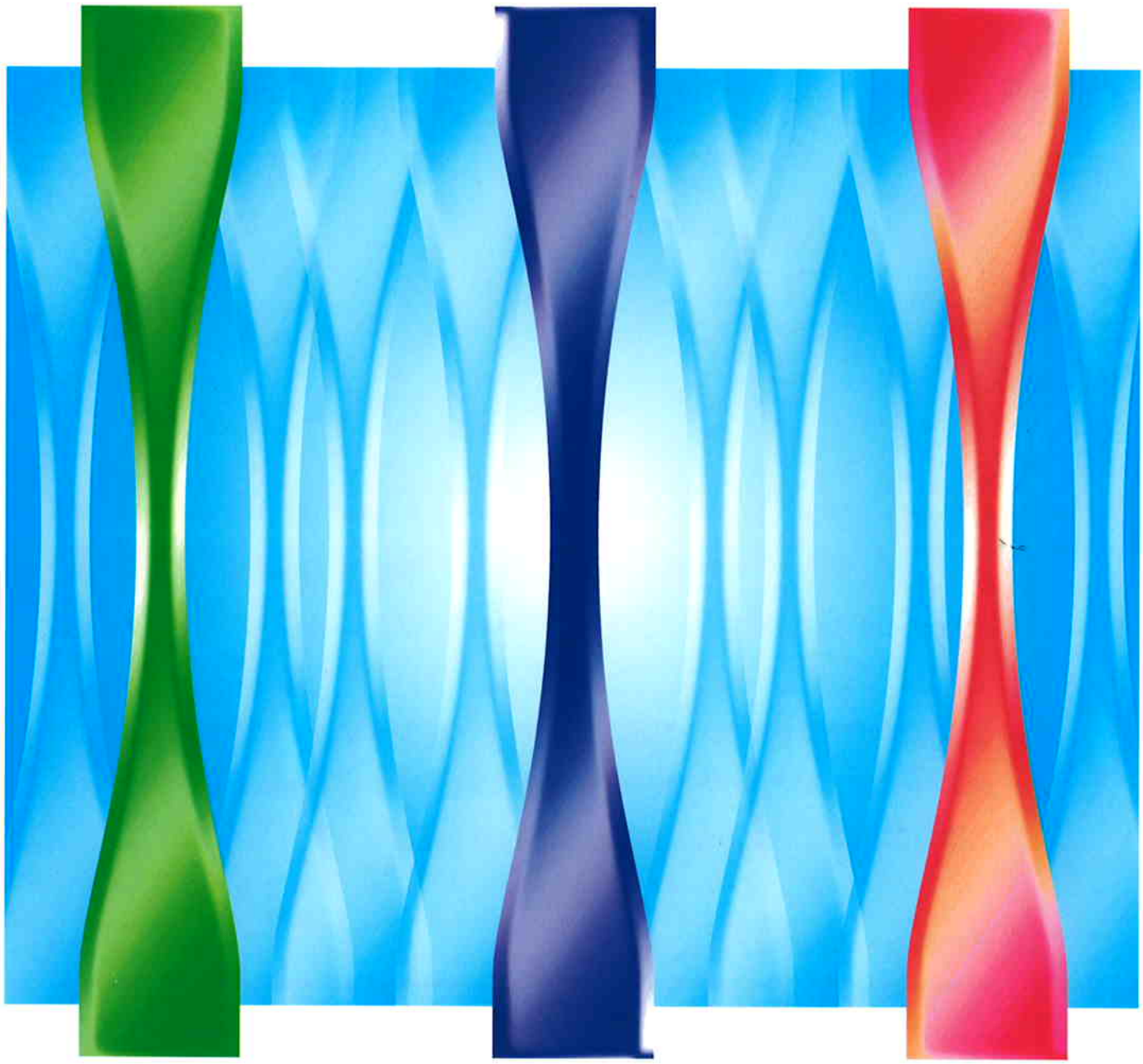
No.250、260

STROGRAPH

Universal Type Tester with High Performance CPU Control

Strograph V Series

V・VG・VGS



TOYOSEIKI

No.250、260

Strograph V Series

V・VG・VGS

Tensile test is one of basic methods of testing mechanical properties of materials. Though measuring method is simple, but since it provides many informations useful for clarification of characteristics of materials, it is being used as the most general testing method.

The Strograph V Series comprises tensile testers pursuing ease of operation and cost performance. These universal type testers with original design matching with the atmosphere of laboratory and incorporating advanced high performance CPU control widen evaluation test functions by using special jigs for bending and compression etc. in addition to conducting tensile tests.

Models VG and VGS are newly designed to meet wide needs of users.

Universal Type Strograph with High Performance CPU Control

STROGRAPH

Three Basic Models Selected by Load Capacity (V•VG•VGS)

- Original design matches with modern laboratory atmosphere.
- Models V and VG can be selected as floor type or desktop type.
- Compact, light weight with high performance.
- Good looking and movable control panel attached by magnet.
- Data output can be connected to personal computer, recorder and printer.
- Crosshead return speed is automatically selectable by fuzzy function, assuring safety and efficiency.

No.250

V50
(Floor Type)

No.260

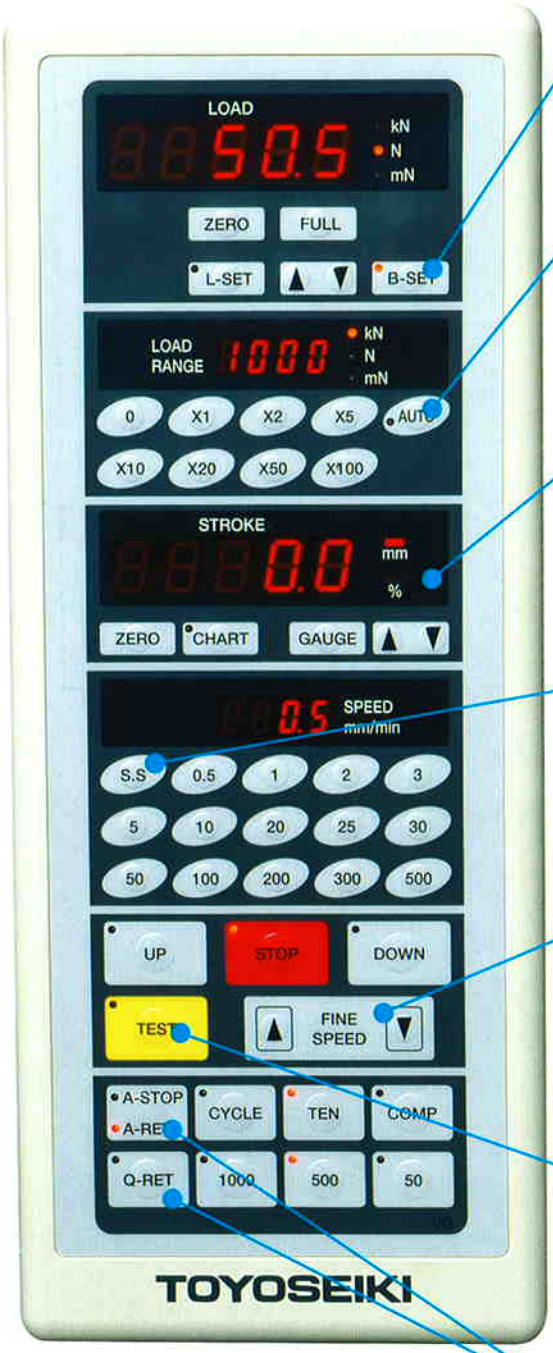
VG
Series
(Floor Type)
(Desktop Type)

No.260

VGS
Series
(Desktop Type)

Control Panel

Strograph's Ease of Operation Realized on the Control Panel



B-SET

Breaking detection level can be set.
% drop from peak is judged.

AUTO

Load range is automatically selected.
Starts from set range and automatically increases range before over range.

mm
%

Crosshead stroke can be selected in mm or % unit.
Sample's strain is directly read in mm or as % of set chuck span.

S.S

Crosshead speed is selected (with registration function) in 0.5mm/min steps, non-step up to maximum 1000mm/min.
Selected by combination of speed setting buttons.

FINE SPEED

Convenient for fine adjusting crosshead position.
Chuck position on moving side can be fine adjusted with speed proportional to switch pressing force.

TEST

Links with data processing unit (personal computer, recorder, printer).
Simultaneously starts selected processing unit.

A-RET **Q-RET**

Crosshead returns to home position
A-RET: with fuzzy speed after end of test,
Q-RET: with set speed after stopping,
by manual operation.

Data Output Choice

Computer (Option)

All test results can be output to 3 data processing units. Select according to need.

(1) Personal computer
(See next page)
(2) Recorder
(See specifications)
(3) Printer
(See specifications)

Recorder (Option)

Printer (Option)

Windows Soft Display Examples

Data processing software allows measurement by tensile test, tearing test, compression test, bending test and peeling test and possesses the following features.

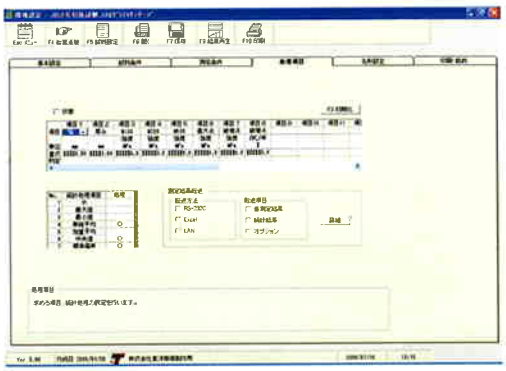
(1) Description of operation can be viewed by displaying wizard window.
(2) In result reproduction window, graph display color can be changed and graphs of different lots can be displayed by multiplotting.
(3) Once measured result can be recalled and can be overwritten by measuring once again.
(4) Past test result can be recalled and compared while conducting measurement.
(5) Recalculation can be done by adding processing items to once measured result.

Wizard Window

Flow of software operation is described in wizard window.

Environment Setup - Basic Setup Window

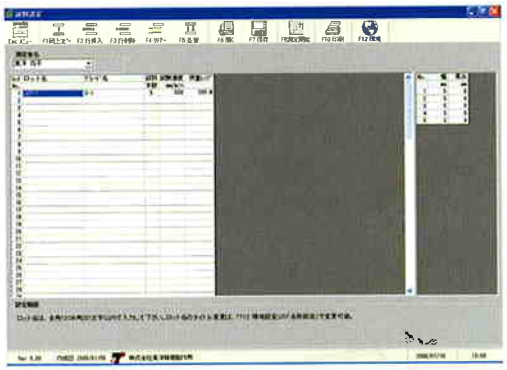
Basic setup, sample conditions, measuring conditions, processing items, etc. can be registered and recalled.



Environment Setup - Processing Items Window

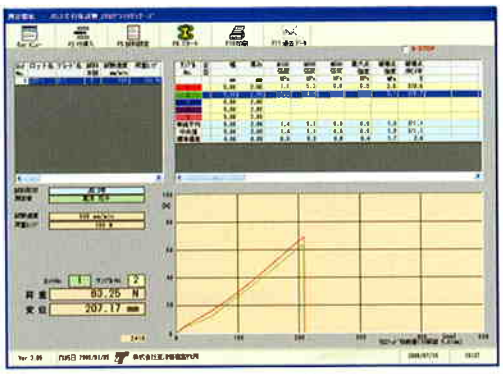
Processing items can be arbitrarily layout in unit system, format, etc.

One processing item can be selected as judgement standard and good/bad judgement can be made.



Sample Setup Window

Sample setup can also be registered and recalled. If in same test mode, maximum 100 lots of samples (up to 20 samples per lot) can be registered.



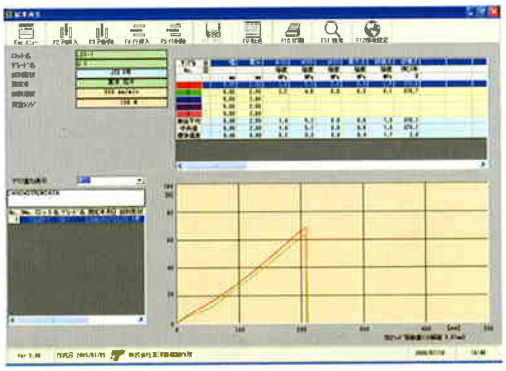
Measuring Window

Stroke and load multigraphs are drawing during measurement.

Test results can be transferred to Excel sheet.

Measured graph can also be saved in text format file that can be read out in Excel.

Previous measured data can be recalled and seen during measurement.



Result Re-play Window

Result re-play window allows you to re-calculate modulus of elasticity and re-specify values of other processing items on graph.

Moreover, you can re-calculate by adding processing items.

Multiple graph of different lots can also be displayed.

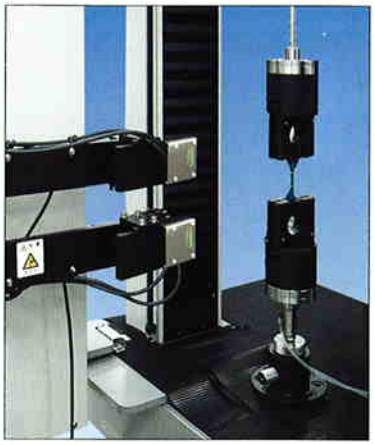
Options

Contact Type Mark Tracer (Model DE-C)

Traces elongation between the marks by directly clipping at the marked part of sample.

• Main Specifications

1. Stroke detecting system	Pulse type encoder
2. Marks span	20mm~50mm
3. Tracing range	Max. 1,000mm (effective stroke)
4. Resolution	0.01mm
5. Thickness of sample	0.01 ~ 5.0mm
6. Measuring range	10, 20, 50, 100, 200, 500, 1000mm full scale (analog output)
7. Dimensions	W270 x D300 x H1,390mm
8. Electric power source	AC 100V 50/60Hz 3A



Contactless Type (Optical Type) Mark Tracer (Model DE-A)

Incorporates image splitting system in which images of two marks (upper and lower) marked on the sample are properly captured by two cameras, and the tracing cameras trace the marks while capturing the center of the mark images from start of pulling to breaking without regard to the color of sample.

• Main Specifications

1. Tracing system	CCD camera system (resolution 0.1mm)
2. Marks span	20, 25, 50mm
3. Color of sample	All colors possible
4. Tracing range	450mm (dumbbell No.3)
5. Marking ink	Main mark (silver), mask mark (black)
6. Light source	High intensity LED
7. Dimensions	W250 x D250 x H1,700mm
8. Electric power source	AC 100V 50/60Hz 2A

Fine Elongation Meter (For Elasticity Modulus Meas.) (Model D)

• Main Specifications

1. Stroke detecting system	Strain gauge
2. Marks span	50mm
3. Stroke range	0.25, 0.5, 1, 2, 5mm 5 ranges
4. Zero correction	One touch auto zero system
5. Full calibration	Electrical calibration or calibration device for fine elongation meter (option)
6. Accuracy	Within ±0.5%
7. Output	DC10V F.S (each range)
8. Electric power source	AC 100V 50/60Hz 1A
9. Dimensions, weight	W135 x D390 x H230mm 6kg

* As regards fine elongation meter for Strograph, refer to its separate pamphlet.

Fine Elongation Meter calibration device (Option)

Contactless, Laser Type Elongation Tracing Device (Model DE-S)

(Contactless type elongation measuring device needing no marking, No.906)

This contactless type allows elongation measurement by simply irradiating two marks with respective laser beam.

• Main Specifications

1. Applicable sample	Plastic, rubber, GFRP, CFRP, ceramic, metal, etc.
2. Setting laser span	20~50mm
3. Resolution	Large change type 10μm, fixed optical unit 1μm
4. Elongation measuring range	Within effective stroke of tensile tester
5. Maximum tensile rate	500mm/min
6. Light source	Red semiconductor laser
7. Color of sample	All colors possible
8. Electric power source	AC 100V 1φ 5A 50/60Hz

Air Chucks

Easy to Use Chucks

Kind of chuck has to be selected according to the material to be tested, but general purpose test samples can be covered by vise type or wedge type clamping chuck. As regards clamping operation, manual type, air type and in case of large capacity vise type chuck, hydraulic type is also available.

The following two types are typical examples of air type clamping chucks by which the operator does not get tired.

Fixed position wedge chuck (air operated) (Patent pending)

Suitable for sample of slippery material of hard surface.

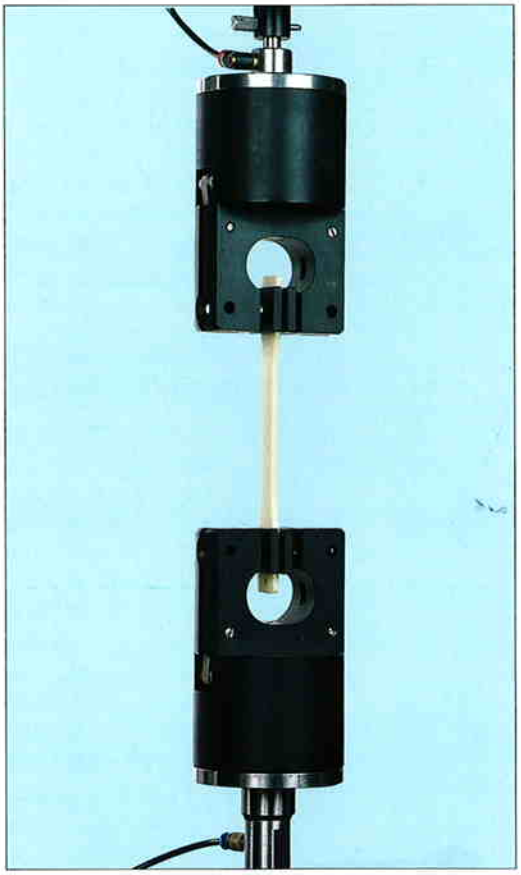
(Example)

Hard plastic, metal sheet or wire, thick sheet of soft plastic, etc.

Tensile capacity

For 5kN, 10kN, 20kN

Vise chuck (air operated)



Suitable for sample of material soft to slightly hard material.

(Example)

Film, rubber, paper, cloth, soft plastic sheet, thread

Tensile capacity

For 500N, 1kN, 2kN, 5kN

(Note) High capacity types of other shapes are also available.

Full Automatic Tensile Tester

No.211 Strograph AE
(Elastomer)

Tensile test is automatically performed by simply setting the dumbbell samples in the tray.

No.211 Strograph AE
(Film)

Tensile test and peeling test of soft samples such as plastic film are automatically performed.

No.211 Strograph AE
(Superia)

Cutting of dumbbell sample from original sheet, tensile test and all processes such as hardness, specific gravity, etc. are automatically performed.

No.218 Strograph APII

Tensile test of plastic from measurement of elasticity modulus to breaking of plastic sample is automatically performed.

Common Spcifications

		V50D 50N
1. Crosshead	a. Speed	
	Speed accuracy Quick return speed	Fuzzy speed auto return (Max. 1000mm/min)
	b. Stroke	940mm
	Effective stroke Stroke setting	620mm using fixed position wedge chuck (C-0) Rod limiteer
	Stroke indication	0-999.9mm
	c. Lead screw and motor	
	Lead screws center span	620mm (effective internal span 505mm)
2. Force measurement	a. Load cell	Standard 50kN Electric type Force calibration system (auto capacity detection)
	b. Force indication Force indication accuracy Calibration system	
	c. Range Full scale 7 ranges and auto range	50kN(x1), 25kN(x2), 10kN(x5), 5kN(x10), 2.5kN(x20), 1kN(x50), 500N(x100) Range capacity automatic indication function
	d. Force limiter	
3. Elongation measurement	a. Crosshead	
	b. Contact type mark tracer	
	c. Contactless (optical type) mark tracer	
	d. Fine elongation meter (for elast. mod. meas.)	
4. Recorder (option)	a. Model	
	b. Chart paper	
	c. Chart speed	
	d. Pen speed	
5. Printer (option)	a. Printing system	
	b. Character configuration	
	c. Print characters	
	d. Printing paper	
6. Safety devices	a. Rod limiter	
	b. Emergency stop switch	
	c. Lead screw cover	
7. Memory function	a. Setup conditions	
8. External communication	a. RS-232C	
Rack or table for main unit		
Electric power source	AC200V 3P 10A	
Dimensions and weight	Main unit W860(800) x D580 x H 1600mm, aprx. 260kg Rack (option) W800 x D750 x H520mm, apr. 130kg	

VG20E 20kN	VG10E 10kN	VG5E 5kN	VG1E 1kN
0.5, 1, 2, 3, 5, 10, 20, 25, 30, 50, 100, 200, 300, 500,mm/min 14 switched ranges (± 0.1%) (*)		SS and range combinations 0~200mm/min (0.5mm/m step) 200~1000mm/min (1mm/min step)	
Fuzzy speed auto return (Max. 500mm/min)	Fuzzy speed auto return (Max. 1000mm/min)		
Quick return 1000, 500,50mm/min			
1100mm (*) 595mm fixed position wedge chuck (C-1) is used	1100mm (*) 670mm fixed position wedge chuck (C-2) is used	1100mm (*) 750mm fixed position wedge chuck (C-3) is used	1100mm (*) 785mm fixed position wedge chuck (C-4) is used
(*) Stroke can be extended to 300mm by option			
Precision ball screw and AC servo motor drive			
500mm (effective internal span 420mm)			
Standard 20kN Electric type Force calibration method (auto capacity detection)	Standard 10kN Electric type Force calibration method (auto capacity detection)	Standard 5kN Electric type Force calibration method (auto capacity detection)	Standard 1kN Electric type Force calibration method (auto capacity detection)
Digital load indication resolution 2000/2500DIV ±1.0% of indicated load (more than 20% of each range full scale) Auto zero cancel, auto calibration system			
20kN(x1), 10kN(x2), 4kN(x5), 2kN(x10), 1kN(x20), 400N(x50), 200N(x100)	10kN(x1), 5kN(x2), 2kN(x5), 1kN(x10), 500N(x20), 200N(x50), 100N(x100)	5kN(x1), 2.5kN(x2), 1kN(x5), 500N(x10), 250N(x20), 100N(x50), 50N(x100)	1kN(x1), 500N(x2), 200N(x5), 100N(x10), 50N(x20), 20N(x50), 10N(x100)
Upper limiter 0~103% Lower limiter -30%			
Crosshead stroke 0.1mm steps indication			
Option			
Option			
Option			
High sensitivity, auto balance type X-T system S-RE1 (U-228-1P-410)			
Roll paper 100div./250mm scale			
0.15, 0.2, 0.25, 0.3, 0.5, 1, 1.5, 2, 2.5, 3, 5, 10, 15, 20, 25, 30, 50, 100, 150, 200, 250, 300, 500, 1000 mm/min, 24 ranges			
1/3s or less			
Heat sensitive serial dot system			
7x5 dot matrix			
40(20) digits			
80mm x 20m			
1st stage sensor operation, 2nd stage drive motor shutdown			
Drive motor shutdown operation			
Bellows type rotating part cover			
Force upper limiter, break detection level, gauge distance			
Test result and test conditions transmission Force data, etc. output every 10ms in real time			
Option			
AC100V 1ϕ 8A			
Main unit W720(660) x D470 x H1600 mm, approx. 135kg Rack (option) W800 x D750 x H520 mm, approx. 130kg			

VGS5E 5kN	VGS1E 1kN	VGS05E 500N
Fuzzy speed auto return (Max. 1000mm/min)		
830mm (*) 495mm fixed position wedge chuck (C-3) is used	830mm (*) 610mm box chuck (K-1) is used	830mm (*) 610mm box chuck (K-2) is used
380mm (efective internal span 300mm)		
Standard 5kN Electric type Force calibration method (auto capacity detection)	Standard 1kN Electric type Force calibration method (auto capacity detection)	Standard 500N Electric type Force calibration method (auto capacity detection)
5kN(x1), 2.5kN(x2), 1kN(x5), 500N(x10), 250N(x20), 100N(x50), 50N(x100)	1kN(x1), 500N(x2), 200N(x5), 100N(x10), 50N(x20), 20N(x50), 10N(x100)	500N(x1), 250N(x2), 100N(x5), 50N(x10), 25N(x20), 10N(x50), 5N(x100)
AC100V 1ϕ 7A		
Main unit W600(540) x D470 x H1300 mm, approx. 105kg		

(Photo with optional crosshead)

Thermostatic Chambers for Strograph VG

Special thermostatic chambers for Strograph VG series. 6 Types are available.

Model	Temp. Range	Cooling System	Effective Stroke	Chamber Inside Dimensions (mm)	Electric Source
VGF-50	-50~+200°C	Refriger. 2 stage	Aprx. 300mm	W190xD300xH570	AC200V 3P 40A
VGF-30	-30~+200°C	Refrigerator			AC200V 3P 30A
VGSCO	-60~+150°C	Liquid CO2	Aprx. 250mm	W160xD200xH450	AC200V 3P 15A
VGCO	-60~+250°C		Aprx. 300mm	W190xD300xH570	AC200V 3P 20A
VGS200	RT+30~150°C	Only heater	Aprox. 250mm	W160xD200xH450	AC200V 3P 15A
VG300	RT+30~300°C		Aprx. 300mm	W190xD300xH570	

* Dimensions of thermostatic chamber for V50 will change. Please consult.
* When using liquid CO2, pay attention to ventilation inside the room.
* Effective stroke value is for the case when optional crosshead is installed.

ISO 9001 Approved