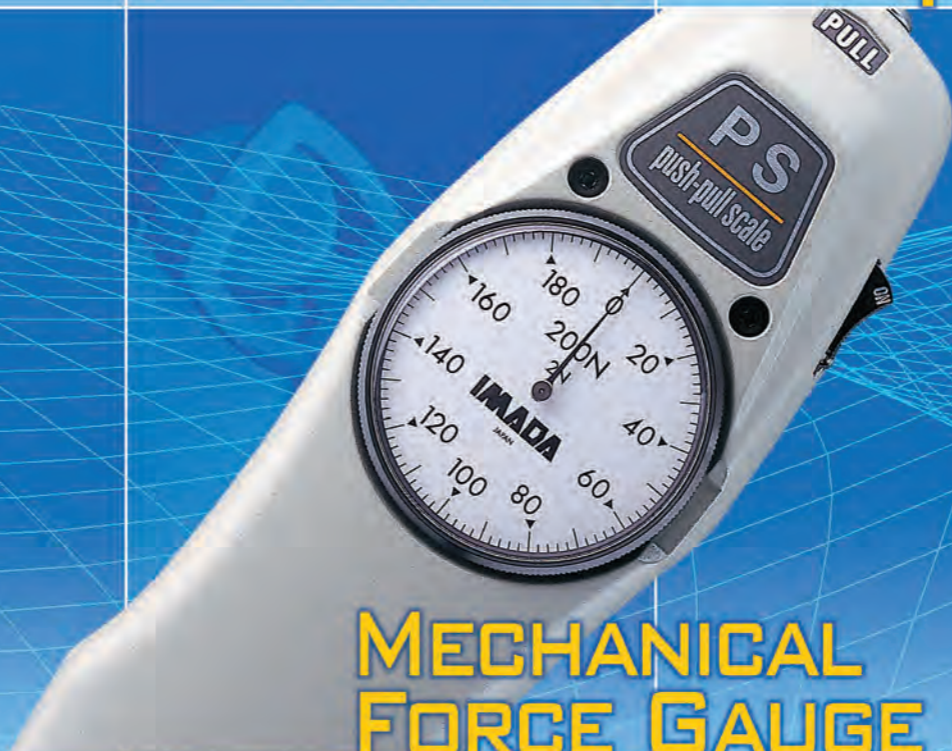




**DIGITAL  
 FORCE GAUGE**

For measurements of tensile and compressive forces, it features ease of use combined with powerful functionality.



**MECHANICAL  
 FORCE GAUGE**

For easy and accurate measurement without power charge. Various models and ranges of capacity are available.

\*Design, appearance and specifications may be changed for modifications or improvements without any prior notice.

Agency



**MOTORIZED  
 TEST STAND**

For stable measurement. It helps labor-saving and sufficient measurement. Various convenient functions available.

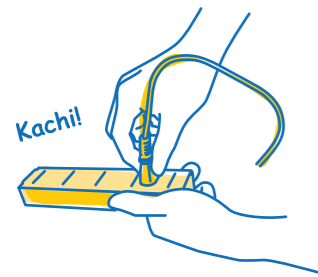


# Force with Us

“How chunky are these cookies?” “Want to know how strong this plant roots.”

IMADA can answer to these questions and requests.

The strength, used to rely on imagination or professional experience, can be accurately measured with IMADA force measurement tools. IMADA offers more potential of measurement.



● **Inserting:** Control force to insert power point. It helps better safety.



● **Stretching:** Texture of cheese effects taste. You can even control taste.



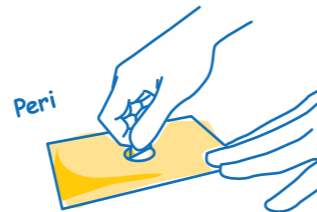
● **Rotating:** Complete tightening and easy loosening. Best balance by measurement.



● **Opening:** Not too hard. Not too easy. Study of convenient cupboard.



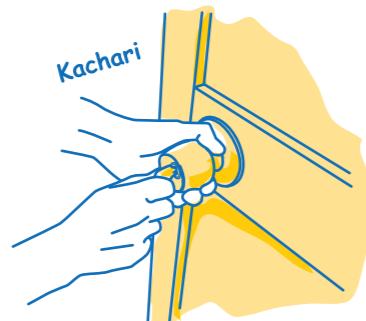
● **Pulling:** Endurance test can be operated by cycle measurement.



● **Peeling:** Development of seal by repeating peel and reseal.



● **Pressing:** Easy button deeply relies on how hard to press.



● **Locking:** Even locking and unlocking are under force control.



● **Pinching:** Force is important also to your laundry partner.

## Applications Industries

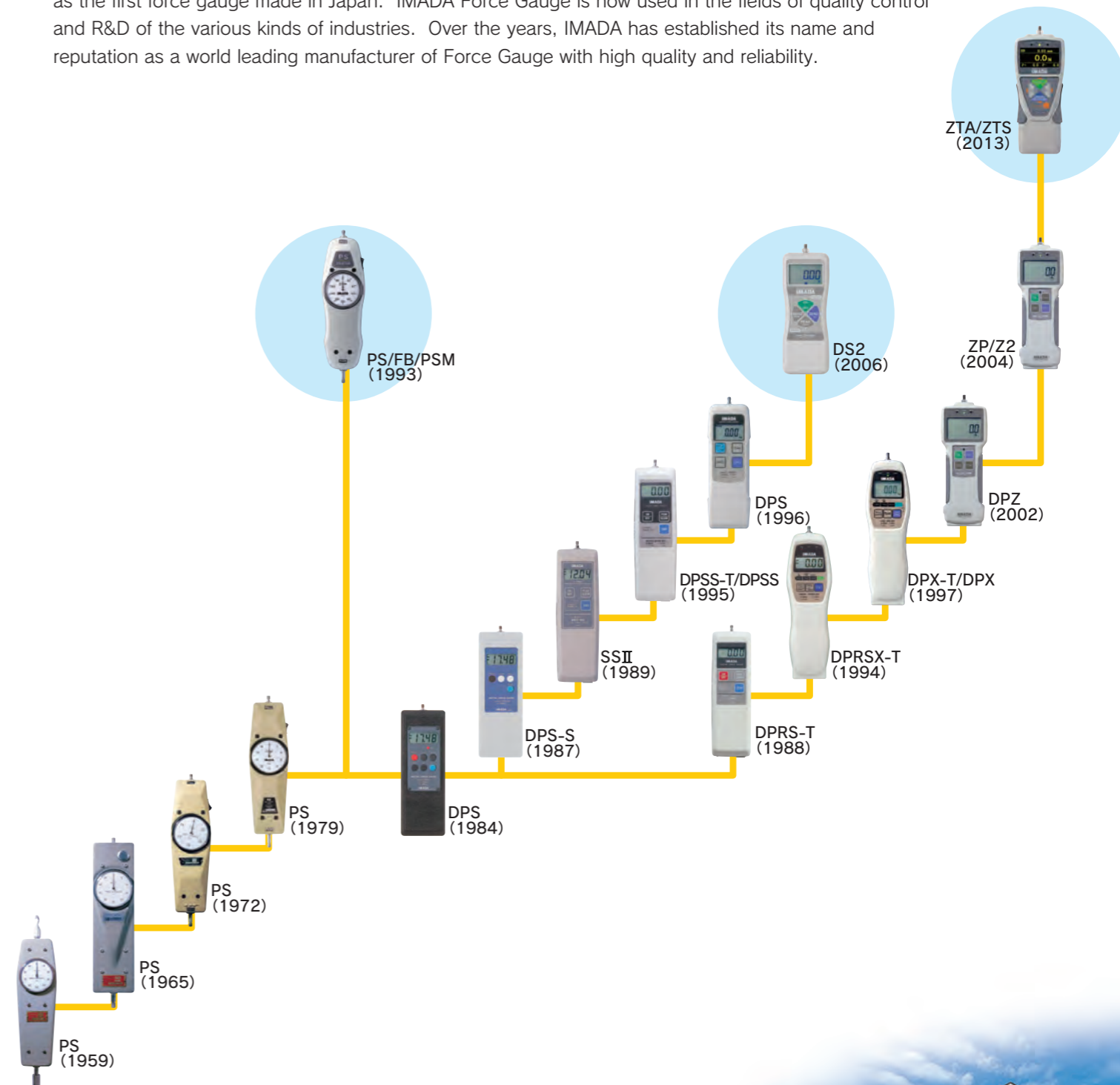
- Aircrafts
- Vehicles
- Electronics
- Precision instruments
- Office equipments
- Medical instruments
- Plastics
- Textile
- Sports goods
- Foods
- Cosmetics
- Packages

## Applications

- Switch, keyboard contact press
- Adhesive bond, spot welds strength
- Brake, clutch pedal operating pressure
- Motor, bearings driving force
- Spring, silicon rubber bending strength
- Fastener, pull top can pull testing
- Connector insertion / withdrawal force
- Glass, ceramics, pills crush strength
- Seal, laminate peel strength
- Needle penetration force
- Plastic, cardboard box breaking strength
- Paste materials, fruit firmness

# History of IMADA Force Gauge

The history of IMADA goes back in 1947, when a mechanical force gauge for aircraft maintenance is ordered. As Japan had imported force gauges until then, it was so hard to develop. Yet IMADA Push Pull Gauge (mechanical force gauge), developed resulting from much effort, has gone down in history as the first force gauge made in Japan. IMADA Force Gauge is now used in the fields of quality control and R&D of the various kinds of industries. Over the years, IMADA has established its name and reputation as a world leading manufacturer of Force Gauge with high quality and reliability.



## We accept custom-made product

IMADA can develop and produce custom-made product based on customers' measurement requests. Our engineers offer you the best solution for the special measurement condition such as built-in measurement and specific specifications.





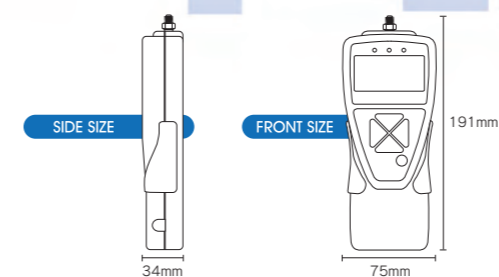
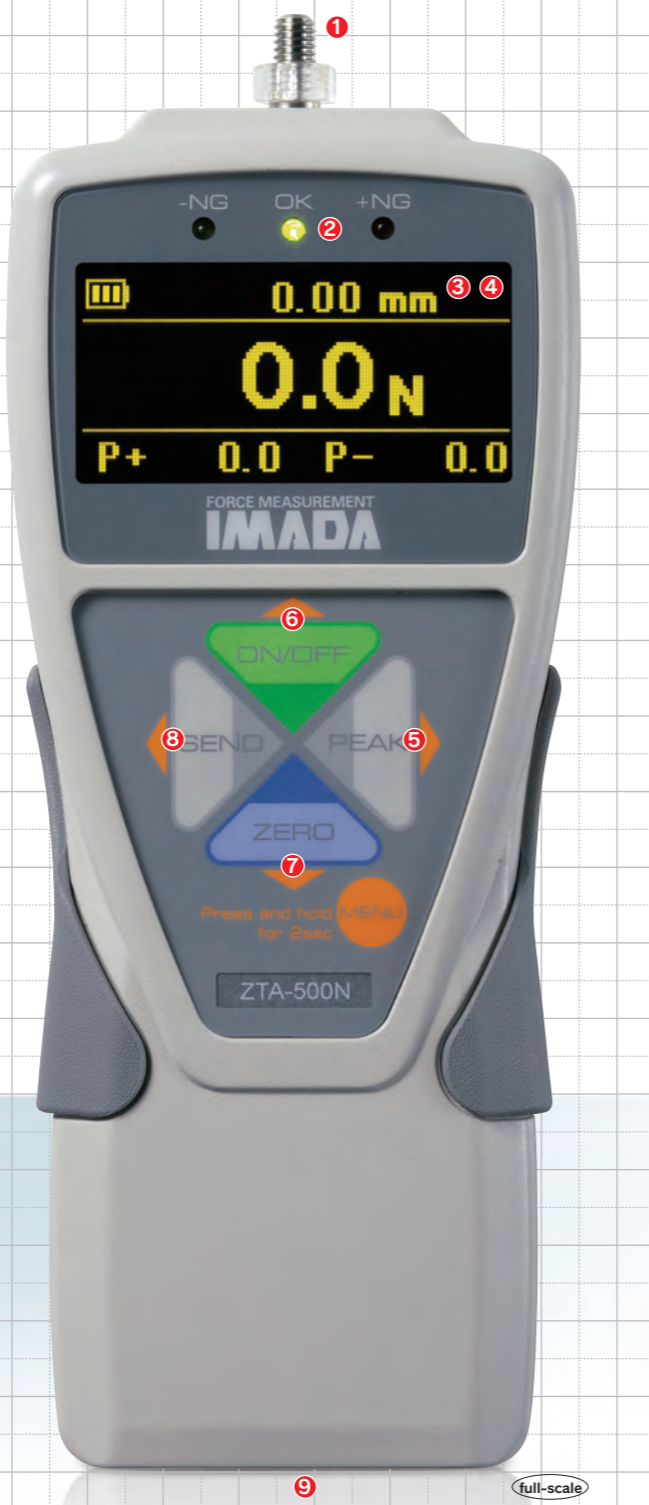


## Digital Force Gauge

Digital Force Gauge by IMADA can measure both tension and compression with high accuracy. Its responding speed is distinguished and it follows even sudden force change. It includes many convenient functions such as display reverse, input / output signals, and graph drawing with optional software. It is designed for easy holding. With test stands, more accurate measurement is available in the fields of quality control and R&D.

### Feature of Digital Force Gauges

- 1 Digital indication reduces misreading**
  - 2 Connectable to PC and easy data management**
  - 3 Various useful functions**
  - 4 Ideal for impact/breaking test**
- 1 Thread**  
Available for both tension and compression test. A variety of attachments are attachable.
  - 2 Comparator LED**  
The light comes on according to set points.
  - 3 Display**  
Indicates set points, peak value, the number of memory, displacement(ZTA only) as well as measured values. Reversible.
  - 4 Overload warning**  
Indicates "OVERLOAD" when a measured value comes close to its capacity.
  - 5 PEAK button**  
Selectable from peak mode or real time tracking one
  - 6 ON/OFF button**  
Turns power on/off.
  - 7 ZERO button**  
Resets value.
  - 8 SEND button**  
Outputs/Memorizes data, Holds value while pressed
  - 9 37 pin I/O connector USB connector (mini-B)**  
Data can be transferred to PC or other devices like printer with a dedicated cable.



## ZTA/ZTS



### Features

- 1 High sensitivity; 2000Hz**
- 2 Organic EL display; Bright and easy to read**
- 3 Graphical indication; Easy to handle**
- 4 Multi display**
- 5 1000 values memorable**
- 6 High/Low set point**
- 7 Measured data can be saved in USB flash drive (ZTA only)**
- 8 Displacement I/O (ZTA only)**
- 9 Attachments and a carrying case are included**
- 10 1 year guarantee**

### Specifications

Accuracy	Att.	Thread	RS232C	USB	Analog Voltage	Memory	Unit Change
±0.2%F.S.±1digit	6/8	M6/M10	Yes/No	Yes/No	1V/2V	Yes/No	N/lbf/kgf

- Details** \*Att.=Attachment
- Weight:Approx. 490g \*Weight is slightly different according to range.
  - Dimensions:Approx. W75\*D34\*H191mm
  - Accessories:8 attachments (refer to page 21),AC adaptor, Carrying case, Instruction manual, Inspection certificate, Data logging software ZT-Logger, USB cable, Adaptor for USB flash drive(only for ZTA)
  - \*USB flash drive is not included.

### Applications

- Measuring of the strength of electronic parts bonding or soldering
- Measuring of contact press for touch panel or keyboard
- Measuring of push/pull force for connector pin or slide cap
- Pull testing of pull top can or noodle container lid

## High functionality/performance digital force gauge

ZTA/ZTS series are high functionality/performance digital force gauges available in capacity from 2N(200gf) up to 1000N(100kgf). Their high sampling rate(2000Hz) provides accurate results for even quick movement testing. It is easy to handle due to clear and bright organic EL displays and graphical display. For more sophisticated analysis, you can use optional software, providing real-time data transferring(2000 data/sec) to PC and graphing smoothly. ZTA series can input/output displacement when they are combined with test stands having linear scales, which is ideal for force-displacement analysis.

### Common specifications for ZTA/ZTS series

Model	ZTA	ZTS
Feature	Advanced model with various functions such as data saving in USB memory stick, displacement I/O and more.	Standard model with the same benefit in performance as ZTA series but reduced functionality.
Accuracy	±0.2%F.S.±1digit	
Unit of measurement(*1)	N, kgf, lbf (*2)	
Display	4-digit Organic EL	
Display update	10/sec	
Sampling rate	2000 data/sec at maximum(*3)	
Battery	8 hours(8 hours charge) The battery is more consumed when connected to USB memory stick or linear scale.	
Safe overload rating	Approx.200%F.S.	
Operating environment	Temperature:0 to +40 degree Celsius, Humidity:20 to 80%RH	
Function	Customized display(header and footer), Peak hold(tension and compression), Internal 1000 points data memory, Comparator(judgment of OK or NG), Reversible display, Sign inversion, Zero clear timer, +NG alarm, Off timer(auto power off), Dumping, Calendar display	
	1st/2nd peak,Displacement detection at force peak, Displacement reset at selected force	—
Output	USB, RS232C, Mitutoyo digimatic(*4), 2 VDC analog output(D/A), Comparator 3 steps(-NG/OK/+NG)	—
	Sub comparator 2 steps (output of low or high judgment)	—
Overload warning	Approx.110%F.S. (Warning message and alarm)	
External connecting switch	SEND(a point of contact holding), Zero reset, Peak ON/OFF setting	
Weight	From 2N to 1000N model:Approx.490g 2500N, 5000N:Approx.1100g	
Accessory	AC adaptor, Inspection certificate, CD driver(including simple software for data logging), Attachments(The set of attachments varies according to range.), USB cable, Carrying case. Adaptor for USB memory stick	

\*1)These are the specifications for International model. Please note that this unit is different from Japanese domestic model and international one. \*2)[N indication] The indication of 2N and 5N models is mN or N. The indication of 1000N,2500N and 5000N model is N or kN.[kgf indication] The indication of 2N and 5N models is gf.[lbf indication] The indication of 2N and 5N models is ozf. \*3)When you save data in USB memory stick, the sampling rate is 100 data/sec. \*4)Not always available for Mitutoyo digimatic products.

Model	Range	Display	Resolution	Thread
ZTA-2N	ZTS-2N	2N(200gf)	2.000N/200.0mN(200.0gf)	0.001N/1mN(0.1gf)
ZTA-5N	ZTS-5N	5N(500gf)	5.000N/500.0mN(500.0gf)	0.001N/1mN(0.1gf)
ZTA-20N	ZTS-20N	20N(2kgf)	20.00N(2.000kgf)	0.01N(0.001kgf)
ZTA-50N	ZTS-50N	50N(5kgf)	50.00N(5.000kgf)	0.01N(0.001kgf)
ZTA-100N	ZTS-100N	100N(10kgf)	100.0N(10.00kgf)	0.1N(0.01kgf)
ZTA-200N	ZTS-200N	200N(20kgf)	200.0N(20.00kgf)	0.1N(0.01kgf)
ZTA-500N	ZTS-500N	500N(50kgf)	500.0N(50.00kgf)	0.1N(0.01kgf)
ZTA-1000N	ZTS-1000N	1000N(100kgf)	1000N/1.000kN(100.0kgf)	1N/0.001kN(0.1kgf)

## Advantage of USB connection

- 1.High usability due to the most popular interface
- 2.High speed data processing for accurate graphing

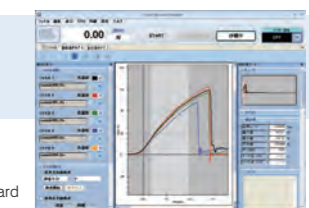
### Including software:ZT-Logger

Every ZTA/ZTS series force gauge comes with data logging software, ZT-Logger. It transfers 10 data per second to PC via USB connection and you can save it in CSV format. It is ideal to know the maximum value since it automatically calculates statistic. Besides, it recalls all internal memories of a gauge to PC at once, and calculate its statistics as well. You can easily set up functions of a gauge from PC, improving measurement efficiency.

### Optional software:Force Recorder

Force Recorder is optional graphing software for ZTA/ZTS series. It receives the measured data at 2000Hz at maximum, drawing the data into a graph and calculating its statistics. 3 models are available to suit your demands. 1.Standard:Ideal for force-time graphing. 2.Light:Economical model with reduced functionality. 3.Professional:Ideal for force-displacement analysis (Must be combined with a ZTA series force gauge and a test stand having linear scale).

Optional graphing software for ZT series: Force Recorder Standard





## ZTA/ZTS (separate sensor model)



ZTA/ZTS (sensor separate model) set

## Separate sensor model

This is a unit of an external load cell and an indicator. This model is suitable for the use of limited or dangerous place. Various types of load cells are available to suit your demand other than DPU series (Please refer to page 11 and 12.).

## Specifications

Accuracy	Att.	Thread	RS232C	USB	Analog Voltage	Memory	Unit Change
±0.2%F.S.±1dgt	6/8 <sup>*1</sup>	M6/M10	Yes/No	Yes/No	1V/2V	Yes/No	N/lbf/kgf

## Details

- Weight: Approx. 490g \*Weight is slightly different according to range.
- Dimensions: Approx. W75\*D34\*H188mm
- Accessories: 8 attachments (refer to page 21), AC adaptor, Carrying case, Instruction manual, Inspection certificate, Data logging software ZT-Logger, USB cable, Adaptor for USB flash drive (only for ZTA) \*USB flash drive is not included.
- Other specifications are the same as ZTA/ZTS series in page 6. Please refer to "Common specifications for ZTA/ZTS series" on page 6.

Model	Capacity	Display	Resolution	Thread
ZTA-DPU-2N	ZTS-DPU-2N	2N (200gf)	2.000N/2000mN(200.0gf)	0.001N/1mN(0.1gf)
ZTA-DPU-5N	ZTS-DPU-5N	5N (500gf)	5.000N/5000mN(500.0gf)	0.001N/1mN(0.1gf)
ZTA-DPU-10N	ZTS-DPU-10N	10N (1kgf)	10.00N(1.000kgf)	0.01N(0.001kgf)
ZTA-DPU-20N	ZTS-DPU-20N	20N (2kgf)	20.00N(2.000kgf)	0.01N(0.001kgf)
ZTA-DPU-50N	ZTS-DPU-50N	50N (5kgf)	50.00N(5.000kgf)	0.01N(0.001kgf)
ZTA-DPU-100N	ZTS-DPU-100N	100N(10kgf)	100.0N(10.00kgf)	0.1N(0.01kgf)
ZTA-DPU-200N	ZTS-DPU-200N	200N(20kgf)	200.0N(20.00kgf)	0.1N(0.01kgf)
ZTA-DPU-500N	ZTS-DPU-500N	500N(50kgf)	500.0N(50.00kgf)	0.1N(0.01kgf)
ZTA-DPU-1000N	ZTS-DPU-1000N	1000N(100kgf)	1000N(1.000kN(100.0kgf)	1N/0.001kN(0.1kgf)
ZTA-DPU-2000N	ZTS-DPU-2000N	2000N(200kgf)	2000N(2.000kN(200.0kgf)	1N/0.001kN(0.1kgf)
ZTA-DPU-5000N	ZTS-DPU-5000N	5000N(500kgf)	5000N(5.000kN(500.0kgf)	1N/0.001kN(0.1kgf)
ZTA-DPU-10kN	ZTS-DPU-10kN	10kN(1000kgf)	10.00kN(1000kgf)	0.01kN(1kgf)
ZTA-DPU-20kN	ZTS-DPU-20kN	20kN(2000kgf)	20.00kN(2000kgf)	0.01kN(1kgf)

\*1) No attachments are included in ZTA/ZTS-DPU-10kN/20kN since they do not have measuring shafts but female screws. ZTA/ZTS-1000N/2000N/5000N comes with 6 attachments for high capacity models.  
\*2) Load cells must be calibrated independently to each display unit. They are NOT interchangeable.

## ZTA/ZTS (high capacity model)



ZTA/ZTS (high capacity model) set

## High capacity model digital force gauge

This is high capacity model digital force gauges available in capacity from 2500N (250kgf) up to 5000N (500kgf). Their high sampling rate (2000Hz) provides accurate results for even quick movement testing. It is easy to handle due to clear and bright organic EL displays and graphical display. For more sophisticated analysis, you can use optional software, providing real-time data transferring (2000 data/sec) to PC and graphing smoothly. ZTA series can input/output displacement when they are combined with test stands having linear scales, which is ideal for force-displacement analysis.

## Specifications

Accuracy	Att.	Thread	RS232C	USB	Analog Voltage	Memory	Unit Change
±0.2%F.S.±1dgt	6/8	M6/M10	Yes/No	Yes/No	1V/2V	Yes/No	N/lbf/kgf

## Detail

- Weight: Approx. 1100g \*Weight is slightly different according to range.
- Dimensions: Approx. W83\*D44.5\*H221mm
- Accessories: 6 attachments (refer to page 21), AC adaptor, Carrying case, Instruction manual, Inspection certificate, Data logging software ZT-Logger, USB cable, Adaptor for USB flash drive (only for ZTA) \*USB flash drive is not included.
- Other specifications are the same as ZTA/ZTS series in page 6. Please refer to "Common specifications for ZTA/ZTS series" on page 6.

## Applications

- Strength test for various materials (tension test, compression test, shearing test, etc.)
- Measuring of attraction/repulsion force of solenoid or magnet.
- Adhesion test of laminated tubes.

Model	Range	Display	Resolution	Thread
ZTA-2500N	ZTS-2500N	2500N(250kgf)	2500N/2.500kN(250.0kgf)	1N/0.001kN(0.1kgf)
ZTA-5000N	ZTS-5000N	5000N(500kgf)	5000N/5.000kN(500.0kgf)	1N/0.001kN(0.1kgf)

## DS2

## Popular Model

It covers the measurement of low to medium force between 2N~1000N. It has high performance and quality but simple functions and economic price.



DS2 set

CE

## Specifications of DS2 series

Accuracy	±0.2%F.S.±1 digit
Display	4-digit LCD
Display update	10times/sec
Sampling rate	1000 times/sec (max)
Battery usage	10 hours (Approx. 10hours for charging)
Overload capacity	Approx. 200% F.S.
Power supply	Internal NiMH rechargeable battery, AC adaptor
Environment	Temperature: 0~+40°, Humidity range: 20~80%RH
Functions	Peak hold Comparator Display reverse Damping (2-step)
Output	Digital (RS232C) Analog voltage Approx. ±1V F.S. Mitutoyo Digimatic
Overload warning	Approx. 110%F.S. (LCD blinks)
Weight	Approx. 420 g
Dimensions	W66×D33×H189mm
Included	6 attachments (Small Hook, Flat Tip, Conical Tip, Chisel Tip, Notched Tip, Extension Shaft (tp page 21)) AC adaptor, Carrying case, Instruction manual, Inspection certificate

## Features of DS2 series

- 1 An ergonomic design fit to your hand
- 2 Easy operation with simple functions
- 3 Display reverse function
- 4 Peak hold function
- 5 Rugged die cast aluminum housing
- 6 Included attachments and carrying case
- 7 1 year guarantee

## Specifications

Accuracy	Att.	Thread	RS232C	USB	Analog Voltage	Memory	Unit Change
±0.2%F.S.±1dgt	6/8	M6/M10	Yes/No	Yes/No	1V/2V	Yes/No	N/lbf/kgf

## Applications

- Measurement of tensile and compressive force.
- Measurement of strength of electronic parts, etc.
- Measurement of strength of packaging seals, etc.
- Measurement of insertion/removal force of connectors and slide caps.

Model	Capacity	Indication	Resolution	Thread
DS2-2N	2N(200gf)	2.000N(200.0gf)	0.001N(0.1gf)	
DS2-5N	5N(500gf)	5.000N(500.0gf)	0.001N(0.1gf)	
DS2-20N	20N(2kgf)	20.00N(2.000kgf)	0.01N(0.001kgf)	
DS2-50N	50N(5kgf)	50.00N(5.000kgf)	0.01N(0.001kgf)	M6
DS2-200N	200N(20kgf)	200.0N(20.00kgf)	0.1N(0.01kgf)	
DS2-500N	500N(50kgf)	500.0N(50.00kgf)	0.1N(0.01kgf)	
DS2-1000N	1000N(100kgf)	1000N(100.0kgf)	1N(0.1kgf)	

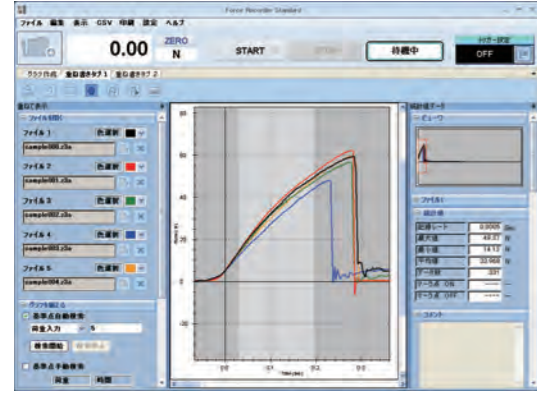


# Accessories

## Equipments for Output

IMADA digital force gauge can be connected to a computer or printer.

### Force Recorder Light/Standard for USB



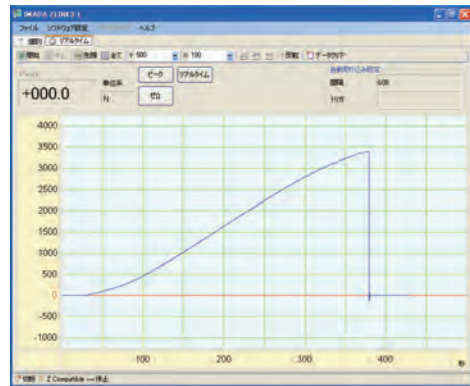
#### Force-time graphing software via USB

**Standard:**  
It is ideal for data analysis on PC. It receives 2000 data per sec. at maximum from ZTA/ZTS series force gauge, drawing the data into force vs time graphs very smoothly. It automatically calculates statistics. 5 graphs can be displayed in one table, which makes it easy to compare and evaluate charts.

**Light:**  
It is economic model with reduced functionality.

- |  |   |
|--|---|
| <p><b>Main Function</b></p> <ul style="list-style-type: none"> <li>●High speed data receiving:2000Hz at maximum</li> <li>●Graphing/data saving/printing</li> <li>●Calculate statistics automatically</li> <li>●Data saving in CSV format</li> <li>●5 graphs can be displayed in one table. (Valid only in Standard version)</li> </ul> <p><b>Available Model</b></p> <ul style="list-style-type: none"> <li>●ZTA/ZTS series</li> </ul> | <p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>●OS:Windows XP/Vista/7 (32bit/64bit)*1</li> <li>●Plat form:.NET Framework4 later</li> <li>●CPU:Pentium4 (1GHz more) more recommended</li> <li>Memory:2GB more recommended</li> <li>Hard disk:10GB(Data storage area) more</li> <li>●Execute environment:Microsoft Internet Explorer6.0 later</li> <li>Windows Installer 3.1 later</li> <li>●Image size Resolution 1024*768 pixel more</li> <li>●Connection port:USB1.1, USB2.0 connector</li> <li>* We do not guarantee operation in USB 3.0.</li> </ul> |
|--|---|

### ZLINK3 (Japanese) ZLINK3-E (English) for RS232C

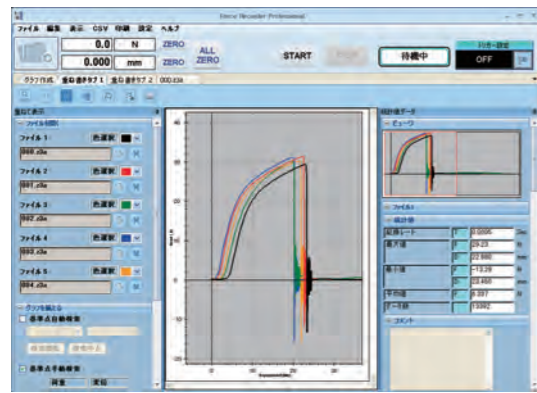


#### Software for RS232C connection

ZLINK is software for managing and analyzing measuring data. ZLINK3 has function of drawing graphs and managing peak value. This software provides high usability and efficient work of data processing.

- |  |   |
|--|---|
| <p><b>Main Function</b></p> <ul style="list-style-type: none"> <li>●Data receiving speed:50Hz at maximum</li> <li>●Calculate Averaged value automatically</li> </ul> <p><b>Available Model</b></p> <ul style="list-style-type: none"> <li>●DS2/HTG2/DTX2 series</li> </ul> | <p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>●OS:Windows2000 (SP3 later) / XP (SP2 later) / Vista/7 (32bit/64bit) *1</li> <li>●Plat form:Microsoft .NET Framework 2.0</li> <li>●Microsoft Internet Explorer 5.01 later</li> </ul> |
|--|---|

### Force Recorder Professional for USB



#### Force-displacement graphing software

It is ideal for data analysis on PC. It receives 2000 data per sec. at maximum from ZTA/ZTS series force gauge, drawing the data into force vs displacement graph very smoothly(Must be combined with a ZTA series force gauge and a test stand having a linear scale). It automatically calculates statistics. \*Force vs time graphing is also possible. Please refer to page 29 and 30 for further information of force-displacement measuring unit.

- |  |   |
|--|---|
| <p><b>Main Function</b></p> <ul style="list-style-type: none"> <li>●Draw force-displacement graph</li> <li>●High speed data receiving:2000Hz at maximum</li> <li>●5 graphs can be displayed in one table.</li> <li>●Start/stop recording automatically when the measured value reaches set points. (Trigger function)</li> </ul> <p><b>Available Model</b></p> <ul style="list-style-type: none"> <li>●ZTA series</li> <li>*Must be combined with a test stand having a linear scale and a dedicated cable.</li> </ul> | <p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>●OS:Windows XP/Vista/7 (32bit/64bit)*1</li> <li>●Plat form:.NET Framework4 later</li> <li>●CPU:Pentium4 (1GHz more) more recommended</li> <li>Memory:2GB more recommended</li> <li>Hard disk:10GB(Data storage area) more</li> <li>●Execute environment:Microsoft Internet Explorer6.0 later</li> <li>Windows Installer 3.1 later</li> <li>●Image size Resolution 1024*768 pixel more</li> <li>●Connection port:USB1.1, USB2.0 connector</li> <li>* We do not guarantee operation in USB 3.0.</li> </ul> |
|--|---|

\*1 64 bit version is available only in Windows7

### DP-1VR



#### Mitutoyo Digimatic Mini Processor®

Connect to ZTA/ZTS/DS2/HTG2/DTX2 series to print out the measured values, max/min/average value, and standard deviation.

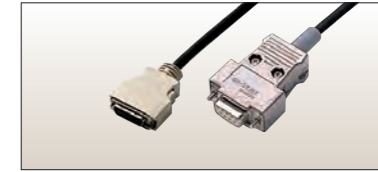
### RS232C Cable

Connect to PC to record the measured value and to set the parameters and operate the measurements from the PC.

●Approx. 3m



**CB-208**  
For ZTA/ZTS



**CB-204**  
For HTG2/DTX2



**CB-203 (9P)**  
For DS2  
CB-201 (25P male)  
CB-202 (25P female)

### Digimatic Cable

Connect to Mitutoyo Digimatic Mini-Processor to record the measured value.

●Approx. 3m



**CB-308**  
For ZTA/ZTS



**CB-304**  
For HTG2/DTX2



**CB-301**  
For DS2

### Analog Cable

Connect to analog equipment to record the changes in measured value.

●Approx. 3m



**CB-108**  
For ZTA/ZTS



**CB-104**  
For HTG2/DTX2



**CB-101**  
For DS2



**CB-908**  
For ZTA/ZTS  
(Output cable for loose wire 37 pin)

### Open end cable

Connect ZT series digital force gauge to unique equipment.

●Approx. 3m

### Stand Option Cable (for MX2, EMX series)

Connect stand (MX2 / EMX series) with digital force gauge ZT series and force amp FA PLUS to operate Force Control / Over Load Stop / Displacement Detection / External Control and so on. (Go to \*1 on page 18)

●Approx. 1.5m



**CB-518**  
For ZTA/ZTS-Force control  
(connect to MX2/EMX)

●Approx. 1.5m



**CB-718**  
For displacement measurement  
with ZTA series  
(MX2-FA)

●Approx. 1.5m



**CB-728**  
For displacement measurement  
with ZTA series  
(EMX-FA)

●Approx. 1.5m



**CB-705**  
For FA PLUS-Force control  
(connect to MX2/EMX)

●Approx. 1.5m



**CB-706**  
For External signal In/Output  
(connect to MX2-CN/EMX)

●Approx. 1m



**CB-707**  
For FA PLUS (MX2-FA)

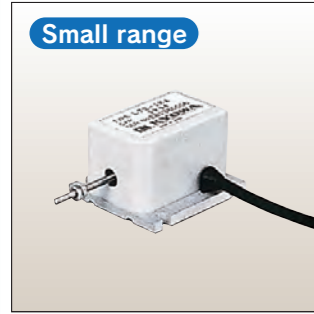
# Load Cells

## Load Cells

■For tension

### LTS

Small range



Load cell for tension

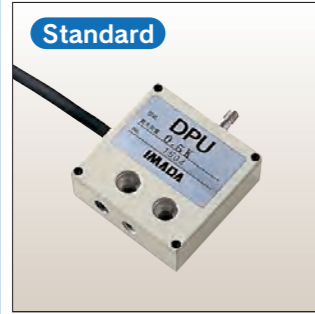
- Capacity:0.5N
- Accuracy:within ±1%F.S.
- Dimension:W34×D23×H55mm
- Cable length:Approx. 1m

Model	Capacity	Thread
LTS-0.5N	0.5N	M2

■For tension/Compression

### DPU

Standard



Load cell for tension/compression

- Capacity:2N~500N
- Accuracy:within ±0.2%F.S.
- Dimension:W58×D21×H71~W72×D21×H73mm
- Cable length:Approx. 2m

Model	Capacity	Thread
DPU-2N	2N	M6
DPU-5N	5N	
DPU-10N	10N	
DPU-20N	20N	
DPU-50N	50N	
DPU-100N	100N	
DPU-200N	200N	
DPU-500N	500N	

### DPU

High capacity



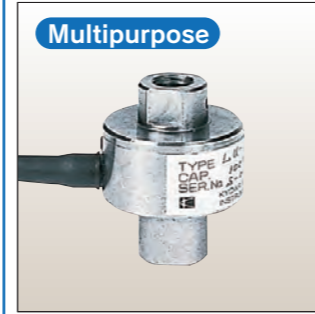
Load cell for tension/compression

- Capacity:1000N~20kN
- Accuracy:within ±0.2%F.S.
- Dimension:W58×D24×H130~W88×D40×H155mm
- Cable length:Approx. 3m

Model	Capacity	Thread
DPU-1000N	1000N	M10 M18P1.5 D22 female screw
DPU-2000N	2000N	
DPU-5000N	5000N	
DPU-10kN	10kN	
DPU-20kN	20kN	

### LU

Multipurpose



Load cell for tension/compression

- Capacity:50N~2000N
- Accuracy:within ±1%F.S.
- Dimension:φ28×H35mm
- Cable length:Approx. 3m

Model	Capacity
LU-50N	50N
LU-100N	100N
LU-200N	200N
LU-500N	500N
LU-1000N	1000N
LU-2000N	2000N

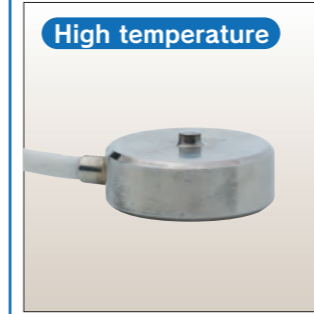
\*When you connect a load cell to ZPS/Z2S display and FA Plus force amp., adjustment is necessary whenever load cell is changed.  
\*The accuracy of the load cells are guaranteed when connected to IMADA display and amplifier.  
\*We can offer customized load cells as requested.

Please note that Force gauges and load cells are easily broken if force exceeding capacity is applied, regardless power on/off. Make sure to avoid overload.

■Load Cells for Other Purposes

### LMT-1000N

High temperature



Load cell for compression

- Capacity:1000N
- Accuracy:within ±5%F.S.
- Use temperature:-40~+130°C
- Dimension:φ14×H4.3mm
- Cable length:Approx. 2m

Model	Capacity
LMT-1000N	1000N

### PN-50N

Pen type



Load cell for compression

- Capacity:50N
- Accuracy:within ±2%F.S.
- Dimension:φ20×H90mm
- Cable length:Approx. 2m

Model	Capacity	Thread
PN-50N	50N	M6

### TFC

For torque



Load cell for torque

- Capacity:200N-cm~1000N-cm
- Accuracy:within ±0.5%F.S.
- Dimension:φ60×H53mm
- Cable length:Approx. 2m

Model	Capacity
TFC-200Nc	200N-cm
TFC-500Nc	500N-cm
TFC-1000Nc	1000N-cm

### TMS

For String Tension



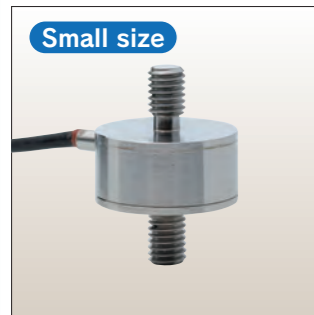
Load cell for wire/string tension

- Capacity:500N~2000N
- Accuracy:within ±0.5%F.S.
- Dimension:TMS-50=W100×D31×H170mm, TMS-100/200=W120×D45×H250mm
- Cable length:Approx. 2m

Model	Capacity
TMS-500N	500N
TMS-1000N	1000N
TMS-2000N	2000N

### LMU

Small size



Load cell for tension/compression

- Capacity:50N~500N
- Accuracy:within ±1%F.S.
- Dimension:φ18×H25mm
- Cable length:Approx. 2m

Model	Capacity	Thread
LMU-50N	50N	M5P0.8
LMU-100N	100N	
LMU-200N	200N	
LMU-500N	500N	

### WP-50N

Waterproof



Load cell for tension/compression

- Capacity:50N
- Accuracy:within ±0.5%F.S.
- Uses environment:IP65
- Dimension:W70×D30×H58mm
- Cable length:Approx. 30cm

Model	Capacity	Thread
WP-50N	50N	M6

■For Compression

### LC

Multipurpose



Load cell for compression

- Capacity:500N~20kN
- Accuracy:within ±0.5%F.S.
- Dimension:φ50×H25mm
- Cable length:Approx. 3m

Model	Capacity
LC-500N	500N
LC-1000N	1000N
LC-2000N	2000N
LC-5000N	5000N
LC-10kN	10kN
LC-20kN	20kN

### LM

Small size



Load cell for compression

- Capacity:10N~20kN
- Accuracy:10~2000N=within±1%F.S., 5000N/10kN=within±1.5%F.S., 20kN=within±2.5%F.S.
- Dimension:φ12×H4mm~φ21×H10mm
- Cable length:Approx. 2m

Model	Capacity
LM-10N	10N
LM-20N	20N
LM-50N	50N
LM-100N	100N
LM-200N	200N
LM-500N	500N
LM-1000N	1000N
LM-2000N	2000N
LM-5000N	5000N
LM-10kN	10kN
LM-20kN	20kN

### DM-2000N

For Door



Load cell for automatic door

- Capacity:2000N
- Accuracy:±/-2%
- Dimension:W94×D66×H380mm
- Cable length:Approx. 2m

Model	Capacity
DM-2000N	2000N

## Desktop Force Amplifier

### FA Plus

FA Plus can be connected to any load cells and used under various measurement conditions.



- Used for strength test for various materials.(tension test, compression test, shearing test, peeling test and so on.)
- High-speed force sampling(2000 times/sec.). More precise value is measured especially at impulse experiment.
- High efficiency for measurement of factory automation system with external in/output signal.
- Separated load cell and amp are efficient when used for dangerous measurement or used in small space.
- Easy to make force-displacement graph. (Optional software: F-S Recorder is needed. To page 9, 29)

### Digital Force Analyzer:FA Plus

■Specifications of FA Plus

- Unit:N(kN) , kgf(gf) , lbf(ozf)
- Display mode:Track/peak mode
- Display:4-digits LCD with sign
- Sampling speed:2000times/sec.
- LCD display update:10times/sec.
- Capacity:Depends on Load cell
- Accuracy:±0.2%F.S. ±1digit(DPU series)
- Environment:0~+40°C, 20~80% RH
- Power:AC100V~240V
- Optput:USB, RS232C, Analog (Approx. ±2V F.S.), Comparator output, Overload output
- External connection switch:External control is possible
- Accessories:FAP Logger
- Weight:Approx. 1.5kg
- Size:W210×D160×H99mm



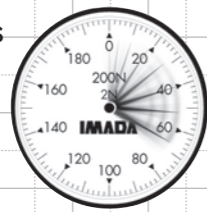
# Mechanical Force Gauges

## Mechanical Force Gauges (Push-Pull Scale)

IMADA mechanical force gauge can accurately measure tensile / compressive force without power supply. Based on our long history of technical achievement as a force gauge pioneer with the variety of know-how, IMADA mechanical force gauge is produced under advanced technology and severe quality control, and maintain high precision for a long period of time.

### Features of Mechanical Force Gauge

- Feature 1** Power supply Needless
- Feature 2** Durable and high reliability
- Feature 3** Force transition is readable



1. Ergonomic design for hand held use
2. Rugged die cast aluminum housing
3. Durable high accuracy with exclusive indicator and special spring materials
4. Peak force hold on all models
5. Zero adjustment for tare weight
6. Easy to read dial
7. Included attachments and carrying case
8. 1 year guarantee

### 1 Tensile thread (PSS/PS/PSM/FS/FB:M6P1) (PSH:M10P1.5)

Measure tensile forces with the following attachments: Small Hook, Large Hook, Y Hook and optional attachments.

### 2 Peak switch

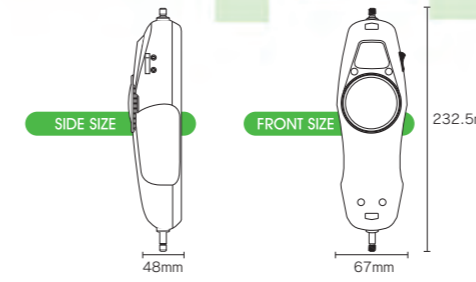
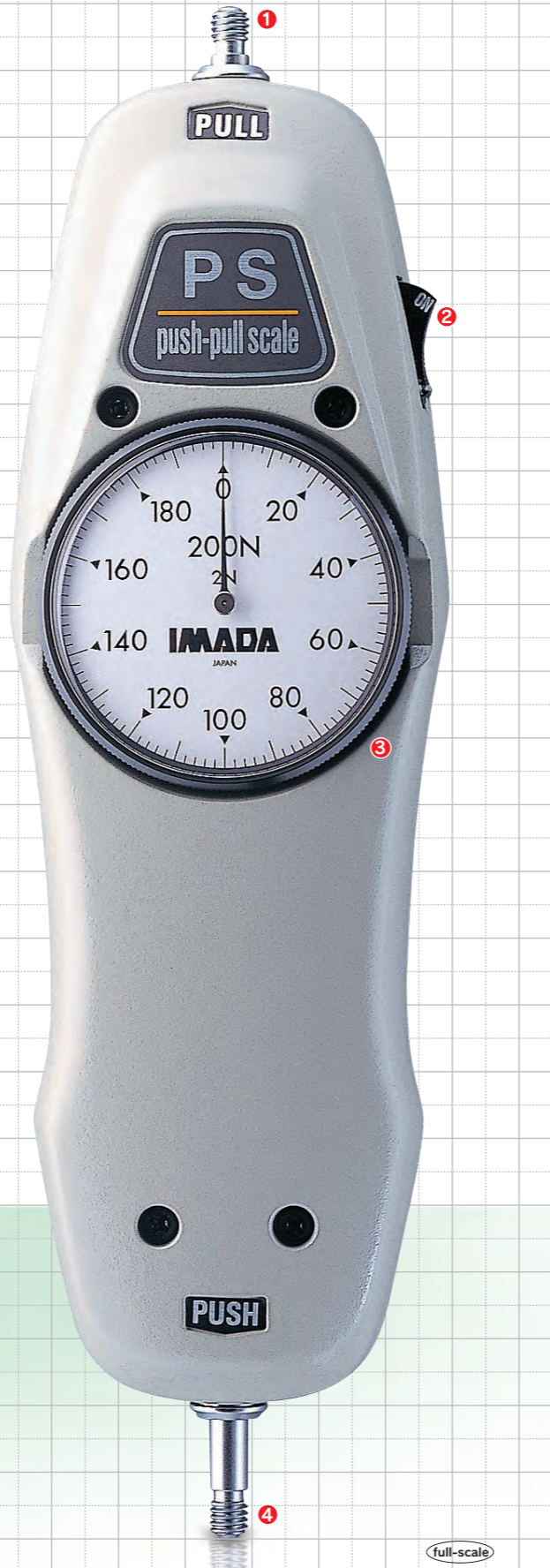
This switch activates or clears peak hold reading.

### 3 Tare ring

Rotate tare ring to zero

### 4 Compressive thread (PSS/PS/PSM/FS/FB:M6P1) (PSH:M10P1.5)

Measure compressive forces with the following attachments: Flat Tip, Conical Tip, Chisel Tip, Notched Tip and optional attachments.



## PS/PSS



Accuracy	Att.	Thread	Test Direction	Division	Peak Hold
±0.1% F.S.	6/8	M6/M10	Push/Pull	100lines/200lines	Yes/No

**Specifications**  
 • Stroke: 10mm • Graduation: 100lines (120 lines for 30N, 300N, 3K, 30K, 30lb)  
 • Measurement mode: Track and peak mode (selectable) • Environment: 0~+40°C  
 • Weight: Approx. 670g (PS-500N) \*differ from model numbers • Dimension: W67×D48×H232.5mm  
 • Accessory: Attachments 8pcs (to page 21), Carrying Case, Operation Manual, Inspection Certificate

**Applications**  
 • Measuring of the contact pressure for touch panel or keyboard.  
 • Measuring of the bonding strength of adhesive tapes and the peel strength of adhesive sheets.  
 \*Digital force gauges are appropriate for measurements with sudden force change.

### Standard Model

It is the standard type with high precision and durability. Covers the measurements of low to medium force between 5N~500N.

Model	Capacity	Resolution	Thread
PS-5N	5N	0.05N	M6
PS-10N	10N	0.1N	
PS-20N	20N	0.2N	
PS-30N	30N	0.25N	
PS-50N	50N	0.5N	
PS-100N	100N	1N	
PS-200N	200N	2N	
PS-300N	300N	2.5N	
PS-500N	500N	5N	
PSS-0.5K	500gf	5gf	
PSS-1K	1kgf	10gf	
PSS-2K	2kgf	20gf	
PSS-3K	3kgf	25gf	
PS-5K	5kgf	50gf	
PS-10K	10kgf	100gf	
PS-20K	20kgf	200gf	M6
PS-30K	30kgf	250gf	
PS-50K	50kgf	500gf	
PS-5lb	5lbf	0.05lbf	
PS-10lb	10lbf	0.1lbf	M6
PS-20lb	20lbf	0.2lbf	
PS-30lb	30lbf	0.25lbf	
PS-50lb	50lbf	0.5lbf	
PS-100lb	100lbf	1lbf	

## FB/FS



Accuracy	Att.	Thread	Test Direction	Division	Peak Hold
±0.3% F.S.	6/8	M6/M10	Push/Pull	100lines/200lines	Yes/No

**Specifications**  
 • Stroke: 10mm • Graduation: 100lines (120 lines for 30N, 300N, 3K, 30K, 30lb)  
 • Measurement mode: Track and peak mode (selectable) • Environment: 0~+40°C  
 • Weight: Approx. 630g (FB-100N) \*differ from model numbers • Dimension: W67×D48×H232.5mm  
 • Accessory: Attachments 6pcs (to page 21), Carrying Case, Operation Manual, Inspection Certificate

**Applications**  
 • Measuring of the contact pressure for touch panel or keyboard.  
 • Measuring of the bonding strength of adhesive tapes and the peel strength of adhesive sheets.  
 \*Digital force gauges are appropriate for measurements with sudden force change.

### Popular Model

FS/FB model performs steady precision at most affordable price. Covers the measurements of low to medium force between 10N~500N.

Model	Capacity	Resolution	Thread	
FB-10N	10N	0.1N	M6	
FB-20N	20N	0.2N		
FB-30N	30N	0.25N		
FB-50N	50N	0.5N		
FB-100N	100N	1N		
FB-200N	200N	2N		
FB-300N	300N	2.5N		
FB-500N	500N	5N		
FS-1K	1kgf	10gf		M6
FS-2K	2kgf	20gf		
FS-3K	3kgf	25gf		
FB-5K	5kgf	50gf		
FB-10K	10kgf	100gf		
FB-20K	20kgf	200gf		
FB-30K	30kgf	250gf	M6	
FB-50K	50kgf	500gf		
FB-5lb	5lbf	0.05lbf		
FB-10lb	10lbf	0.1lbf		
FB-20lb	20lbf	0.2lbf	M6	
FB-30lb	30lbf	0.25lbf		
FB-50lb	50lbf	0.5lbf		
FB-100lb	100lbf	1lbf		



# Mechanical Force Gauges

## PSM



PSM set

### Precision Model

Its high-resolution scale has more calibration points than other models. It helps you to avoid misreading. Covers the measurements of low to medium force between 20N-500N.

Model	Capacity	Resolution	Thread
PSM-20N	20N	0.1N	M6
PSM-30N	30N	0.2N	
PSM-50N	50N	0.25N	
PSM-100N	100N	0.5N	
PSM-200N	200N	1N	
PSM-300N	300N	2N	M6
PSM-500N	500N	2.5N	

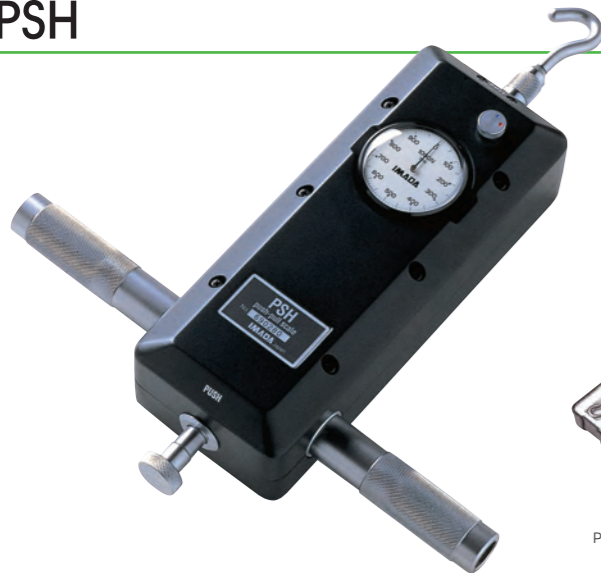
Model	Capacity	Resolution	Thread
PSM-2K	2kgf	10gf	M6
PSM-3K	3kgf	20gf	
PSM-5K	5kgf	25gf	
PSM-10K	10kgf	50gf	
PSM-20K	20kgf	100gf	
PSM-30K	30kgf	200gf	M6
PSM-50K	50kgf	250gf	

Specifications
Accuracy: ±0.1% F.S.
Att.: 6/8
Thread: M6/M10
Test Direction: Push/Pull
Division: 100lines/200lines
Peak Hold: Yes/No

**Specifications**  
 • Stroke: 10mm • Graduation: 200lines (150 lines for 30N, 300N, 3K, 30K) • Measurement mode: Track and peak mode(selectable)  
 • Accessory: Attachments 8pcs (to page 21), Carrying Case, Operation Manual, Inspection Certificate  
 • Environment: 0~+40°C • Weight: Approx. 660 g (PSM-300N) \*differ from model numbers • Dimension: W67×D48×H232.5mm

**Applications**  
 • Measuring of the contact pressure for touch panel or keyboard.  
 • Measuring of the bonding strength of adhesive tapes and the peel strength of adhesive sheets.  
 \*Digital force gauges are appropriate for measurements with sudden force change.

## PSH



PSH set

### High Capacity Standard Model

Extra strong body supports high load range with best reliability. Covers the measurements of high force between 500N-3000N.

Model	Capacity	Resolution	Thread
PSH-500N	500N	5N	M10
PSH-1000N	1000N	10N	
PSH-2000N	2000N	20N	
PSH-3000N	3000N	25N	

Model	Capacity	Resolution	Thread
PSH-50K	50kgf	500gf	M10
PSH-100K	100kgf	1kgf	
PSH-200K	200kgf	2kgf	
PSH-300K	300kgf	2.5kgf	

Model	Capacity	Resolution	Thread
PSH-200lb	200lb	2lb	M10
PSH-300lb	300lb	2.5lb	
PSH-500lb	500lb	5lb	

Specifications
Accuracy: ±0.1% F.S.
Att.: 6/8
Thread: M6/M10
Test Direction: Push/Pull
Division: 100lines/200lines
Peak Hold: Yes/No

**Specifications**  
 • Stroke: 10mm • Graduation: 100lines (120 lines for 3000N, 300K, 300lb) • Measurement mode: Track and peak mode(selectable)  
 • Accessory: Attachments 6pcs (to page 21), 2 exclusive handles, 4 installation bolts, Carrying Case, Operation Manual, Inspection Certificate  
 • Environment: 0~+40°C • Weight: Approx. 2.8kg (PSH-2000N) \*differ from model numbers  
 • Dimension: W95×D63.5×H290mm

**Applications**  
 • Strength test for various materials (tension test, compression test, shearing test, etc.)  
 • Measuring of attraction/repulsion force of solenoid or magnet.  
 • Adhesion test of laminated tubes.  
 \*Digital force gauges are appropriate for measurements with sudden force change.

## UKT/UKK



### Compact Model (for tension / for compression)

The smallest in dimension among all mechanical gauges. Ideal for built in narrow space. Measuring direction is specialized: UKT for tension and UKK for compression.

Model		Capacity	Resolution	Thread
Tension	Compression			M6
UKT-20N	UKK-20N	20N	0.2N	
UKT-30N	UKK-30N	30N	0.25N	
UKT-50N	UKK-50N	50N	0.5N	
UKT-100N	UKK-100N	100N	1.0N	
UKT-200N	UKK-200N	200N	2.0N	
UKT-300N	UKK-300N	300N	2.5N	

Model		Capacity	Resolution	Thread
Tension	Compression			M6
UKT-2K	UKK-2K	2kgf	20gf	
UKT-3K	UKK-3K	3kgf	25gf	
UKT-5K	UKK-5K	5kgf	50gf	
UKT-10K	UKK-10K	10kgf	100gf	
UKT-20K	UKK-20K	20kgf	200gf	
UKT-30K	UKK-30K	30kgf	250gf	

Model		Capacity	Resolution	Thread
Tension	Compression			M6
UKT-5lb	UKK-5lb	5lb	0.05lb	
UKT-10lb	UKK-10lb	10lb	0.1lb	
UKT-20lb	UKK-20lb	20lb	0.2lb	
UKT-30lb	UKK-30lb	30lb	0.25lb	
UKT-50lb	UKK-50lb	50lb	0.5lb	

Specifications	UKT	UKK	UKT	UKK	Division	Peak Hold
Accuracy	±0.3% F.S.	±0.3% F.S.	±0.3% F.S.	±0.3% F.S.	100lines/200lines	Yes/No
Att.	4/5	4/5	4/5	4/5		
Thread	M6/M10	M6/M10	M6/M10	M6/M10		
Test Direction	Push/Pull	Push/Pull	Push/Pull	Push/Pull		

**Specifications**  
 • Stroke: 10mm • Graduation: 100lines (120 lines for 30N, 300N, 3K, 30K, 30lb) • Measurement mode: Track and peak mode(selectable)  
 • Peak hold function • Environment: 0~+40°C • Weight: Approx. 300 g • Dimension: W60×D40×H156mm  
 • Included: UKT=4 tension attachments (Small Hook, Extension Shaft, Large Hook, Y Hook), UKK=5 compression attachments (Flat Tip, Conical Tip, Chisel Tip, Notched Tip, Extension Shaft), Carrying Case, Instruction Manual, Inspection Certificate

**Applications**  
 • Measuring of the contact pressure for touch panel or keyboard.  
 • Measuring of the bonding strength of adhesive tapes and the peel strength of adhesive sheets.  
 \*Digital force gauges are appropriate for measurements with sudden force change.

## Selection of suitable force gauge

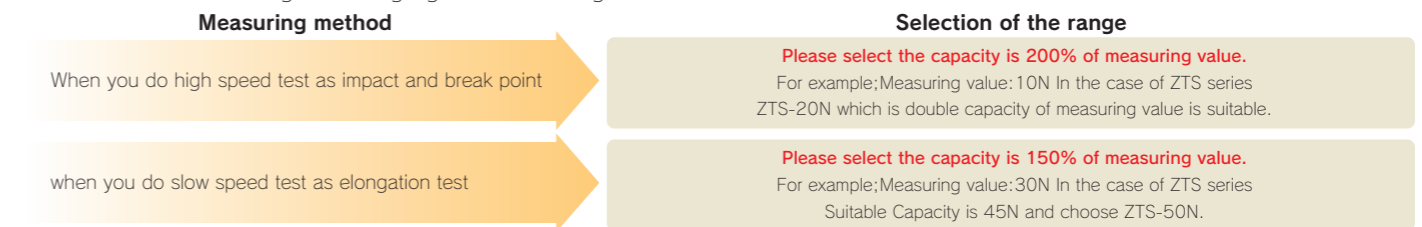
We classify force gauges into two groups: mechanical and digital. Each model has specific features and functions. Suitable force gauge must be chosen according to measuring purpose.

### Comparison of mechanical and digital force gauges

	Digital Force Gauge	Mechanical Force Gauge
<b>Advantage</b>	<ul style="list-style-type: none"> <li>• Less reading error</li> <li>• Connectable to PC, and other equipment</li> <li>• Various functions as digital instrument</li> <li>• Suitable for impact and break point test</li> </ul>	<ul style="list-style-type: none"> <li>• No electricity is required</li> <li>• Durable</li> <li>• Possible to read force transition</li> </ul>
<b>Weakness</b>	<ul style="list-style-type: none"> <li>• Difficult to read force transition without software</li> <li>• Necessary to charge a battery</li> </ul>	<ul style="list-style-type: none"> <li>• Unsuitable for impact and break point test</li> <li>• Reading error might occur by individual difference</li> </ul>

### Selection of suitable range

Please choose suitable range of force gauge as the following method.



⚠ Please note that force gauges are easily broken if force exceeding capacity is applied, regardless power on/off.

⚠ **We recommend attachments whose weight is less than 10% of gauge capacity.**  
Please be careful to select an attachment when you use small range gauge.



# Motorized Test Stands

For precise and repeatable measurements, test stand is necessary in order to keep same test condition. It does not need heavy manual labor when applying large forces, and makes the task of obtaining measurements more efficient.

\*All the force gauges shown with the test stands in this page are sold separately.

## MX series Easy Operation

### MX-500N/MX-1000N/MX-5000N

#### Motorized Test Stands

It covers low-load up to 500N. This stand covers from quality control to material testing as tension-compression tester.

- Single / continuous cycle function
- Fix speed / adjustable speed mode select
- Overload stop(Work with ZT series)\*1
- Force control model(Work with ZT series)\*1
- Power supply: AC100~240V
- Safety feature: Upper / lower limit, Emergency button



MX-1000N  
It covers low-load up to 1000N.



MX-5000N  
It covers up to 5000N.

Item	MX-500N	MX-1000N	MX-5000N
Capacity (N)	500	1000	5000
Maximum height of a sample(mm)*2	235	420	340*
Stroke (mm)	275	420	340
Speed (mm/min)	10-300	8-240	10-300
Dimension WxDxH (mm)	Approx. 214×428×573	Approx. 263×368×903	Approx. 250×420×816
Weight (Kg)	Approx. 13	Approx. 24	Approx. 30

\*The value in the case when ZT series high capacity model is combined.

Option*3	MX-500N	MX-1000N	MX-5000N
Speed/Length Meter*4	-E	-E	-E
Length Meter	-S	-S	-S
Timer*5		N/A	-TM
Counter		N/A	-CT
for FA PLUS		N/A	-FA
Long Stroke *6	-L550	-L650	N/A
Speed Range Change*7		Please contact us	

## MX2 series Highly Functional

### MX2-500N/MX2-1000N/MX2-2500N

#### Motorized Test Stands

In addition to the functions of MX series, LCD supports easy and precise operation. Detail of measurement conditions can be set with a dial. Standard functions of timer and counter answer to the request of endurance test. The strength of shaft was also improved and it can apply force more accurately.

- Jog/Manual/Cycle Mode
- Speed, Timer, Counter settable on display
- Overload Prevention (with ZT series)\*1
- Force Control (with ZT series)\*1
- Power: AC100 to 240V
- Safety Guard:Upper/Lower stroke limit, Emergency button, Front shield

Item	MX2-500N	MX2-1000N	MX2-2500N
Capacity (N)	500	1000	2500
Maximum height of a sample(mm)*2	235	300	320*
Stroke (mm)	230	290	290
Speed (mm/min)	10-300	10-300	10-300
Dimension WxDxH (mm)	Approx. 220×380×562	Approx. 280×421×660	Approx. 280×421×644
Weight (Kg)	Approx. 18	Approx. 19	Approx. 26

\*The value in the case when ZT series high capacity model is combined.

Option *3	MX2-500N	MX2-1000N	MX2-2500N
Length Meter	-S	-S	-S
Long Stroke*6	-L	-L	-L
for FA PLUS	-FA	-FA	-FA
I/O connector	-CN	-CN	-CN
Speed Range Change*7		Please contact us	



MX2-500N



MX2-1000N

## EMX series Professional

### EMX-1000N

#### Motorized Test Stands

Highest spec and best quality among IMADA test stands. In addition to various functions of MX2 series, control by displacement is possible. (Displacement output is an option). Significantly strong main shaft helps accurate and professional measurement even with easy operation. Various measurement conditions are settable with wide speed range and small resolutions of displacement.

- Jog/Manual/Cycle Mode
- Speed, Timer, Counter settable on display
- Overload Prevention (with ZT series)\*1
- Force Control (with ZT series)\*1
- Control by displacement
- I/O signal (optional cable is needed)
- Speed change at set position while measurement
- Power: AC100 to 240V
- Safety Guard: Upper/Lower stroke limit, Emergency button, Front shield

Item	EMX-1000N
Capacity (N)	1000
Maximum height of a sample(mm)*2	320
Stroke (mm)	290
Speed (mm/min)	0.5-600
Dimension WxDxH (mm)	Approx. 280×421×643
Weight (Kg)	Approx. 23.5

Option*3	EMX-1000N
Long Stroke *6	-L
for FA PLUS	-FA



EMX-1000N

## Horizontal series

### MH-1000N (Automatic / manual operation)

#### Motorized Test Stands

Horizontal model covers low-load up to 1000N.

- Single / continuous cycle function
- Overload stop(work with ZTseries)\*1
- Safety feature:-Left / right limit, Emergency button
- Fix speed / adjustable speed mode select
- Force control mode(work with ZTseries)\*1
- Power supply:AC100~240V

Item	MH-1000N
Capacity (N)	1000
Maximum length of a sample(mm)*2	280
Stroke (mm)	240
Speed (mm/min)	6-180
Dimension WxDxH (mm)	Approx. 700×195×210
Weight (Kg)	Approx. 14

Option*3	MH-1000N
Speed/Length Meter*4	-E
Length Meter	-S
Long Stroke *6	-L□□
Speed Range Change*7	Please contact us



MH-1000N

## Horizontal series

### MH-300

#### Motorized Test Stands

Horizontal model covers up to 3000N. Include auto-cycle function.

- Manual / single cycle / continuous cycle function
- Power supply: AC100~240V

Item	MH-300
Capacity (N)	3000
Maximum length of a sample(mm)*2	295
Stroke (mm)	245
Speed (mm/min)	8-240
Dimension WxDxH (mm)	Approx. 700×252×227
Weight (Kg)	Approx. 29

Option*3	MH-300
Speed/Length Meter*4	-E
Length Meter	-S
5 Step Speed	-5C
Long Stroke *6	-L□□
Speed Range Change*7	Please contact us



MH-300

\*1 Valid by connected to digital force gauge ZT series or force amplifier FA PLUS with optional cable. Overload Prevention is function that stand stops operation when force exceeding capacity is applied. This function doesn't guarantee perfect prevention of overload. Force control is function to stop when force reaches set value and to keep force within set value range.  
 \*2 Max distance from table of a test stand to thread tip of force gauge ZT series (lower range of 1000N model) without any attachment.  
 \*3 Option code should be added after model numbers.  
 \*4 Displays speed and displacement. The value can be held by keeping button pressed. Built in factory.  
 \*5 Keep set force range for set time period, and goes back. Valid when connected to force gauge ZT series. Composed at factory.  
 \*6 The possible extension length depends on stand models.  
 \*7 Capacity may decrease by speed range change. Please contact us for detail.



# Manual Test Stands

For precise and repeatable measurements, test stand is necessary in order to keep same test condition. It does not need heavy manual labor when applying large forces, and makes the task of obtaining measurements more efficient. In the measurement which small movement is required, exact measurement is attained by handle or lever operation.

\*All the force gauges shown with the test stands in this page are sold separately.

## SV series

### SVL-1000N

Manual Test Stand for Compression (lever)

SVL-1000N is exclusive for compression measurement. Simple one-lever control makes the measurement efficient.



SVL-1000N

Item	SVL-1000N	SVH-1000N
Capacity (N)	1000	1000
Maximum height of a sample(mm)*1	225	225
Stroke (mm)	260	260
Travel per 1 turn	60mm per 110°	3mm
Mechanical stopper	Attached	Attached
Dimension W×D×H(mm)	Approx. 200×250×410	Approx. 200×250×410
Weight (Kg)	Approx. 9	Approx. 8

### SVH-1000N

Manual Test Stand (handle)

SVH-1000N is compact manual test stand of handle operation. It is simple and easy operation.



SVH-1000N

Option*2	SVL-1000N	SVH-1000N
Extended Shaft (No change on stroke)	-L600	-L600
Length Meter	N/A	-S

## KV series

### KV-50N

Manual Test Stand for Low-loaded

Quick and precise measurements for low-loaded. Minimum size gives convenience in transporting.



KV-50N

Item	KV-50N
Capacity (N)	50
Maximum height of a sample(mm)*1	63
Stroke (mm)	103
Travel per 1 turn	1mm
Dimension W×D×H(mm)	Approx. 140×180×220
Weight (Kg)	Approx. 2

Option*2	KV-50N
Long Stroke	N/A
Length Meter	-S

## HV series

### HV-1000N/HV-3000N

Manual Test Stand

Vertical stand in manual operation; with a minute revolution of 1.2mm/one complete turn of hand-wheel ensures delicate measurement.



HV-1000N

Item	HV-500N II	HV-1000N	HV-3000N
Capacity (N)	500	1000	3000
Maximum height of a sample(mm)*1	240	375	415*
Stroke (mm)	280	375	375
Travel per 1 turn	2mm	1.2mm	0.6mm
Mechanical stopper	Attached	N/A	N/A
Dimension W×D×H(mm)	Approx. 327×309×598	Approx. 305×275×730	Approx. 355×310×744
Weight (Kg)	Approx. 10	Approx. 18	Approx. 24

\*The value in the case when ZT series high capacity model is combined.

### HV-500N II

For tension / compression test up to 500N. Includes mechanical stopper.



HV-500N II

Option*2	HV-500N II	HV-1000N	HV-3000N
Long Stroke*3	-L550	-L630	-L630
Length Meter	-S	-S	-S

## MS series

### MSF-50N/FSA-MSL-□□N

Portable manual test stand

Small and compact design makes it possible to carry around, and fit for measurement in narrow places. It enables measuring from different angles not only vertically or horizontally.

Force-displacement analysis is possible with FSA-MSL series. Please refer to page 29 and 30 for further information of FSA series

Portable size  
\*Any force gauge is not included.



MSF-50N

FSA-MSL-□□N



Fine adjustment with the knob.



Its portability expands the utility.



With FSA-MSL-□□N, force-displacement analysis is possible.

Model	Capacity	Length meter	Detail
MSF-50N	50N	—	Used with digital force gauges (capacity:2N to 50N)
FSA-MSL-□□N *A	50N	○	Force-Displacement measuring unit including ZTA series digital force gauge, Force Recorder professional

\*A:□□N is arbitrary capacity of a force gauge  
\*B:Applicable capacity is up to 50N

Specifications	50N
Capacity	50N
Maximum height of a sample(mm)*1	44
Stroke	Approx.78mm(Max.)
Structure	Rack&Pinion(18mm/1 turn)
Dimension	W109.4*D72*H204mm
Weight	Approx. 1.2kg
Accessory	Attachment mounting plate,screws
Applicable force gauges *B	MSF-50N Digital force gauge by IMADA FSA-MSL-□□N IMADA ZTA series digital force gauge

## SH series

### SH-1000N/SH-3000N

Manual Test Stand

Horizontal stand that helps easy sample handling in manual operation. Delicate and stable movement is possible with small step travel. Easy sample handling due to its horizontal design.



SH-1000N

Item	SH-1000N	SH-3000N
Capacity (N)	1000	3000
Maximum length of a sample(mm)*1	250	355*
Stroke (mm)	275	365
Travel per 1 turn	1.2mm	0.6mm
Dimension W×D×H(mm)	Approx. 560.5×265×219.5	Approx. 696.5×285×225
Weight (Kg)	Approx. 15	Approx. 22

\*The value in the case when ZT series high capacity model is combined.

Option*2	SH-1000N	SH-1000N
Long Stroke*3	-L□□	-L□□
Length Meter	-S	-S

## LH series

### LH-500N

Wire Harness Pull Tester

Pull tester for checking of pull-off force values of electrical leads, crimped terminals, connectors and soldered parts. Packed with attachments for fixing each terminal and wire. Force gauge is not included.

●Included Attachment:  
CW-500N(wedge grip), CH-500N



LH-500N

Pull test of a wire harness terminal by LH-500N

Item	LH-500N
Capacity (N)	500
Travel per 120°	85mm
Dimension W×D×H(mm)	Approx. 155×450×182
Weight (Kg)	Approx. 10.5

### GF-1, GF-2 Grip Mounting Adapter (for manual test stand SV-1/2)

Mount attachments to test stand base. It is possible to fix vertical stand SV, HV, MX, MX2, and EMX series.

- Capacity: 1000N(100kgf)/500N(50kgf)
- Mounting screw: M6/M6 and M10
- Weight: Approx.240g/260g
- Screw:M6



GF-1

GF-2

- \*1 Max distance from table of a test stand to thread tip of force gauge ZT series (lower range of 1000N model) without any attachment.
- \*2 Option code should be added after model numbers.
- \*3 Please request preferable extending length.



# Included Attachments/Optional Attachments

## Attachments

Attachments should be set to the thread (male screw) of force gauges to pull / compress test samples.

Attachments to choose depend on dimensions, materials, measurement conditions and purposes. As appropriate attachments enhance accuracy of measurement, we offer various kinds of attachments.

"Which one should I choose?" "How can I chuck this sample?"

Please contact us to find the answers. We suggest the best solution for you.



## Standard Attachments

Standard attachments below are included to force gauges.

### Standard Capacity Model

Steel S-series are included in models up to 1000N/100kgf. Aluminum A-series are included in models under 100N/10kgf. DS2 and FB don't include large hook and Y hook. The model with capacity 1000N/100kgf includes small hook SR-1 instead of S-1. ●Screw:M6

#### A-1/S-1/SR-1 Small Hook

- A-1 Weight: Approx. 3.1g
- S-1 Weight: Approx. 13g
- SR-1 Weight: Approx. 19g

\*SR-1 is included to ZP-1000N, Z2-1000N, and DS2-1000N

#### A-5/S-5 Notched Tip

- A-5 Weight: Approx. 1.9g
- S-5 Weight: Approx. 11g

#### A-2/S-2 Flat Tip

- A-2 Weight: Approx. 2.7g
- S-2 Weight: Approx. 13g

#### A-6/S-6 Extension Shaft

- A-6 Weight: Approx. 7.1g
- S-6 Weight: Approx. 27g

#### A-3/S-3 Conical Tip

- A-3 Weight: Approx. 1.8g
- S-3 Weight: Approx. 10g

#### A-7/S-7 Large Hook

- A-7 Weight: Approx. 7.0g
- S-7 Weight: Approx. 44g

#### A-4/S-4 Chisel Tip

- A-4 Weight: Approx. 1.9g
- S-4 Weight: Approx. 11g

#### A-8/S-8 Y Hook

- A-8 Weight: Approx. 8.8g
- S-8 Weight: Approx. 58g

### High Capacity Model

Included ZTA/ZTS(High capacity model), ZTA/ZTS-DPU and PSH series (For capacity 1000N/100kgf to 5000N/500kgf). Not included with handles and installation bolts for ZTA/ZTS(separate sensor model) ●Screw:M10

#### B-1 Small Hook

- Weight: Approx. 59g

#### B-5 Notched Tip

- Weight: Approx. 38g

#### B-2 Flat Tip

- Weight: Approx. 29g

#### B-6 Extension Shaft

- Weight: Approx. 102g

#### B-3 Conical Tip

- Weight: Approx. 33g

#### B-7 Handles

- Weight: Approx. 250g(1piece)

#### B-4 Chisel Tip

- Weight: Approx. 38g

#### B-8 Installation Bolts

- Weight: Approx. 16g

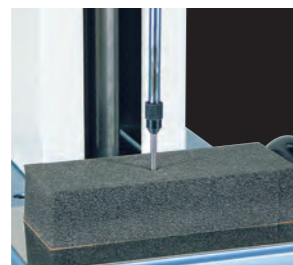
## Attachments for Compression

We can provide wide variety of attachments to cover many applications. Attachments with customized specification are available.

### PG-2/3/4/5

#### Penetrating Pin Gauges

Check the hardness of clay-like materials, the burst strength of plastic covering, etc. The penetrating pin gauges are light and suitable for measuring minute force.



Model	PG-2	PG-3	PG-4	PG-5
Capacity	100N(10kgf)	100N(10kgf)	200N(20kgf)	200N(20kgf)
Outer diameter	φ2mm	φ3mm	φ4mm	φ5mm
Length	20mm	20mm	20mm	20mm
Weight	Approx. 2g	Approx. 3g	Approx. 4g	Approx. 5g
Screw			M6	

\*We recommend the weight of attachment should be under 10% of gauge capacity. Please be careful to select an attachment when you use small range gauge.

## A-40/60,S-40/60

### Large Flat Heads

The head is suitable for the crush test of tablet or plastic bottles. The materials of A type is aluminum and it is light weight.



Compression test of tennis ball



A-40

Model	A-40	A-60	S-40	S-60
Capacity	200N(20kgf)	200N(20kgf)	500N(50kgf)	500N(50kgf)
Outer diameter	φ40mm	φ60mm	φ40mm	φ60mm
Weight	Approx. 38g	Approx. 84g	Approx. 110g	Approx. 238g
Screw			M6	

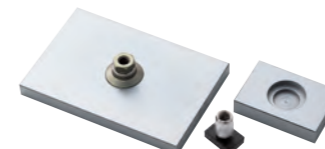
## SQ-5030/5075/5150

### Rectangle Compression Jig

It is suitable for burst test of plastic bags.



Hardness test of tablet



SQ series

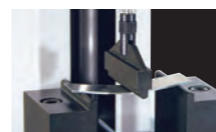
Model	SQ-5030	SQ-5075	SQ-5150
Capacity	5000N(500kgf)	5000N(500kgf)	5000N(500kgf)
Plate size	30×20mm	75×50mm	150×100mm
Weight	Approx. 65g	Approx. 500g	Approx. 1560g
Screw		M10	

\*Aluminum made is available for low capacity gauges

## GA-10N/5000N

### Bend Test Stand

For the bend testing of the test object.



Bend test of metal material



GA-10N

Model	GA-10N	GA-5000N
Capacity	500N(50kgf)	5000N(500kgf)
Depth	60mm	60mm
Opening width stage	5~60mm	5~70mm
Arc	Upper:R2.5mm,Stage:R2.5mm	Upper:R5.0mm,Stage:R2.5mm
Weight	Upper:Approx.100g,Stage:Approx.4100g	Upper:Approx.120g,Stage:Approx.4200g
Screw	M6	M10

## PC-5040/5060/5100

### Disc Compression Jig

For the measurements of many kinds of compression force and breaking strength, the variety of shapes and sizes are designed for the jigs. The larger size jigs have free joint, which will prevent the breakdown of force gauge when extra force is applied.



Compression test of plastic bottle



PC series

Model	PC-5040	PC-5060	PC-5100
Capacity	5000N(500kgf)	5000N(500kgf)	5000N(500kgf)
Outer diameter	φ40mm	φ60mm	φ100mm
Weight	Approx. 160g	Approx. 330g	Approx. 820g
Screw		M10	

\*Aluminum made is available for low capacity gauges

## SP-5010/5020/5030

### Sphere Compression Jig

For compression test of various materials.



SP series

Model	SP-5010	SP-5020	SP-5030
Capacity	5000N(500kgf)	5000N(500kgf)	5000N(500kgf)
Diameter	φ10mm	φ20mm	φ30mm
Weight	Approx. 26g	Approx. 55g	Approx. 135g
Screw		M10	

\*Aluminum made is available for low capacity gauges

## PR-500N/2500N

### Press test fixture

It is suitable for compression testing such as retort pouch, heat seal packaging, boxes, and so on.



Compression testing on corrugated cardboard



Model	PR-500N	PR-2500N
Capacity	500N	2500N
Size	W260×D120×H156(mm)	W280×D140×H159(mm)
Sample maximum size	W194×D120×H105(mm)	W200×D140×H105(mm)
Weight	Upper	Approx. 0.9kg
	Lower	Approx. 3.1kg
Screw	Upper	Approx. 1kg
	Lower	Approx. 3.2kg

## Attachments for Tension

### FP-50/51,SC-3/8

#### Fine Point Chuck, Small Grips

For the measurements in the confined space or of the narrow objects. It is suitable for low force and narrow space test due to lightweight model.



Thin wire test



Fine Point Chuck FP-50



Small Grips SC-3

Model	FP-50	FP-51	SC-3	SC-8
Capacity	100N(10kgf)	50N(5kgf)	100N(10kgf)	150N(15kgf)
Opening width	Maximum 0.5mm	Maximum 0.5mm	Maximum 1mm	Maximum 1mm
Jaw face width	1mm	1mm	3mm	8mm
Weight	Approx. 19g	Approx. 8g	Approx. 20g	Approx. 21g
Screw			M6	

### GC-60/100

#### Tape Grips

The grip suites for tension test of rubber, films, or test materials which become deformed or thinned on the testing process. Self tightening "buckle-type" mechanism ensures slip-free operation.



Elongation test of rubber material



GC-60

Model	GC-60	GC-100
Capacity	500N(50kgf)	500N(50kgf)
Specimen width	Maximum 30mm	Maximum 50mm
Specimen thickness	Maximum 2mm	Maximum 2mm
Weight	Approx. 158g	Approx. 300g
Screw		M6

\*Specific material and appearance can not be used with these attachment even if it is within specification. Please contact us for detail.



# Optional Attachments

## FC-21/20/40/21U/41U/21UQ

### Film Grips

FC-21U, 41U, and 21UQ have urethane on one side, which avoid breaking samples by gripping.



FC-20

FC-21UQ

180° Peel strength test

Model	FC-21	FC-20	FC-40	FC-21U	FC-41U	FC-21UQ
Capacity	250N(25kgf); 500N(50kgf); 500N(50kgf)	500N(50kgf)	500N(50kgf)	250N(25kgf); 250N(25kgf); 250N(25kgf)	250N(25kgf); 250N(25kgf); 250N(25kgf)	250N(25kgf); 250N(25kgf); 250N(25kgf)
Jaw face width	20mm	20mm	40mm	20mm	40mm	20mm
Opening width	Maximum 2mm; Maximum 2mm; Maximum 2mm	Maximum 2mm; Maximum 2mm; Maximum 2mm	Maximum 2mm; Maximum 2mm; Maximum 2mm	Maximum 2mm; Maximum 2mm; Maximum 1mm	Maximum 2mm; Maximum 2mm; Maximum 1mm	Maximum 2mm; Maximum 2mm; Maximum 1mm
Weight	Approx. 25g; Approx. 73g; Approx. 125g	Approx. 40g; Approx. 70g; Approx. 50g	Approx. 40g; Approx. 70g; Approx. 50g	Approx. 40g; Approx. 70g; Approx. 50g	Approx. 40g; Approx. 70g; Approx. 50g	Approx. 40g; Approx. 70g; Approx. 50g
Screw			M6			

## GC-1100/1200/5000

### Flat Chuck

For the measurements of general tension force.



GC-1100

Extraction test of connector

Model	GC-1100	GC-1200	GC-5000
Capacity	1000N(100kgf)	1000N(100kgf)	5000N(500kgf)
Jaw face width	20mm	20mm	29mm
Opening width	Maximum 10mm	Maximum 20mm	Maximum 30mm
Weight	Approx. 160g	Approx. 170g	Approx. 1400g
Screw		M6	M10

## GR-30/2000

### Cam Grips for thinner specimen

By pulling, the chuck will be fastened. Suitable for the measurement of the objects becoming thinner while tensed. It is not suitable for the tempered material.



Tensile strength test of tape



GR-30

Model	GR-30	GR-2000
Capacity	500N(50kgf)	2000N(200kgf)
Specimen width	Maximum 30mm	Maximum 50mm
Specimen thickness	Maximum 2mm	Maximum 4mm
Weight	Approx. 180g	Approx. 870g
Screw	M6	M10

## GP-15

### Knurling Cam Grips for thicker specimen

It is suitable for elastic samples such as silicon rubber, urethane, and resin. It reduces the possibility of sample torn.



Elongation test of rubber tube



Model	GP-15
Capacity	250N(25kgf)
Jaw face width	Maximum 15mm
Opening width	Maximum 4.5mm
Weight	Approx. 70g
Screw	M6

## KC-100/1001/5000

### Wedge Grips

Suitable for the measurement of fiber optics and electric wires which becoming thinner while tensed. It is not suitable for the tempered material.



Electric wire strength test



KC-100



KC-1001

Model	KC-100	KC-1001	KC-5000
Capacity	500N(50kgf)	1000N(100kgf)	5000N(500kgf)
Opening width	Maximum 10mm	Maximum 2mm	Maximum 5mm
Weight	Approx. 330g	Approx. 95g	Approx. 565g
Screw		M6	M10

## PGC-0510

### Pantograph Grips

The more tightened material is tensed, the stronger it grip material. Suitable for materials which become thinner while tensed. Not for tempered material.



Wire harness pull off test



PGC-0510



PGC-AD6

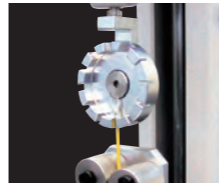
Model	PGC-0510
Capacity	500N(50kgf)
Opening width	Maximum 15mm
Weight	Approx. 110g

\*1 Please use small hook included force gauge to hook PGC-0510  
\*2 PGC-AD is used to attach PGC-0510 to a stage of test stand.

## FW-12

### Rotary Wire Terminal Fixture

It has 12 slits of different width for wide range of terminal cramp. Since it is rotary type, it is easy to set up a sample.



Wire harness strength test

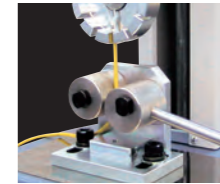


Model	FW-12
Capacity	1000N(100kgf)
Number of slit	12
Weight	Approx. 380g
Screw	M6

## GP-30

### Knurled Cam Grips

It is the best for the clamp of a wire by the cam mechanism.



Wire harness strength test

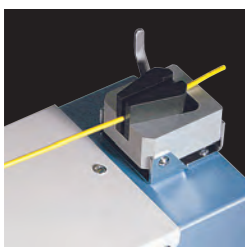


Model	GP-30
Capacity	1000N(100kgf)
Jaw face width	Maximum 30mm
Opening width	Maximum 10mm
Weight	Approx. 880g
Screw	M8 bolts (x2)

## CW-500N

### Wedge Grips

It is easy to clamp cable and wire by one-touch operation.



Wire harness pull off test



Model	CW-500N
Capacity	500N(50kgf)
Opening width	Maximum 5mm
Weight	Approx. 220g
Screw	M6

## CH-500N

### Wire Terminal Grips

It is suitable for wire terminal clamp.



Wire harness pull off test



Model	CH-500N
Capacity	500N(50kgf)
Opening width	Maximum 6mm
Weight	Approx. 210g
Screw	M6

## GC-30, WC-2000

### Wire Wrapping Grips

For measuring the strength of wires, filaments, fibers, etc.



Tensile strength of textile



WC-2000

Model	GC-30	WC-2000
Capacity	500N(50kgf)	2000N(200kgf)
Wrapping thread	M10	M16
Sample diameter	Maximum $\phi$ 1mm	Maximum $\phi$ 2mm
Weight	Approx. 136g	Approx. 900g
Screw	M6	M10

## DF-60

### Hook for Corrugated Cardboard

It is suitable for opening strength test of glued corrugated cardboard.



Opening strength of glued corrugated cardboard



Model	DF-60
Capacity	250N(25kgf)
Width	60mm
Weight	Approx. 145g
Screw	M6

## BC-15/PGC-BC

### Grip and Vice for Sawed Button Test

Attachments for strength test of sawed button. Maximum diameter of button is 15mm. Easy to set samples.

Model	BC-15
Capacity	300N
Diameter of sample	Maximum $\phi$ 15mm
Height of sample	Maximum 3.5mm
Weight	Approx. 1220g

Model	PGC-BC
Capacity	300N
Opening width	35mm
Weight	125g
Structure	Hook



PGC-BC



BC-15





# Optional Attachments

## Attachments for Others

### CP-150N

#### Pin Grips

It is ideal grips for small pin, wire, etc. CP-150N can be used for both tension and compression. It is suitable for low force and narrow space test due to lightweight model.



Model	<b>CP-150N</b>
Capacity	150N(15kgf)
Sample diameter	φ0~φ3.2mm
Weight	Approx. 22g
Screw	M6



Strength test of thin wire

### GC-5/15/15-10

#### Jacob's Chuck

For use with shafts and rods. The Jacob's chuck has characteristic of better initial gripping and less slipping of test material on testing process.



Model	<b>GC-5</b>	<b>GC-15</b>	<b>GC-15-10</b>
Capacity	500N(50kgf)	1000N(100kgf)	1000N(100kgf)
Sample diameter	φ0.5~φ6.5mm	φ2.0~φ13mm	φ2.0~φ13mm
Weight	Approx. 235g	Approx. 500g	Approx. 500g
Screw	M6	M10	M10

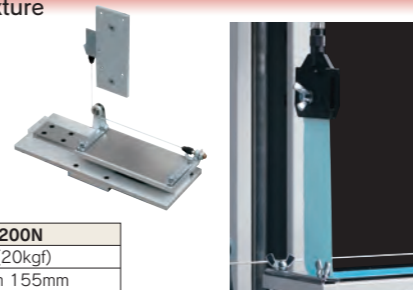


Insert test of plastic pipe

### P90-200N

#### 90 degree peel test fixture

This table keeps the measurement angle as 90° by sliding table.



90° peel strength test

Model	<b>P90-200N</b>
Capacity	200N(20kgf)
Sample length	Maximum 155mm
Sample width	Maximum 80mm
Weight	Approx. 2kg

### P180-200N

#### 180 degree peel test fixture

Ideal for 180 degree peel test of adhesive tape, and so on.



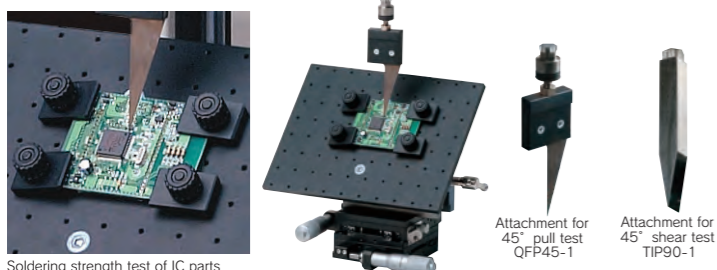
180 degree peel test of adhesive tape

Model	<b>P180-200N</b>
Peeling length	150mm at maximum
Sample width	40mm
Capacity	0.5~200N
Weight	Approx.300g

### LF

#### Attachment for Measurement of Soldering Strength(QFP 45° pull test + TIP 90° shear test)

It is possible to use QFP lead 45° pull shear test.



Soldering strength test of IC parts

Attachment for 45° pull test QFP45-1

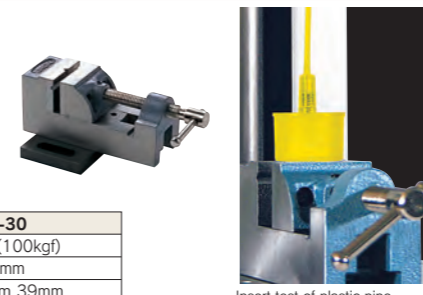
Attachment for 45° shear test TIP90-1

Model	<b>LF</b>
Contents	QFP45-1:Hook attachment QFP45-2:Table for 45° TIP90-1:Shear attachment TIP90-2:Table for 90° QFP-1:X-Y stage
Capacity	100N(10kgf)
XYstage	Stroke: ± 12.5mm Resolution:0.01mm
Table dimension	200×150mm
Table fixing holes pitch	M3P0.5×80 Minimum pitch:20×20mm Maximum pitch:180×140mm
Weight of attachment	QFP45-1:Approx. 60g,TIP90-1:Approx. 50g
Weight of table	QFP45-2:Approx. 650g,TIP90-2:Approx. 650g
Weight of XY stage	QFP-1:Approx. 2.6kg

### GT-30

#### Vise Grips

Screw tightened vise is ideal for slip-free attachment to base of test stand. The vise grip can be installed on the vertical stand SV, HV, MX, MX2 and EMX series.



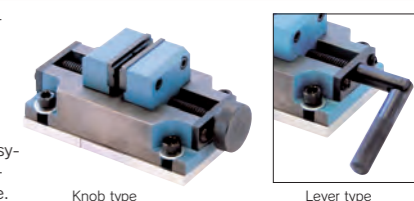
Insert test of plastic pipe

Model	<b>GT-30</b>
Capacity	1000N(100kgf)
Jaw face width	38mm
Opening width	Maximum 39mm
Weight	Approx. 1100g

### GTW-50R/50L

#### Double Vise Grips

This grips open from the center toward both sides and can grip a specimen, large or small, at the center. The gripping faces have vertical and horizontal V-grooves to firmly grip a specimen even if round. An easy-to-use knob type and a strong-gripping lever type are available.



Knob type

Lever type

Model	<b>GTW-50R</b>	<b>GTW-50L</b>
Type	Knob type	Lever type
Capacity	500N(50kgf)	1000N(100kgf)
Jaw face width	50mm	50mm
Weight	Approx. 3kg	Approx. 3kg

### GT-10/20

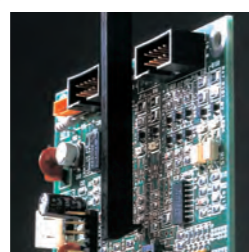
#### Peeling Attachment (for pull / for push)

The peeling attachment is installed on the Imada's force gauge for peeling or shearing test of electronic components.



GT-10

GT-20



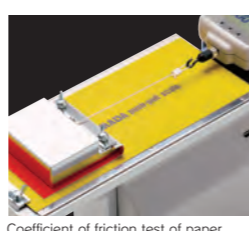
IC tip peel strength test

Model	<b>GT-10</b>	<b>GT-20</b>
Use	Pull	Push
Capacity	500N(50kgf)	500N(50kgf)
Weight	Approx. 34g	Approx. 34g
Screw	M6	

### COF-2N/10N

#### Coefficient of Friction Jig

COF series are for coefficient of friction test. Both dynamic and static friction data can be acquired by included software.



Coefficient of friction test of paper

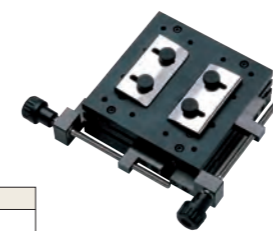
Model	<b>COF-2N</b>	<b>COF-10N</b>	<b>COF-2N-V</b>	<b>COF-10N-V</b>
Test stands that can be combined	Horizontal type	Vertical type	Horizontal type	Vertical type
Weight of weight part	200g (Approx.2N)	1000g (Approx.10N)	200g (Approx.2N)	1000g (Approx.10N)
Allowable thickness of samples	Max. 1.5mm			
Allowable stroke of samples	Max. 150mm			
Weight of table part	Approx. 1.7kg	Approx. 1.9kg	Approx. 1.7kg	Approx. 1.9kg
Accessory	Graphing software: Force Recorder Standard COF Ver.			

Force Recorder Standard COF Ver.

### XY-500N

#### X-Y Table

It is low height model of X-Y table.



Model	<b>XY-500N</b>
Capacity	Tension:500N(50kgf) Compression:1000N(100kgf)
Stroke	X,Y each ±30mm
Travel per 1 turn	Approx. 0.8mm

\*Not possible to use with horizontal test stand and KV-50N.

### TS-5000N

#### T-Slot Table

It is easy to exchange grips. It is also easy to position center by sliding nut.

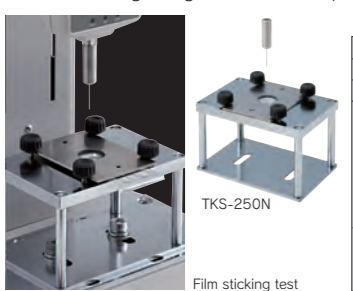


Model	<b>TS-5000N</b>
Capacity	5000N(500kgf)
T nut	M8
T nut space	Max.125mm
Weight	Approx. 5.3kg

### TKS-20N/250N

#### Film sticking strength fixture

Ideal for sticking strength test of thin samples such as film.



TKS-250N

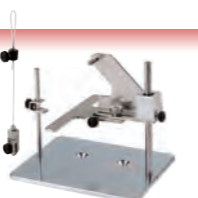
Film sticking test

Model	<b>TKS-20N</b>	<b>TKS-250N</b>	
Capacity	20N	250N	
Table Weight	Approx.500g	Approx.1050g	
Pin	Capacity	20N	250N
	Diameter	φ1	φ1
	Length	30	20
	Point	SR0.5	SR0.5
	Material	Stainless	Steel
Pin vice	Weight	Approx.0.2g	Approx.16g
	Available in diameter to grip	φ0-3.2mm	-
Weight	Approx.22g	-	

### P45-50N

#### 45° Peel Test Fixture

Suitable for peeling strength of cup container cover. Angle 45° is nearly practical condition of opening cover.



Peeling test of food container cup

Model	<b>P45-50N</b>
Capacity	50N(5kgf)
Allowable sample container size	Height: 10 to 100mm
	Diameter: 20 to 140mm
Weight of grip part	Approx. 10g
Length of grip part	Approx. 300mm
Weight of table part	Approx. 1500g

\* Peeling length depends on the size of sample containers.

### CA-F6T10/CA-F10T6

#### Conversion Adapter

Thread diameters of IMADA sensors are different(M4,M6,M8,M10). These adapters enable applying an attachment to different diameter sensor.



CA-F6T10

CA-F10T6

Model	Thread	Capacity	Purpose of use
<b>CA-F6T4</b>	M6(female)>M4	100N(10kgf)	To apply M4 FRT probe to M6 force gauge
<b>CA-F6T10</b>	M6(female)>M10	500N(50kgf)	To apply M10 attachment to M6 force gauge
<b>CA-F10T6</b>	M10(female)>M6	500N(50kgf)	To apply M6 attachment to M10 force gauge
<b>CA-F4T6</b>	M4(female)>M6	100N(10kgf)	To apply M6 attachment to FRT (texture analyzer)
<b>CA-F5T4</b>	M5(female)>M4	100N(10kgf)	To apply FRT M4 probe to M5 load cell(LMU series)
<b>CA-F5T6</b>	M5(female)>M6	500N(50kgf)	To apply M6 attachment to M5 load cell(LMU series)
<b>CA-8T4</b>	M8>M4	100N(10kgf)	To apply FRT M4 probes to M8 load cell(LU series) *You cannot apply to T-slot table(TS-5000N)
<b>CA-8T6</b>	M8>M6	500N(50kgf)	To apply M6 attachment to T-slot table(TS-5000N) or M8 load cell (LU series)
<b>CA-8T10</b>	M8>M10	2000N(200kgf)	To apply M10 attachment to T-slot table(TS-5000N) or M8 load cell (LU series)

### FOH-1

#### Optional Handle

Attach to force gauge to support stable force applying. The handle assists to apply large force. Applicable to both digital and mechanical force gauges.



Model	<b>FOH-1</b>
Applicable models	ZTA/ZTS/DS2/PSS/PS/PSM/FS/FB
Weight	500g
Accessory	Pan head screws (M4xL8 4pcs)
	Pan head screws (M3xL14 4pc)



# Digital Torque Gauges

## Torque gauge

Torque gauge can measure the force of twist and rotation such as tightening screws, locking doors and opening bottle caps. Numerical quality control, instead of evaluation by sense, is important especially in the case of screws and bottles, which can be tightened without limit. The smoothness of keys and rotary switches gives much influence on easy operation. IMADA torque gauge measures these forces easily and precisely.

### Hand Held Torque Gauge

For torque of screws or torsion strength. Various types of sensor tip are available.

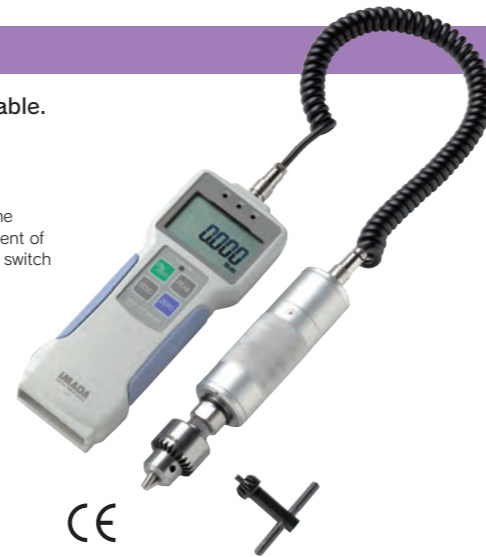
## HTG2

### Hand Held Torque Gauge

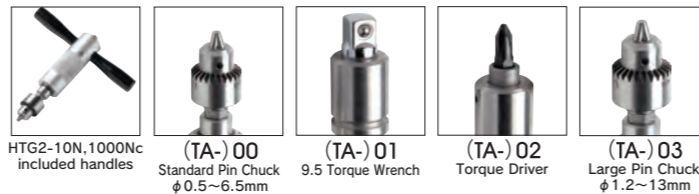
- Accuracy:  $\pm 0.5\%$ F.S.  $\pm 1$  digit
- Display: 4-digit LCD
- Display Update: 10times/sec
- Sampling Speed: 1msec
- Battery Usage: 8 hours (10hours charge)
- Power: NIMH battery, AC adapter
- Environment: Temperature=0 to 40°C, Humidity=20 to 80%RH
- Over Torque: 150% of capacity
- Functions: Peak hold, Memory (1000data), Comparator evaluation, Auto zero clear, Alarm, Auto power off, Damping
- Output: RS232C, MITUTOYO digimatic, Analog ( $\pm 2$ V.F.S.), Comparator, Over torque
- Over Torque Alarm: 110%F.S. (LED flashes, alarms)
- External Output: Hold, Zero clear, Peak
- Sensor Tip: Diam. 0.5 to 6.5mm pin chuck (standard model)
- Weight: Display=410g, Sensor=530g
- Dimensions: Display=W78xD32xH217mm, Sensor=L194xW38mm (with standard tip), Cable=350mm
- Accessories: AC adapter, Carrying case, Operation manual, Inspection certificate



The example of the feeling measurement of a click of a rotary switch by HTG2



Model	Capacity	Display	Resolution
HTG2-2N	2N-m(200gf-m)	2.000N-m(200.0gf-m)	0.001N-m(0.1gf-m)
HTG2-5N	5N-m(500gf-m)	5.000N-m(500.0gf-m)	0.001N-m(0.1gf-m)
HTG2-10N	10N-m(1.000kgf-m)	10.00N-m(1.000kgf-m)	0.01N-m(0.001kgf-m)
HTG2-200Nc	200N-cm(20.00kgf-cm)	200.0N-cm(20.00kgf-cm)	0.1N-cm(0.01kgf-cm)
HTG2-500Nc	500N-cm(50.00kgf-cm)	500.0N-cm(50.00kgf-cm)	0.1N-cm(0.01kgf-cm)
HTG2-1000Nc	1000N-cm(100.0kgf-cm)	1000N-cm(100.0kgf-cm)	1N-cm(0.1kgf-cm)



\*TA-01~03 are available as option. Please add [-1], [-2], or [-3] to the end of model number.  
 \*HTG2-10N, HTG2-1000Nc includes handles.  
 \*USB model is also available as customized.

### Automatic Screw-cap Tester

Reproduce torque measurement accurately.

## MTG

### Automatic Screw-cap Tester

- Measure precisely by equation of measurement speed.
- Function of USB data output.
- Automatic measurement function by Hi/Low set up values.
- Easy grip and simple operation.
- Precise measurement by high speed sampling.
- Draw graph of torque-time by optional software.



#### Specifications of MTG series

Item	Detail
Torque range	2N-m, 5N-m, 10N-m, 200N-cm, 500N-cm, 1000N-cm
Sample diameter	Top diameter: $\phi 20 \sim 90$ mm, Bottom diameter: $\phi 20 \sim 180$ mm
Sample height	80~240mm
Accuracy	$\pm 0.5\%$ F.S. $\pm 1$ digit
Overload capacity	About 150% of full scale of torque (Sensor may be broken when torque exceed this capacity.)
Sampling rate	Max. 1000 times/sec
LCD display update	10 times/sec
Speed	5~90 degrees/sec
Output	USB, Serial (RS232C), Analog (-2 to +2V)
External connecting	ZERO, Peak/Track mode select, Data output
Environment	Temperature: 0~+40 degrees, Humidity: 20~80%RH
Power	AC100V~240V Free input
Dimension	W433xD322xH635mm(max)
Weight	Approx. 19kg
Accessories	Software: ZP-Logger (to page 06), USB cable, Instruction manual, Inspection certificate

### Screw-cap Tester

For the torque measurement of the screw-caps of cosmetic, food and beverage containers.

## DTX2

### Screw-cap Tester

- Accuracy:  $\pm 0.5\%$ F.S.  $\pm 1$  digit
- Display: LCD 4-digit
- Sample Diam.: 20 to 180mm
- Power: DTX2-A=AC100to240V, DTX2-B=NIMH battery, AC adapter
- Battery Usage: 8hours (10hours charge)
- Environment: Temperature=0 to 40°C, Humidity=20 to 80%RH
- Over Torque: 150% of capacity
- Functions: Peak hold, Memory (1000data), Comparator evaluation, Auto zero clear, Alarm, Auto power off, Dumping
- Output: RS232C, MITUTOYO digimatic, Analog ( $\pm 2$ V.F.S.), Comparator, Over torque
- Over Torque Alarm: 110%F.S. (LED flashes, alarms)
- External Output: Hold, Zero clear, Peak
- Weight: Display=4.5Kg
- Dimensions: Display=W210xD325xH164mm
- Accessories: AC adapter (DTX2-B only), Carrying case, Operation manual, Inspection certificate



Torque measurement of bottle screw cap.

Model	Capacity	Display	Resolution
DTX2-2N-A(B)	2N-m(200gf-m)	2.000N-m(200.0gf-m)	0.001N-m(0.1gf-m)
DTX2-5N-A(B)	5N-m(500gf-m)	5.000N-m(500.0gf-m)	0.001N-m(0.1gf-m)
DTX2-10N-A(B)	10N-m(1.000kgf-m)	10.00N-m(1.000kgf-m)	0.01N-m(0.001kgf-m)
DTX2-200Nc-A(B)	200N-cm(20.00kgf-cm)	200.0N-cm(20.00kgf-cm)	0.1N-cm(0.01kgf-cm)
DTX2-500Nc-A(B)	500N-cm(50.00kgf-cm)	500.0N-cm(50.00kgf-cm)	0.1N-cm(0.01kgf-cm)
DTX2-1000Nc-A(B)	1000N-cm(100.0kgf-cm)	1000N-cm(100.0kgf-cm)	1N-cm(0.1kgf-cm)

\*Please add "-A" after model number for AC power supply model. (for example DTX2-2N-A)  
 \*Please add "-B" after model number for battery charge model. (for example DTX2-2N-B)

# Specialized Testers

## Other testers

With combination of force gauges, load cells, and stands, professional force measurement is possible. We offer easy and simple testers from multipurpose to specialized ones. IMADA specialized testers here must change the stereotype toward precise measurement, such as complicated operation, not practical at factory and expensive maintenance fee.

IMADA testers are compact and easy operation and assist improvement of work efficiency. We offer with confident our convenient and economy IMADA testers.

We can suggest the best solution for enhancement of quality control level and measurement efficiency.

We also design customized products for your special measurement samples conditions.

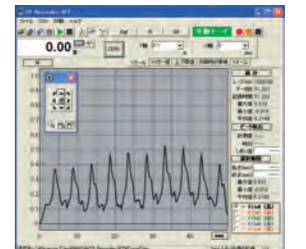
**IPT200 series**  
 180 degrees peeling often requested  
 Precisely measures delicate force

**FSA series**  
 Dual measurement of force and displacement  
 Easy visual evaluation by graph of force-displacement

### 180° Peeling Tester

Easily and precisely measures delicate force up to 50N. Example applications are such as emboss tapes and films. Its high speed sampling enables to draw a smooth graph at real-time through USB connection.

## IPT200 series



ZP-Recorder-IPT

#### IPT200 series

Model	IPT200-5N	IPT200-20N	IPT200-50N
Accuracy	$\pm 0.2\%$ F.S. $\pm 1$ digit		
Capacity	5N (500gf)	20N (2kgf)	50N (5kgf)
Resolution	0.001N	0.01N	
Sampling rate	1000 data / sec. at maximum		
Testing speed	120, 300, 500, 1000, 1500mm / min (switchable)		
Stroke	Travel of a load cell: Approx.400mm (Peeling length: Approx.200mm)		
Peel angle	165-180 degree (Height and angle are adjustable.)		
Testable width of samples	8 to 88mm (with scale 8, 12, 16, 24, 32, 44, 56, 72, 88 on table)		1 to 20mm (Without scale on table) (*1)
Testable thickness of samples	0.5mm at maximum		0.2mm at maximum
Power	AC100 to 240V free input (*2)		
Dimensions	Approx. W710*D300*H126mm		
Weight	Approx. 11kg		
Operating environment	Temperature: 0 to 40 degree Celcius / Humidity: 20 to 80% RH		
Accessory	Driver CD-ROM, ZP-Recorder (graph drawing software), Power cable, Inspection certificate, Instruction manual Attachment to clamp sample (5N: a clip, 20/50 N: a film grip)		



180° peel strength test of emboss tape



# FSA series Force-Displacement Measuring Unit



- Measuring unit to draw force-displacement curve easily.
- Ideal for feeling testing or material characteristic evaluation since force-displacement relation is clearly visible.
- Simple operation, Easy setting/wiring
- It is easy to compare and evaluate charts since 5 charts can be displayed in one table.

Various models available to suit your measurement needs

**Portable**  
Manual system up to 50N(500gf)



FSA-MSL- 2~50N

**Compact**  
Automatic system up to 500N(50kgf)



FSA-0.5K2- 2~500N

**Professional evaluation**  
Automatic system up to 1000N(100kgf)



FSA-1KE- 2~1000N

**High capacity**  
Automatic system up to 2500N(250kgf)



FSA-2.5K2- 2~2500N

## Specifications of Force-displacement measuring unit

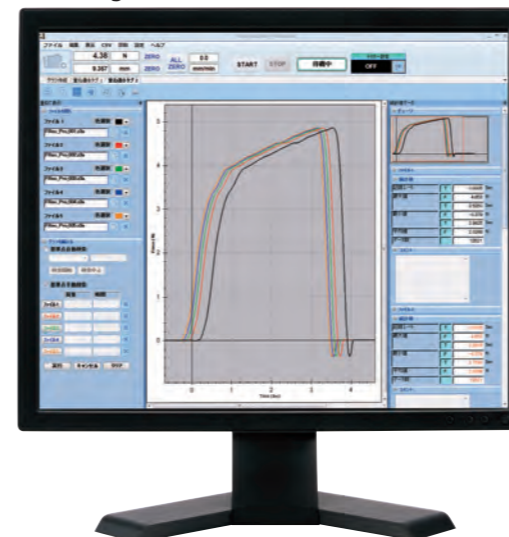
Model		FSA-□□-□□N
Measurement Unit	Force	N, kgf, lbf (Switchable) *1
	Displacement	mm, inch (Switchable) *1
Range		2N(200gf), 5N(500gf), 20N(2kgf), 50N(5kgf), 100N(10kgf), 200N(20kgf), 500N(50kgf), 1000N(100kgf), 2500N(250kgf)
Resolution	Force	4 digit (e.g. Resolution of 5N force gauge is 0.001N)
	Displacement	0.001mm (on software Force Recorder Professional) 0.01mm (on force gauge display)
Accuracy	Force	±0.2% F.S. ±1 digit
	Displacement	±0.1mm ±1 digit (with no load) When maximum force is applied, the stand may be deformed upward and downward (approx. -0.5mm to +0.5mm).
Model : Stroke : Speed		MSL: 80mm: Manual adjustment knob 0.5K2: 240mm: 10-300mm/min 1K2: 295mm: 10-300mm/min 2.5K2: 310mm: 10-300mm/min 1KE: 280mm: 0.5-600mm/min * "Stroke" means the maximum length from the top of a force gauge to the table of a test stand. Therefore, stroke varies depending on the force gauge and the attachments combined.
Sampling rate		2000 data / sec
Display update		10 data / sec
Output		USB, Serial(RS232C), Analog(Approx. ±2V), High/low set point, High/low output, Overload, USB flash drive * USB flash drive is NOT included.
Functions of motorized test stand (Except MSL)		Stroke limit, Overload prevention(*2), Force control(*3), Emergency stop *2 We cannot assure the perfect prevention against sensor break-down. *3 The value of force control is specified by the absolute value.
Power of motorized test stand		AC100V-240V Free input
Operating temperature/Humidity		Temperature: 0 - 40°C Humidity: 20 - 80%RH
Accessories		Instruction manual, Inspection certificate, Power cable, 2 pcs of spare hues, Driver CD-ROM(including software for data log "ZT-Logger"), USB cable, Graphing software "Force-Recorder Professional".

\*1 These are the specifications for International model. Please note that this unit is different from Japanese domestic model and international one.  
[N indication] The indication of 2N and 5N models is mN or N. The indication of 1000N, 2500N and 5000N model is N or kN.  
[kgf indication] The indication of 2N and 5N models is gf.  
[lbf indication] The indication of 2N and 5N models is ozf.

Please contact us for other configurations.

The range is selectable to suit your demand.

## An image of software



- It draws data into a graph at high sampling rate (2000Hz).
- It automatically calculates statistics.
- 5 graphs can be displayed in one table, which makes it easy to compare and evaluate charts.
- It is possible to start/stop recording automatically when the measured value reaches set points. (Trigger function)

## Operating Environment

- OS: Windows XP/Vista/7 (32bit/64bit) \*1
  - Platform: .NET Framework 4 later
  - CPU: Pentium 4 (1GHz more) more recommended  
Memory: 2GB more recommended  
Hard disk: 10GB (Data storage area) more
  - Execute environment: Microsoft Internet Explorer 6.0 later  
Windows Installer 3.1 later
  - Image size Resolution 1024\*768 pixel more
  - Connection port: USB 1.1, USB 2.0 connector \*2
- \*1 64 bit version is available only in Windows 7.  
\*2 We do not guarantee operation in USB 3.0.  
\*3 PC is not included.