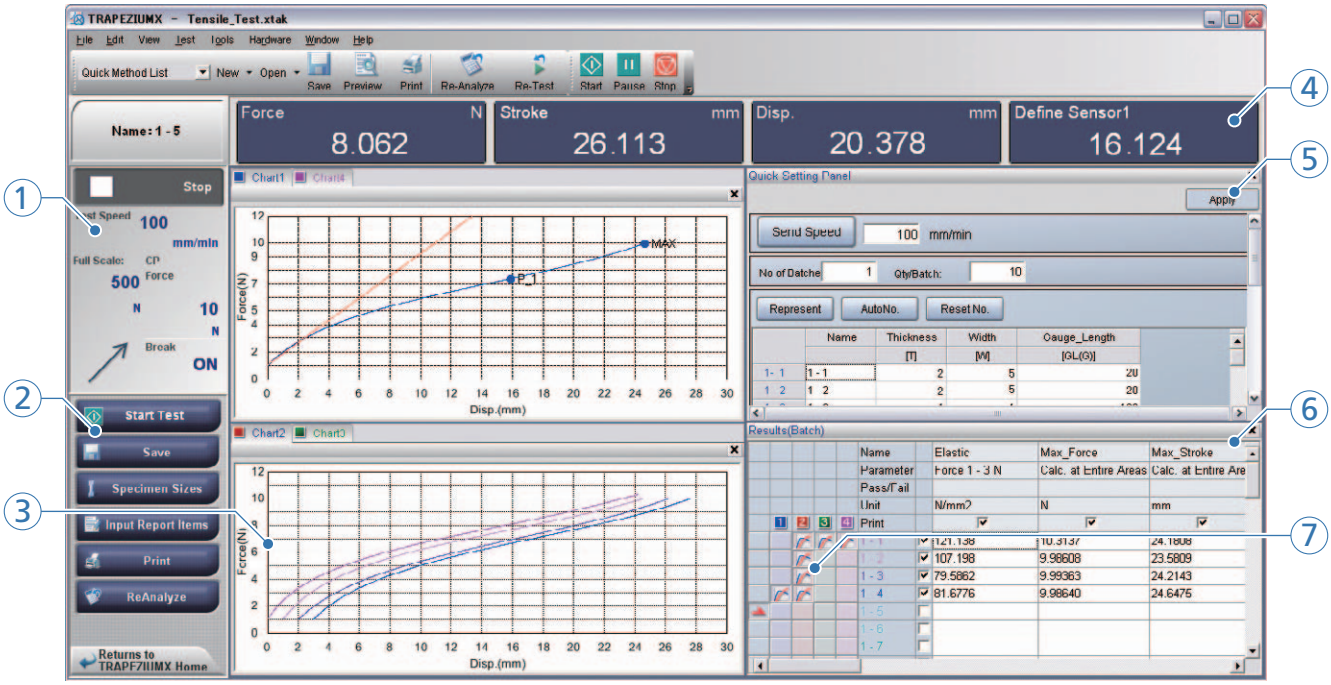
Quest for Convenience

TRAPEZIUM X
Materials Testing Operation Software

Compatible with Windows 7

Cutting-Edge Software Meets Your Materials Development and Quality Control Needs

Quickly Obtained Data



① Test Method & Situation Panel

Confirm testing conditions and the situation from the main window.

② Advanced Navigation System with a Learning Function

The Navigation Bar shows only the functions required for selected situations. In addition, the "Learning Function" records user actions for each situation and adds frequently-used functions as navigation buttons. This improves work efficiency by matching functions to a user's operational style.

③ Multiple Graph Function

Enables displaying up to four graphs. The graph can set two axes, respectively. In addition, a maximum of 50 graphs can be overlaid and point picking allows acquiring the value of a random point. This provides for a more detailed examination.

④ Real-time Data Display Panel

Displays the test force, stroke (strain), extensometer or strain gauge value and other input values, enabling one-window monitoring.
In addition, the random calculation value can be display simultaneously for smooth confirmation of data.

NEW

⑤ Quick Panel

Quickly enter the speed, dimension, and report information from the main window.

⑥ Result Panel

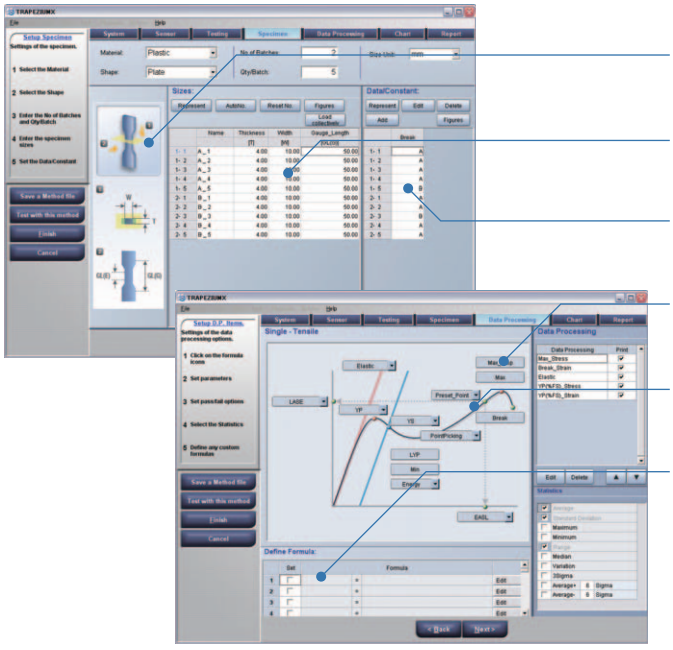
In addition to re-testing and extra lot tests, this panel allows changing a variety of settings before and after testing. Specimens can be inserted in any position or added to only a specific batch, and the specimen order can be changed after completing the test.

⑦ Checkbox to Select Display Curve

Intuitive Machine Operation

Visual wizard guidance ensures trouble-free entry of method settings

- Enter complicated method settings using the Method Wizard, which provides an overview of the entire process.
- Setting entry guidance, linked to online help, is available in each window.
- Easy-to-understand illustrations are used in the [Tension], [Specimen], and [Data Processing] windows, greatly simplifying the entry of settings.



Displays illustrations for each specimen shape.
A single glance shows which dimensions should be entered.

In addition to manual input, dimensions can be set via **[Excel batch reading]** or **[Automatic input via calipers].**

Enter additional, non-dimensional information for each specimen.

Prepare data processing items in advance.
Simply press buttons on the figure to select settings.

Illustrations change according to the test mode and specimen material.

Create random calculation formula using a data processing item or specimen size.

An example of selected plastic (Beside this, rubber and metal are available,)

Perform high-efficiency, continuous testing utilizing fast data searches and one-touch method selection

All Functions
All operations are accessible from a top screen.

Start testing in just one step after frequently-used methods are recorded in the **Quick Method List.**

Search Conditions

Use a keyword or date to quickly search for saved test results and Method files. Also, easily call up files using previews of reports and lists of settings.

Summary Preview

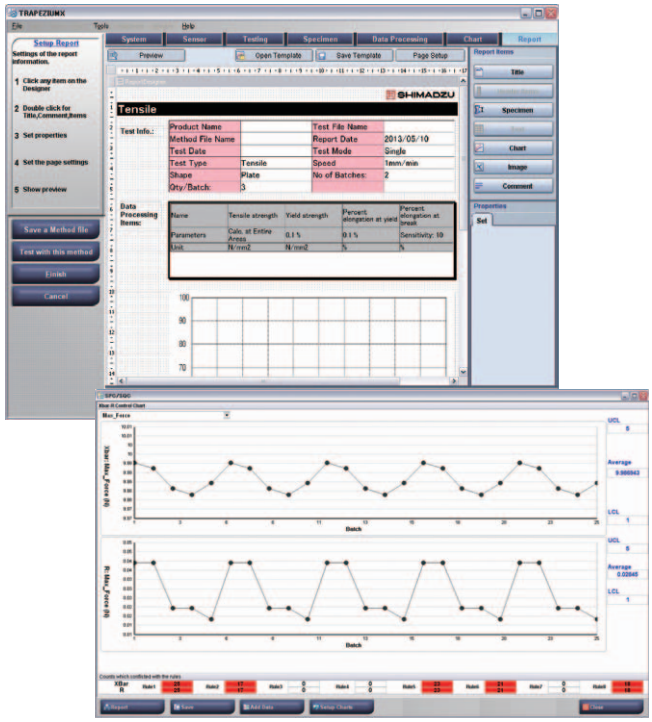
Search Result

Generate Detailed Reports

Richly expressive report creation includes free positioning of report elements

Report Designer allows flexible layouts. Create reports that include data, charts, photographs, and logs. Freely change the layout and element size, and use detailed settings for each element's font, color, and ruled line.
Reports can be output in PDF, Microsoft Word, Excel, HTML formats.

After exporting, use your everyday software to customize the report.



Conventional Process Control Function

NEW

Utilize daily test records to create an XBar-R control chart using data that has been extracted for a certain period.
Daily test result statistics are available in various units, including date, specimen, batch, etc. The statistical result is displayed on the screen.
It is possible to print them by adding the text and to output it as a PDF file.

Choose from Four Software Components to Fit Your Specific Application

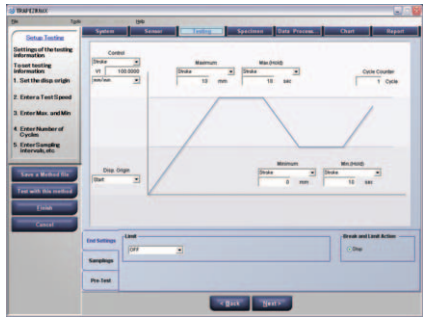
When multiple software components are purchased, easily switch between modes at a single touch, without starting up separate software.

Single Software

Performs general single-direction testing.
Examples include tensile, compression, bending and peeling tests.

Cycle Software

Similar to endurance testing, this software is used for testing where force is repeatedly applied and then released.



Control Software

Create any testing machine operation pattern. Perform foam rubber compression and holding cycle tests.

Texture Software

Measures the features (texture) of foods and pharmaceuticals. Produce special data processing results, including mastication, jelly strength and adhesion.

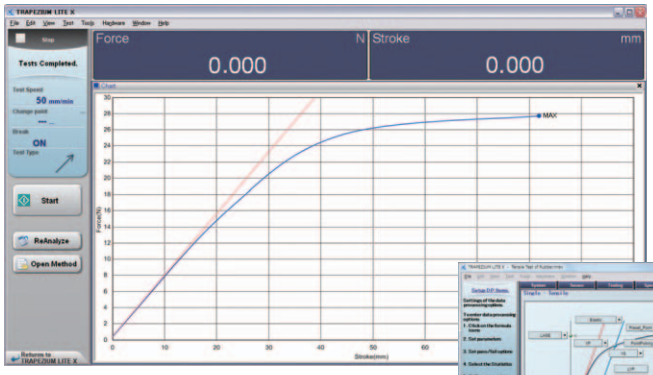
Simple Software Improves Productivity

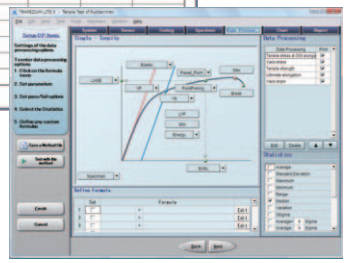
TRAPEZIUM LITE X

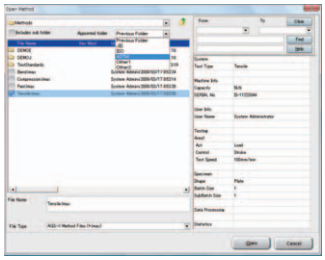
Compatible with Windows 7

Improves Productivity and Efficiency of Quality Control

Performs general single-direction testing. Examples include tensile, compression, bending and peeling tests.







Simple Screen Layout

Few buttons ensure easily navigated operations
One-touch test method selection

Supports Industry Standards

Recording convenient test method files enables instant testing

Includes test method files for rubbers, plastics, and films that comply with JIS/ISO/ASTM standards. The terminology and data processing items specified in the test standard are pre-registered in the respective test method file to permit smooth testing in compliance with the standards.

"Quick Method List" Makes Testing Easy

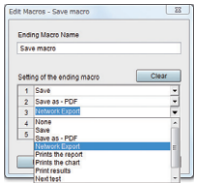
No mouse or keyboard required

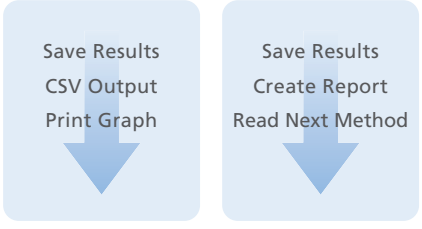
Register often-used test methods to the Quick Method List to start testing instantly. The registered test methods can be directly selected or edited at the AGS-X tester, making testing easy even for users who find using a PC troublesome.

Macros Enhance Work Efficiency

Just set up the test and start testing.
All tedious operations have been automated.

The sequence of operations frequently conducted after testing can be fully automated. Functions for coordinating with the AGS-X permit saving of test data and report generation and printing without touching a PC.



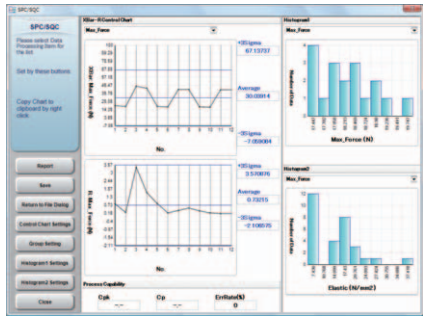


Examples of Macros

Statistical Process Control Functions

Effectively utilize daily test results.

Extract and compile test results over a fixed period to create histograms and XBar-R control charts. Compile statistics on daily test results by date, specimen, or batch, and display the results on screen. Add text to statistical information for printing or output to a PDF file.



Accessories

Experience the range of possibilities available with this full-featured system

AGS-300kNX + 300kN Non-Shift Wedge Type Grips

AGS-10kNX + 1kN Parallel Tightening Grips
+ SES-1000 Extensometer for soft specimens

GRIPS

Used to grip the sample, a wide variety is available to accommodate different specimen types and test force amounts.

Non-Shift Wedge Type Grips <MWG>

Plastics Metals Lumber

Grip capacity	Standard grip face				Upper grip weight (kg)
	Grip face	Clearance (mm)	Grip width (mm)	Grip length (mm)	
300 kN	File teeth for flat specimens	0 to 8.5	50	75	33
250 kN		0 to 8.5	50	75	33
100 kN		0 to 7	40	55	10
50 kN		0 to 7	40	55	9.5
20 kN		0 to 7	25	55	3.6
5 kN		0 to 7	25	55	3.6

Non-Shift Wedge Type Grips

Pneumatic Flat Grips <PFG>

Plastics Rubber Textiles Cloth Paper Film

Grip capacity	External dimensions (mm)		Grip width (mm)	Clearance (mm)	Upper grip weight (kg)
	W	L (upper/lower)			
10 kN	154	268.5 / 278.5	60	0 to 10	—
5 kN	154	224 / 235	60	0 to 6	5.7
1 kN	102	163 / 174	50	0 to 6	1.7
50 N	64	118 / 135	35	0 to 6	0.4

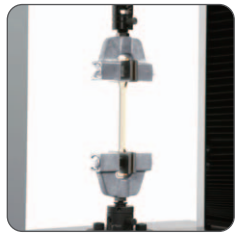
*1 Grips with foot-valve units and crosshead - linked control functions are also available.
*2 Grips can be opened and closed via the Smart Controller when using the crosshead-linked control kit.

Pneumatic Flat Grips

Screw-Type Flat Grips <SCG>

Plastics Rubber Textiles Cloth Paper

Grip capacity	Standard grip face				Upper grip weight (kg)
	Grip face	Clearance (mm)	Grip width (mm)	Grip length (mm)	
5 kN	File teeth	0 to 16	60	50	2
1 kN		0 to 15	50	30	0.7
50 N	Flat	0 to 14	35	25	0.3



Screw-Type Flat Grips

Parallel Tightening Grips

Plastics Metals Lumber

Grip capacity	Size (mm)		Grip face width and length (mm)	Face clearance (mm)	Upper grip weight (kg)
	W	L			
300 kN	574	440	60, 90	0 to 60	170
100 kN	446	310	40, 70	0 to 40	90

*1 Requires a separate hydraulic unit
*2 Optional compression jigs and bending jigs that can be connected directly to the grips are also available.

Parallel Tightening Grips

Compression plate

Plastics Metals Rubber Lumber Cement

Used to compress the specimen, several type are available to accommodate different specimens and test force amounts.

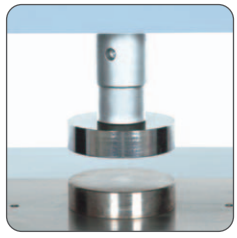
Fixed Type

Maximum capacity	Upper plate dimensions (mm) diameter by thickness	Upper plate mass (kg)	Operational temperature (°C)
250 kN	ø100 × 25	1.6	0 to 40
	ø50 × 25	0.5	
	ø200 × 40	6.3	

Spherical Seat Type

Maximum capacity	Upper plate dimensions (mm)	Upper plate mass (kg)	Operational temperature (°C)
250 kN	ø100	3.8	0 to 40

* With spherical compression plates, only the upper plate is spherical.
Spherical seat-type compression plates provide contact flexibility for uniform load application.
* Select the kit number that corresponds to the load cell used.



Fixed-Type Compression Plates

Spherical Seat-Type Compression Plates

Bending tests

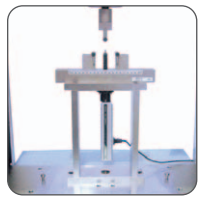
Plastics

Simply attach the bending test jig kit to the main unit to perform bending testing.

Max. test force	Punch tip radius × width (mm)	Support tip radius × width (mm)	Support spacing (mm)	Operational temperature (°C)	Applicable test standards
10 kN	R5 × 34	R2 × 34	20 to 200	0 to 40	JIS K6911, JIS K6902*1, JIS C6481*2, JIS K7171, ISO 178, Specimens with thickness of 3 mm or less
		R5 × 34			JIS K7171, ISO 178, Specimens with thickness above 3 mm
	R1/8" × 72	R1/8" × 110	0.8 to 8"		ASTM D790 (Test method 1)
100 kN	R5 × 72	R2 × 110	50 to 500		JIS K6911, JIS K6902*1, JIS C6481*2, JIS K7171, ISO 178, Specimens with thickness of 3 mm or less
		R5 × 110			JIS K7171, ISO 178, Specimens with thickness above 3 mm
	R1/8" × 72	R1/8" × 110	2 to 20"		ASTM D790 (Test method 1*3)

*1 Corresponds to bending strength. Compatible with support spacing from 20 mm to 200 mm. *2 Corresponds to bending strength.
*3 Compatible with support spacing from 2 inches to 20 inches.
Requires an adaptor when the SIE or SES extensometer is used.

Three-point Bending Test Jig for Plastics



Deflection Measuring Device with Three-point Bending Jig for Plastics

Deflection Measuring Device for Three-point Bending Test

Plastics

Applicable to the ISO 178 three-point bending test, it is possible to use this device with plastic three-point bending jigs.

Applicable to ISO 178 Modulus measurement

Precise Measurement of Displacement

AGS-10kNXD + Pneumatic Flat Grips
+ TRViewX Non-Contact Digital Video Extensometer

Class 0.5

Plastics Metal Metal Foil Rubber Film

TRViewX Non-Contact Digital Video Extensometer

Conducts accurate gauge length elongation measurements on specimens, based on CCD camera images, over an extensive range.

	Model	Camera Field-of-View (GL + elongation)
Single camera (TRViewX S Series)	TRViewX55S	55 mm*1
	TRViewX120S	120 mm*1
	TRViewX240S	240 mm*1
	TRViewX500S	500 mm
	TRViewX800S	800 mm

	Model	Camera Field-of-View (GL + elongation)
Double camera *2 (TRViewX D Series)	TRViewX500D	Camera 1: 120 mm *1 Camera 2: 500 mm
	TRViewX800D	Camera 1: 120 mm *1 Camera 2: 800 mm

*1 Elongation accuracy at normal temperatures is ISO Class 0.5 compliant.
*2 With the double camera model, camera 1 takes measurements with a field of view up to 120 mm, beyond which the system switches to camera 2. Select models 500D/800D if you require a wide field of view (500 mm/800 mm) and Class 0.5 compliance up to a 120 mm field of view.

Class 0.5

Plastics Metal

Automatic Extensometer SIE Series

Automatic gauge position detection, gauge length setting, and arm clamping and unclamping of specimen.

Plastics Rubber

DSES-1000 Extensometer for Soft Specimens

Easily and accurately measures large elongation amounts. 1000 mm Maximum Movement Distance, ±0.2% Relative Elongation Measurement Precision.

Class 0.5

Plastics Metal

Strain Gauge One-touch Extensometer SSG-H Series

Lightweight, compact extensometer that can be attached or removed by a simple, one-touch operation.
* Requires external amplifier (option).

Class 1

Metal

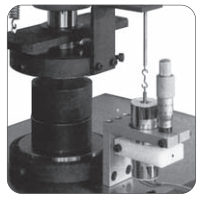
Differential Transformer Type Extensometers DT Series

Applicable to the elongation measurement of metal.
Maximum diameter, thickness 45 mm
Compliant with Strain Rate Control Test Methods ISO 6892

Plastics Metal Rubber Lumber

Compression Plate Displacement Measurement Device

Measures displacement of compression plates during compression tests.



Plastics Metal Rubber

Strain Gauge Type Width Sensor

Measures changes in specimen width.

Testing in Controlled Environments

AGS-10kNXD + Screw Type Flat Grips
+ Compact Thermostatic Chamber TCE series

Temperature Range: –70 °C to +280 °C

Compact Thermostatic Chamber TCE Series

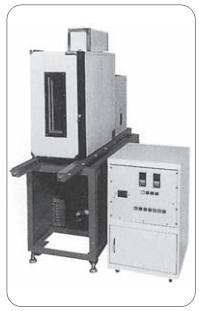
Enables testing across a temperature range of –70 °C to +280 °C. +150 mm and +250 mm extension models are also avilable.

Temperature Range: +20 °C to 60 °C (–40 °C to 250 °C with no humidity control)

Humidity Range: 40% to 95%

Refrigerator Type Environmental Temperature and Humidity Chamber

Optimal chamber for testing materials with mechanical properties sensitive to temperature and humidity effects, such as fibers, paper, or films.
Temperature regulation: Automatic control by heater and refrigerator.



Temperature Range: –70 °C to +280 °C

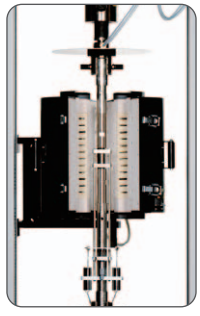
Gas Jet Type Thermostatic Chamber TCL, TCH Series

Liquid nitrogen or carbon dioxide is injected to lower the temperature. Offers colder testing environments than the refrigerator type.
Heating: Heater; Cooling: Liquid nitrogen or CO_2 injection

Temperature Range: +300 °C +900 °C
+300 °C +1100 °C

900 °C / 1100 °C High-Temperature Tensile Test Device

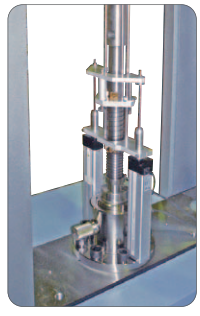
This test device is for tensile, bending and compression testing of steel, heat-resistant materials and ceramics under high temperature conditions.
* High temperature device can be used with floor type model (100 kN/300 kN).



Class 1

High Precision Digital Extensometer for High-Temperature Tensile Test Device

This device complies with ISO Class 1 and ASTM B2 Class and is also applicable to the strain control for tensile testing of metals.

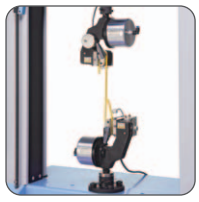


Jigs for Specific Testing and Specimen Shapes

Yarn Cord

Pneumatic Capstan Grips for Yarn

These grips grip a yarn or cord specimen from the capstan (winch). The pneumatic operation allows application of an initial test force.



JIS Z0237 JIS Z1528

Adhesive tape Adhesive sheet

Adhesive Tape Peeling Test Device

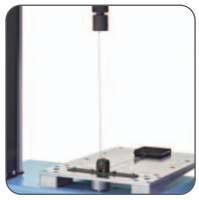
The sample table slides in synchronization with the upper grip movement to maintain a 90° peeling angle. Peeling test jig compliant with JIS Z0237 and JIS Z1528.

ASTM 1894 JIS K7312
ISO 8295 JIS K7125

Plastics Film

Friction Modulus Test Device

For measurements of the coefficient of sliding friction between identical plastics or films or between different materials across the continuous range from static friction to dynamic friction. Two versions: compliant with JIS K7312 / ASTM 1894 and compliant with JIS K7125 / ISO 8295.

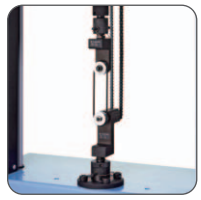


ISO 37 ASTM D412
JIS K6251 / JIS K7312

O-ring

1 kN Roller Grips

The O-ring is hooked onto rollers, which rotate during tensile testing. Conforms to JIS K6251, JIS K7312, ISO 37, and ASTM D412 test standards.



Jigs for CFRP Testing Standards

CFRP

ASTM D6484 / D6484M

Open-Hole Compression Strength Testing on Polymer Matrix Composite Laminate

ASTM D6484 is a typical method used to determine the compressive strength of CFRP open-hole samples.

ASTM D7137 / D7137M

Testing the Compressive Residual Strength Characteristics of a Damaged Polymer Matrix Composite Plate

The testing is performed on rectangular samples made of composite materials that have already been subjected to impact testing. The sample is mounted on the jig and subjected to compression loads.

ASTM D5379 / D5379M
JIS K7079-2

In-Plane Shear Testing Double-V-Notched Sample Shearing

The in-plane shear strength, in-plane shear fracture strain, and in-plane shear elastic modulus of carbon-fiber-reinforced plastics can be determined by the Iosipescu test, which is an in-plane shear test on double-V-notched samples.

ASTM D7078 / D7078M

V-Notched Rail Shear Testing and Evaluation of Composites

This testing applies shear forces to mounted samples with 90-degree V-notches at the top and bottom.

Options

Optional Frames for AGS-X Series

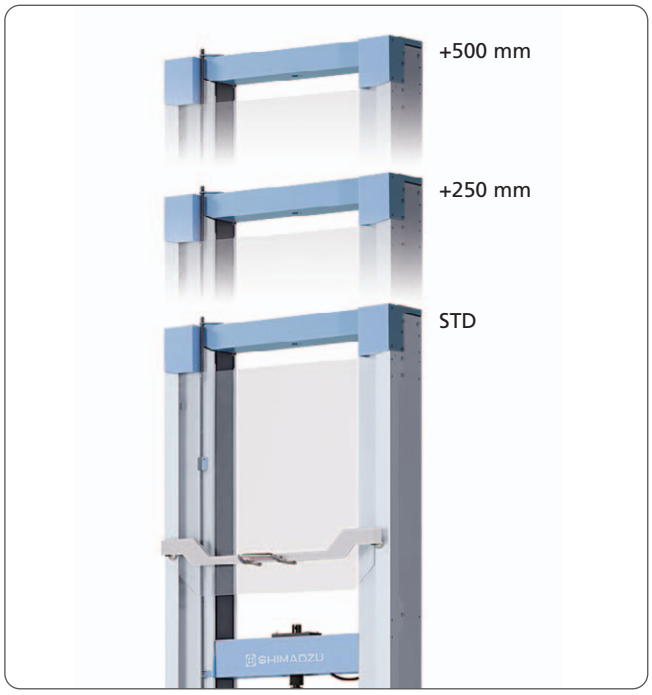
Capacity	10 kN	20 kN	50 kN	100 kN	250 kN/300 kN
Reinforced Yoke Specification	✓	–	–	–	–
+250 mm Extended Column	✓	–	–	✓	–
+500 mm Extended Column	✓	✓	✓	–	–

Reinforced Yoke Options

Permits tensile testing in the download direction. (Only for 10 kN model)

Extended Column Options

For testing with a longer test stroke.



Options for AGS-10kNX Frame

Jog Controller

The jog dial allows manual positioning of the crosshead.

Power Cable

EU specification (VDE standard)
Chinese specification (GB standard)
Japanese, N. American specification (UL, CSA, PSE standards)
supplied as standard.

Options for AGS-X Series

Control I/O Box

Expands the number of control I/O ports to four. Multiple options can be simultaneously connected to the control I/O ports.

Sensor I/O Box

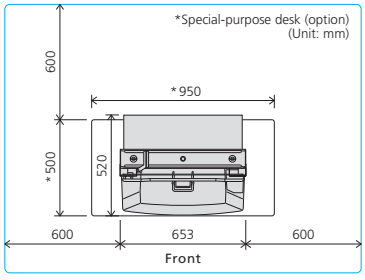
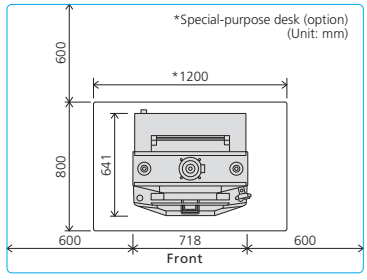
Expands the number of sensor I/O ports to two. Multiple options can be simultaneously connected to the sensor I/O ports. BNC cables can be connected to the analog I/O ports (2 ports each).

Other options are also available. For details, refer to the separate catalog (Shimadzu Autograph Optional Accessories).

AGS-X Series Specifications


AGS-10kNX


AGS-20kNX

Model			Table-top	
			AGS-10kNX	**AGS-20kN**
Max. Load Capacity			10 kN	20 kN
Lineup of Models Differing by Load Cell Capacity			1 N / 2 N / 5 N / 10 N / 20 N / 50 N 100 N / 500 N / 1 kN / 5 kN / 10 kN	20 kN
Force Measurement	Accuracy	High-Precision Type (1/500, ±0.5%)	Within ±0.5% indicated test force (at 1/500 to 1/1 load cell rating)	
			Conforms to EN 10002-2 Grade 0.5, ISO 7500-1 Class 0.5, BS 1610 Class 0.5, ASTM E4, and JIS B7721 Class 0.5. *1	
		Standard-Precision Type (1/500, ±1%)	Within ±1% indicated test force (at 1/500 to 1/1 load cell rating)	
			Conforms to EN 10002-2 Grade 1, ISO 7500-1 Class 1, BS 1610 Class 1, ASTM E4, and JIS B7721 Class 1. *1	
	Calibration		Automatic test force calibration: select tensile, compression, or tensile and compression	
Crosshead		Speed Range	0.001 to 1000 mm/min (stepless)	0.001 to 1600 mm/min (stepless)
		Max. Return Speed	1500 mm/min	2200 mm/min
Crosshead Speed Accuracy *2			±0.1%	
Crosshead Speed and Permitted Test Force			To load cell capacity across entire speed range	
Crosshead – Table Distance (Tensile stroke) *3			1200 mm (760 mm, MWG)	1250 mm (765 mm, MWG)
Effective Test Width			425 mm	
Crosshead Position Detection		Measurement Method	Optical encoder	
		Display Method	Digital display (display resolution: 0.001 mm)	
		Positional Accuracy	±0.1% indicated value or ±0.01 mm, whichever is larger	
Data Capture Rate			1000 Hz max. *4	
Test Method Files			40 files (PC link: 20 files, standalone controller: 20 files)	
Standard Functions			• Automatic reading of load cell characteristic values • Test force display, stress display, stroke display, position display • External analog output (2 channels) • External analog input (2 channels) *4 • External digital input (2 channels) *4 • Analog recorder (option) output • Dataletty (option) output *5	• Automatic test force / stress control (Autotuning) • Automatic strain control (Autotuning) *4 • Test force auto-zeroing • Test force auto-calibration • Break detection, auto-return • Load cell overload detection • Touch-load detection function
Accessories			Load cell (with CAL cable), Power cable (2.5 m), turning rod, cable clamps, instruction manual	Load Cell (with CAL cable), Power cable (5 m), turning rod, cable clamps, instruction manual
Dimensions			 W653 × D520 × H1603 mm	 W718 × D641 × H1633 mm
Weight			85 kg	235 kg
Power Requirements			Single phase 100/120/220/240 V AC (switching type) 50/60 Hz 1.2 kVA	Single phase AC 200–230 50/60 Hz 4.0 kVA
			Supply voltage fluctuations within ±10% of the set value. D-class (100 Ω max.) grounding resistance.	
Operating Environment			Temperature: 5 °C to 40 °C; Humidity: 20% to 80% (no condensation) Floor vibrations: frequency 10 Hz max., amplitude 5 μm max.	

*1 Official certification after installation is recommended to comply with EN 10002-2, ISO 7500-1, ASTM E4 standards, and JIS B7721.
*2 Crosshead speed accuracy is calculated from the crosshead travel within a prescribed time at a constant speed between 0.5 mm/minute and 500 mm/minute.
*3 The tensile stroke is the effective stroke when SCG (screw-type flat grips) or MWG (non-shift wedge-type grips) are mounted.
*4 TRAPEZIUM X or TRAPEZIUM LITE X is needed for these functions. Moreover, when automatic test force/stress control (auto tuning) and the automatic strain control (auto tuning) are used, the sampling speed becomes 10 msec.

AGS-50kNX

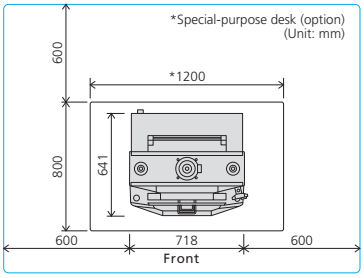
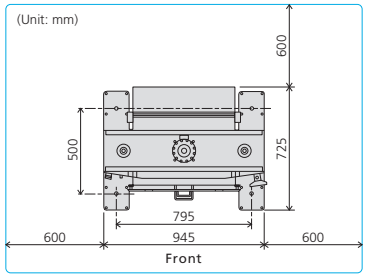
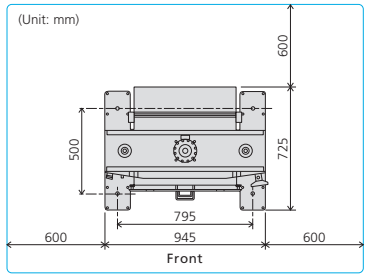
AGS-100kNX

AGS-300kNX

Table Top Type	Floor Type	
AGS-50kNX	**AGS-100kNX**	**AGS-300kNX**
50 kN	100 kN	300 kN
50 kN	100 kN	300 kN
Within ±0.5% indicated test force (at 1/500 to 1/1 load cell rating)		Within ±0.5% indicated test force (at 1/250 to 1/1 load cell rating)
Conforms to EN 10002-2 Grade 0.5, ISO 7500-1 Class 0.5, BS 1610 Class 0.5, ASTM E4, and JIS B7721 Class 0.5.*1		
Within ±1% indicated test force (at 1/500 to 1/1 load cell rating)		
Conforms to EN 10002-2 Grade 1, ISO 7500-1 Class 1, BS 1610 Class 1, ASTM E4, and JIS B7721 Class 1. *1		
Automatic test force calibration: select tensile, compression, or tensile and compression		
0.001 to 800 mm/min (stepless)		0.001 to 500 mm/min (stepless)
1100 mm/min		550 mm/min
±0.1%		
To load cell capacity across entire speed range		0.001–200 kN: 0.001–500 mm/min (entire speed range) 200–300 kN: 0.001–400 mm/min
1210 mm (745 mm, MWG)	1255 mm (745 mm, MWG)	1475 mm (635 mm, MWG)
425 mm	600 mm	
Optical encoder		
Digital display (display resolution: 0.001 mm)		
±0.1% indicated value or ±0.01 mm, whichever is larger		
1000 Hz max. *4		
40 files (PC link: 20 files, standalone controller: 20 files)		

- Automatic reading of load cell characteristic values
- Test force display, stress display, stroke display, position display
- External analog output (2 channels)
- External analog input (2 channels) *4
- External digital input (2 channels) *4
- Analog recorder (option) output
- Dataletty (option) output *5
- Automatic test force / stress control (Autotuning)
- Automatic strain control (Autotuning) *4
- Test force auto-zeroing
- Test force auto-calibration
- Break detection, auto-return
- Load cell overload detection
- Touch-load detection function

Load Cell (with CAL cable), Power cable (5 m), turning rod, cable clamps, instruction manual

		
W718 × D641 × H1633 mm	W945 × D725 × H2164 mm	W945 × D725 × H2414 mm
260 kg	525 kg	675 kg
Single phase AC 200–230 V 50/60 Hz 4.0 kVA	400 V model: Three phases AC 380–440 V 50/60 Hz 4.5 kVA 200 V model: Three phases AC 200–230 V 50/60 Hz 6.5 kVA	400 V model: Three phases AC 380–440 V 50/60 Hz 5.5 kVA 200 V model: Three phases AC 200–230 V 50/60 Hz 7.5 kVA
Supply voltage fluctuations within ±10% of the set value.		
D-class (100 Ω max.) grounding resistance.	400 V model: C-class (10 Ω max.) grounding resistance. 200 V model: D-class (100 Ω max.) grounding resistance.	
Temperature: 5 °C to 40 °C; Humidity: 20% to 80% (no condensation) Floor vibrations: frequency 10 Hz max., amplitude 5 µm max.		

*5 Dataletty (option) and TRAPEZIUM X / TRAPEZIUM LITE X can not be used together.

* Values stated in this catalog are based on measurements conducted according to separately defined inspection standards.

* Windows 7/ Windows Vista/ Windows XP is a registered trademark in the United States and other countries of Microsoft Corporation.

Testing and Evaluation Machines

Precision Universal Tester
AG-X plus series

Small Table-Top Tester
EZ Test

Universal Testing Machines
UH-X/FX series

Micro Hardness Tester
HMV-G series

Dynamic Ultra Micro Hardness Tester
DUH-211/211S

Electromagnetic Force Fatigue / Endurance Testing System
Servopulser EMT series

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