

Universal testing machines series

# Autograph AGS-X



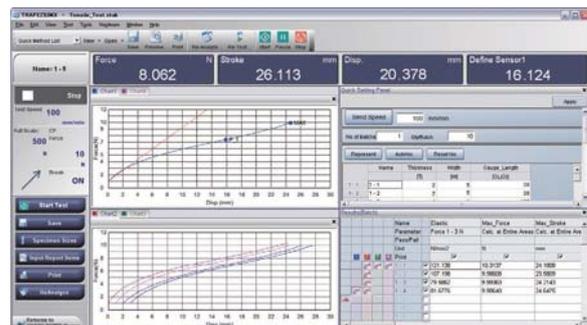
## An affordable solution for a modern laboratory

Shimadzu has expanded its AGS-X series of testing machines. We now offer users both tabletop and floor-standing machines. The maximum permissible load is 300 kN.

The AGS-X series universal testing machines are designed for mechanical testing of various materials including metals, wood, plastics, etc. The AGS-X series machines provide excellent performance and reproducibility of results.

The new AGS-X series testing machines, with their modern, stylish design, offer high-quality testing with intuitive operation and set a new standard for strength assessment while ensuring maximum safety.

**TRAPEZIUM** 



TRAPEZIUM X Software Window

# AGS-X series: technical characteristics

## Autograph AGS-X



AGS-10kNX



AGS-20kNX

Model name		Tabletop models	
Load		AGS-10kNXD	AGS-20kND
Loading method		Direct, high-precision, constant deformation rate control via ball screw drive	
Measurement efforts	Accuracy	High precision type (1/500, ± 0.5%)	
		Standard type (1/500, ± 1%)	
	Calibration of force		Automatic . Force calibration by choice : tension , compression , tension and compression
Traverse	Speed range	from 0.001 to 1000 mm/min(arbitrary smooth installation)	from 0.001 to 1600 mm/min(arbitrary smooth installation)
	Max return speed	1500 mm/min	2200 mm/min
Traverse speed accuracy <sup>*3</sup>		± 0.1%	
Traverse speed and permissible load		Maximum permissible load for all speeds	
Distance between the crossbar and the surface assembly unit (Stretching stroke) <sup>*4</sup>		1200 mm (760 mm, MWG)	1250 mm (765 mm, MWG)
Effective width of the test working area		425 mm	
Definition provisions traverses	Measurement method	Optical coding device	
	Display method	Digital display (resolution display: 0.001 mm)	
	Positioning accuracy	± 0.1% of the displayed value or ± 0.01 mm (whichever is greater)	
Data sampling rate		1000 Hz max . <sup>*5</sup>	
Test Method Files		40 (on PC: 20, built-in controller: 20)	
Standard functions		<ul style="list-style-type: none"> <li>• Automatic load element recognition</li> <li>• Functions for displaying force, voltage, stroke, position</li> <li>• External analog output (2 channels)</li> <li>• External analog input (2 channels)<sup>*5</sup></li> <li>• External digital input (2 channels)<sup>*5</sup></li> <li>• Output to recorder (optional)</li> <li>• Output to integrator (optional)<sup>*6</sup></li> <li>• Automatic force control</li> </ul>	
Accessories		Load cell (with 2.5 m calibration cable), rod, cable fasteners, operating manual	Load cell (with calibration cable fasteners, operating manual)
Dimensions		<p>(Units of measurement: mm)</p> <p>653 x 520 x 1603 (W x D x H, mm)</p>	<p>(Units of measurement: mm)</p> <p>718 x 641 x 1633 (W x D x H, mm)</p>
Weight		85 kg	235 kg
Power requirements		Single phase; 100/120/220/240V; AC; (switch type) 50/60 Hz; 1.2 kVA	Single phase 200-230V;AC;50/60Hz;4.0kVA
Terms of Use		Supply voltage fluctuations ± 10% of the set value. Earthing class D (less than 100 Ohm)	
		Temperature from 5 °C to 40 °C, humidity from 20% to 80% (non-condensing), Floor vibration: frequency max. 10 Hz, amplitude max. 5 µm.	

\* 1 It is possible to install load cells with a nominal value from 1 N to 10 kN (measurements from 2 mN).

\* 2 JIS B7721, EN 10002-2, ISO 7500-1 and ASTM E4 recommend re-verification after installing the testing machine. The accuracy of the crosshead speed is calculated by

\* 3 recalculating the amount of crosshead travel within a certain period of time at a crosshead speed of 0.5 mm/min to 500 mm/min under normal working conditions.



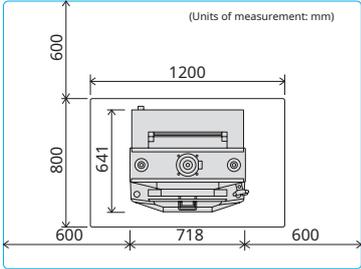
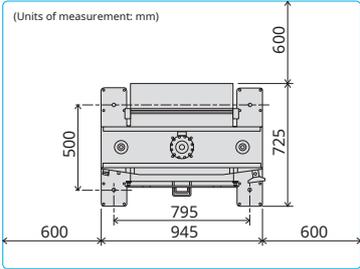
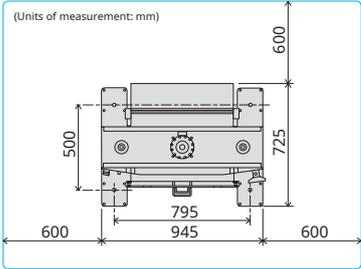
AGS-50kNX



AGS-100kNX



AGS-300kNX

Tabletop model		Floor models		
AGS-50kNXD		AGS-100kNX	AGS-300kNX	
50 kN		100 kN	300 kN	
Direct, high-precision, continuous deformation control using precision ball-screw actuator				
Within $\pm 0.5\%$ of the force value (from 1/500 to 1/1 of the rated power of the load element)			Within $\pm 0.5\%$ of the force value (from 1/250 to 1/1 rated power of the load element)	
Complies with EN 10002-2 Grade 0.5, ISO 7500-1 Class 0.5, BS 1610 Class 0.5 and ASTM E4, JIS B7721 Class 0.5*2				
Within $\pm 1\%$ of the force value (from 1/500 to 1/1 of the rated power of the load element)				
Complies with EN 10002-2 Grade 1, ISO 7500-1 Class 1, BS 1610 Class 1 and ASTM E4, JIS B7721 Class 1*2				
Automatic . Force calibration by choice : tension , compression , tension and compression				
from 0.001 to 800 mm/min(arbitrary smooth installation)		from 0.001 to 500 mm/min(arbitrary smooth installation)		
1100 mm/min		550 mm/min		
$\pm 0.1\%$				
Maximum permissible load for all speeds			0,001~200 kN: 0.001~500 mm/min(in the entire speed range);200 kN~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 coding		device		
Digital display (resolution		display: 0.001 mm )		
$\pm 0.1\%$ of the displayed value or $\pm 0.01$ mm (whichever is greater)				
1000 Hz max . *5				
40 (on PC: 20, built-in controller: 20)				
<ul style="list-style-type: none"> <li>• Automatic load element recognition</li> <li>• Functions for displaying force, voltage, stroke, position</li> <li>• External analog output (2 channels)</li> <li>• External analog input (2 channels)*5</li> <li>• External digital input (2 channels)*5</li> <li>• Output to recorder (optional)</li> <li>• Output to integrator (optional)*6</li> <li>• Automatic force control</li> </ul>		<ul style="list-style-type: none"> <li>• Automatic deformation control (with auto-tuning)*5</li> <li>• Automatic zeroing of test force</li> <li>• Automatic calibration of test force</li> <li>• Break detection, auto-return</li> <li>• Protective screen that protects the operator from fragments of the destroyed sample (optional)</li> <li>• Overload detection</li> <li>• Touch protection function</li> </ul>		
Load cell (with 5 m calibration cable), rod, cable fasteners, operating manual				
 <p>(Units of measurement: mm)</p> <p>718 x 641 x 1633 (W x D x H, mm)</p> <p>260 kg</p>		 <p>(Units of measurement: mm)</p> <p>945 x 725 x 2164 (W x D x H, mm)</p> <p>525 kg</p>		 <p>(Units of measurement: mm)</p> <p>945 x 725 x 2414 (W x D x H, mm)</p> <p>675 kg</p>
Single phase 200-230V;AC;50/60Hz;4.0	kVA	400 V model	200 V model	
		Three phase; AC; 380-440 V; 50/60 Hz; 4.5 kVA	Three phase; AC; 200-230 V; 50/60 Hz; 6.5 kVA	
		400 V model	200 V model	
		Three phase; AC; 380-440 V; 50/60 Hz; 5.5 kVA	Three phase; AC; 200-230 V; 50/60 Hz; 7.5 kVA	
Supply voltage fluctuations $\pm 10\%$		from the set value		
Earthing class D (less than 100 Ohm)	Grounding class C (less than 10 Ohm)	Earthing class D (less than 100 Ohm)	Grounding class C (less than 10 Ohm)	Earthing class D (less than 100 Ohm)
Temperature from 5 °C to 40 °C, humidity from 20% to 80% (non-condensing), Floor vibration: frequency max. 10 Hz, amplitude max. 5 $\mu$ m.				

\* 4 The tensile stroke is the value obtained using MWG type grips (wedgeless type) or SGG type grips (flat screw type grips).

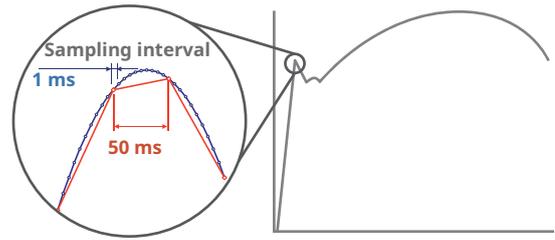
\* 5 TRAPEZIUMX or TRAPEZIUMLITEX software is required for these functions. Moreover, when automatic load/voltage adjustment (auto-tuning) and automatic stretch control (auto-tuning) are used, the sampling speed becomes 10 ms.

\* 6 Dataletty integrator (optional) and TRAPEZIUMX or TRAPEZIUMLITEX software cannot be used together.

## High testing accuracy

The range of guaranteed cell load accuracy is from 1/500 to 1/1. Such a wide range increases the measurement efficiency and ensures, that virtually all tests can be performed without switching the load cell or grips.

In addition, high-speed data sampling (1 ms) ensures a smooth load/elongation curve and improves the accuracy of parameter determination (yield strength, elastic modulus, etc.).



New digital  
extensometer DSES-1000

## Single connection unit for tensile and compression testing (for frames of 20-300 kN)

A single connection unit is used for both tensile and compression testing, making tooling changes easy.

The unit is equipped with a nut located at the top of the load cell, which allows the equipment to be safely disconnected.



## Main control panel

The main control panel enables the creation of a test method, allowing testing without connecting to a PC. Various operations can be performed using the joystick, such as controlling the grips or the automatic extensometer.

The main control panel is movable, which allows it to be installed at a convenient angle.



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