TOYOSEIKI

260 | Strograph™

Dual column Universal Testing Systems

- S (50kN)
- VG (20kN)
- VGS (5kN)

The **260 Strograph** series dual column, universal testing machines are designed for testing tensile, bend/flexure, compression, peel, friction etc. of various materials, ranging up to 50kN (S), 20kN (VG) and 5kN (VGS).

VG10F with optional bench

Operation panel

S series (High capacity model, 50kN max.)

Model	S50-F (S50)	S20-F (S20)
Maximum load capacity	50kN	20kN
Crosshead stroke	940mm	
Effective stroke	620mm (Using C-1 chuck)	
Force accuracy	Within ±1% of indicated value *(In the range 1/1 to 1/500 of load cell related capacity)* Conforms to JIS B 7721 (ISO 7500-1) Class 1	
Force magnification	Range-less (x1 to x 100 equivalent)	
Maximum speed	1000mm/min.	
Minimum speed	0.0005mm/min.	
Crosshead speed accuracy	±0.1% (0.5 to 500mm/min.) Based on Toyoseiki inspection method	
Interface	RS-232C	
Power requirement	Three-phase, AC200V, 50Hz or 60Hz, 3.5kVA	
Dimensions	W870 x D590 x H1620mm	
Weight	Approx. 175kg	

S50-F/S20-F

S50/S20

(S50/S20 does not have operation panel
Optional data processing unit is required for operation)

VG series (Standard model, 20kN max.)

Model	VG20F	VG10F	VG5F	VG1F
Maximum load capacity	20kN	10kN	5kN	1kN
Crosshead stroke	1100mm			
Effective stroke (Using chuck model)	595mm (Model C-1)	670mm (Model C-2)	750mm (Model C-3)	785mm (Model C-4)
Force accuracy	Within ±1% of indicated value *(In the range 1/1 to 1/500 of load cell related capacity)* Conforms to JIS B 7721 (ISO 7500-1) Class 1			
Force magnification	Range-less (x1 to x 100 equivalent).			
Maximum speed	500mm/min.	1000mm/min.		
Minimum speed	0.0005mm/min.			
Crosshead speed accuracy	±0.1% (0.5 to 500mm/min.) *Note: Based on Toyoseiki inspection method*			
Interface	RS-232C			
Power requirement	Single-phase, AC100V, 50Hz or 60Hz, 0.8kVA			
Dimensions	W720 x D470 x H1600mm			
Weight	Approx. 135kg			

VG1F

VGS series (Small size model, 5kN max.)

Model	VGS5F	VGS1F	VGS05F
Maximum load capacity	5kN	1kN	500N
Crosshead stroke	830mm		
Effective stroke (Using chuck model)	495mm (Model C-3)	610mm (Box chuck)	
Force accuracy	Within ±1% of indicated value *(In the range 1/1 to 1/500 of load cell related capacity)* Conforms to JIS B 7721 (ISO 7500-1) Class 1		
Force magnification	Range-less (x1 to x 100 equivalent).		
Crosshead speed range	0.0005, 0.001, 0.05, 0.5, 1, 1.5, 2.0, 2.5, 3.0, 5.0, 10, 15, 20, 25, 30, 50, 100, 150, 200, 250, 300, 500, 1000mm/min. (23 steps)		
Crosshead speed accuracy	±0.1% (0.5 to 500mm/min.) Note: Based on Toyoseiki inspection method		
Interface	RS-232C		
Power requirement	Single-phase, AC100V, 50Hz or 60Hz, 0.7kVA		
Dimensions	W600 x D470 x H1300mm		
Weight	Approx. 105kg		

VGS series

Comparison between VGS vs VG

	Width	Height	Load cell capacity
VGS	600mm	1300mm	Up to 5kN
VG	720mm	1600mm	Up to 20kN

OPTIONAL ACCESSORIES

■Load cells

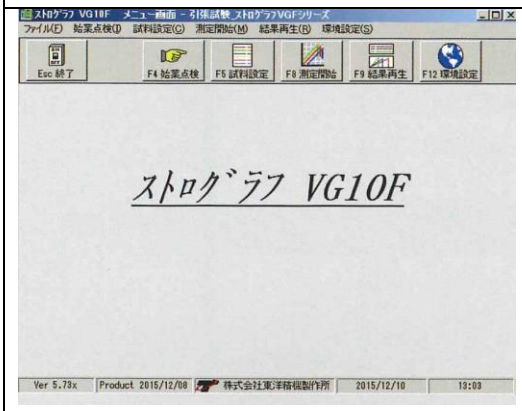
Model	Capacity	Female screw	Universal joint	Pin
RCT-10N-AF	10N	M12P1.5	UV-200N	Ø3
RCT-20N-AF	20N			
RCT-50N-AF	50N			
RCT-100N-AF	100N			
RCT-200N-AF	200N			
RCT-500N-AF	500N		UV-1kN	Ø4
RCT-1kN-AF	1kN			
RCT-2kN-AF	2kN		UV-5kN	Ø6
RCT-5kN-AF	5kN			
RCT-10kN-AF	10kN	M14P2	UV-10kN	Ø8
RCT-20kN-AF	20kN	M18P1.5	UV-20kN	Ø12
RCT-50kN-AF	50kN	M26P2	UV-50kN	Ø16

Universal joint

■Data processing software (English language version)

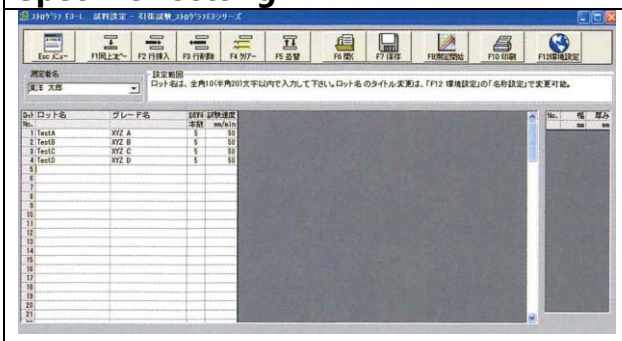
Note: Examples are Japanese language version. However functions are the same.

Menu

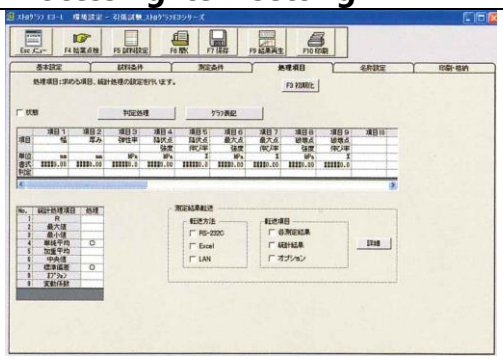


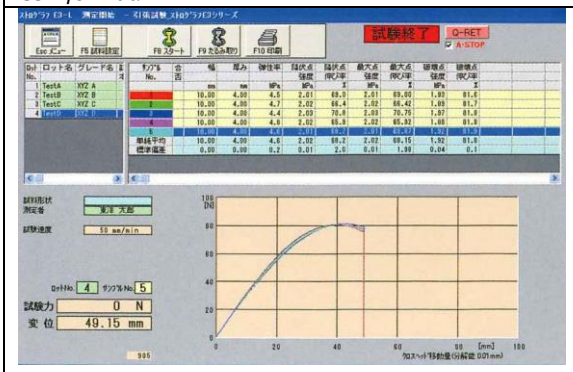
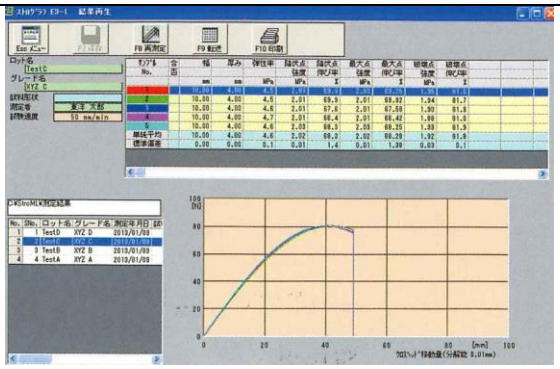
Measurement condition setting

Specimen setting



Processing item setting



Measurement	**Results reproduction**
During measurement, overwrite the displacement/ load graph. Measurement results can transfer to spread sheet as CSV format.	*Possible to elastic modulus recalculation, redesignation of processing item.*
	

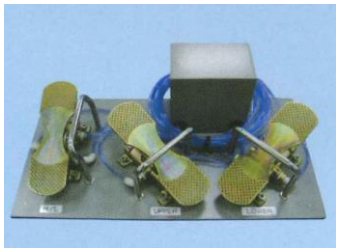
Features:

- In measuring, measured values of load and stroke between chucks are displayed on computer's display during measurement.
- Up to 20 tests of 1 lot can be plotted together on same display.
- Maximum 50 samples of same testing conditions can be registered and continuously measured.
- Processing items are indicated on pattern, allowing you to see them at a glance.
- Detailed data processing is also possible by pressing the "Detailed Setting" button.
- Testing conditions can be registered and retrieved.
- By selecting kind of sample (plastic, rubber, etc.) and specifying standard sample, chuck span, distance between bench marks and standard sample dimensions are automatically set.

Data processing items:

- Tensile test
- Tear test
- Compression test
- Bending test
- Peeling test

Pneumatic chucks control switchs

Switch box with Hi-Low pressure control (Standard)		
Air chuck drive unit (Air chuck switch) Possible to control from operation panel (Optional)	**VG-PSW**	 
Foot switch with Hi-Low pressure control (Optional)		

Hi-Low pressure control (Double action closure) of pneumatic chuck

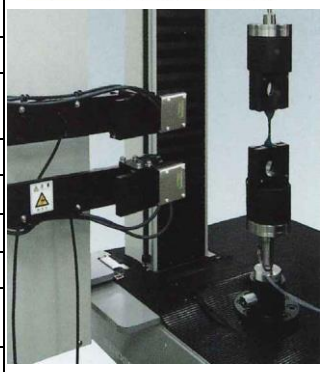
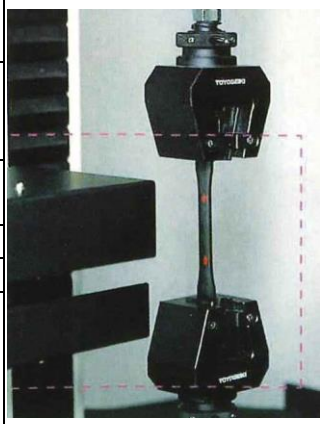
1. Step one

Close the chuck with "low" pressure to avoid finger injury of operator who holds the specimen.

2. Step two

Once specimen is installed, close the chuck with "high" pressure for the test.

Extensometers

Contact type	**DE-C**	Meas. principle	Pulse type encoder	
		Meas. range	Max. 1000mm	
		Gauge length	10, 20, 50, 100, 200, 500, 1000mm	
		Resolution	0.01mm	
		Accuracy	±0.2mm or 1% of reading, whichever greater	
		Power supply	Single-phase, AC100V, 0.3kVA	
		Dimensions	W180 x D150 x H1390mm	
Contact type (High resolution)	**DE-CH**	Meas. principle	Large elongation: Encoder with wire Fine elongation: Non-contact linear encoder	
		Gauge length	50mm	
		Resolution	Large elongation: 22.0µm Fine elongation: 0.4µm	
		Accuracy	Large elongation: ±1% Fine elongation: ±1µm	
		Power supply	Single-phase, AC100V, 0.5kVA	
		Dimensions	W300 x D250 x H1300mm	
Non-contact type (Optical)	**DE-A**	Meas. principle	CCD camera	
		Meas. range	Max. 450mm (No.3 Dumbbell)	
		Ink for marking	Main mark: Silver Mask mark: Black	
		Light source	LED	
		Gauge length	20, 25, 50mm	
		Resolution	0.1mm	
		Accuracy	N/A	
		Power supply	Single-phase, AC100V, 0.2kVA	
		Dimensions	W250 x D250 x H1700mm	
Non-contact type (Laser speckle imaging)	**DE-SP**	Meas. principle	Laser speckle imaging (Marking is not required)	
		Applicable specimen	Plastics, Rubber etc. (Confirmation test is recommended)	
		Meas. range	Within effective stroke of Strograph main unit	
		Gauge length	20 to 75mm	
		Resolution	N/A	
		Accuracy	Large elongation: ±1% of reading Fine elongation: 1.0µm	
		Max. speed	500mm/min.	
		Power supply	Single-phase, AC100V, 0.5kVA	
		Dimensions	N/A	

Strain gauge type Micro extensometer (For elastic modulus)	**DE-ME**	Meas. principle	Strain gauge	 Micro extensometer Model: DE-ME  Calibration device Mode: ME-CD
		Gauge length	50mm or 75mm (Selection)	
		Accuracy	±0.5% or 1μm whichever greater	
		Power supply	Single-phase, AC100 to 240V, 0.08kVA	
		Dimensions	W260 x D280 x H100mm	
		Net weight	Approx. 3.5kg	

Thermostatic chambers

VGF-50	Refrigerator -50 ºC to 200ºC (For VG series)	
VGF-30	Refrigerator -30 ºC to 200 ºC (For VG series)	
VGSCO	Liquid Co^2 -60 ºC to 150ºC (For VGS series)	
VGCO	Liquid Co^2 -60 ºC to 250ºC (For VG series)	
VGS200	Heater only RT+30 ºC to 150ºC (For VGS series)	
VG300	Heater only, RT+30 ºC to 300ºC (For VG series)	

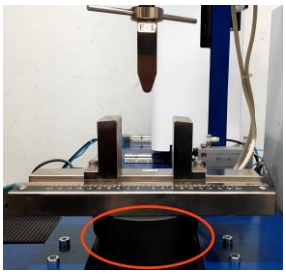
Extended column option

Name	Model	
Stroke 300mm extension option	300-VG	
Stroke 600mm extension option	600-VG	

Bench for VG series

Name	Model	
Dedicated bench for VG series	BED-VG	

Base for bending (flexural) test

Name	P/N	
Base for bending test ● Convenient for dual use between tensile and flexural testing. ● Required when using DE-CH extensometer.	2160118	 

Chucks (Grips)

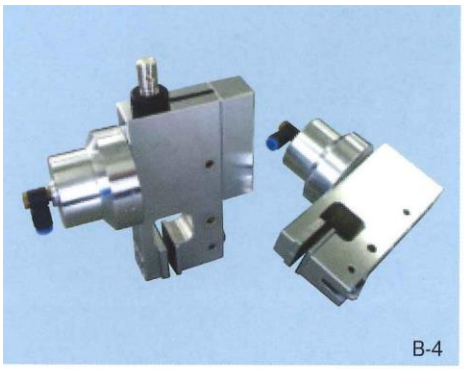
Application

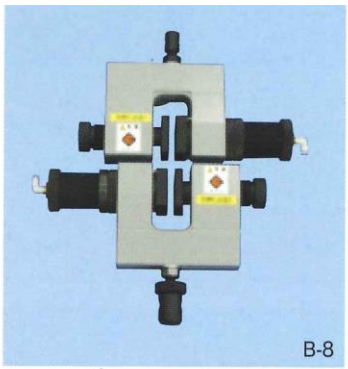
Vise chucks (Screw clamp)	50N to 1kN	Plastic sheet, Cloth, Paper etc.
Vise chucks (Pneumatic)	5N to 1kN	Plastic sheet, Plastic film, Rubber (dumbbell), Thread, Cloth, Paper etc.
Wedge chucks (Spring clamp)	300N to 1kN	Plastic sheet etc.
Wedge chucks (Fixed position)	200N to 1kN	Plastic sheet etc.
Dumbbell chucks	500N to 3kN	Rubber(dumbbell) etc.
Wide range box chucks	100N to 500N	Plastic film, Paper etc.
Eccentric chucks	1kN	Rubber(dumbbell) etc.
Box chucks	200N to 500N	Paper etc.
Cord chucks	300N to 1kN	Thread etc.

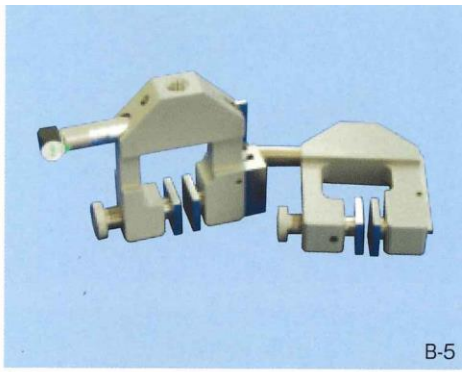
Screw clamp type vise chucks

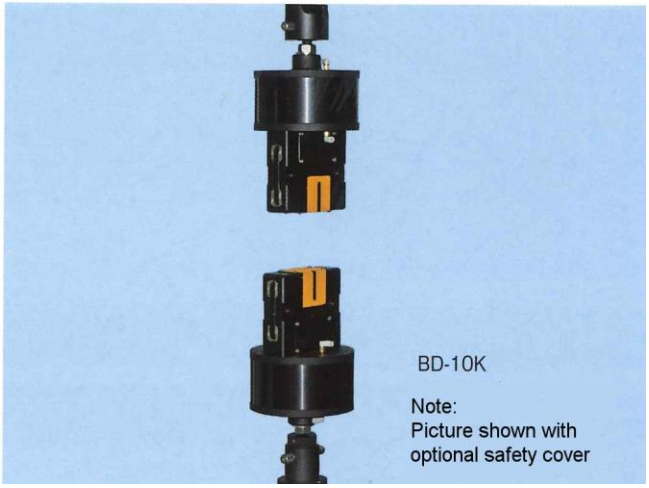
Model	Maximum force capacity	Clearance	Jaw face W x H	Jaw face surface
A-1	10kN	16mm	50 x 54mm	● Serrated
A-2	5kN	16mm	50 x 50mm	
A-3	1kN	16mm	50 x 40mm	● Serrated ● Rubber-coated (To be selected upon order)
A-4	200N	9mm	30 x 30mm	
A-5	100N	9mm	30 x 30mm	
A-6	50N	9mm	20 x 20mm	

Pneumatic vise chucks



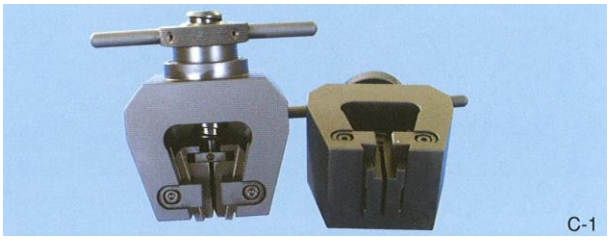






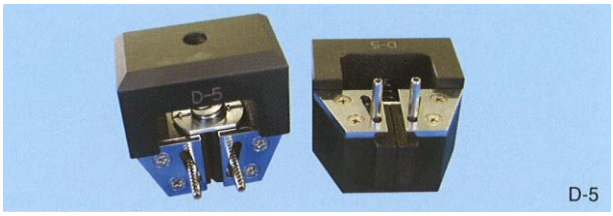
Model	Maximum force capacity	Clearance	Jaw face W x H	Jaw face surface
B-1	10kN	16mm	50 x 50mm	● Serrated
B-2	5kN	16mm	50 x 50mm	
B-3	1kN	8+8mm	50 x 40mm	● Serrated ● Rubber-coated (To be selected upon order)
B-4	500N	3mm	25 x 25mm	
B-5	50N	2.5+2.5mm	20 x 20mm	
B-6	20N	3+3mm	18 x 18mm	
B-7	20kN	2+5mm	50 x 50mm	● Serrated
B-8	10kN	2+5mm	50 x 50mm	
B-9	5kN	5+5mm	60 x 50mm	
B-10	2kN	5+5mm	50 x 50mm	
B-11	5kN	10mm	40 x 30mm	
B-12	1kN	10mm	30 x 24mm	● Serrated ● Rubber-coated (To be selected upon order)
B-13	500N	10mm	30 x 20mm	
B-15	2kN	10mm	30 x 24mm	● Serrated
B-16	100N	3+5mm	25 x 25mm	● Serrated ● Rubber-coated (To be selected upon order)
B-17	100N	8mm	25 x 20mm	
BD-10K	10kN	8mm	40 x 40mm	● Serrated
BD-20K	20kN	8mm	50 x 50mm	

Wedge chucks (Fixed position type)



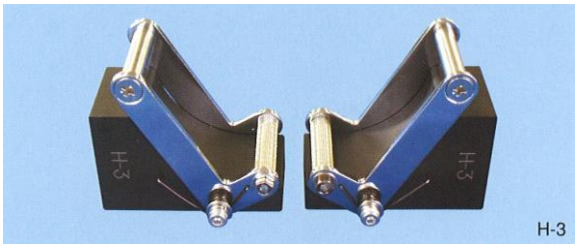
Model	Maximum force capacity	Clearance	Jaw face W x H	Jaw face surface
C-0	50kN	6.5mm	40 x 42mm	● Serrated
C-1	20kN	7.5mm	32 x 45mm	
C-2	10kN	7.5mm	26 x 35mm	
C-3	5kN	7.5mm	26 x 30mm	
C-4	1kN	7.5mm	26 x 30mm	

Wedge chucks (Spring clamp type)



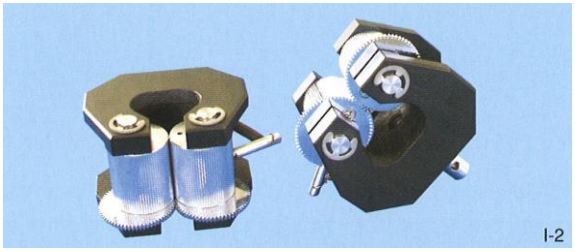
Model	System	Maximum force capacity	Clearance	Jaw face W x H	Jaw face surface
D-1	Lever guide	20kN	6.5mm	60 x 60mm	● Serrated
D-2	Lever guide	10kN	4.5mm	50 x 40mm	
D-3	Lever guide	5kN	4.5mm	50 x 40mm	
D-4	Lever guide	1kN	4.5mm	30 x 25mm	
D-5	Pin guide	5kN	5.0mm	26 x 30mm	
D-6	Pin guide	2kN	5.0mm	26 x 30mm	
D-7	Pin guide	1kN	5.0mm	10 x 30mm	
D-8	Pin guide	300N	5.0mm	10 x 30mm	

Dumbbell chucks



Model	Maximum force capacity	Clearance	Width	Roll diameter	Roll Surface
H-1	3kN	4mm	35mm	Ø8mm	Smooth
H-2	500N				
H-3	3kN				Knurling
H-4	500N				

Eccentric chucks

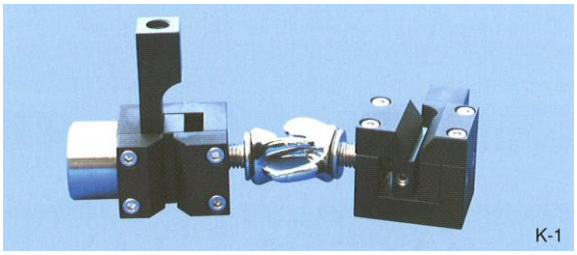


Model	Maximum force capacity	Clearance	Width	Jaw face surface
I-1	3kN	6mm	26mm	Knurling
I-2	1kN			

Wide range box chucks

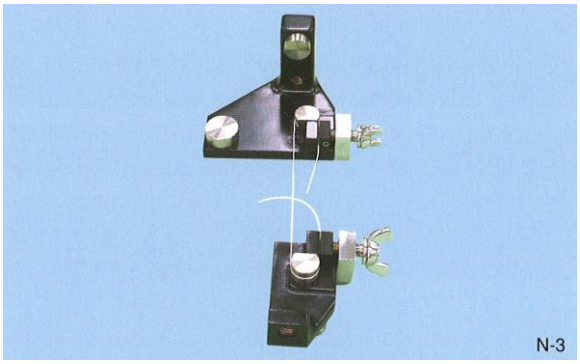
Model	Maximum force capacity	Clearance	Jaw face W x H	Surface
J-1	5kN	6mm	50 x 30mm	● Smooth ● Rubber-coated ● Serrated (To be selected upon order)
J-2	500N		50 x 30mm	
J-3	100N		50 x 20mm	

Box chucks



Model	Maximum force capacity	Clearance	Jaw face W x H	Jaw face surface
K-1	500N	3mm	16 x 30mm	● Smooth ● Rubber-coated (To be selected upon order)
K-2	200N			

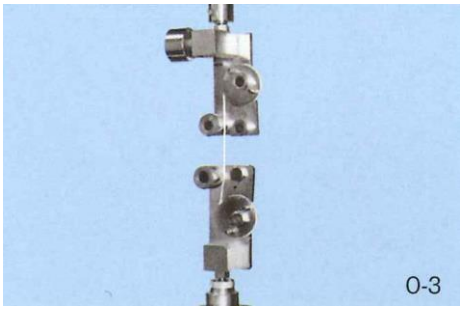
Cord chucks



Pneumatic clamp model

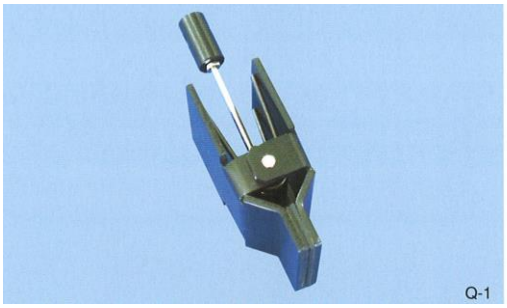
Model	Maximum force capacity	Clearance	Clamp system
N-1	2kN	4mm	Manual
N-2	1kN	3mm	
N-3	300N	3mm	
N-4	1kN	3mm	Pneumatic
N-5	2kN	2mm	
N-6	5kN	3mm	

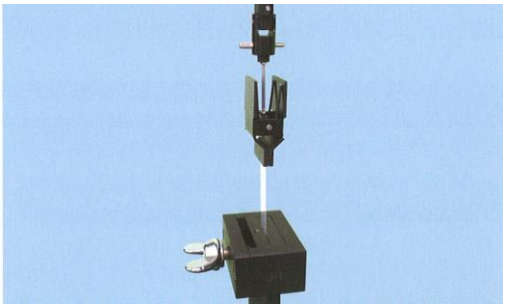
Rope chucks



Model	Maximum force capacity	Width
O-1	5kN	25mm
O-2	2kN	25mm
O-3	2kN	8mm

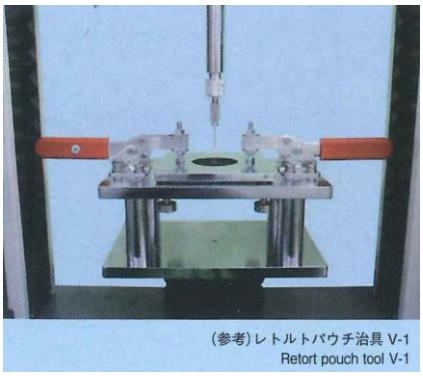
Snap chuck





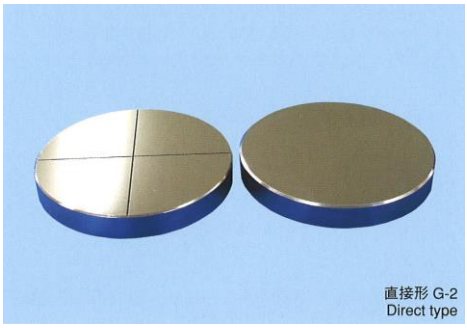
Model	Maximum capacity	Clearance	Jaw face W x H	Surface
Q-1	10N	1mm	32 x 10mm	Rubber-coated

Puncture fixtures



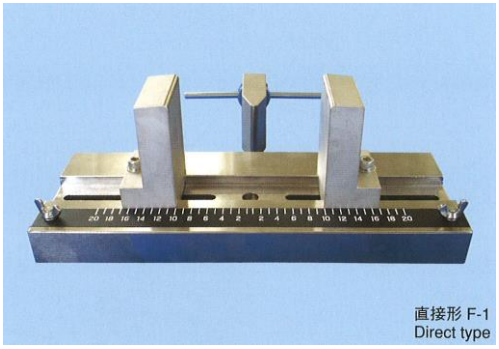
Model	System	Test standard	Hole diameter	Indenter
T-1	Bursting	ASTM	Ø44.45mm	R6.35mm, R12.7mm
T-2	Pierce		Ø44.45mm	Trigonal pyramid tip
V-1	Retort pouch	JAS	Ø50.8mm	Ø1, Tip R0.5

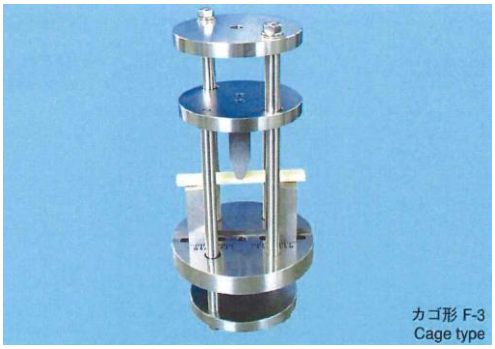
Compression tools (Compression platens)



Model	Maximum capacity	Diameter	System
G-1	20kN	Ø150mm	Direct type
G-2	10kN	Ø100mm	
G-3	5kN	Ø100mm	
G-4	20kN	Ø150mm	Direct type with ball tip
G-5	10kN	Ø100mm	
G-6	5kN	Ø100mm	
G-7	20kN	Ø140mm	Cage type
G-8	10kN	Ø120mm	
G-9	5kN	Ø100mm	
G-10	10kN	Ø100mm	JIS K 7181

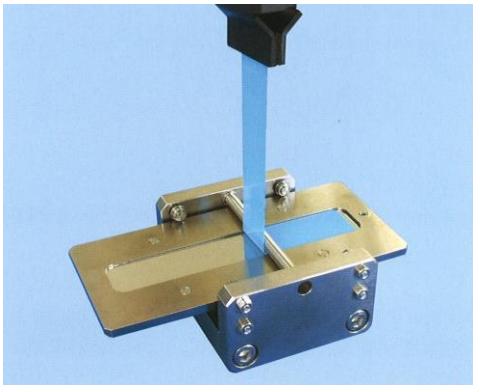
Bending tools (3-point bend fixtures)





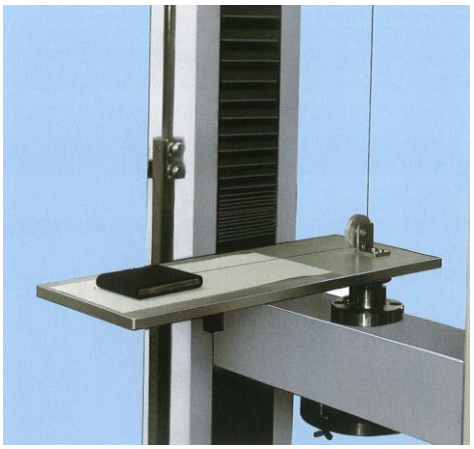
Model	Maximum capacity	Test standards	Loading edge (Upper)	Supports (Lower)	Supports span	System
F-0	5kN	ISO178/ JIS K7171	R5mm	R5mm	20 to 200mm	Direct type
F-1				R2mm	20 to 200mm	
F-2		ASTM D790	R3.2mm	R3.2mm	20 to 200mm	
F-3		ISO178/ JIS K7171	R5mm	R5mm	30 to 100mm	Cage type
F-4		ASTM D790	R3.2mm	R3.2mm	30 to 100mm	
F-5	500N	ISO178/ JIS K7171	R5mm	R5mm	20 to 80mm	
F-6		ASTM D790	R3.2mm	R3.2mm	20 to 80mm	

90° peeling tools (Adhesive tape peel test fixtures)



Model	Maximum capacity	Size of base material	Exfoliation Width
R-1	50N	25 x 109mm	19mm
R-2	30N	35 x 109mm	29mm

Slide test tools (Coefficient of friction fixtures)



Model	Test Standards	Table size	Sled dimensions	Sled contact face	Sled weight	Spring	Sliding speed
S-1	ASTM	160 x 380mm	63.5 x 63.5mm	Sponge	200g	N/A	150mm/min
S-2	J.TAPPI	200 x 450mm	60 x 100mm	Metal	1000g	N/A	10mm/min
S-3	JIS/ISO	160 x 380mm	63 x 63mm	Felt	200g	Use for static friction	100mm/min

Specifications are subject to change without notice.

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