

Digital force gauges  
RZ series catalog

**AIKOH**  
ENGINEERING



# RZ SERIES

# RZ Series Digital Force Gauges



The RZ Series digital force gauges are newly developed user-friendly gauges that have significantly improved the operability of conventional push-pull gauges 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. We provide complete warranty for these Models RZ-1 through RZ-100. Since there are many cases that breakage or failure occurs within one year after the delivery to the customer, the first case of breakage, overload trouble, etc. that may occur within one year after the delivery will be repaired by Aikoh free of charge. (This warranty, however, applies only to the gauges used in Japan and does not cover the gauges used overseas.)

## RZ Series Standard Specifications

Unit of measurement	N or (gf) kgf, N, lb selectable
Accuracy	Within $\pm 0.2\%$ 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	1 ms, 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

## 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-1.0000kgf)	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)	

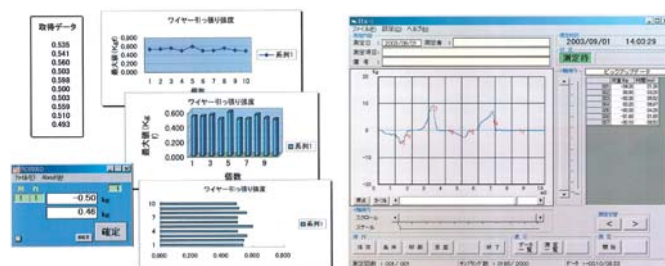
## RZ Series Optional Cables

I/O cable	RZ-OP-1
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-3000 (Software dedicated to RZ Series)



Software for Excel

Real-time waveform

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 gauge as a standard accessory.)

## Recommended Environment

Windows7, Japanese or English

Memory: 2G bytes min.

CD-ROM drive for program installation x1

## Vertical & Horizontal Manual Stand

### MODEL-2256



\*Digital gauge is optional.

A vertical and horizontal manual handle type small stand dedicated to RZ Series and SX Series.

Capable of measurement up to 500N. The gauge mounting part can be moved by turning the handle.

#### Standard Specifications

Max. force	500N (50kgf)
Moving distance	3mm/handle rotation
Stroke	240mm
Weight (Vertical)	Approx. 16kg
(Horizontal)	Approx. 12kg
Size	W200 x H500 x D150mm (Including handle)

## Vertical & Horizontal Motorized Stand

### MODEL-2257



\*Digital gauge is optional.

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

Max. force	500N (50kgf)
Test speed	10 to 200mm/min.
Speed changing	Continuous
Stroke	150mm
Displacement display	None
Distance between test center & column	49mm
Table size	W200 x D120mm
Driving motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide system	Sliding contact
Weight	Approx 20kg
Size	W215 x H380 x D235mm
Power supply	100 to 240VAC, single-phase, 0.5A

## Horizontal Motorized Stand

### MODEL-2252R



\*Digital gauge is optional.

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

#### Standard Specifications

Max. force	500N (50kgf)
Test speed	10 to 80mm/min.
Speed changing	In five steps or continuous
Stroke	150mm
Displacement display	None
Z stage stroke	40mm
Distance between test center & Z-axis plane	39 to 79mm
Table size	W100 x D100mm
Driving motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Weight	Approx. 23kg
Size	W518 x H228 x D345mm
Power supply	100 to 240VAC, single-phase, 0.5A

# High Capacity Force Push Pull Gauge

## RZ-S-200



\*The handle, hook and jig are optional.

This is a separate type of the RZ Series that is capable of measuring forces up to 2000N easily. Optional jigs are available for hand measurement. When used together with an electric stand, this gauge provides very stable measurement results.

### RZ-S-200 Standard Specifications

Rated capacity (R.C.)	2000N (200kgf)
Min. display unit	1N (0.1kgf)
Measurement unit	kgf, N, Lbf selectable
Accuracy	±0.2% F.S.
Analog output	±2V/F.S.
Communication output	USB output
Printer output	SANEI thermal printer, MITUTOYO DIGIMATIC output
Continuous use time	30hours after full charge
Power supply	Nichel-metal hydride battery AC adapter MODEL-780 (AC100-240V) USB cable MODEL-RZ-USB

# Manual Test Stands

## MODEL-1345



\*Digital gauge is optional.

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

### Standard Specifications

Max. force	500N (50kgf)
Stroke	43mm (1.75mm/rotation)
Table size	180 x 100mm
Max. span	210mm
Weight	Approx. 9kg
Size	W200 x H435 x D235mm

## MODEL-1349



\*Digital gauge is optional.

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

### Standard Specifications

Max. force	500N (50kgf)
Stroke	43mm/140 degrees
Table size	180 x 100mm
Max. span	210mm
Weight	Approx. 9kg
Size	W200 x H435 x D235mm

## MODEL-1338



\*Digital gauge is optional

The MODEL-1338 is suitable for the switch feeling tests. The gauge mounting head is moved up and down by rotating knob. Please use it with the RX-FL Series.

### Standard Specifications

Max. force	50N (5kgf)
Stroke	20mm
Max. span	70mm
Weight	Approx. 5kg
Size	W150 x H260 x D200mm

## MODEL-2254



\*Digital gauge is optional.

The MODEL-2254 is a manual test stand for measuring the caulking strength of wire harnesses and so forth. The work mounting heads is moved with a lever.

Using the RZ Series digital gauges provides various functions, including data printing and storage in personal computers. The MODEL-2254 is supplied with a set of gauge jigs.

### Standard Specifications

Max. force	500N (50kgf)
Stroke	70mm
Chuck width	0 to 10mm
Weight	Approx. 15kg
Size	W525 x H150 x D200mm

## RZ-T Series Portable Torque Gauges

### MODEL-RZ-T Series



The portable torque gauges 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 gauges.

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:  $\text{mN}\cdot\text{m}$  and  $\text{kgf}\cdot\text{cm}$ .

#### RZ-T Series Standard Specifications

Model	RZ-T-20	RZ-T-100
Rated capacity (R.C.)	2000 $\text{mN}\cdot\text{m}$ (20 $\text{kgf}\cdot\text{cm}$ )	10 $\text{N}\cdot\text{m}$ (100 $\text{kgf}\cdot\text{cm}$ )
Min. display unit	1 $\text{mN}\cdot\text{m}$ (0.01 $\text{kgf}\cdot\text{cm}$ )	0.001 $\text{N}\cdot\text{m}$ (0.01 $\text{kgf}\cdot\text{cm}$ )
Measurement unit	$\text{mN}\cdot\text{m}$ , $\text{kgf}\cdot\text{cm}$	$\text{N}\cdot\text{m}$ , $\text{kgf}\cdot\text{cm}$
Accuracy	$\pm 1\%$ F.S.	
Display update interval	1,2,5,10,20 times/sec, selectable	
Sampling cycle	1ms,5ms,16ms,50ms,125ms and 250ms selectable	
Communication output	USB output	
Analog output	$\pm 2\text{V}/\text{F.S.}$	
Printer output	SANEI thermal printer, MITUTOYO DIGIMATIC output	
Continuous use time	30hours after full charge	
Power supply	Nichel-metal hydride battery AC adapter MODEL-780 (AC100-240V) USB cable MODEL-RZ-USB	

#### RZ-T Series Optional Cables

I/O cable	RZ-OP-1
I/O cable	RZ-OP-2
MITUTOYO-made DP-1VR printer cable	RZ-OP-3
MITUTOYO-made digimatic input cable	RZ-OP-4

## RX-FL Series Switch Feeling Gauges

### MODEL-RX-FL Series



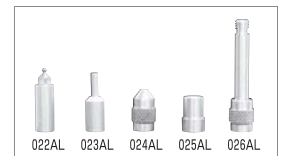
\*The manual stand MODEL-1338 is optional.

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 Optional Cables

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



#### RX-FL Series Standard Specifications

Model	RX-FL-1	RX-FL-2
Rated capacity (R.C.)	10N (1kgf)	20N (2kgf)
Min. display unit	0.001N (0.1gf)	0.01N (1gf)
Unit of measurement	N, kgf, Lbf selectable	
Measurement system	Peak value, Bottom value, Click value & Click ratio	
Accuracy	$\pm 0.2\%$ 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	$\pm 2\text{V}/\text{F.S.}$	
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	Nidc & AC adaptor MODEL-761 (100VAC) or MODEL-762 (200-240VAC)	

# SX Series Digital Force Gauges



This is a force gauge with the functions required for a handy-type test equipmet.

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
Rated capacity (R.C.)	20N (2kgf)	50N (5kgf)	200N (20kgf)	500N (50kgf)
Min. display unit	0.01N/0.001kgf/1gf		0.1N/0.01kgf	
Top shaft	M6			

Caution) The min. display unit is not accuracy.

## SX Series Standard Specifications

Unit of measurement	N, kgf (gf), Lbf selectable
Measurement system	Track/Peak/+Peak/-Peak
Accuracy	±0.2% F.S.
Sampling cycle	20, 62, 200 & 800 times/sec. selectable
Indication update cycle	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 BL2-58SNWJC & cables
Applicable temperature range	0 to 50°C
Mass	Approx. 360g
Power supply	Three exclusive AAA nickel hydrogen cells, AC adaptor MODEL-770 (5VDC, 1200mA)

## Usage example



- With easy reading large display and reversible display
- With automatic power off and automatic zero resetting function
- Printer output and overload output provided as standard features
- Three size AAA nickel-hydrogen cells, with an exclusive adaptor (100 to 240V/European specification plug)
- Recharging time: Approx. 4.5hours (measurable during charging)
- Usable time: Approx. 35hours after full recharging

## Optional Cables for SX Series

Overload cable	SX-OP-1
Printer & External input cable	SX-OP-2

## Standard Accessories for SX Series



## SX Series and RX Series Comparison Table

	SX Series	RZ Series
Unit of measurement	kgf (gf)/N/Lbf selectable	kgf/N/Lbf selectable
Measurement system	Track/Peak/+Peak/-Peak	Track/Peak
Accuracy	±0.2% F.S.	
Display update interval	1, 2, 5, 10 and 20times/sec. selectable	
Analog output	×	○
USB output	×	○
Printer output	○	○
Overload output	○	○
Comparator setting	×	○
External contact hold input	○	○
External print input	○	×
Main body case	Aluminum die casting	ABS resin

# Bench Type Simple Testers

## MODEL-1308U



**\*Option**  
Grip mounting plate  
MODEL-OJ-P-90  
(Needed when using the tensile test jig.)  
\*Digital gauge is optional.

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 (100kgf)
Test speed	5 to 100 mm/min, variable
Stroke	400mm
Displacement display	None
Distance between test center & column	60mm
Table size	W250 x D140mm
Specimen table size	W120 x D90mm, Center M6
Driving motor	DC brushless motor
Driving mechanism	Trapezoidal screw
Driving mechanism guide system	Linear ball bush
Weight	Approx. 20kg
Size	W255 x H810 x D300mm
Power supply	100 to 240VAC, single-phase, 0.5A

## MODEL-1309RZ



\*RZ Series is optional.

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.
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

### Major functions

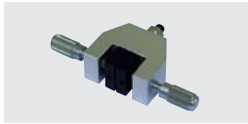
Item	Description	
Data acquisition	Real time force/displacement acquisition, graph drawing	
	Data save/batch save	Dedicated format/CSV format
Data file processing	Data load/batch load	Dedicated format
Graph overlap display	Number of registration	100
	Graph cut sheet print	Cut sheet horizontal: 1 graph Cut sheet horizontal: 1 graph Cut sheet vertical: 2graphs Cut sheet horizontal: 4graphs Cut sheet vertical: 8graphs
Printing	Graph continuous print	
	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)	

\*This software is compatible with Windows7 & Japanese OS.

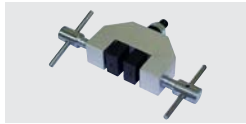
### Standard Configuration

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

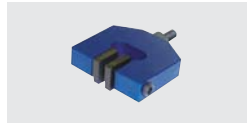
# Grips & Jigs



201  
Small-size flat chuck



203  
Flat chuck



207-2K  
Flat chuck



220-50-45  
Small double side opening vise



221-25  
Single roller chuck



224-P-4/5  
Pin vise



225  
Small loads of wires, etc.



226-1/5/10/15  
Pantograph chuck



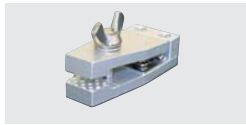
227-20/30  
All-purpose type



228G-10~40/228H-10~40  
Film chuck  
G: Rubber H: Sand paper



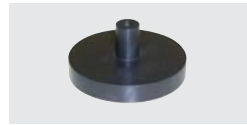
230-45  
Board mounting jig



231  
All-purpose type



232  
All-purpose type



CP-U-40/60/80  
Round flat type  
compression table



HS-2~8  
Shear jig

## Standard Specifications

MODEL	Capacity	Jaw Size (WxDmm)	Jaw Max. Opng (mm)	Mounting screw	Weight (g)	Application	Type
201	50N	20×15	8	※M6 female	Approx.125	All-purpose type	Parallel flat plate individual screwing
203	2kN	25×20	14	※M10 female	Approx.442	All-purpose type	Parallel flat plate individual screwing
207-2K	2kN	25×25	12	※M10 female	Approx.356	All-purpose type	Parallel flat plate individual screwing
220-50-45	500N	50×45	0~45		Approx.958	Vise	Right-hand/left-hand thread
221-25	200N	W25	—	※M6 female	Approx.115	Film/cloth	Spring opening/closing
224-P-4/5	10N	—	0~Φ3.2	※M6 female	Approx.12	Round bar	For round bar/collet change type
225	0.5N	25×25	3	M6 female	Approx.56	Gold wire	Clip type
226-1	5N	Tip jaw width 0.5-1	2	M6 female	Approx.97	Small parts	Pantograph type
226-5	100N	Tip jaw width 5	2	M6 female	Approx.100	Small parts	Pantograph type
226-10	100N	Tip jaw width 10	2	M6 female	Approx.100	Small parts	Pantograph type
226-15	100N	Tip jaw width 15	2	M6 female	Approx.107	Small parts	Pantograph type
227-20	500N	20×10	4	※M6 female	Approx.214	All-purpose type	Pantograph type
227-30	500N	30×10	4	※M6 female	Approx.233	All-purpose type	Pantograph type
228-10	20N	W10	1	M6 female	Approx.37	Thin plate	Screwing
228-20	20N	W20	1	M6 female	Approx.49	Thin plate	Screwing
228-30	20N	W30	1	M6 female	Approx.64	Thin plate	Screwing
228-40	20N	W40	1	M6 female	Approx.77	Thin plate	Screwing
230-45	—	—	4	-	Approx.850	Substrate holding	
231	200N	15×10	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	All-purpose type	
CP-U-40	100N	Φ40	—	M6 female	Approx.100	Upper compression plate	
CP-U-60	100N	Φ60	—	M6 female	Approx.210	Upper compression plate	
CP-U-80	100N	Φ80	—	M6 female	Approx.350	Upper compression plate	
HS-2	30N	W2	—	M6 female	Approx.44	Shear jig	
HS-4	50N	W4	—	M6 female	Approx.46	Shear jig	
HS-6	50N	W6	—	M6 female	Approx.48	Shear jig	
HS-8	50N	W8	—	M6 female	Approx.49	Shear jig	
OJ-P-90	—	—	—	M6 female	Approx.748	Lower tension jig mounting plate	

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

Manufacturer

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(IMPORT & EXPORT DEPT.)

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