

AIKOH

ENGINEERING

GENERAL CATALOG

Vol.18.14

Manufacturer

AIKOH ENGINEERING CO.,LTD.

URL <http://www.aikoh.co.jp/>

TOKYO 14-1, 5-Chome, ND bldg.,7F, Ueno, Taito-ku, Tokyo
TEL (03)5807-6434 FAX (03)3834-2098
NAGOYA 210, 2-Chome, Sakuta, Nagakute city, Aichi
TEL (0561)64-2331 FAX (0561)64-2332
OSAKA 15-7, 2-Chome, Hishie, Higashi-Osaka city, Osaka
TEL (072)966-9011 FAX (072)966-9017



No.4420-ISO 9001
No.E2203-ISO 14001

Overseas sales dept.

Osaka office
15-7, 2-Chome, Hishie, Higashi-Osaka city, Osaka
TEL (072)966-9011 FAX (072)966-9017

Pursuing Higher Reliability and Uniformity from Customers' Standpoint

No matter how the times change, wish for safety and security remains unchanged and concerns about quality keep growing.

In the industrial world where Internet has been spreading, production bases located in various places in the world and manufacturing activities diversified and fragmented, Aikoh Engineering, since its foundation, has committed itself to "quality" through measurement of load for more than 40 years. We have offered various services including physical property-to-environment composite tests and physical property-to-electrical characteristics composite tests as well as individual tests of tension, compression and rotation.

All of the members at Aikoh are determined to be of assistance to enhancement of the reliability of products of our dear customers through our experience and know-how accumulated over a long period of time.

We would like to ask for your continued business and support in the future.

Executive President
Kazuya Yoshioka

Product Lineup

- Screen display type force measuring instruments
- Torque - angle measuring instruments
- Automatic force - displacement measuring instruments
- Various testers for durability evaluation
- Handy force measuring instruments
- Various load cells
- Various assembling jigs
- Design of measurement software
- Spring testers

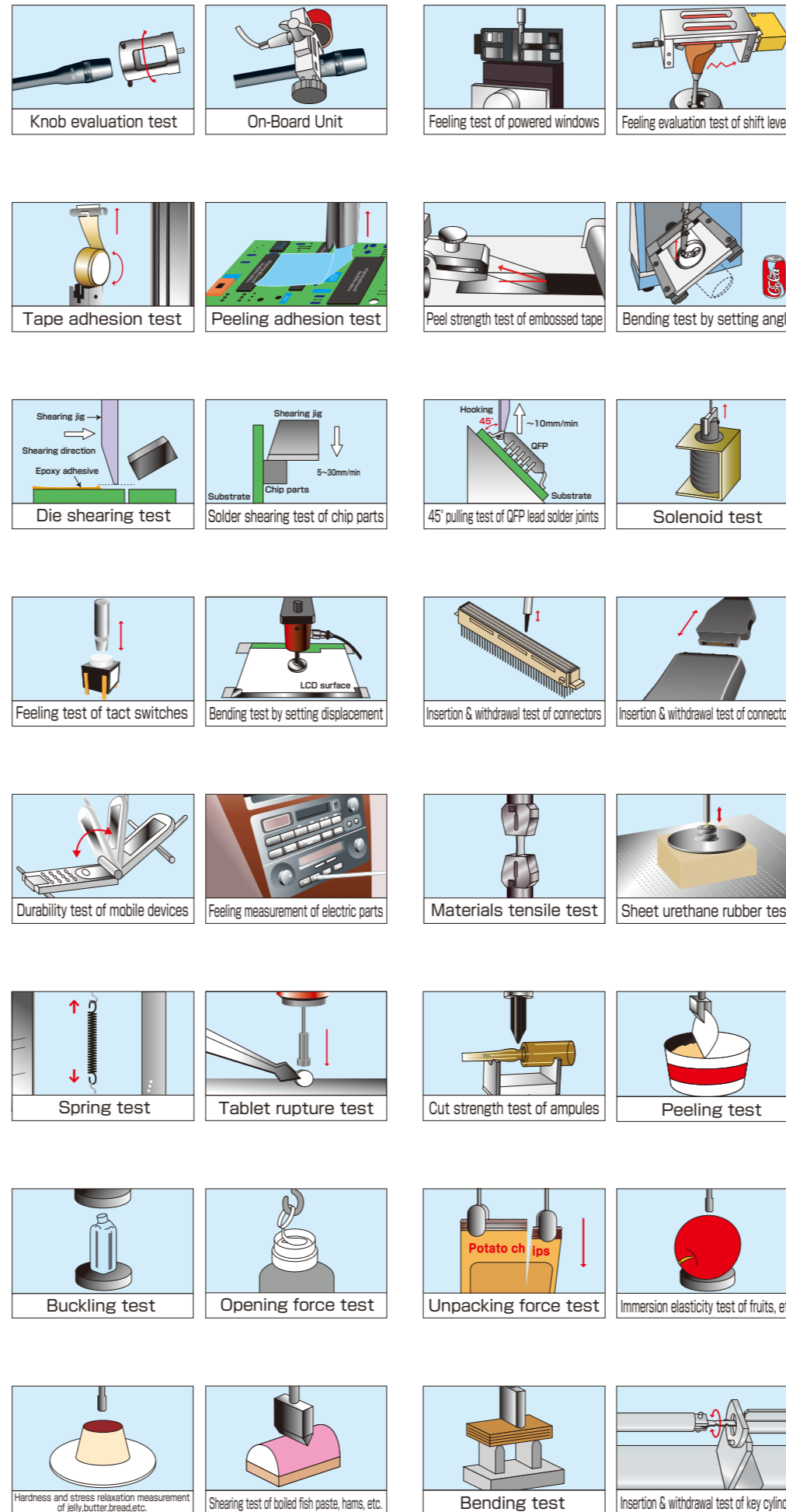


Table of Contents

Handy series force measuring instruments	Various digital force gages	P.3 ~ P.5
	Portable torque gages	
	Switch feeling instruments	
	Bench type simple tester MODEL-1309RZ	P.6
	Test stand (Vertical & Horizontal)	P.7, P.8
Measuring amplifier	MODEL-1016C	P.9, P.10
Small size desk top force tester	MODEL-1305VC	P.11
Precision force tester	MODEL-1605VC MODEL-1605VCL	P.12
Desk top type force tester	FTN1-13A	P.13
Precision force testers	MODEL-1310VC/VCW MODEL-1311VC/VCW	P.14
Large size precision force testers	MODEL-1840VC Series MODEL-1840VCT Series	P.15, P.16
Large size desk top type force testers	MODEL-1320 Series	P.17
Large size force testers	MODEL-1431VC Series	P.18
Switch feeling testers	GT-FL500 MODEL-1616W	P.19
Horizontal type force tester	MODEL-2152VCE MODEL-2252RDH	P.20
Small size separation evaluation tester	MODEL-1308UH	P.21
Embossed carrier tape separation tester	MODEL-2165P	P.21
Adhesion tester	FTN4-15A	P.22
Touch panel type spring testers	SHR III Series	P.23, P.24
Torque angle testers	MODEL-5125VC/VCW MODEL-5125VCT	P.25
	MODEL-5401VC-50/200	P.26
Large size torque angle testers	MODEL-5127VC/500 ~ 5000	P.26
JIS-rated lead free solder testers	MODEL-1605VC/NF MODEL-1308U/NF	P.27
Custom order products	Comprehensive syringe needle force measuring tester Power cable bending durability tester Switch & silicone rubber durability tester	P.28
Grips & Jigs	Chucks Grips Vises X-Y tables	P.29, P.30
Indicators	MODEL-0218B MODEL-0215T	P.31
Load cells	Various load cells	P.32
Standard softwares	FS-700, FSN-500, RZ-3000, FL-2005	P.33, P.34

RZ Series Digital Force Gages



The RZ Series digital force gages are newly developed user-friendly gages that have significantly improved the operability of conventional push-pull gages while keeping their functions.

They come with such convenient functions as data output by use of a newly adopted USB and charging and they also feature quick and easy operations such as changing sampling rates, changing over between three units, printer output and display reversing.

Their shape and buttons conventional concept.

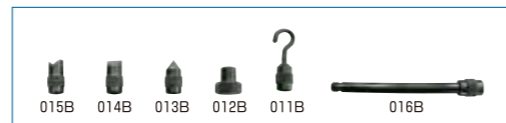
RZ Series Model List

Model	RZ-1	RZ-2	RZ-5	RZ-10	RZ-20	RZ-50	RZ-100
Rated capacity (R.C.)	10N (1Kgf)	20N (2Kgf)	50N (5Kgf)	100N (10Kgf)	200N (20Kgf)	500N (50Kgf)	1000N (100Kgf)
Indication range	0.001-10.000N (0.1gf-1.000Kgf)	0.01-20.00N (1gf-2.000Kgf)	0.01-50.00N (1gf-5.000Kgf)	0.01-100.00N (1gf-10.000Kgf)	0.1-200.0N (10gf-20.00Kgf)	0.1-500.0N (10gf-50.00Kgf)	0.1-1000.0N (10gf-100.00Kgf)
Min. indication unit	0.001N (0.1gf)	0.01N (1gf)		0.1N (10gf)			

RZ Series Optional Cables

I/O cable	RZ-OP-1	Please purchase the optional cable RZ-OP-1 when you need only the stand control function. Please purchase the optional cable RZ-OP-2 when you need the analog output and comparator output in addition to the stand control function.
I/O cable	RZ-OP-2	
MITUTOYO-made DP-1VR printer cable	RZ-OP-3	
SANEI ELECTRIC-made line thermal printer cable	RZ-OP-4	

RZ Series Standard Accessories



RZ Series Standard Specifications

Unit of measurement	N or (gf) Kgf, N, lb selectable
Accuracy	Within ±0.2% of rated capacity
Allowable overload	120% of rated capacity (Overload alarm at about 110%)
Measurement system	Track mode/Peak hold mode/ Compression-tension peak hold mode selectable
Indication update cycle	1, 2, 5, 10, 20 times/sec. selectable
Sampling cycle	1ms, 5ms, 16ms, 50ms, 125ms, 250ms selectable
Working temperature range	0 to +40°C
Guaranteed temperature range	+5 to +40°C
Continuous working hours	30 hours after full charge
Power supply	Dedicated nickel-metal hydride AAA battery x3 Dedicated AC adaptor: MODEL-780 (DC5V/1000mA) Dedicated USB cable: MODEL-RZ-USB
External dimensions	W68xD40xH232mm
Mass	Approx. 375gs



MODEL-2256 (Vertical type)



MODEL-2257 (Horizontal type)

RZ-T Series Portable Torque Gages



The portable torque gages RZ-T Series are especially designed for static measurements such as screw retightening and returning torque, breakage torque due to twisting, etc. With a large and easy-to-see display, simultaneous reading of clockwise and counterclockwise torque, NO-GO-NO judgment function and residual battery capacity display function, the RZ-T Series are state-of-the-art multi-function torque gages. The bit or jig at the top is changed according to the measurement requirements. Measured data may be stored in the memory or output to a connected printer. Two measurement units are available: mN · m and Kg · cm.

RZ-T Series Standard Specifications

Model	RZ-T-20	RZ-T-100
Max. force	2000mN · m (20kgf · cm)	10N · m (100kgf · cm)
Min. display unit	1mN · m (0.01kgf · cm)	0.001N · m (0.01kgf · cm)
Unit of measurement	mN · m, kgf · cm	N · m, kgf · cm
Accuracy	±1%	
Sampling cycle	1 ms, 5 ms, 16 ms, 50 ms, 125 ms and 250 ms selectable	
Display update interval	1, 2, 5, 10, 20 times/sec. selectable	
Display	LCD, signed, 5 digits	
Output	USB output Analog voltage ±2V/F.S. Printer output Motorized stand control External contact hold	
Continuous use time	30 hours after full charge	
Power supply	Nickel-metal hydride battery AC adapter Model 780	
Mass	Approx. 375g	
Standard accessories	Display: RZ-S, Torque meter, Standard attachment, AC adapter MODEL-780	
Options	Software RZ-3000, I/O cable RZ-OP-1, I/O cable RZ-OP-2, Mitutoyo DP-1VR printer cable RZ-OP-3, Sanei Electric line thermal printer cable RZ-OP-4	

RZ-S-8000 Series Separate Type Digital Force Gages



A handy type digital force gage with a measuring part and display part separated. The separate construction poses little restriction on measuring places to select.

RZ-S-8000 Series Standard Accessories



RZ-S-8000 Series Standard Specifications

Model	RZ-S-8001	RZ-S-8002	RZ-S-8005	RZ-S-8010	RZ-S-8020	RZ-S-8050	RZ-S-8100
Rated capacity	10N (1Kgf)	20N (2Kgf)	50N (5Kgf)	100N (10Kgf)	200N (20Kgf)	500N (50Kgf)	1000N (1Kgf)
Min. display unit	0.001N (0.1gf)	0.01N (1gf)		0.1N (10gf)			
Unit of measurement	N or (gf) Kgf, N, lb selectable						
Accuracy	±0.2%F.S.						
Sampling cycle	1 ms, 5 ms, 16 ms, 50 ms, 125 ms and 250 ms selectable						
Display update interval	1, 2, 5, 10, 20 times/sec. selectable						
Output	USB output, Analog voltage ±2V/F.S., Printer output, Motorized stand control, External connection hold						
Usable time	30 hours after full charge						
Power supply	Nickel-metal hydride battery, AC adapter MODEL-780 (AC100-240V)						
Mass	Approx. 375g (Main unit only)						
Standard accessories	Display RZ-S, Load cell MODEL-S8000 series with cell cable (3 m), Standard attachment, AC adapter MODEL-780(USB cable : includes MODEL-RZ-USB)						
Options	Software RZ-3000, I/O cable RZ-OP-1, I/O cable RZ-OP-2, Mitutoyo DP-1VR printer cable RZ-OP-3 Sanei Electric line thermal printer cable RZ-OP-4, Printer BL2-58SNWJC, jig/fixture, test stand RZ-OP-1 : For Stand control function only RZ-OP-2 : For Stand control function, Analog output and Comparator output						

SX Series Digital Force Gages



This is a force gauge with the functions required for a handy-type test equipment. Operation is easy for simultaneous display of the compression and tensile force values. External inputs allow easy printout. (A printer is optional.)

The AC adaptor exclusive for the SX is applicable to 100-240V with simple plug replacement allows uses in a wide area.

SX Series Model List

Model	SX-2	SX-5	SX-20	SX-50
Max. force	20N (2Kgf)	50N (5Kgf)	200N (20Kgf)	500N (50Kgf)
Min. display unit	0.01N/0.001Kgf/1gf		0.1N/0.01Kgf	

Caution) The min. display unit is not accuracy.

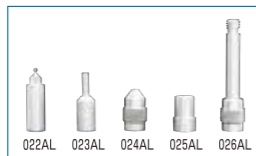
MODEL-RX-FL-1・RX-FL-2



※The manual stand MODEL-1338 is optional.

RX-FL Series Optional Cables

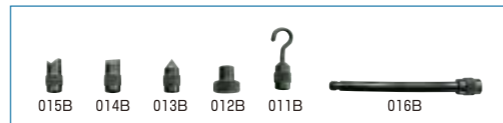
Analog output cable	RX-OP-1
RS232C interface cable	RX-OP-2
MITUTOYO printer cable	RX-OP-3
External control cable	RX-OP-5



SX Series Standard Specifications

Measurement unit	N, Kgf (gf), Lbf selectable
Measurement item	Track/Peak/+Peak/-Peak
Accuracy	±0.2% F.S.
Sampling frequency	20, 62, 200 & 800 times/sec. selectable
Display update interval	1, 2.5, 10 & 20 times/sec. selectable
Display	LCD, Signed 5-digits, 40 x 40mm
Functions	External printer input, external contact hold input, external zero-reset input, overload output, thermal printer BL2-58 printer output, reset after printing (ON/OFF), automatic power off (ON/OFF), automatic zero reset (ON/OFF), both compression peak and tensile peak display
Standard accessories	6 attachments, exclusive AC adaptor (100 to 240VAC) and exclusive carrying case
Options	Thermal printer BL2-58 & cables
Applicable temperature range	0 to 50°C
Weight	Approx. 360g
Power supply	Three exclusive AAA nickel hydrogen cells, AC adaptor MODEL-770 (5VDC, 1200mA)

SX Series Standard Accessories



SX Series Optional Cables

Over load cable	SX-OP-1
Printer & External input cables	SX-OP-2

The RX-FL Series measures the peak values, bottom values, click ratios, click values, etc. of silicone rubber and dome switches in a single sequence of operation. It has a large screen and stores measured data in memory, which may be printed out or output to a PC after measurement.

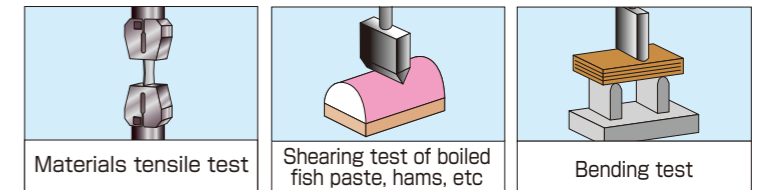
RX-FL Series Standard Specifications

Model	RX-FL-1	RX-FL-2
Measurement range	10N (1Kgf)	20N (2Kgf)
Min. display unit	0.001N (0.1gf)	0.01N (1gf)
Unit of Measurement	N, Kgf, Lbf selectable	
Measurement item	Peak value, Bottom value, Click value & Click ratio	
Accuracy	±0.2%F.S.	
Sampling frequency	5ms (100Hz)	
Display	6-digits LCD, 44 x 44mm	
A/D converter	16-bit, 100kHz	
CPU in use	16-bit, single-chip CPU	
Analog output	±2V/F.S.	
Communication output	RS232C, 38400bps	
Printer output	SANEI thermal printer, MITUTOYO DIGIMATIC output	
GO-NG judgment	Lamp indication & output	
Stand connection output	Overload, zero reset & external input display hold contact	
Continuous run time	Approx. 12hours	
Applicable temperature range	0 to 40°C	
Weight	Approx. 450g	
Power supply	NiCd & AC adaptor MODEL-761 (100VAC) or MODEL-762 (200-240VAC)	

Bench Type Simple Tester

MODEL-1309RZ

Capacity: 1000N (100 kgf)
Force - Displacement



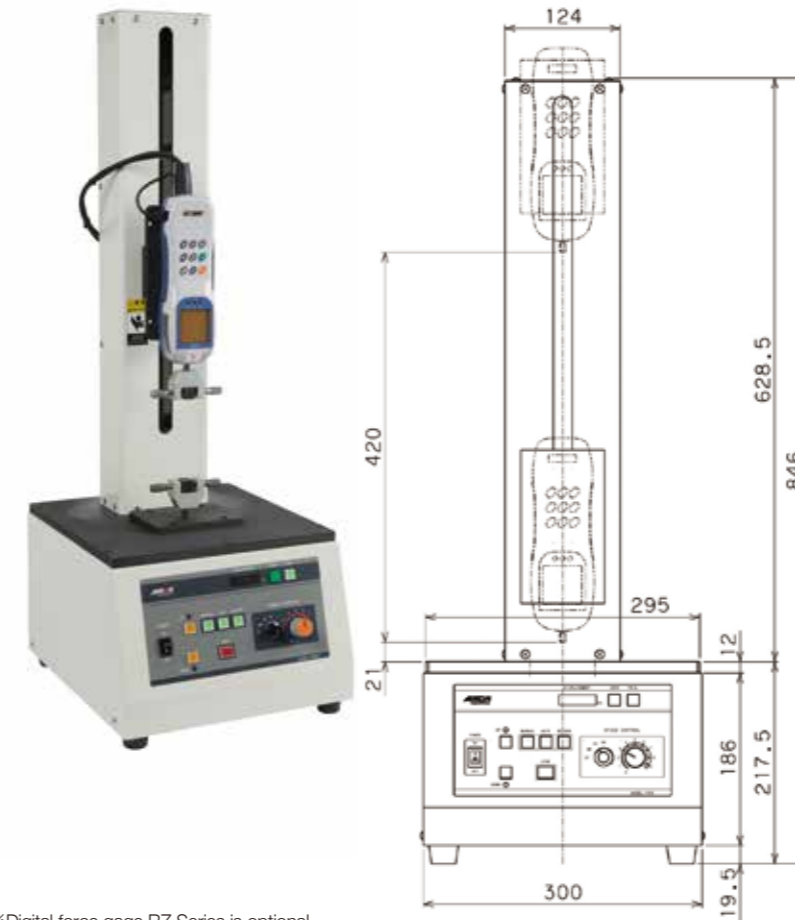
A small stand for force-displacement measurement dedicated to RZ Series. With a displacement resolution of 0.1mm, this stand is suitable for long-stroke tensile/compression tests. A force-displacement FS curve can be drawn on a PC screen by the dedicated software for effective data management.

Standard Specifications

Max. force	1000N (100Kgf)
Force display	Depending on RZ Series
Test speed	10 to 300 mm/min.
Speed changing	LO: 10mm/min. MD: 100mm/min. HI: 200mm/min. Intended setting is available. VR: 10 to 300mm/min.
Stroke	400mm
Displacement display (Resolution)	0.1mm
Displacement display (Max. display)	±400mm
Table size	295 x 175mm
Weight	Approx. 35Kg
Size	W300 x H850 x D340mm
Power supply	100 to 120VAC/200 to 240VAC

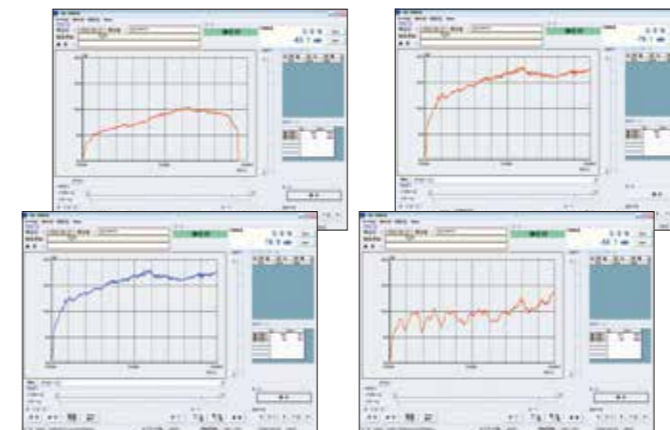
Standard Configuration

Tester: MODEL-1309RZ
Application software for MODEL-1309RZ: RZ-3009
Cable for connecting RZ Series: RZ-OP-8 USB cable



※Digital force gage RZ Series is optional.

Dedicated application software RZ-3009



※This software is compatible with Windows 7 or 8 & Japanese or English OS.

Major functions

Item	Description	
Data acquisition	Real time force/displacement acquisition, graph drawing	
	Data save/batch save	Dedicated format/CSV format
Data file processing	Data load/batch load	Dedicated format
Graph overlap display	Number of registration	100
	Graph cut sheet print	Cut sheet horizontal: 1graph Cut sheet vertical: 2graphs Cut sheet horizontal: 4graphs Cut sheet vertical: 8graphs
Printing	Graph continuous print	Cut sheet horizontal: 1graph Cut sheet vertical: 2graphs Cut sheet horizontal: 4graphs Cut sheet vertical: 8graphs
	Pick up registered data	Pick up registered data
Pick up registered data	Number of registration	100/measurement
Measurement list display	Representative value detection	Force max./min./average
	All measurements processing	Force max./min./average
Graph data list display	Time/displacement/force data values	
Stand control	Stand start/stop during test	
USB serial conversion	I-O DATA: RSAQ6 (Recommended/option)	

Desk-top type Testers

MODEL-1308U



※Digital force gage is optional.

Option
Grip mounting plate
MODEL-OJ-P-90
(Needed when using
the tensile test jig.)

A long-stroke automatic test stand dedicated to RZ Series & SX Series. This is a reasonable test stand that is suitable for tests of specimens of large size and long test stroke. When used together with RZ Series or SX Series, such operations are possible as overload monitoring and automatic stop and reversing when the load set in RZ Series or SX Series is reached. For combining this stand with RZ Series or SX Series, please use an optionally available RZ-OP-1/RZ-OP-2 for RZ Series or SX-OP-1 for SX Series.

Standard Specifications

Max. force	1000N (100 kgf)
Test speed	5 to 100 mm/min., variable
Speed changing	Continuous
Stroke	400 mm
Displacement display	None
Distance between test center & column	60 mm
Table size	W250 x D140 mm
Sample table size	W120 x D90 mm, center: M6
Drive motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide system	Linear ball bush
Weight	Approx.20 kg
Size	W255 x H810 x D300 mm
Power supply	100 to 240 VAC, single-phase, 0.5 A



※Digital force gage is optional.

MODEL-1349

The MODEL-1349 is a lever type Stand exclusively designed for compression tests. The gage mounting unit is moved down with the lever.

Standard Specifications

Max. force	500 N (50 kgf)
Stroke	43mm/140 degrees
Table size	180 x 100 mm
Max. span	210 mm
Weight	Approx.9kg
Size	W200 x H435 x D235 mm



※Digital force gage is optional.

MODEL-1345

The MODEL-1345 is a manual test stand. The gage mounting head is moved up and down by rotating the handle.

Standard Specifications

Max. force	500 N (50 kgf)
Stroke	43mm (1.75 mm/rotation)
Table size	180 x 100 mm
Max. span	210 mm
Weight	Approx.9kg
Size	W200 x H435 x D235 mm

MODEL-2252R



※Digital force gage is optional.

The MODEL-2252R employs a motor-driven gage mount, which moves to the right and left. Zstage may be adjusted vertically. The work mount table has slotted holes for adjusting the jig position back and forth.

Standard Specifications

Max. force	500 N (50 kgf)
Test speed	10 to 80 mm/min.
Speed changing	In five steps or continuous
Stroke	150 mm
Displacement display	None
Z stage stroke	Adjustable with 40 mm
Distance between test center & Z-axis plane	39 to 79 mm
Table size	W100 x D100 mm
Driving mechanism	Trapezoidal screw
Drive motor	DC brushless motor
Weight	Approx.23 kg
Size	W518 x H228 x D345 mm
Power supply	100 to 240 VAC, single-phase, 0.5 A

Wire Harness Withdrawal Force Tester

MODEL-2254



※Digital force gage is optional.

The MODEL-2254 is a manual test stand for measuring the caulking strength of wire harnesses and so forth. The work mounting head is moved with a lever. Using the AIKOH RZ Series digital gages provides various functions, including data printing and storage in personal computers. The RZ Series digital gages are optional. The MODEL-2254 is supplied with a set of gages jigs.

Standard Specifications

Max. force	500 N (50 kgf)
Stroke	70mm
Chuck width	0 to 10 mm
Weight	Approx.15kg
Size	W525 x H150 x D200 mm

Vertical & Horizontal Manual Stand

MODEL-2256



※Digital force gage is optional.

Option
Grip mounting plate
MODEL-OJ-P-90
(Needed when using
the tensile test jig.)

A vertical and horizontal manual handle type small stand dedicated to RZ Series and SX Series. Capable of measurement up to 500N. The gage mounting part can be moved by turning the handle.

Standard Specifications

Max. force	500 N (50 kgf)
Moving distance	3 mm/handle rotation
Stroke	240 mm
Weight (Vertical)	Approx.16kg
(Horizontal)	Approx.12kg
Size	W200 x H500 x D150 mm (including handle)

Vertical & Horizontal Motorized Stand

MODEL-2257



※Digital force gage is optional.

Option
Grip mounting plate
MODEL-OJ-P-90
(Needed when using
the tensile test jig.)

A vertical and horizontal small automatic stand dedicated to RZ Series and SX Series. This is a reasonable test stand that is suitable for tests of specimens of small size and short test stroke. When used together with RZ Series or SX Series, such operations are possible as overload monitoring and automatic stop and reversing when the load set in RZ Series or SX Series is reached. For combining this stand with RZ Series or SX Series, please use an optionally available RZ-OP-1/RZ-OP-2 for RZ Series or SX-OP-1 for SX Series.

Standard Specifications (vertical type)

Max. force	500 N (50 kgf)
Test speed	10 to 200 mm/min.
Speed changing	Continuous
Stroke	150 mm
Displacement display	None
Distance between test center & column	49 mm
Table size	W200 x D120 mm
Drive motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide system	Sliding contact
Weight	Approx.20 kg
Size	W215 x H380 x D235 mm
Power source	100 to 240 VAC, single-phase, 0.5 A

Waveform Display V Series Force Measuring Amplifier

MODEL-1016C



The MODEL-1016C is a digital force measuring amplifier with an LCD touch panel. Various measuring conditions are set by touching the LCD panel. The MODEL-1016C has four-quadrant operations necessary for reciprocal measurement without the need of any CF cards, in principle. It features remarkably improved graph processing speed and as high communication rate as 230.4 kbps. This amplifier stores all measured data digitally and allows the user to reproduce data displayed on the screen as many times as needed during measurement and after measurement. It requires, however, an exclusive CF card for switch feeling tests, separation tests and creep tests.

Features

- LCD touch panel
- Capable of force - displacement measurement and torque - angle measurement.
- Offers four-quadrant operations necessary for reciprocal measurement.
- Features as high communication rate as 230.4 kbps.
- Able to calibrate the loads of a maximum of ten load cells.
- Able to read the force and displacement at any points with the cursor.
- Able to change the scales of the force and displacement graphs during measurement.
- Compact size for space saving
- Save the data to the CF card. (.CSV)

CF Card Types

- **V-103A**
For switch feeling tests
Capable of setting the point - displacement test conditions, masking function and end stroke.
- **V-108A**
For separation tests
- **V-115A**
Force holding creep tests
Force - displacement, and force - time

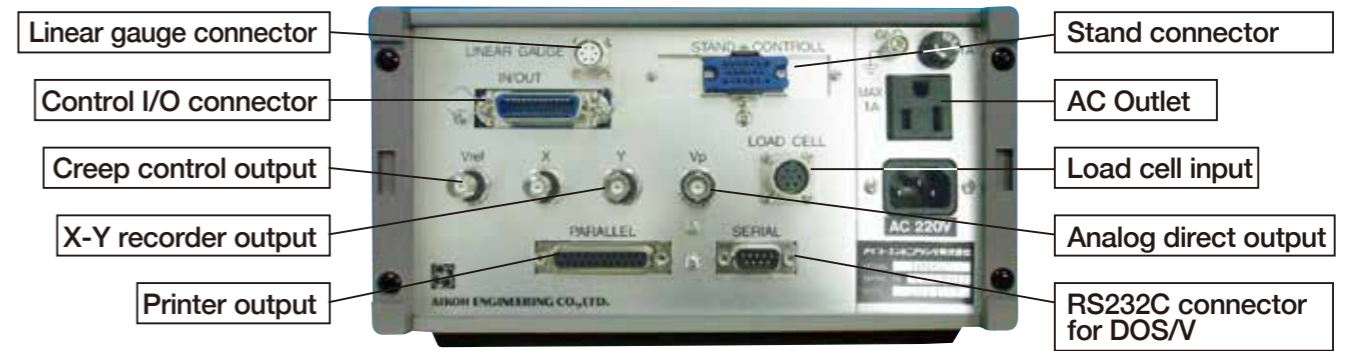
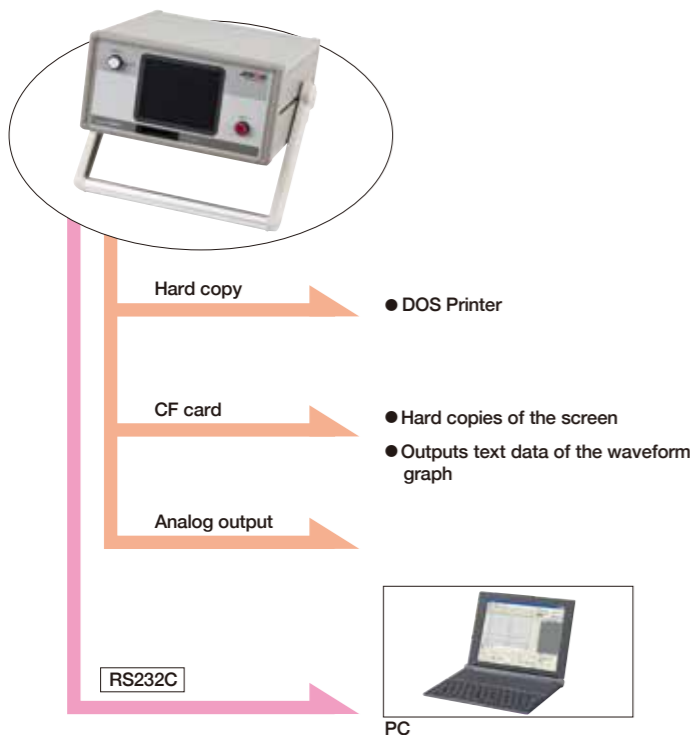
Load Cells & Force Display

Capacity	Display	Min. unit
5N (500g)	±5000mN	1mN
20N (2kg)	±20.00N	0.01N
50N (5kg)	±50.00N	0.01N
200N (20kg)	±200.0N	0.1N
500N (50kg)	±500.0N	0.1N
2KN (200kg)	±2.000KN	1N
5KN (500kg)	±5.000KN	1N
10KN (1ton)	±10.00KN	0.01 KN
20KN (2ton)	±20.00KN	0.01KN
50KN (5ton)	±50.00KN	0.01 KN
100KN (10ton)	± 100.0KN	0.1KN

Torque Meters & Torque Display

Capacity	Display	Min.unit
0.2N·m (2kgf·cm)	200.0mN·m	0.1mN·m
0.5N·m (5kgf·cm)	500.0mN·m	0.1mN·m
2N·m (20kgf·cm)	2.000N·m	0.001N·m
5N·m (50kgf·cm)	5.000N·m	0.001N·m
20N·m (200kgf·cm)	20.00N·m	0.01N·m
50N·m (500kgf·cm)	50.00N·m	0.01N·m
200N·m (20kgf·m)	200.0N·m	0.1N·m
500N·m (50kgf·m)	500.0N·m	0.1N·m

Connection with PC & Recorders



Specifications of MODEL-1016C

Names	Performances & Specs.
Load cell input	Input channel: 1 Calibration points: 10
Load cell amplifier	Load cell application voltage: 12/6/3 Vdc (110 mA max., 350Ωx 3) Voltage variation: 100 ppm/°C max. Input voltage range: BV = 12V, 0.1 mV/V to 2 mV/V BV = 6V, 0.2 mV/V to 4 mV/V BV = 3V, 0.4 mV/V to 8 mV/V Accuracy non-linearity: 0.01 % max. Zero point movement: 1 μV/°C RTI max. Gain variation: 100 ppm/°C max. Low-pass filter frequency: 1, 3, 10, 30, 100, 300, 1k
A/D converter	Resolution: 16 bits, sequential proportional type Sampling frequency: 1000 times/sec. (1 ms)
Length measurement counter for rotary encoder & linear gauge	Phase A/B up/down counter x 2 channels Resolution: 24 bits
Proportional voltage output (Vp)	±10V, load resistance: 10kΩ or more Output for monitoring load cell conditions
Voltage output for recorder(X,Y)	±10V, load resistance: 10kΩ or more x 2 channels (X- & Y-axes) D/A converter Resolution: 12 bits Updating frequency: 1000 times/sec. (1ms)
Control voltage output (Vref)	±10V, load resistance: 10kΩ or more D/A converter Resolution: 12 bits
Control contact I/O	Inputs: 8 Outputs: 8 (relay contacts)
Stand control output	STOP, UP, DOWN & QUICK
Digital I/O	Centronics-compatible parallel port for connecting a printer Start-stop synchronous serial port for connecting a PC Baud rate: 4.8 k, 9.6 k, 19.2 k, 38.4 k, 115.2 k, & 230.4 k (bps)
Display	STN type black-and-white LCD panel, 320 dots x 240 dots Effective display area: 96 x 72 mm
Operation panel	10 X 6 touch panel
Source voltage	100 VAC ±10 % / 220 VAC ±10 % AC outlet (unswitched)
Power consumption	30 VA
Outside dimensions	W260 x H132.5 x D280 mm
Weight	Approx.5.2kg

CF card for Storing Important Data

- V-103A**
For switch feeling tests
- V-108A**
For separation tests
- V-115A**
For force holding creep tests



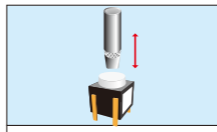
Small Size Desk Top Force Tester

MODEL-1305VC

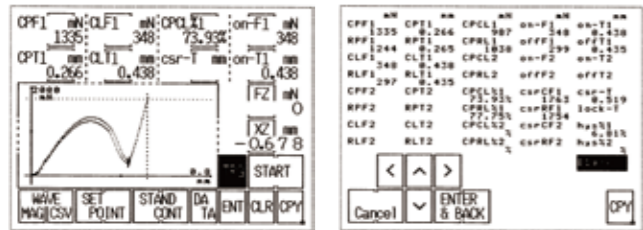
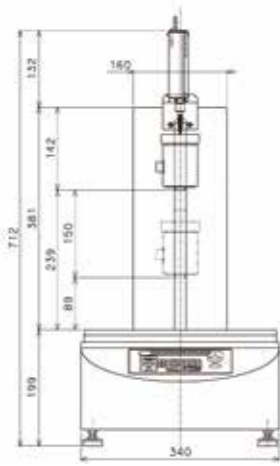
Capacity: 200 N (20 kgf)
Force - Displacement



Touch panel load measurement



Tact switch feeling test



Standard Specifications

Max. force	200N(20kgf)
Test speed	2 to 60mm/min.
Speed changing	In five steps or continuous
Stroke	150mm
Displacement display	Provided
Detector	Linear gauge
Display resolution	0.001mm
Display accuracy	0.05mm
Max. display value	30.000mm
Distance between test center & column	77mm
Table size	W330xD150mm
Drive motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide system	Linear ball bush
Weight	Approx.32kg
Size	W340xH580xD430mm
Power supply	100 to 240 VAC, single-phase, 0.5A

Measurement point

	Setting
Peak Advance value	(CPF)ForceN • (CPT)Displacement mm
Bottom Advance value	(CLF)ForceN • (CLT)Displacement mm
Peak Return value	(RPF)ForceN • (RPT)Displacement mm
Bottom Return value	(PLF)ForceN • (RLT)Displacement mm
Force difference	CPF-CLF or CPF-RLF
Click rate	(CPF-CLF)/CPFx100 or (CPF-RLF)/CPFx100
Contact ON	ForceN • Displacement mm
Contact OFF	ForceN • Displacement mm
Cursor position	ForceN • Displacement mm

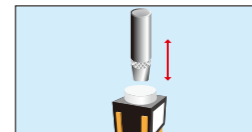
When using CF card (V-103A)

This is a small force tester designed for compression and tensile force tests up to 200N. It consists of a main unit and MODEL-1016C amplifier and is capable of testing feeling of such switches as tact switches and rubber switches by using an optionally available CF card V-103A.

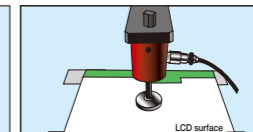
Precision force testers

MODEL-1605VC / MODEL-1605VCL

Capacity: 500N (50Kgf)
Precision force-Displacement



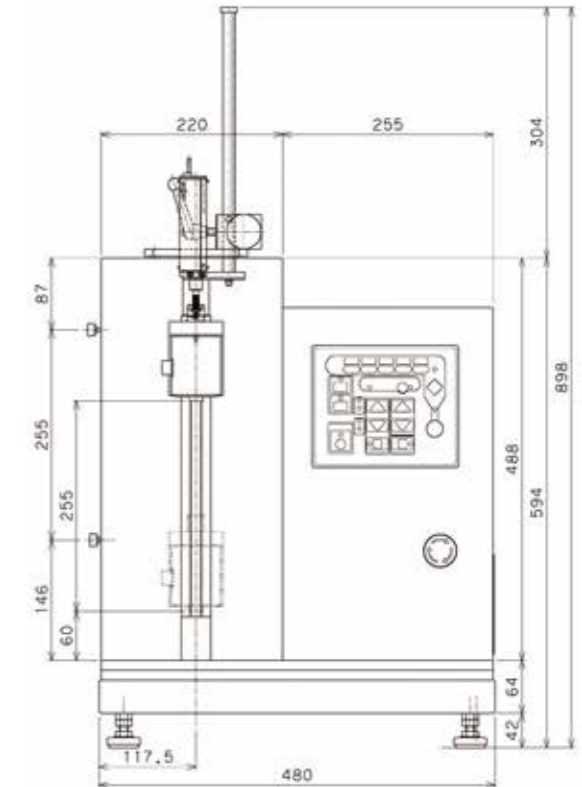
Tact switch feeling test



Bending test at preset displacement



* Jigs are not included. (Optional)



MODEL-1605 Series are highly versatile force testers capable of high precision tests. These testers can perform force-displacement tests under various conditions. They are equipped with such functions as detailed motion setting required for various force tests and pickup data management. They are suitable for testing connector mating / unmating, metal characteristics and penetration. Tensile/compressive tests in a specific environment may also be conducted. (Please contact us for a temperature range.)

Standard Specifications

Model	1605VC	1605VCL
Max. force	500N (50Kgf)	
Test speed	0.5 to 600mm/min.	
Speed changing	In fifteen steps or continuous	
Stroke	250mm	
Displacement display	Provided	
Detector	Rotary encoder	Linear gauge
Display resolution	0.01mm	0.001mm
Display accuracy	0.05mm	
Max. display value	±250.00mm	±30.000mm (When using linear gauge)
Distance between test center & column	100mm	
Table size	W475 x D150mm M10x1.5	
Driving mechanism	Ball screw	
Drive motor	Servo motor	
Weight	Approx. 50Kg	
Size	W480 x H578 x D375mm	W480 x H882 x D375mm
Power supply	100 to 240VAC, single-phase, 5A	



Tester with thermostatic oven image

Standard Configuration

MODEL-1605VC
Tester: MODEL-1605VC
Measuring amplifier: MODEL-1016C
Load cell: 1pc (Up to 500N)

MODEL-1605VCL
Tester: MODEL-1605VCL
Measuring amplifier: MODEL-1016C
Load cell: 1pc (Up to 500N)
Linear gauge: 1pc

On/Off Point Detector

For detecting On/Off points of silicon rubber switches

MODEL-0219



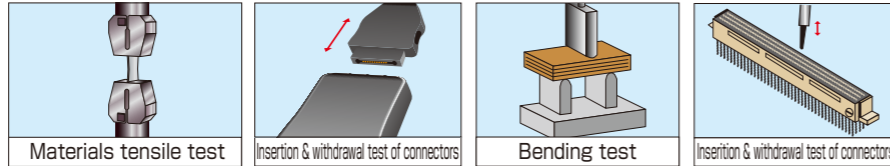
Standard Specifications

Input range	1, 10 & 100 kΩ (Selectable ranges)
Setting device	10-rotation helical potentiometer with 500 even division scale
Setting accuracy	±0.5% in each resistance range (including non-linearity & hysteresis)
Output	(1) Analog voltage 0 to 10V in each resistance range, load resistance: 10kΩ (2) Monitor lamp Red LED (Lit below set value.) (3) Open collector Withstand voltage: 35V max, suction current: 50mA max. ON voltage: 1.5V max.
Response delay time	ON: 0.5 mS or less - Until open collector output goes on after lowering below set value OFF: 2mS or less - Until turning off open collector output after exceeding set value
Temp. setting	0 to 40°C, no dew condensation
Power supply	12 VDC (including 9 to 16.5 V ripples), 300 mA
Size	140Wx45.5Hx140Dmm (including projections), approx. 450g (not including AC adapter)

Desk-top type Force Tester

FTN 1-13A

Capacity: 500N/2kN (50Kg/200Kg)
Force-Displacement



※Jigs are not included. (Optional)

This is an integrated force tester with a built-in amplifier for the compression and tensile force tests up to 2kN (200Kg). Two measurement speeds are available according to the load cell capacity (300mm/min. for 500N, and 125mm/min. for 2kN). A rotary encoder is provided for displacement detection. 7-segment LEDs are in use for data display. A software program is provided as the standard for easy tester operation and result output. Test conditions can easily be set by anybody.



Features

- The max. allowable test force is 2kN regardless of its compact size.
- Two measuring speeds 5 to 300 mm/min. (500N) and 5 to 125 mm/min. (2kN) are provided.
- Compression, tension and breakdown tests are possible.
- The resolution is high at 0.1N for the force test and 0.01mm for the displacement.
- The power supply is 100VAC to 240VAC for worldwide uses.
- Simply operable personal computer software is provided as the standard.
- The load cell allows 3-ch calibration. (Optional feature)

Standard Specifications

Item	FTN1-13A	
Max. force	500N (50Kg)	2kN (200Kg)
Max. speed range	5 to 300mm/min.	5 to 125 mm/min.
Moving speed range (inching & return)	5 to 300mm/min.	
Speed resolution	0.1mm/min.	
Resolution	Force	5000display 2000display 1000display
	Displacement	4-digit display 4-digit or 5-digit display 4-digit or 5-digit display
	Displacement	0.01mm
Accuracy	Force	3000 Series: ±0.2% F.S./UP Series: ±0.3% F.S.
	Displacement	±0.2mm
Driving block	Motor type	Stepping motor
	Motor control system	Pulse
Applicable load cell	UP Series & 3000 Series (Up to 2kN)	
Detector	Rotary encoder	
Input/output	Digital input/output	USB (For connecting to external PC)
	Analog input/output	Force (±10V/10bits)
Table size	Approx. 174 x 200mm	
Emergency stop	Installation on main body, driving block power off	
Outside dimensions	W300 x H820 x D400mm	
Weight	Approx. 40Kg	
Power supply	100 to 240VAC, single-phase, 3A	

Performances

Item	FTN1-13A	
Measurement start trigger	Force/Displacement (LV setting available)	
Comparator	Force (Return/Stop, with a setting)	
	Displacement (Return/Stop, with a setting)	
Automatic zero	Upon receiving measurement start trigger	
Manual zero return	Zero resetting by key operation	
Breakdown	Breaking position detection (Detection sensitivity settable)	
Automatic return	Comparator/hardware limit (with speed setting)	
Data detection	Measurement positive peak detection (Force/displacement)	
	Measurement negative peak detection (Force/displacement)	
	Turn-back point (Force/displacement)	
	Measurement start point (trigger position) (Force/displacement)	
Automatic repetition of measurement	1 to 999999 times	
Real-time data output	Digital data output	

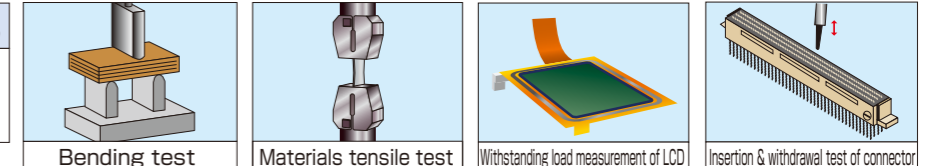
Softwares

MODEL	FTN-3000	FTN-3001
	(Packed version)	(Full spec version)
Computer	DOS/V compliant IBM/PC compatible	
Operation system (OS)	Windows 7 or 8	

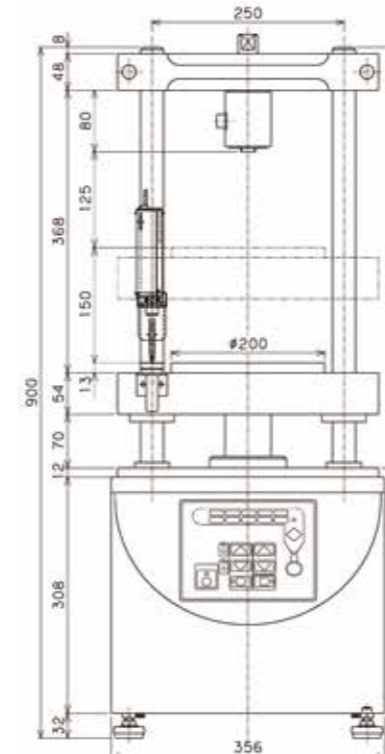
Precision force testers

MODEL-1310VC Series

Capacity: 2kN (200Kg)
Force-Displacement



※Jigs are not included. (Optional)



Standard Configuration

- MODEL-1310VC
Tester: MODEL-1310VC
Measuring amplifier: MODEL-1016C
Load cell: 1pc (Up to 2kN)
- MODEL-1310VCW (Wide range)
Tester: MODEL-1310VCW
Measuring amplifier: MODEL-1016C
Load cell: 1pc (Up to 2kN)
- MODEL-1311VC
Tester: MODEL-1311VC
Measuring amplifier: MODEL-1016C
Load cell: 1pc (Up to 2kN)
- MODEL-1311VCW (Wide range)
Tester: MODEL-1311VCW
Measuring amplifier: MODEL-1016C
Load cell: 1pc (Up to 2kN)

These are all-round desktop type precision force testers for force and displacement measurements up to 2kN (200Kg). When combined with MODEL-1016C amplifier, they can measure two-point data of force-displacement and breaking force-displacement.

A force-displacement graph is shown on an LCD panel in real time.

The two-column type is highly rigid, which makes these testers suitable for highly precise testing.

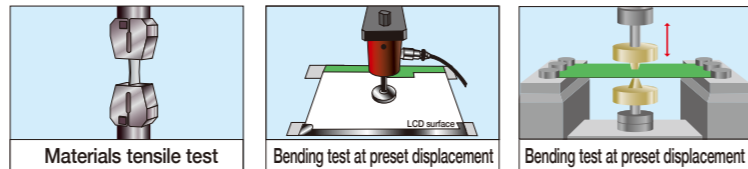
Standard Specifications

Model	1310VC	1310VCW (Wide range)	1311VC	1311VCW (Wide range)
Max. force	2kN (200Kg)			
Test speed	5 to 125mm/min.	0.2 to 250mm/min.	5 to 125mm/min.	0.2 to 250mm/min.
Speed changing	In five steps or continuous			
Stroke	150mm			
Displacement display	Provided			
Detector	Rotary encoder		Linear gauge	
Display resolution	0.01mm		0.001mm	
Display accuracy	0.1mm		0.05mm	
Max. display value	±150.00mm		±30.000mm (Using linear gauge)	
Column length	548mm			
Column interval	250mm			
Table size	φ200mm CenterM10 x 1.5			
Driving mechanism	Ball screw			
Drive motor	DC brushless motor	Servo motor	DC brushless motor	Servo motor
Weight	Approx. 41Kg			
Size	W356 x H900 x D314mm			
Power supply	100 to 240VAC, single-phase, 1A	100 to 240VAC, single-phase, 5A	100 to 240VAC, single-phase, 1A	100 to 240VAC, single-phase, 5A

Large Size Precision Force Testers

MODEL-1840VCT

Capacity: 2 to 50 kN (200 to 5000 kgf)
Force - Displacement



Tester with thermostatic oven image

*Jigs are not included. (Optional)

The MODEL-1840VCT is a large-size precision force tester designed for compression and tensile force tests up to 200 to 5000Kgf (2 to 50kN). The test speed and control system conditions may be set on a touch panel. In combination with the MODEL-1016C amplifier, the basic test parameters including the travel distance, repetition frequency and so forth may be set on the amplifier screen and measurement results are displayed on a LCD. The stroke may be extended and the pitch of columns may be changed according to test sample sizes of customers. Tensile/compressive tests in a specific environment may also be conducted. (Please contact us for a temperature range.)

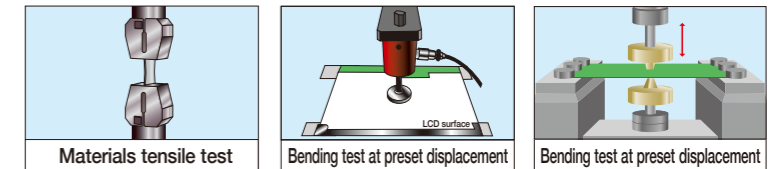
Standard Specifications

Model	1840VCT/200	1840VCT/500	1840VCT/1000	1840VCT/2000	1840VCT/5000
Max. force	2kN (200Kgf)	5kN (500Kgf)	10kN (1000Kgf)	20kN (2000Kgf)	50kN (5000Kgf)
Test speed	0.1 to 600mm/min.		0.1 to 300mm/min.		0.1 to 250mm/min.
Speed changing	Free setting				
Stroke	700 mm		1000 mm		950 mm
Displacement display	Provided				
Detector	Rotary encoder				
Display resolution	0.01 mm				
Display accuracy	0.1 mm				
Max. display	±700.00 mm		±1000.00 mm		±950.00 mm
Column interval	350 mm			400 mm	
Table size	300 mm dia., center M20 x 1.5				□290 mm M20 x 1.5
Drive motor	Servo motor				
Driving mechanism	Ball screw				
Driving mechanism guide	Linear ball bush				
Size	W600xH1340xD580 mm		W600xH1714xD580 mm	W630xH1685xD610 mm	W720xH1714xD540 mm
Weight	Approx.175kg	Approx.185kg	Approx.210kg	Approx.290kg	Approx.390kg
Power supply	100VAC/200VAC, single-phase, 5A	100VAC/200VAC, single-phase, 10A		200VAC, single-phase, 10A	200VAC, three-phase, 10A

Large Size Precision Force Testers

MODEL-1840VC

Capacity: 2 to 50 kN (200 to 5000 kgf)
Force - Displacement



*Jigs are not included. (Optional)

The MODEL-1840VC is a large-size precision force tester designed for compression and tensile force tests up to 200 to 5000Kgf (2 to 50kN). In combination with the MODEL-1016C amplifier, it displays measurement results on a LCD. It employs a ball screw feeding mechanism and a servo motor for stable and wide-range test speed. The stroke may be extended and the pitch of columns may be changed according to test sample sizes of customers. Tensile/compressive tests in a specific environment may also be conducted. (Please contact us for a temperature range.)

Standard Specifications

Model	1840VC/200	1840VC/500	1840VC/1000	1840VC/2000	1840VC/5000
Max. force	2kN (200Kgf)	5kN (500Kgf)	10kN (1000Kgf)	20kN (2000Kgf)	50kN (5000Kgf)
Test speed	1 to 600 mm/min.		1 to 300 mm/min.		1 to 250 mm/min.
Speed changing	In five steps or continuous				
Stroke	700 mm		1000 mm		950 mm
Displacement display	Provided				
Detector	Rotary encoder				
Display resolution	0.01 mm				
Display accuracy	0.1 mm				
Max. display	±700.00 mm		±1000.00 mm		±950.00 mm
Column interval	350 mm			400 mm	
Table size	300 mm dia., center M20 x 1.5				□290 mm M20 x 1.5
Drive motor	Servo motor				
Driving mechanism	Ball screw				
Driving mechanism guide	Linear ball bush				
Size	W600 x H1340 x D400 mm		W600 x H1714 x D400 mm	W630 x H1655 x D410 mm	W720 x H1714 x D540 mm
Weight	Approx.160 kg	Approx.170 kg	Approx.190 kg	Approx.270 kg	Approx.350 kg
Power supply	100VAC/200VAC, single-phase, 5A	100VAC/200VAC, single-phase, 10A		200VAC, single-phase, 10A	200VAC, three-phase, 10A

Large Size Desk Top Type Force Testers

MODEL-1320VC/1321VC

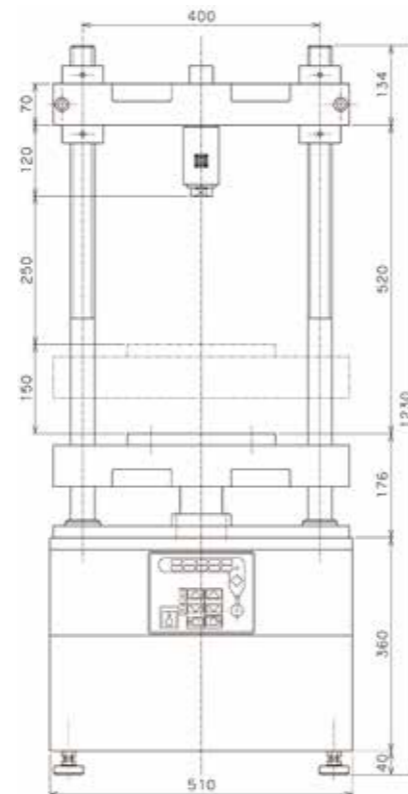
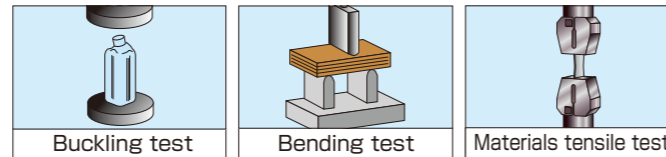
Capacity: 10kN (1000 kgf)

MODEL-1322VC/1323VC

Capacity: 5kN (500 kgf)

MODEL-1324VC/1325VC

Capacity: 20kN (2000 kgf)



*Jigs are not included. (Optional)

These models are large size testers designed for compression and tensile force tests up to 500 to 2000Kgf (5 to 20kN). They use the MODEL-1016C amplifier and display the measurement results on LCD panels. They are available in force measurement only types and force-displacement measurement types, six types in all, whose measurement force are 500Kgf, 1000Kgf and 2000Kgf. With large test stands, 800mm long columns, and 360mm column interval, these are suitable to measurement of large parts. The components and specifications may be changed according to test sample sizes of customers.

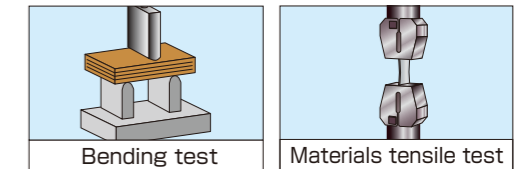
Standard Specifications

Model	1320VC	1321VC	1322VC	1323VC	1324VC	1325VC
Max.force	10 KN (1000 kgf)		5 kN (500 kgf)		20 KN (2000 kgf)	
Test speed	2 to 60 mm/min.				2 to 40 mm/min.	
Speed changing	In five steps or continuous					
Stroke	150mm					
Displacement display	None	Provided	None	Provided	None	Provided
Detector	—	Rotary encoder	—	Rotary encoder	—	Rotary encoder
Display resolution		0.01mm		0.01mm		0.01mm
Display accuracy		0.1mm		0.1mm		0.1mm
Column length	800mm					
Column interval	360mm					
Table size	250 mm dia., center M20 x 1.5					
Drive motor	DC brushless motor					
Driving mechanism	Ball screw					
Driving mechanism guide	Sliding contact					
Weight	Approx. 120 kg					
Size	W510 x H1220 x D400 mm					
Power supply	100 to 240 VAC, single-phase, 5 A					

Large Size Force Testers

MODEL-1431VC/5000-20000

Capacity: 50 to 200 kN
(5 to 20 tonf)
Force - Displacement



The MODEL-1431VC Series are multi-purpose large-size force testers designed for compression, tensile, bending and other tests of various large works at 1, 2, 5, 10 and 20 tonf. They employ precision ball screws and servo motors in the driving mechanisms and rotary encoders for displacement detection. They offer repetitive tests based on the max. value, breaking values, displacement and force, constant force tests, step-force tests and so forth. They use the MODEL-1016C amplifiers. The test data and waveforms are displayed on LCD panels. Various protection devices such as safety covers and area sensors are available according to customer's safety requirements.

Standard Specifications

Model	1431VC/5000	1431VC/10000	1431VC/20000
Max.force	5 tonf (50 kN)	10 tonf (100 kN)	20 tonf (200 kN)
Test speed	0.5 to 300 mm/minute		
Speed changing	In fifteen steps or continuous		
Stroke	1000 mm	800/1200 mm (not including grip)	
Displacement display	Provided		
Detector	Rotary encoder		
Display resolution	0.01 mm		
Display accuracy	0.1 mm		
Max. display	±1000.00 mm		
Column interval	400 mm	520 mm	650 mm
Table size	□ 290 mm, M20 x 1.5	□ 400 mm	
Drive motor	Servo motor		
Driving mechanism	Ball screw		
Driving mechanism guide	Linear ball bush		
Weight	Approx. 450 kg	Approx. 2000 kg	
Size	W900 x H2345 x D600 mm	W1350 x H2535 x D1010 mm	
Power supply	200 VAC, three-phase, 15 A		200 VAC, three-phase, 20A

*MODEL-1431VC/10000 and MODEL-1431VC/20000 are manufactured on a per-order basis to customer specifications.

Switch Feeling Testers

GT-FL500

Capacity: 50N (5Kgf)
Force-Displacement



[Standard Configuration]

- XYZ automatic stand
- Measurement unit
- Load cell
- Measurement software
- ※ Personal computer is optional.

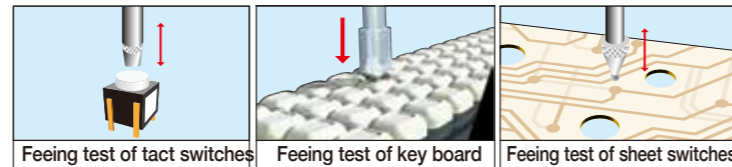
This tester is dedicated to feeling tests of force-displacement of various switches, keyboard switches, dome switches, rubber switches, etc. Three axes of X, Y and Z can be controlled automatically. The tester is capable of testing 16 ON/OFF contacts maximum. The tester is equipped with a jog dial to facilitate teaching. Waveforms are displayed in real time on the amplifier and PC screen.

MODEL-1616W

Capacity: 50N (5Kgf)
Force-Displacement



This tester is dedicated to feeling tests of force-displacement of various switches, dome switches, rubber switches, etc. The Z axis is capable of measurement in the minimum unit of 1μ for precision measurement. The X axis can be moved to a desired position manually. By using the CF card V-103A, feeling test points can be measured.

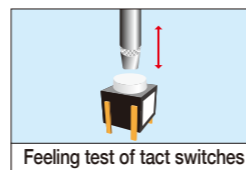


Z-axis (Test) Standard Specifications

Max. force	50N (5Kgf)
Drive motor	AC servo motor
Control motion	UP/DOWN
Drive range	0 to 200 mm
Force measuring range	0 to 50N (0 to 5Kgf)
Force resolution	0.001N (1mN)
Force accuracy	0.1N (100mN)
Displacement measuring range	0 to 200 mm
Displacement resolution	0.001 mm
Displacement accuracy	±0.03 mm
Test speed range	0.1 to 50 mm/min.
Moving speed range	1 to 15 mm/sec.
Analog output	±10V (Force, displacement)
Tester size	W750 x H900 x D560 mm
Weight	Approx. 50Kg
Power supply	100VAC

X-Y axes (Move) Standard Specifications

Drive motor	Stepping motor
Control motion	X: Right/left, Y: Front/back
Drive range	X: 0 to 450 mm, Y: 0 to 200 mm
Displacement resolution	0.01 mm
Displacement accuracy	±0.1 mm
Moving speed range	1 to 30 mm/sec.
Specimen table size	W550xD280 mm
Specimen carrying weight	Approx. 20Kg



Standard Specifications

Max. force	50N (5Kgf)
Test speed	1 to 300 mm/min.
Stroke	150 mm, ball screw
Test stroke	When using linear gauge: 0.000 to 30.000 mm When using rotary encoder: 0.00 to 150.00 mm
Displacement display	30.000 mm, minimum 1μ possible (When using linear gauge)
Detector	Linear gauge (or Rotary encoder)
Right-left movement	Manual: 200 mm
Drive motor	Servo motor
Table size	W480xD200 mm
Weight	Approx. 22Kg
Size	W630xH910xD400 mm
Power supply	100VAC

Horizontal Force Tester

MODEL-2152VCE

Capacity: 500N (50 kgf)
Force -Displacement



Standard Specifications

Max. force	500N (50 kgf)
Test speed	10 to 80 mm/min.
Speed changing	In five steps or continuous
Stroke	150 mm
Displacement display	Provided
Detector	Rotary encoder
Display resolution	0.01 mm
Display accuracy	0.1 mm
Z-axis stroke	40 mm
Distance between test center & Z-axis plane	77.5 to 117.5 mm
Table size	W100 x D100 mm
Drive motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide	Linear ball bush
Weight	Approx.23kg
Size	W518 x H314 x D345 mm
Power supply	100 to 240 VAC,0.5A

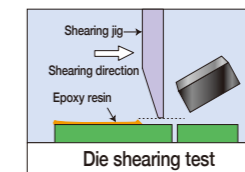
Standard Configuration

- Tester: MODEL-2152VCE
- Measuring amplifier MODEL-1016C
- Load cell:1pc

The MODEL-2152VCE is a horizontal force tester designed for compression and tensile force tests up to 50 kgf (500 N) as well as breaking tests and force -displacement correlation measurement of various electronic parts. It uses the Model-1016C amplifier and displays the measurement results on a LCD panel.

Small Size Electronic Parts Strength Evaluation Tester (IC Strength Tester)

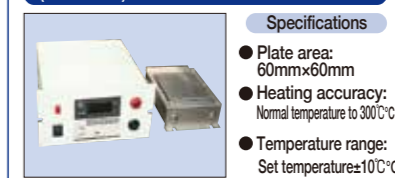
MODEL-2252RDH



Standard Specifications

Max. force	200N(20kgf)
Test speed	10 to 80 mm/min.
Speed changing	In five steps or continuous
Stroke	150 mm
Displacement display	None
Z-axis stroke	40 mm
Distance between test center & Z-axis plane	39 to 79 mm
Table size	W90 x D90 mm
Drive motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide	Linear ball bush
Weight	Approx.23kg
Size	W518 x H228 x D345 mm
Power supply	100 to 240 VAC,single-phase,0.5A

Hot Plate for Thermal Load Tests (Common) (HTP-OP-1)



Specifications

- Plate area: 60mm×60mm
- Heating accuracy: Normal temperature to 300°C
- Temperature range: Set temperature±10°C

Standard Configuration

- Tester: MODEL-2252RDH
- RZ-20:1pc
- Shearing jig:1pc (2mm,4mm or 8mm)

Options

- Hot Plate
- Printer

The MODEL-2252RDH is designed to measure the adhesion strength of electronic parts mounted on horizontal boards. The sample fixing position may be adjusted in the Z direction. The digital force gage RZ-20 is mounted on the force measuring side and the shearing jig is mounted at the top. It is also possible to mount the hot plate (HTP-OP-1) on the sample fixing side. The force measuring unit of this tester moves to the right and left. It stores measured data, which may be printed or read in a PC.

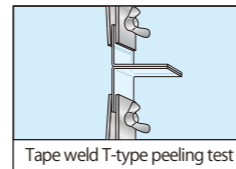
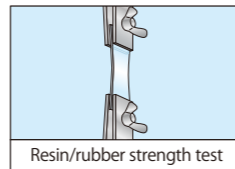
Small Size Separation Evaluation Tester

MODEL-1308UH

Capacity: 200N (20 kgf)



※Digital force gage is optional.



The MODEL-1308UH employs a motor-driven gage mounting head, which moves up and down. The gage mounting head may be returned automatically by the action of a limit switch after completion of a test. The MODEL-1308UH offers other various functions, including data output function. Refer to the catalogs of the RZ series digital force gages. Use our various jigs and accessories to extend the confines of tests. Refer to the pages of jigs and grips.

Standard Specifications

Max. force	200 N (20 kgf)
Test speed	10 to 300 mm/min.
Stroke	400 mm
Table size	W250 x D140 mm
Weight	Approx. 20 kg
Size	W255 x H810 x D300 mm
Power supply	100 to 240 VAC, single-phase 0.5A



90° separation test jig (Option installed)

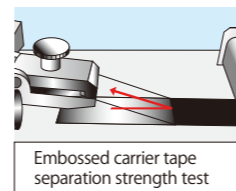
Applicable Tests

- Separation tests at 90° and 180° (JIS-C 6481)
- Various breakdown tests
- Various non-destructive evaluation tests of parts
- Penetration elasticity tests of fruits, etc.
- Stress relief measurements of foods
- Shearing tests
- Bending tests

Embossed Carrier Tape Separation Tester

MODEL-2165P

Separation force: 5N (500 gf)



The MODEL-2165P measures adhesion of various types of tapes. It conforms to the JIS and EIAJ Standards. The results can be saved in a PC using the dedicated software. (This software is compatible with Windows XP, 7 or 8 & Japanese OS.)

Standard Specifications

Separation force	5 N (500 gf)
Resolution	0.001 N (0.1 gf)
Separation angle	165 to 180 degrees (with five scales)
Separation speed	50, 100, 200, 300 & 400 mm/min.
Effective length	400 mm
Applicable length	88 mm
Weight	Approx. 16.5 kg
Size	W630 x H300 x D260 mm
Power supply	100 VAC / 220 VAC, 1A

Adhesion Tester

FTN4-15A

Capacity: 50 N (5 kgf)
Force - Displacement



This is a low priced adhesion tester based on FTN1 - 13A with only the mechanism changed. The maximum test speed has been increased to 1000 mm/min to meet needs of high-speed tests. In addition, a jig for 90-degree peeling that meets testing in accordance with JIS Z 0237 and software FTN-2008P dedicated to adhesion test are also available.



Standard Specifications

Max. force	50 N (5 kgf)	
Test speed range	5 to 1000 mm/min.	
Moving speed range	5 to 1000 mm/min. (inching & return)	
Speed resolution	0.1 mm/min.	
Resolution	Force	0.01 N (50.00)
	Displacement	0.01 mm
Accuracy	Force	3000 Series: ±0.2% F.S. UP Series: ±0.3% F.S.
	Displacement	±0.5 mm
	Effective stroke	100 mm (with 90-degree peeling jig installed)
Drive unit	Stepping motor	
Applicable load cell	UP, M-3000 Series	
Detector	Rotary encoder (2000 P/R)	
Input/output	Digital input/output	USB (for connection to external PC)
	Analog input/output	Force (±10V)
Weight	Approx. 35 kg	
Size	W300 x D400 x H820 mm	
Power supply	100 to 240 VAC, Single-phase, 3A	

Optional jig

Applicable standard	JIS Z 0237
Peeling method	90-degree peeling
Movable range (stroke)	100 mm (Standard: 85 mm)
Peeling point synchronizing method	Moving amount synchronization with wire & pulley
Test plate	50 x 125 x T2 or larger, SUS 304 (Surface roughness specified)
Specimen size	25 x 250
Safety measure	Safety cover on with & pulley and other areas

Software

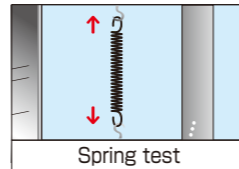
Name	FTN-2008P
Function	Display of results, calculation (required numeric values, max., average, etc.), save, F-S graph display (real time, results, save data)

- Peak/bottom automatic acquisition: 50 maximum
- Peak/bottom display method: In the order of time or peak values
- Processing of multiple samples: (Simplified statistics)
- Set point measuring function: (JIS compatible)
- This software is compatible with Windows 7 or 8 & Japanese or English OS.

Touch Panel Type Spring Testers

MODEL-SHR III Series

SHR III-1	Capacity:10 N(1 kgf)
SHR III-5	Capacity:50 N(5 kgf)
SHR III-10	Capacity:100 N(10 kgf)
SHR III-50	Capacity:500 N(50 kgf)



Outline of SHR III Type Spring Tester

Test options	Tensile test & compression test
Screen display	Test data, totalization function, work No. registration (100 Nos.), & dispersion distribution bar graph
Unit options	Kgf (N, lb)
Operation options	Load measurement acc. to set length, measurement acc. to set load Max. number of measurement stages: Ten Max. stop time in each stage: 999.9 sec.
Input type for each stage setting	Teaching input, ten-key pad input, & step input
Printing function	Automatic, manual, Note input printing, & hard copy
Tolerance setting	Two types selectable: ± and %
Touch panel	5.7 TFT color LCD

The MODEL-SHR III Series testers are the newest type high-performance spring testers. Their advanced functions facilitate various measurement item setting and input point setting, which have been very troublesome. The user only has to follow instructions displayed on the screen to input various items and may register a maximum of 100 work numbers. The screen provides real-time display of measured data and dispersion distribution bar graphs. It is possible to set a maximum of ten each measurement stages for both the normal spring tests and length measurement according to preset loads.

Performances

Length resolution	0.01mm
Variable speed	1 to 600 mm/min.
Automatic distortion correction	Corrects rigid distortion automatically
Automatic origin setting function	Displays the data where the origin was set last
Force resolution	1/100000 max.
External connection	USB port
Protective functions	Overload stop function, & emergency stop button

Standard Specifications

Item	SHR III-1	SHR III-5	SHR III-10	SHR III-50
N force capability	10 N (1kgf)	50 N (5kgf)	100 N (10kgf)	500 N (50kgf)
N minimum reading	0.0001 N (0.01gf)	0.001 N (0.1gf)	0.001 N (0.1gf)	0.01 N (1gf)
Unit of measurement	kgf (N, lb, inch for length measurement)			
Test speed	1 to 600 mm/min.			
Max. measurable length	225 mm			
Min. length reading	0.01 mm			
Compression plate diameter	60 mm dia.			
Hook for tensile test	1 stage	2 stages		
Weight	Approx. 45kg			
Size	W450 x H565 x D345 mm			
Power supply	100 to 240 VAC			

Touch Panel Type Spring Testers

SHR III-100	Capacity:1 kN(100 kgf)
SHR III-200	Capacity:2 kN(200 kgf)
SHR III-500	Capacity:5 kN(500 kgf)
SHR III-1000	Capacity:10 kN(1 tonf)
SHR III-2000	Capacity:20 kN(2 tonf)

SHR III-5000	Capacity:50 kN(5 tonf)
--------------	------------------------



Standard Specifications

Item	SHR III-100	SHR III-200	SHR III-500	SHR III-1000	SHR III-2000	SHR III-5000
N force capability	1 kN (100kgf)	2 kN (200kgf)	5 kN (500kgf)	10 kN (1000kgf)	20 kN (2000kgf)	50 kN (5000kgf)
N minimum reading	0.01 N (1gf)	0.1 N (10gf)		1 N (100gf)		
Unit of measurement	kgf (N, lb, inch for length measurement)					
Test speed	1 to 600 mm/min.					
Max. measurable length	600 mm					
Min. length reading	0.01 mm					
Compression plate diameter	150 mm dia			200 mm dia		
Hook for tensile test	1 stage		Option			
Weight	Approx. 170kg	Approx. 190kg	Approx. 200kg	Approx. 210kg	Approx. 290kg	Approx. 450kg
Size	W500 x H1310 x D450 mm	W600 x H1372 x D540 mm	W600 x H1350 x D540 mm	—		W900 x H2215 x D600 mm
Power supply	100 VAC / 200 VAC			200 VAC		200 VAC, three-phase

※The tensile spring jigs for the SHR III-500 and larger force models are optional.

Software dedicated to SHR III Series



This is the software for dedicated SHR III Series spring tester. It acquires and sends real-time data to a PC and carries out GO/NG judgment. Measured data can be output in Excel format.

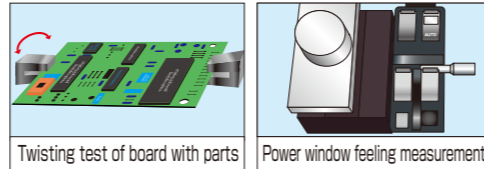
Specifications

Computer standard	DOS/V compliant IBM/PC compatible
Operating system (OS)	Microsoft Windows 7 or 8; Japanese or English
CPU	Celeron processor 2.0 GHz min
Main memory	1024 MB min. (2048 MB min. recommended)
Hard disk drive	20 to 200 MB according to operating environments
Optical drive	CD-ROM drive x1 When this software is installed.
Display	High color (16 bits) min. (32 bits. min. recommended) Desktop area 1024 x 768 min.

Torque Angle Testers

MODEL-5125VC/VCW (Wide range)

Capacity: 5N · m (0.5Kgf · m)
Torque-Angle



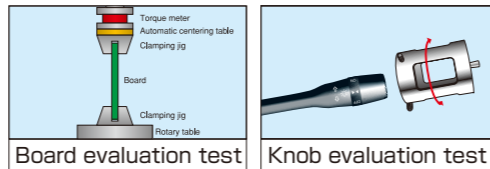
These are designed for complicated evaluation tests of various electronic, mechanical and other parts, including the torque angle tests, sliding torque tests, repetitive reducing torque measurement and so forth. The table in lower position rotates. The span from the work is adjusted with the torque meter mount in upper position, which is moved up and down manually. Select the proper torque meter and jig of the torque suitable to measurement. Test data and test waveform are displayed on the screen. In repetitive tests, waveforms are overwritten and displayed on the screen. Data are stored in the amplifier and printed.

Standard Specifications

Model	5125VC	5125VCW (Wide range)
Max. output torque	5N · m (0.5Kgf · m)	
Test speed	0.2 to 6RPM	0.1 to 20RPM
Speed changing	In five steps or continuous	
Angle setting	0 to 340° or continuous	
Displacement display	Provided	
Detector	Rotary encoder	
Display resolution	0.1 degree	
Display accuracy	1 degree	
Z-axis stroke	210 mm	
Distance between rotational center & column	110 mm	
Table size	150 mm dia.	
Driving mechanism	Ball speed reducer	
Drive motor	DC brushless	Servo motor
Weight	Approx. 55Kg	
Size	W350 x H767 x D475 mm	
Power supply	100 to 240VAC, single-phase, 0.5A	100 to 240VAC, single-phase, 5A

MODEL-5125VCT

Capacity: 5N · m (0.5Kgf · cm)
Torque-Angle



The MODEL-5125VCT designed for complicated evaluation tests of various electronic, mechanical and other parts, including the torque angle tests, sliding torque tests, repetitive reducing torque measurement and so forth. Various test conditions may be set on a touch panel. The table in lower position rotates. The span from the work is adjusted with the torque meter mount in upper position, which is moved up and down manually. Select the proper torque meter and jig of the torque suitable to measurement. Test data and test waveform are displayed on the screen. In repetitive tests, waveforms are overwritten and displayed on the screen. Data are stored in the amplifier and printed.

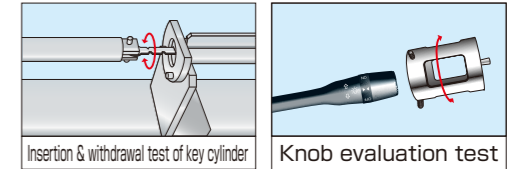
Standard Specifications

Max. output torque	5N · m (0.5Kgf · cm)	Z-axis stroke	210 mm
Test speed	0.1 to 20RPM	Distance between rotational center & column	110 mm
Speed changing	Free setting	Table size	150 mm dia.
Angle setting	0 to 340° or continuous	Driving mechanism	Ball speed reducer
Displacement display	Provided	Drive motor	Servo motor
Detector	Rotary encoder	Weight	Approx. 55Kg
Display resolution	0.1 degree	Size	W350 x H767 x D475mm
Display accuracy	1 degree	Power supply	100VAC, single-phase, 3A

Torque Angle Testers

MODEL-5401VC-50/200

Capacity: 5N · m/20N · m
(0.5Kgf · m/2Kgf · m)
Torque-Angle



The MODEL-5401VC-50 and MODEL-5401VC-200 are capable of torque angle measurement up to 340degrees. Samples are fixed in the lower positions, and the torque meter in the upper positions rotate. The optional X-Y tables or jigs are installed on the sample measuring side. Attaching the automatic centering table to the torque meter enables smooth adjustment of the torque meter center to the work center. This function is convenient for samples that may not be rotated.

Standard Specifications

Model	5401VC-50	5401VC-200
Max. output torque	5N · m (0.5Kgf · m)	20N · m (2Kgf · m)
Test speed	0.2 to 1RPM	
Angle setting	0 to 340 degree	
Displacement display	Provided	
Detector	Rotary encoder	
Display resolution	0.1 degree	
Display accuracy	1 degree	
Z-axis stroke	140 mm	
Distance between rotational center & column	120 mm	
Table size	W350 x D320 mm	
Driving mechanism	Pully transmission mechanism	
Drive motor	DC brushless motor	
Weight	Approx. 60Kg	
Size	W490 x H742 x D480 mm	
Power supply	100VAC, single-phase, 0.5A	100VAC, single-phase, 1A

Large Size Torque Testers

MODEL-5127VC/500-5000

Capacity: 50N · m to 500N · m
(500kgf · cm to 5000Kgf · cm)
Torque-Angle



The MODEL-5127VC Series are designed to measure correlation of the torque angles of large automobile parts, electronic parts and so forth. Jigs or chucks are set on rotary tables in lower positions. Spans from works are adjusted with the cross head in upper positions, which are moved up and down by motors. Torque meters is fixed to the cross head. The MODEL-5127VC Series employ the MODEL-1016C amplifier for versatile evaluation tests of parts, including general torque breaking tests, repetitive durability evaluation tests and so forth.

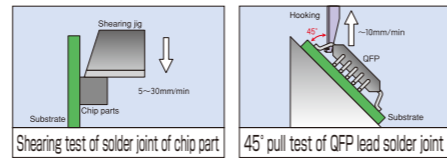
Standard Specifications

Model	5127VC/500	5127VC/2000	5127VC/5000
Max. output torque	500Kgf · cm	2000Kgf · cm	5000Kgf · cm
Torque display	±500.0Kgf · cm	±2000Kgf · cm	±5000Kgf · cm
Load table rotation speed	0.05 to 2RPM		
Rotation accuracy	±0.5%		
Rotational angle display & setting	±0 to 10000.0 degree		
Table size	200 mm dia.	250 mm dia.	
Detector	Rotary encoder		
Motor	Servo motor		
Weight	Approx.350Kg	Approx.400Kg	Approx.700Kg
Size	W900 x H2300 x D600 mm		
Power supply	200VAC, three-phase		

JIS-Rated Lead Free Solder Tester

MODEL-1605 VC/NF

Capacity: 50 N (5 kgf)
Force - Displacement



The MODEL-1605 VC/NF is a precision tester designed for lead-free solder tests of boards with parts in conformance to JIS Z 3198-6 and JIS Z 3198-7. Jigs are replaced according to the test conditions. The pull point and shearing point are adjusted with the X-Y table. Measured data are stored in the Model-1016C amplifier and may be printed out or loaded into a PC after completion of measurement.

Standard Specifications

Max. force	50 N (5 kgf)
Test speed	0.5 to 600 mm/min.
Stroke	250 mm
Displacement display	Provided
Detector	Rotary encoder
Display resolution	0.01 mm
Display accuracy	0.1 mm
Displacement reading	10 μm (Standard) 1 μm (Option)
Table size	W475 x D150 mm, M10 x 1.5
Driving mechanism	Ball screw
Drive motor	Servo motor
Weight	Approx. 50 kg
Size	W480 x H578 X D375 mm
Power supply	100 to 240 VAC, single-phase, 5A

Standard Configuration

- Tester: MODEL-1605VC
- Amplifier: MODEL-1016C
- Load cell: MODEL-3005 (5 kgf)
- Jig (Full set): M-500 FS

Applicable Tests

- 45° pull test of QFP lead solder joint
JIS Z 3198-6
- Shearing test of solder joint of chip part
JIS Z 3198-7

MODEL-1308U/NF

Capacity: 50 N (5 kgf)



The MODEL-1308U/NF is a low-price and compact JIS-rated lead-free solder tester. It is designed for 45° pull tests of QFP lead solder and shearing tests of chip parts, which are enabled by replacing the jigs and RZ series digital force gages. Measured data are stored in the RZ series digital force gage and may be printed out or loaded into a PC after completion of measurement. The jigs are commonly used for the MODEL-1605 VC/NF.

Applicable Tests

- 45° pull test of QFP lead solder joint: JIS Z 3198-6
- Shearing test of solder joint of chip part: JIS Z 3198-7

Standard Specifications

Max. force	50 N (5 kgf)
Test speed	5 to 100 mm/min., variable
Stroke	400 mm
Table size	W250 x D140 mm
Weight	Approx. 20 kg
Size	W255 x H810 X D300 mm
Power supply	100 to 240 VAC, 0.5 A

Standard Configuration

- Tester: MODEL-1308U
- Digital force gage: select proper RZ Series (up to 5 kgf)
- Jig (full set): M-500 FS



CUSTOM ORDER PRODUCTS

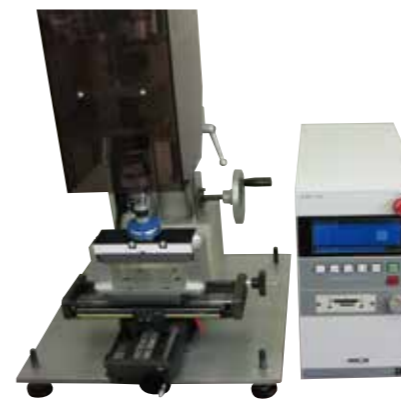
Comprehensive Syringe Needle Force Measuring Tester

MODEL-1310VC/SL

Capacity: 2kN (200Kgf)



Torque feeling tester



This tester is designed to test a correlation between torque value and the rotation angle. The acquired torque value and angle data are drawn on a torque-angle graph. It is also possible to automatically acquire the click torque value and angle during turning and show typical measurement values (click values).

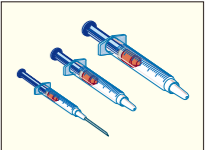
Switch & Silicone Rubber Durability Tester (3-CH)

MODEL-SR-3



The MODEL-SR-3 is designed for durability tests of various electronic parts. It automatically stops a test at the preset cycle or when a test work is broken.

The MODEL-1310 is designed for comprehensive force tests of various syringes shown below, for which various jigs are available. In particular, a one-touch needle chuck is supplied for sharpness tests of syringe needles. Measured waveform and maximum value are displayed on the screen. Select the test items from those shown below. Different jigs are used according to the test types. The MODEL-1310 has a vertically movable table.



Standard Specifications

Max. force	2kN (200Kgf)
Stroke	150mm
Column length	750mm
Column interval	250mm
Test speed	5 to 125mm/min.
Table size	200mm dia.
Weight	Approx. 41Kg
Size	W356xH1102xD314mm
Power supply	100 to 240VAC, single-phase 1A

Options

- Select the following according to the test requirements.
- A. Sharpness measurement
 - B. Sharpness measurement in the condition where needle bases are fixed to needles
 - C. Tensile strength measurement of needle-needle base adhesive
 - D. Slide strength measurement between barrels and pistons
 - E. Air tightness measurement between barrels and pistons
 - F. Dislocation (withdrawal strength) measurement of needles from barrels
 - G. Dislocation load measurement between needles and caps
 - H. Three-point bending measurement of needles only

Power Cable Bending Durability Tester (5CH)

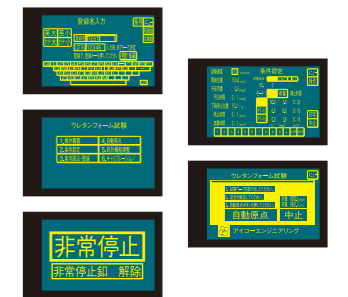
MODEL-CBL/5S



This is designed for durability tests of cables in conformity to the UL and JIS standards. It stops operation automatically at the set values (±90° & ±45°) and when the cable is broken. (Interlock type and manual type are available.)

Urethane Foam Load Measurements Instrument (Screen Display Type)

MODEL-1900N



The MODEL-1900N allows all test patterns to be set on the touch panel. It stores a maximum of ten JIS, JAS and any optional patterns in the memory unit, which may be read out in tests. The test data are displayed on the screen and may be printed out.

Grips & Jigs



Double Slide Vise

▶ MODEL-220

Specifications

Max. open width	0 to 80 mm
Gripping force	1 kN
Blade size	W90 x D30 mm
Thread hole dia	M6
Weight	2.1 kg

*Blades are optional



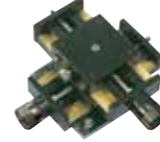
TR-1/4/5A/5 Chuck for round rod

X-Y Table

▶ Model-330

Specifications

Travel	1 mm/rotation
X-axis travel	±25 mm
Y-axis travel	±25 mm
Max. force	2 kN
Withstand tensile load	0.1 kN
Table size	55 x 60 mm
Weight	1 kg



This vise has blades that open toward both sides from the center. Fix it to the table of the instrument, and hold a test piece directly on the vise or fix the grip blades using the threaded holes in the upper pan.

Use this X-Y table together with AIKOH's test stands for centering or fine feeding of test pieces.

Grips and Jigs

Standard Specifications

MODEL	Capacity	Jaw Size (WxDmm)	Jaw Max. Opng (mm)	Mounting screw	Weight (g)	Application	Type
201	50N	20 x 15	8	※ M6 female	Approx.125	All-purpose type	Parallel flat plate individual screwing
203	2kN	25 x 20	14	※ M10 female	Approx.442		
207-2K	2kN	25 x 25	12	※ M10 female	Approx.356		
209	5kN	32 x 30	10	M20-P1.5 female	Approx. 1800		Wedge type
211	5kN	30 x 60	20	M20-P1.5 female	Approx. 2800		Parallel flat plate individual screwing
212	2kN	25 x 19	3.5	M10-P1.5 female	Approx. 545		Wedge type
220-50-45	500N	50 x 45	0 - 45		Approx.958	Vice	Right-hand/left-hand thread
221-25	200N	W25	—	※ M6 female	Approx.115	Film/cloth	Spring opening/closing
221-50	2kN	W50	—	M10-P1.5	Approx. 376		
224-P-4/5	10N	—	0- Φ 3.2	※ M6 female	Approx.12	Round bar	For round bar/collet change type
225	0.5N	25 x 25	3	M6 female	Approx.56	Gold wire	Clip type
226-1	5N	Tip jaw width 0.5-1	2	M6 female/M10 male	Approx.97	Small parts	Pantograph type
226-5	100N	Tip jaw width 5	2	M6 female/M10 male	Approx.100		
226-10	100N	Tip jaw width 10	2	M6 female/M10 male	Approx.100		
226-15	100N	Tip jaw width 15	2	M6 female/M10 male	Approx.107		
227-20	500N	20 x 10	4	※ M6 female	Approx.214	All-purpose type	
227-30	500N	30 x 10	4	※ M6 female	Approx.233		
228-10	20N	W10	1	M6 female	Approx.37	Thin plate	Screwing
228-20	20N	W20	1	M6 female	Approx.49		
228-30	20N	W30	1	M6 female	Approx.64		
228-40	20N	W40	1	M6 female	Approx.77		
230-45	—	—	4	—	Approx.850	Substrate holding	
231	200N	15 x 10	3	※ M6 female	Approx.78	All-purpose type	Opening by spring pressure, closing by screw
232	100N	Tip width 3xD8	1	M6 female	Approx.30		
340-05	0.5N · m	—	—	—	Approx. 315	Alignment table for torque	
340-5	20N · m	—	—	—	Approx. 1300		
340-L-5	500N	—	—	—	Approx. 1500	Alignment table for Tens. & Comp.	
440	200N	—	—	—	Approx. 3100	Z table	
CP-U-40	100N	Φ 40	—	M6 female	Approx.100	Upper compression plate	
CP-U-60	100N	Φ 60	—	M6 female	Approx.210		
CP-U-80	100N	Φ 80	—	M6 female	Approx.350		
HS-2	30N	W2	—	M6 female	Approx.44	Shear jig	
HS-4	50N	W4	—	M6 female	Approx.46		
HS-6	50N	W6	—	M6 female	Approx.48		
HS-8	50N	W8	—	M6 female	Approx.49		
OJ-P-90	—	—	—	M6 female	Approx.748	Lower tension jig mounting plate	
TR-1	3kN	—	Φ 0.5-3	M6-P1 depth: 12	Approx. 70	Round bar	Scroll type
TR-4	10kN	—	Φ 2-9	1/2-20UNF depth: 20	Approx. 500		
TR-5A	50kN	—	Φ 3-13	1-12UNF depth40	Approx. 2500		
TR-5	50kN	—	Φ 10-20		Approx. 2500		

The screws with asterisks, ※, need the OJ-U joints.
CP-U Series are not processed quenching

Indicators

MODEL-0218B



This is a low priced simple digital display meter. This compact and light-weight equipment has the following features:

Features

1. Data hold function (Sample hold)
2. Peak hold function
3. External reset function
4. One-touch auto zero function
5. High and low values settable as desired
6. Analog output

Standard specifications

Display range	99999-19999
Response	10, 100, 1kHz
Sampling rate	15times/sec.
Decimal point	Free setting
Temperature drift	0.02% F.S./°C
Applied voltage	5VDC
Power supply	100V, 110V, 200V or 220V

MODEL-0215T



This is a digital display meter compliant with the TEDS Standard (IEEE 1451.4 Class 2 mixed mode interface).

When combined with various TEDS-compatible strain gauge type sensors, sensitivity can be calibrated easily and accurately. Zero calibration, span calibration, upper/lower limit comparison, digital/analog filtering, motion detection and zero tracking can be set manually on the display.

Features

- The use of the TEDS function ensures easy and accurate sensitivity calibration.
- The display meter needs not be used with a sensor as a pair, but their combination may be changed as desired.
- A sensor in which no TEDS data has been written can also be used.
- Static strain can be measured.
- The conversion cable for connection of MODEL-0215T is a standard accessory.
- CE mark-compliant.
- The power supply is 100 to 240VAC.
- Optionally, BCD parallel data output, RS232C interface and D/A converter (Voltage/current output) are available.

What is "TEDS"?

"TEDS" stands for "Transducer Electronic Data Sheet". When a memory containing TEDS data of a sensor is installed, the information of the sensor can easily be transferred to a display meter having a function of reading the memory.

Usable load cells (made by AIKOH)
MODEL-CM, UP, QF, DCD, CH, US, DUD, CB Series

Specifications

Applied voltage	10VDC, 2.5V±10%, current 120mA	
Signal input range	0 to ±3.0mV/V	
Equivalent input/TEDS	Calibrating range	0.3 to 3.0mV/V
	Calibrating accuracy	0.2% F.S. or better, provided that the sensor sensitivity is set to 0.5mV/V min.
Zero adjustment range	0 to ±2.0mV/V	
Minimum input sensitivity	1μV/count (1/10000 guaranteed at input above 1mV/V)	
Non-linearity	Within 0.02% F.S. (When input is 3mV/V or over.)	
A/D conversion speed	100times/sec.	
Analog filter	4, 10, 100Hz (Default), 3kHz (Set on the panel)	
Analog output	Voltage: 2V±5% max. per 1mV/V, force resistance: 2kΩ or more	
	Response frequency: Approx. 5kHz/-3dB (Not passing through analog filter)	
TEDS function	IEEE1451.4 Class2, mixed mode interface	
Peak-hold function (analog and digital hold system)	Response speed	Approx. 1kHz (Waveform width 2ms: 3mV/V input, analog filter 3kHz)
	Accuracy	0.2% F.S. or better
	When reset	50μs max.
Display	Display range	±19999
Power supply	100 to 240VAC, Approx. 7W	
Operating temperature range	-10 to +40°C (Storage temperature range: -40 to +80°C)	
Operating humidity range	85% RH max. (No condensation)	
External dimensions	Approx. W96 x H96 x D146mm (Projections are not included)	
Weight	Approx. 1kg	
Accessory	AC power cable, 1piece, TEDS conversion cable 1piece, instruction manual (CD-ROM) 1copy	
Option	BCD parallel data output, RS232C interface	
	D/A converter (Voltage/current output)	

Load cells

MODEL-CK	MODEL-VCV	MODEL-US	MODEL-QF	MODEL-CH
Small size load cell for compression test	High performance load cell for compression test	Load cell for tension/compression	Non-Rotary Type Torque Meter	Load cell for compression test
Capacity: 100N to 20kN	Capacity: 500N to 100kN	Capacity: 10kN to 500kN	Capacity: 0.2 N·m to 1kN·m	Capacity: 5kN to 500kN
<ul style="list-style-type: none"> ●Standard Specifications Rated output: 1mV/V (10 & 20kN: 1.5mV/V) Non-linearity: 1%R.O. (10 & 20kN: 2%R.O.) Hysteresis: 1%R.O. (10 & 20kN: 2%R.O.) Repeatability: 1%R.O. Recommend applied voltage: 5V Allowable applied voltage: 7V Temp. Compensation range: -5 to +65 °C (2 to 20kN: -5 to +50 °C) Allowable compensation range: -10 to +70 °C (2 to 20kN: -10 to +60 °C) Allowable overload: 120%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 2mV/V±0.25% (50 & 100kN: 2mV/V±0.5%) Non-linearity: 0.15%R.O. (50 & 100kN: 0.1%R.O.) Hysteresis: 1%R.O. Repeatability: 0.05%R.O. Recommend applied voltage: 8V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -15 to +80 °C (50 to 100kN: -15 to +75 °C) Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 2mV/V±0.25% (10kN: 1.5mV/V) Non-linearity: 0.1%R.O. Hysteresis: 0.1%R.O. Repeatability: 0.05%R.O. Recommend applied voltage: 10V Allowable applied voltage: 15V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 1mV/V±1% Non-linearity: 0.3%R.O. Hysteresis: 0.3%R.O. Repeatability: 0.2%R.O. Recommend applied voltage: 10V (6V at 1N·m or less) Allowable applied voltage: 15V (10V at 1N·m or less) Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 1mV/V±1% Non-linearity: 0.5%R.O. Hysteresis: 0.5%R.O. Repeatability: 0.1%R.O. Recommend applied voltage: 10V Allowable applied voltage: 15V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C.
MODEL-CM	MODEL-DCD	MODEL-DUD	MODEL-QR	MODEL-CB
Very small size load cell for compression test	High performance load cell for compression test	Small high performance load cell for tension/compression test	Rotary type torque meter	Load beam
Capacity: 10N to 2kN	Capacity: 500N to 200kN	Capacity: 500N to 20kN	Capacity: 10N·m to 2kN·m	Capacity: 50N to 10kN
<ul style="list-style-type: none"> ●Standard Specifications Rated output: 1mV/V Non-linearity: 1%R.O. Hysteresis: 1%R.O. Repeatability: 0.3%R.O. Recommend applied voltage: 6V Allowable applied voltage: 10V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 2mV/V±0.5% Non-linearity: 0.15%R.O. Hysteresis: 0.1%R.O. Repeatability: 0.1%R.O. Recommend applied voltage: 10V Allowable applied voltage: 15V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 2mV/V±1% Non-linearity: 0.15%R.O. Hysteresis: 0.1%R.O. Repeatability: 0.1%R.O. Recommend applied voltage: 10V Allowable applied voltage: 15V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 1.5mV/V±1% (10 to 50N·m: 1mV/V) Non-linearity: 0.3%R.O. Hysteresis: 0.2%R.O. Repeatability: 0.3%R.O. Recommend applied voltage: 10V Allowable applied voltage: 15V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +75 °C Allowable overload: 150%R.C. 	<ul style="list-style-type: none"> ●Standard Specifications Rated output: 2mV/V±1% Non-linearity: 0.05%R.O. Hysteresis: 0.05%R.O. Repeatability: 0.05%R.O. Recommend applied voltage: 10V Allowable applied voltage: 15V Temp. Compensation range: -10 to +70 °C Allowable compensation range: -20 to +80 °C Allowable overload: 150%R.C.

MODEL-3000 Series



Standard Specifications

Rated capacity	20 N to 20 kN
Rated output	2mV/V=1% (20N: 1mV/V, 10kN & 20kN: 1.8mV/V)
Non-linearity	0.1% R.O.
Hysteresis	0.1% R.O.
Repeatability	0.1% R.O.
Recommended applied voltage	10 V
Allowable applied voltage	15 V
I/O resistance	350 Ω ±2%
Temp.compensation range	-10 to +70°C
Allowable compensation range	-20 to +80°C
Temp.influence upon zero point	±0.005% R.O. / °C
Temp.influence upon output	±0.005% / °C
Allowable overload	150% R.C.

Tensile & Compression Type Load Cells

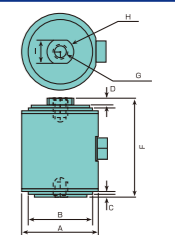
While these load cells with female threads on both sides are designed for both tensile and compression tests, they feature high precision, high output, and less output errors in pushing and pulling, resulting in high reliability. They are widely used for performance tests and industrial measurement of materials and car parts in as wide ranges as 50 N to 20 kN.

Dimensions

Model	Rated capacity	ΦA	ΦB	C	D	F	G	H	I
3005	50 N	60	50	2	5	80	M10 P1.5	20	17
3020	200 N	60	50	2	5	80	M10 P1.5	20	17
3050	500 N	60	50	2	5	80	M10 P1.5	20	17
3200	2kN	60	50	2	5	80	M10 P1.5	20	17
3500	5kN	68	58	2	10	90	M20 P1.5	36	30
3800	10kN	60	50	3	15	120	M20 P1.5	36	30
3900	20kN	60	50	3	15	120	M20 P1.5	36	30

※3002 (20 N) type is also available. The rated output is 1 mV/V.

3000 Series



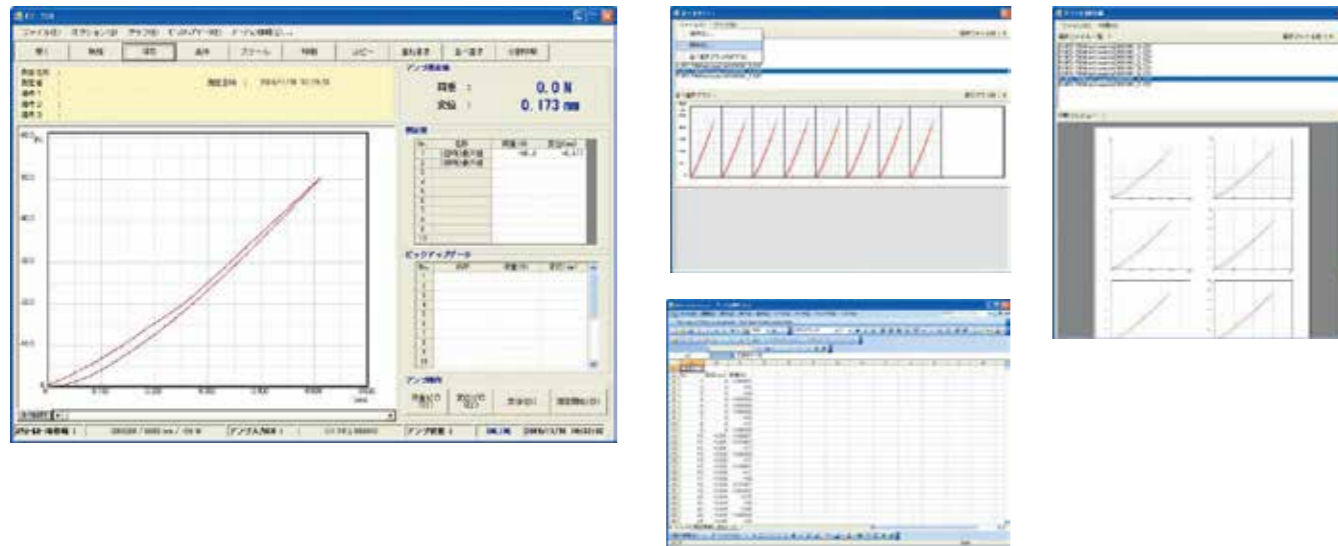
UP-05K 5N
UP-2K 20N

UP Series

Rated capacity	5N, 20N	Rated output	1 mV/V
Allowable overload	150%R.C.	Non-linearity	0.2%R.O.
Hysteresis	0.2%R.O.	Repetition Performance	0.1 %R.O.
Temp.compensation range	-10~+70 °C	Allowable compensation range	-20~+80 °C

Standard Softwares

FS-700 (MODEL-1016 Series Basic Dedicated Software)



This is data processing application software dedicated to MODEL-1016 series amplifiers. Real-time data output and waveform drawing at high-speed sampling is possible. For tests, almost all conditions of MODEL-1016 series can be set on a PC. Not only continuous testing, but the X.LS format and CSV format to directly save data to Excel are possible. The available print styles include overlapped, shifted and split print. (The PC and Excel are to be provided by the user.)

Recommended Environment

- Japanese Windows7or8
- Memory: 1G bytes or more
- 38400bps serial port: 1
- CD-ROM drive for program installation: 1
- Internet Explorer 5.0 or later
- English OS accepted
- MODEL-1016 Series Basic Version only

FSN-500 (V-103/V-103A Switch Feeling Dedicated Software)



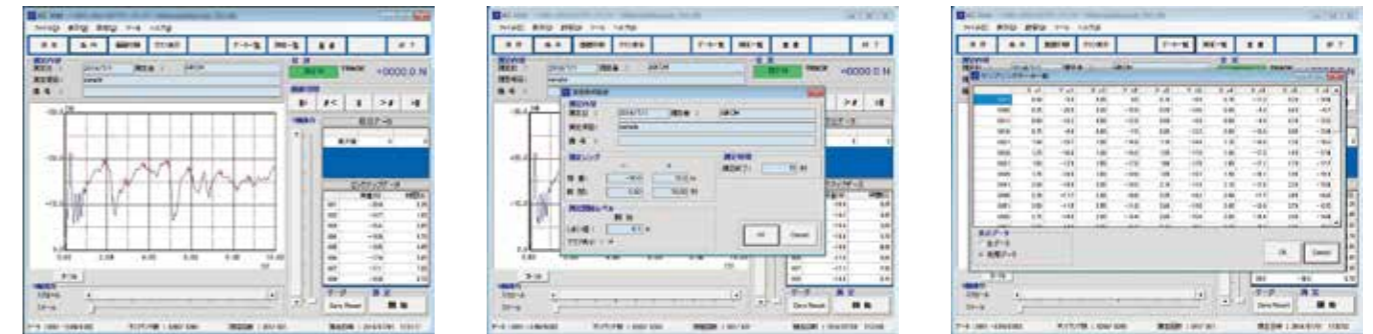
This is application software dedicated to V-103 and V-103A switch feeling. When the optional ROM card V-103 or CF card V-103A is used, measured data/graph data can be loaded to a PC and processed, saved and printed. (The PC and Excel are to be provided by the user.)

Recommended Environment

- Japanese Windows7or8
- Memory: 1G bytes or more
- 38400bps serial port: 1
- CD-ROM drive for program installation: 1
- Internet Explorer 5.0 or later
- English OS accepted

Standard Softwares

RZ-3000 (Software dedicated to RZ Series)



This is dedicated software designed to store data acquired by RZ Series in a PC. It acquires and sends real-time data to a PC to show waveform graphs and maximum values. Measurement data can be output in CSV files and output CSV files can be opened using Excel. The standard interface is the USB interface. (The USB cable is included with the RZ force gage as a standard accessory.)

Recommended Environment

- Windows7or8, Japanese or English
- Memory: 2G bytes min.
- CD-ROM drive for program installation x1

FL-2005 (Software exclusive for the RX-FL Series)



The FL-2005 is data loading application software designed exclusively for the RX-FL Series. It runs on Microsoft Windows operating systems. It receives feeling measurement data output by the RX-FI Series, which is connected to the RS232C port of a PC with RX-OP-2, carries out GO/NG judgment, data recording and other processing. It has various functions: Judgment, Various types of totalization processing, Printing, Simple histogram display, Data storage in CSV files, etc.

Recommended Environment

- Japanese WindowsXP only
- Memory: 1G bytes or more
- 38400bps serial port: 1
- CD-ROM drive for program installation: 1
- Internet Explorer 5.0 or later