

# FORCE MEASUREMENT IMADA Product Catalog

Force Gauges & Associated Equipment

DIGITAL FORCE GAUGE  
MECHANICAL FORCE GAUGE  
MOTORIZED TEST STAND

2021-10

IMADA's force testers are used worldwide in R&D and quality control of every industry to assess and ensure the quality.

IMADA offers a wide range of force testing products and know-how accumulated for many decades, enabling you to measure a huge variety of "force" such as mechanical strength (breaking/deformation force), tactile sensation (softness/hardness), functionality of operational physical force, and more.



## Force Gauges

IMADA force gauges can be used for tensile tests, compression tests, peel tests, and unlimited force testing applications.

We offer a wide range of gauges such as mechanical models (easy to handle), digital models (various functions equipped), and a variety of sensors.



## Software

Software records force transitions graphically, calculates the statistics automatically, and equips various functions to enable you to analyze the data in detail.



## Test Stands

A test stand achieves greater accuracy since it provides constant test angle/speed. Combined with a digital force gauge, a motorized test stand can activate useful functions to protect sensors from breakdown, streamline measurement, and more.



## Attachments

We provide a wide range of grips and fixture to meet your force measurement needs. One force gauge can be combined with various attachments to handle a wide range of force testing applications.



## Force Testing System

We provide various force testing system below to improve your productivity and meet a variety of force testing needs.

- Force-displacement analysis system
- Specialized testers for peeling etc.
- Automated force testing system
- And more



# The best force measurement solution by IMADA

We are an expert of force measurement.

IMADA force gauges have been used worldwide for more than 70 years to assess and ensure quality by professionals in every industry.

IMADA gauges can be used for a wide range of force testing applications such as tensile, compression, peel, and more.

They can even measure ambiguous things such as "cheese stickiness" and "switch pressing force." We provide the best force measurement solutions with our know-how and a wide range of products.

The industries using our force gauges



IMADA offers the best force measurement solution.

Force changes shape and speed of objects. Force is defined as  $Mass \times Acceleration = Force$ . There are many types of forces such as Tension/ Compression/Shearing/ Bending, and more. Below you can see force measuring instruments called "force gauges," which quantify the force in units of "Newton," "Kilogram," and "Pound." We provide a wide range of force gauges and related equipment to fit your measuring needs.

## 70 Years History of IMADA Force Gauge

In 1947

Developed the first force gauge in Japan.



The Latest Force Gauges

Capable, Functional and User-friendly force gauge, ZT series are released.

## Before-sales services

### Test Method Consulting

We provide the best measurement solution based on our 70 years knowledge and experiences. Please feel free to contact us for any measurement concerns, for example, measurement in accordance with standards, effective measurement ways, improvement of measurement repeatability and so on.



## Custom-made Orders

We also provide custom-made orders which are based on your measurement conditions and samples. Please let us know your requests such as installing a force gauge in equipment, looking for a fixture which can grip a unique shape sample, and the like.



## After-sales services

### Repair

We and some of our sales partners provide repair services. We are dedicated to short-term delivery.



## Calibration

We and some of our sales partners also provide calibration service to keep the accuracy. Some of our products can be provided calibration services in accordance with ISO/IEC 17025:2017.



## Publishing Various Certifications

Many types of certifications can be published in short terms such as Calibration Certificate, Traceability Chart and so on.



● Pull force



● Insertion force



● Pushing force



● Extraction force



● Peeling/adhesive force



● Shearing force/Tension force



● Rotating/Twisting force



● Crushing force



● Opening force



● Bending force



● Closing force



● Frictional force

# From simple testing to professional one, you can easily conduct force measurement anytime, anywhere.

Force measurement is conducted to assess safety, durability, functionality, operability, and more. We offer a wide range of force gauges and related equipment to fit your measurement needs.

### For use as a simple testing machine

A force gauge can be combined with a test stand to achieve high repeatability.

### For use by hand

Compression and tension force can be easily measured.



**A Force gauges (Push Pull Scales)**  
They measure compression, tension, peeling force, and more. They can be readily used by hand to conduct a test, or can be combined with a test stand to create your own testing machine. **To page 07**

**B Attachments**  
Attachments are integral components to be combined with a force gauge or a test stand, enabling compression, tension, peeling and other force measurement. **To page 36**

**C Software**  
Software draw graphs of the relationships between Force and Time or Force and Displacement. Utilize it for detailed analysis. **To page 20**

**D Test Stands**  
Test stands move a force gauge vertically or horizontally. It helps high-repeatability measurements by keeping the speeds and the angles. **To page 28**

**E Connecting Cables**  
A cable connects a force gauge and a test stand, activating the force controlling function and the preventing overload function. Besides, cables are also used to connect external equipment like PC. **To page 23**

## Other Product Line-up

### 180 Degree Peel Tester IPTS-5N/20N/50N

A specialized tester for peeling test of such as cover film of electric components and tapes  
**To page 53**



### FSA Force-Displacement Analysis Unit

Easy graph drawing of force and displacement relationships  
**To page 49**



### Texture Analyzer FRTS

Digitizing food texture such as stickiness, hardness and more

See another catalog, "Catalog for Torque testers and Food testers."



### Automatic crimp tester ACT-1000N

A specialized tester for tensile strength test of crimped terminal  
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### Torque Gauges

For rotating and twisting force measurement

See another catalog, "Catalog for Torque testers and Food testers."



### Measurement Examples

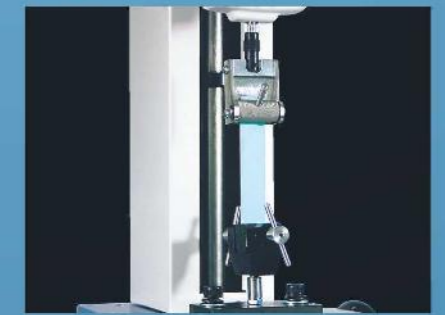
#### Compression Test

IMADA compression testers handle a wide range of testing applications such as, durability, bending, sticking, and more.



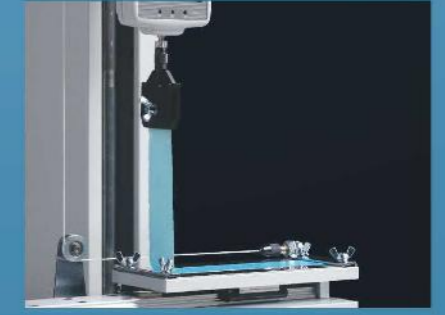
#### Tension Test

IMADA tension testers handle a wide range of testing applications such as tearing, extracting, pull-off, and more.



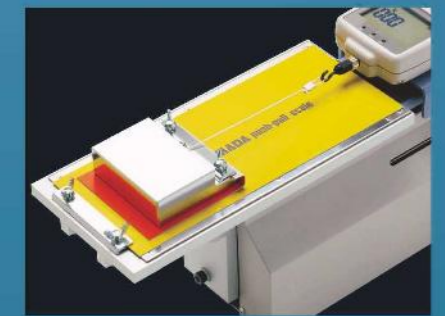
#### Peel Test

IMADA peel testers handle a wide range of testing applications of such as adhesive tape, film, and more.



#### Coefficient of Friction Test

IMADA COF testers calculate coefficient of static Friction and average of coefficient of kinetic Friction automatically.



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# Force Gauges (Push Pull Scales)

## Measuring instruments for compression/tension/peel force

A force gauge can be used by hand, or combined a test stand to creat your force testing machine. They are also called for "push pull scales" or "push pull gauges."



## Digital Force Gauges

### Strong Points

- Force values can be easily read.
- It can be connected with a PC to analyze data particularly and manage it easily.
- Digital functions are available such as OK/NG judgment, and more.
- It is suitable for impact tests and breaking tests.

### Weak Points

- Batteries need to be charged.
- It is difficult to read force transition without graphing software.

### DST To page 14

- Capacity: 2N~1000N
- Sampling speed: 1000Hz
- Accuracy:  $\pm 0.2\%F.S. \pm 1$  digit



- It is ideal for simple measurements by hand.
- Easily detect a peak value with its peak hold function.

### DSV To page 15

- Capacity: 2N~1000N
- Sampling speed: 1000Hz
- Accuracy:  $\pm 0.2\%F.S. \pm 1$  digit



- Tilt-sensing-function improves the repeatability even in handheld measurement.

### ZTS To page 09~10

- Capacity: 2N~5000N
- Sampling speed: 2000Hz
- Accuracy:  $\pm 0.2\%F.S. \pm 1$  digit



- Captures a peak value accurately due to its high sampling rate.
- Displays clearly.
- Manages data easily with included software.

### ZTA To page 11~12

- Capacity: 2N~5000N
- Sampling speed: 2000Hz
- Accuracy:  $\pm 0.2\%F.S. \pm 1$  digit



- Advanced Functionality Model
- Outputs and inputs displacement using a linear scale together.
- Saves data in a USB flash drive.

Simple

Functional Accurate

## Mechanical Force Gauges

### Strong Points

- They work without battery.
- They have durable bodies.
- Read force transition easily.

### Weak Points

- It is not suitable for impact tests and breaking tests.
- It may cause human reading error.

### FB To page 25

- Capacity: 10N~500N
- Accuracy:  $\pm 0.3\%F.S.$  or less



This is the most economical model

### PS To page 25

- Capacity: 5N~500N
- Accuracy:  $\pm 0.1\%F.S.$  or less



This is high accuracy model.  
When measuring high capacity more than 500N: PSH→To Page 26

### PSM To page 26

- Capacity: 20N~500N
- Accuracy:  $\pm 0.1\%F.S.$  or less



This is the most accurate model with high resolution dial.

## Digital force gauges

A digital force gauge has an internal sensor. It has 2 remarkable features; 1. Its digital indication prevents human reading error. 2. Easily manage or analyze test data with connecting it to a PC.



## How to Use Digital Force Gauges (Using Example Model: ZT series)

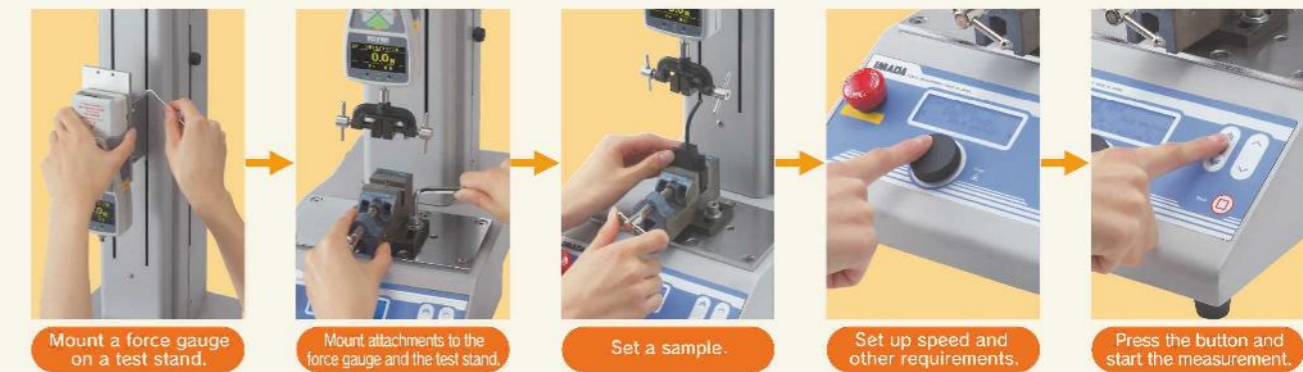
### Simple Method

Easily measure force by hand.



### Highly Repeatable Method

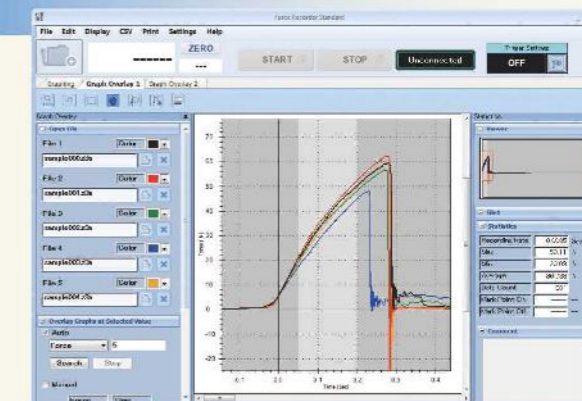
Combining a digital force gauge with a test stand (page 28), enables you to conduct a highly repeatable test since the test stand provides constant test speed and angle.



### Graphing

With software (page 20), the force transition can be confirmed graphically on a PC.

Connecting a digital force gauge with a PC enables you to see force transition graphically and analyze data in detail.



Standard Type with High Repeatability

# ZTS series (Basic Model)

This is user-friendly and functional model. This series of gauges can be used for a wide range of measuring purposes from peak measurement to highly repeatable measurement. The gauges come with data-capturing software.

### Accurately / Precisely

- High Speed Sampling: 2000Hz  
It follows rapid force change, capturing peak values more accurately.
- High Accuracy: ±0.2%F.S. ± 1digit

### User-friendly

- High Luminance Organic EL Display  
Clear organic display has excellent readability.
- 8 languages available  
Setting menu in 8 languages helps easy operation.

### Making efficient

- OK-NG Judgment Function  
Picks out defective products easily. (+NG or -NG light goes on when the force is over or under the borderline that you have decided.)
- 3 Line Indicator  
A force value is indicated in the middle tier, and can select information as required in the upper and lower tiers.
- Connect and Link to Various External Equipment.

Compression and Tension Compatible  
Size: Approx. W75×D34×H191mm  
Weight: Approx. 490g

Check Force Transition on Graphs  
Software Force Recorder — To Page 21~22

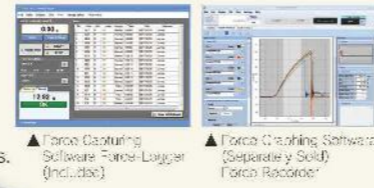
Print The Results  
Printer DP-1VR — To Page 24  
+Cable CB-308 — To Page 23

Connect with External Devices  
Cable Using Applications — To Page 24

### Easy Data Management on PC

- Data Capturing Software Force Logger is included.  
— It sends 10 data/sec to PC.  
— It automatically detects maximum and minimum values.  
— It saves data in CSV format.

- Graphing by Optional Force Graphing Software  
The software shows force vs time graphically on PC in real time (at Max. 2000Hz). The detail is in Page 21.



Model	Capacity	Display	Thread
ZTS-2N	2N	2.000N/2000mN(200.0gf)	M6
ZTS-5N	5N	5.000N/5000mN(500.0gf)	
ZTS-20N	20N	20.00N(2.000kgf)	
ZTS-50N	50N	50.00N(5.000kgf)	
ZTS-100N	100N	100.00N(10.00kgf)	
ZTS-200N	200N	200.00N(20.00kgf)	
ZTS-500N	500N	500.00N(50.00kgf)	
ZTS-1000N	1000N	1000.00N(100.00kgf)	

ZTS series specifications	
Accuracy	±0.2%F.S. ±1digit (Excluded sensor separated model)
Unit of measurement(※1)	N, kgf, lbf (※1)
Display	4-digit Organic EL
Sampling rate	2000Hz (2000 data / sec) at maximum
Function	Custom display (header and footer), Peak hold (tension and compression), 1000 points data memory, Comparator (judgment of OK/NG), Reverse display, Sign reversal, Zero clear limit, Hi-C alarm, Off timer (auto power off), Duration Time display
Output	Temperature: 0 to +40 degree Celsius, Humidity: 20 to 80%RH
Operating environment	USB, RS232C, Mitutoyo digital (※2), ±2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/+NG), Overload alarm
Battery	8 hours (2 hours full charge)
Accessory	Attachments(※3), AC adapter, Inspection certificate, CD driver(including simple software for data logging), USB cables, Carrying case.

※1 The model less than 5N can be displayed mN, the model more than 1000N can be displayed kN. In particular, the model does not indicate kgf and lbf units.  
 ※2 Not always available for Mitutoyo digital products.  
 ※3 Please refer to Page 36 for the detail of accessory attachments.  
 ※4 The weights are slightly different by the ranges.

# ZTS series (High Capacity Model)

- The load capacity ranges from 2500N to 5000N.
- This model has the same functions and performance as ZTS series basic model.



Compression and Tension Compatible  
Size: Approx. W83×D44.5×H221mm  
Weight: Approx. 1100g

High Capacity Model List			
Model	Capacity	Display	Thread
ZTS-2500N	2500N	2500N (2.500kN)	M10
ZTS-5000N	5000N	5000N (5.000kN)	

- Check Force Transition on Graphs  
Software Force Recorder — To Page 21~22
- Print The Results  
Printer DP-1VR — To Page 24  
+Cable CB-308 — To Page 23
- Improve Measuring Repeatability  
Test Stands — To Page 28
- Connect with External Devices  
Cable Using Applications — To Page 24
- Transmit Data Wirelessly  
Wireless Unit WL01-ADP/WL01-USB — To Page 24

# ZTS series (Separated Sensor Model)



Size (the indicator only): Approx. W75×D34×H188mm  
Weight (the indicator only): Approx. 490g

Check Force Transition on Graphs  
Software Force Recorder — To Page 21~22

Print The Results  
Printer DP-1VR — To Page 24  
+Cable CB-308 — To Page 23

- It features an external sensor, which is ideal for installing into facilities or measuring under special circumstance.
- We offer a wide range of sensors such as waterproof, wide temperature range, pen shape, and more to meet your force measurement requirement.  
 ※ Please select one load cell from page 17 to 19.  
 ※ Sensor interchangeable model eZ-Connect (page 16) is recommended for those who change load cells.
- This model has the same functions and performance as ZTS series basic model. (Accuracy and testing direction is determined by the sensor combined with the indicator.)

Connect with External Devices  
Cable Using Applications — To Page 24

Transmit Data Wirelessly  
Wireless Unit WL01-ADP/WL01-USB — To Page 24

Sensor separate type Model List (When selecting load cell DPU series)			
Model	Capacity	Display	Thread
ZTS-DPU-2N	2N	2.000N (2000mN)	M6
ZTS-DPU-5N	5N	5.000N (5000mN)	
ZTS-DPU-10N	10N	10.00N	
ZTS-DPU-20N	20N	20.00N	
ZTS-DPU-50N	50N	50.00N	
ZTS-DPU-100N	100N	100.00N	
ZTS-DPU-200N	200N	200.00N	
ZTS-DPU-500N	500N	500.00N	

(When selecting load cell DPU series [High capacity model])			
Model	Capacity	Display	Thread
ZTS-DPU-1000N	1000N	1000N (1.000kN)	M10
ZTS-DPU-2000N	2000N	2000N (2.000kN)	
ZTS-DPU-5000N	5000N	5000N (5.000kN)	
ZTS-DPU-10kN	10kN	10.00kN	
ZTS-DPU-20kN	20kN	20.00kN	
ZTS-DPU-50kN	50kN	50.00kN	

An example of separated sensor model combined with a load cell ZTS-LM-500N Load cell model Choose ZTS or ZTA  
 ※ In the case where you combine ZTS with a load cell, LM-500N

High-functional Type with Various Functions

# ZTA series (Basic Model)

This series have the highest functionality. They have 2 remarkable points: 1. They input or output displacement. 2. They can connect to USB flash drive to save the original graph data.

ZTA has all the functions of ZTS(Page 09) with a few more additional features, including I/O for displacement, saving data to USB flash drive, and more.

**ZTA series features**

**Input and Output Displacement**

Force vs displacement data management on PC  
FSA series (Force-Displacement Analysis Unit) [Page 49~51] can be used to manage force-displacement data on PC.

Showing displacement on a force gauge with a test stand  
FA version test stand [Page 30~31] can be used together to show displacement on a force gauge. Need an optional cable [Page 23] for that.

Measuring force-displacement with external facilities  
Built-in linear scale [Page 24] can be used together with ZTA.



Force-displacement measurement unit: FSA series

**Data Saving to a USB Flash Drive**

Data Saving into a USB Flash Drive at 100Hz.  
Series of data can be saved without PC.



CE

ZTA series

Compression and Tension Compatible

Size: Approx. W75×D34×H191mm  
Weight: Approx. 490g

Check Force Transition on Graphs  
Software Force Recorder — To Page 21~22

Print The Results  
Printer DP-1VR — To Page 24  
+Cable CB-308 — To Page 23

Connect with External Devices  
Cable Using Applications — To Page 24

Improve Measuring Repeatability  
Test Stands — To Page 28

Apply Stable Force by Hand  
Handle FOH-1 — To Page 47  
Hand Grip Belt HGB-1 — To Page 47

Analyze Force-Displacement Relation  
Force-Displacement Analysis Unit — To Page 49

Transmit Data Wirelessly  
Wireless Unit WL01-ADP/WL01-USB — To Page 24

**ZTA series model list**

Model	Capacity	Display	Thread
ZTA-2N	2N	2.000N/2000mN(200.0gf)	M6
ZTA-5N	5N	5.000N/5000mN(500.0gf)	
ZTA-20N	20N	20.00N(2.000kgf)	
ZTA-50N	50N	50.00N(5.000kgf)	
ZTA-100N	100N	100.0N(10.00kgf)	
ZTA-200N	200N	200.0N(20.00kgf)	
ZTA-500N	500N	500.0N(50.00kgf)	
ZTA-1000N	1000N	1000N/1.000kN(100.0kgf)	

※1 The model less than 5N can be displayed mN, the model more than 1000N can be displayed kN. Japanese domestic model does not indicate kgf and gf units.  
※2 Not always available for Mitutoyo digital products.  
※3 Maximum 100 data/sec capturing series of data with a USB flash drive.  
※4 A USB flash drive and a linear scale consumes more battery.  
Thus, when you combine ZTA with the USB flash drive or the linear scale, the battery runs out faster.  
※5 A USB flash drive is not included.  
※6 Please refer to Page 36 for the detail of accessory attachments.  
※7 The weights are slightly different by the ranges.

**ZTA series specifications**

Accuracy	±0.2%F.S./±1 digit
Unit of measurement(※1)	N, kgf, lbf(※1)
Display	4 digit Organic EL
Sampling rate	2000Hz (2000 data / sec) at maximum
Function	Customized display (header and footer), Peak hold (tension and compression), Internal 1000 points data memory, Comparator (Judgement of OK or NG), Reversible display, Sign inversion, Zero clear timer, +NG alarm, Off timer (auto power off), Dumping Time display, 1st/2nd peak, Displacement detection at force peak value, Displacement zero reset at selected force
Output	USB, RS232C, Mitutoyo digital (※2), 2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/+NG), Overload alarm, Sub comparator 2 steps (output of large or small judgement), USB flash drive(※3), Displacement(※4)
Operating environment	Temperature: 0 to +40 degree Celsius, Humidity: 20 to 80%RH
Battery	8 hours (2 hours charge)
Accessory(※5)	Attachments (※6), AC adapter, Inspector certifi case, CD driver (including simple software for data logging), USB cable, Carrying case, Adapter for USB flash drive.

# ZTA series (High Capacity Model)

- The load capacity ranges from 2500N to 5000N.
- This model has the same functions and performance as ZTA series basic model.



CE

ZTA (High capacity model) set

Compression and Tension Compatible

Size: Approx. W83×D44.5×H221mm  
Weight: Approx. 1100g

**High Capacity Model List**

Model	Capacity	Display	Thread
ZTA-2500N	2500N (250kg)	2500N/2.500kN (250.0kgf)	M10
ZTA-5000N	5000N (500kg)	5000N/5.000kN (500.0kgf)	

# ZTA series (Separated Sensor Model)



CE

ZTA (Separated sensor model) set

Size (the indicator only): Approx. W75×D34×H188mm  
Weight (the indicator only): Approx. 490g

It features an external sensor, which is ideal for installing into facilities or measuring under special circumstance.

We offer a wide range of sensors such as waterproof, wide temperature range, pen shape, and more to meet your force measurement requirement.

※ Please select one load cell from page 17 to 19.  
※ Sensor interchangeable model eZ-Connect (page 16) is recommended for those who change load cells.



This model has the same functions and performance as ZTA series basic model. (Accuracy and testing direction is determined by the sensor combined with the indicator.)

Check Force Transition on Graphs  
Software Force Recorder — To Page 21~22

Print The Results  
Printer DP-1VR — To Page 24  
+Cable CB-308 — To Page 23

Connect with External Devices  
Cable Using Applications — To Page 24

Connect with a Linear Scale  
Built-in Linear Scale Unit — To Page 24

Transmit Data Wirelessly  
Wireless Unit WL01-ADP/WL01-USB — To Page 24

**Sensor separate type Model List**  
(When selecting load cell DPU series)

Model	Capacity	Display	Thread
ZTA-DPU-2N	2N	2.000N (2000mN)	M6
ZTA-DPU-5N	5N	5.000N (5000mN)	
ZTA-DPU-10N	10N	10.00N	
ZTA-DPU-20N	20N	20.00N	
ZTA-DPU-50N	50N	50.00N	
ZTA-DPU-100N	100N	100.0N	
ZTA-DPU-200N	200N	200.0N	
ZTA-DPU-500N	500N	500.0N	

(When selecting load cell DPU series [High capacity model])

Model	Capacity	Display	Thread
ZTA-DPU-1000N	1000N	1000N (1.000kN)	M10
ZTA-DPU-2000N	2000N	2000N (2.000kN)	
ZTA-DPU-5000N	5000N	5000N (5.000kN)	
ZTA-DPU-10kN	10kN	10.00kN	
ZTA-DPU-20kN	20kN	20.00kN	
ZTA-DPU-50kN	50kN	50.00kN	

※ Please refer to Page 17 for the detail of load cell DPU series.  
An example of separated sensor model combined with a load cell: ZTA-LM-500N — Load cell model Choose ZTS or ZTA  
※ In the case where you combine ZTA with a load cell, LM-500N.

**Force Gauge**

ZTS    ZTA    Separated Sensor

**Motorized Test Stand**

MX2    EMX    MH2

+

Connecting them via Force Control Cable CB series,

enables you to maximize the functions such as the following.

※Please contact us for the combinations. (Our service group: +81-(0)532-33-3288)

Preventing Overload

- For reducing overload risks, a test stand stops when a force gauge senses too much force over its capacity.

STOP!

If the motorized stand goes beyond the overload value during its operation, it will not continue to operate.

※Not able to prevent overload in some cases.

Making Efficient

- It automatically starts graphing and recording data.

※Graphing software is sold separately.

Automatically it starts graphing.

START!

Force Control Functions

- Improve operating efficiency**
  - The force gauge automatically returns to starting point after reaching a pre-set force limit.
  - It can change the test speed when a force gauge senses a set point. Using this function, you can move the force gauge quickly until it touches a test sample, which reduces the time taken for measurement.

For example, slow down when a force gauge detects 0.1N.

For example, pause for 60 seconds, applying 500N pressure constantly.

- Suitable for pressure/endurance tests**
  - It can automatically regulate the load so as to be in a pre-set range for a pre-set time period, which is fit for pressure/endurance tests.

Digital Force Gauge **TECNIMETAL**

Affordable & Simple Type

# DST Series

Covering measurement of low, medium force area, from 2N~1000N.  
It features simple functions and easy handling with light weight and compactness.

Ideal for hand use

- Hand fitting design**  
It has an easy gripping shape.
- Light weight**  
Approx. 460g, light enough to measure with one hand
- Long lasting battery**  
Use up to 30 hours continuously (when backlight off).
- USB power supply available**  
Charge it from a PC or mobile battery.

Easy data management on PC

- Easy connection via USB**
- Data capture software (Force Logger) included**
  - Transfer 10 data / second to PC
  - Automatic detection of max. and min. values
  - Can be saved in CSV format

▲ Supplied force measuring software Force Logger

DST set

Easy quality control

- Pass (OK) judgment function**  
Easy checking for defects (It indicates OK when a force is within acceptable range.)
- Notice of calibration schedule**  
Set the calibration date and notify 30 days before the scheduled date
- Overload alarm**  
Notify with a warning when the measured value approaches capacity

CE

Compression / Tension compatible

- Size: Approx. W72 × D32 × H181mm
- Weight: Approx. 460g

- Check force transition on graphs**  
Software ZLINK4 ————— To Page 22
- Apply Stable Force by Hand**  
Handle FOH-1 ————— To Page 47  
Hand Grip Belt HGB-1 ————— To Page 47
- Improve Measuring Repeatability**  
Test Stand ————— To Page 28

■ Model table of DST series

Model	Capacity (N)	Display	Thread
DST-2N	2N	2.000N(2000mN)	M6
DST-5N	5N	5.000N(5000mN)	
DST-20N	20N	20.00N	
DST-50N	50N	50.00N	
DST-200N	200N	200.0N	
DST-500N	500N	500.0N	
DST-1000N	1000N	1000N(1.000kN)	

■ Specifications of DST series

Accuracy	+/-0.2%F.S. +/- 1 digit
Unit of measurement	N(mN/kN), kgf(g), lbf (kg <sup>-1</sup> )
Display	4-digit
Sampling rate	1000Hz (1000 data / sec) at maximum
Battery	Approx. 30 hours (backlight off); Approx. 14 hours (backlight on) (7.0 hours (full charge))
Power	Li-Ion Ni-MH battery, USB power supply (PC, mobile battery, AC adapter)
Operating environment	Temperature: 0 ~ 40° C Humidity: 20 ~ 80% RH
Function	Peak Hold (tension and compression); Comparator (judgment of acceptance or rejection); Setting sensitivity (3 levels) (variable display); Reversible screen/Setting; Hold; Zero; Line setting; Over; Calibration line notice
Output	USB/RS232C
Overload alarm	Advance notice alarm: Range 90% or above Overload warning (Alarm/Display): Range 110%
Accessory	Force Logger (Data capturing software)/USB cable/AC adapter/ Attachment (※2)/Carrying/Operation manual/Inspection certificate

※1 kN is available at 1000N, mN and of are available at 2N and 5N ranges.  
The available units are different from Japanese domestic model and international one.  
※2 Please refer to Page 36 for the detail of accessory attachments.  
※3 Weight are slightly different by the ranges.  
※4 Specifications for international models only.  
Specifications for Japanese domestic models vary on functions and performance.



High Repeatable Type for Handheld Use

DSV Series

Covering measurement of low, medium force area, from 2N~1000N.  
Increase the reproducibility of measurements of hand-held, with warning function of posture change.



High-end model with a few additional functions while keeping the performance of DST series (Page 14)

Features of DSV Series

Increase repeatability

- Detection of posture change, notification by alarm (tilt alarm)
- Data record of posture change abnormalities

Higher operability

- Internal memory  
Record 1000 data with date & time, and judgment results
- Continuous peak mode  
Increase productivity of measurement by continuously acquiring peak value without button operation

Compression / Tension compatible

- Size: Approx. W72 × D32 × H181mm
- Weight: Approx. 460g

- Check force transition on graphs  
Software ZLINK4 ————— To Page 22

- Improve Measuring Repeatability  
Test Stand ————— To Page 28



DSV set

- Apply Stable Force by Hand  
Handle FOH-1 ————— To Page 47  
Hand Grip Belt HGB-1 ————— To Page 47

Model table of DSV series

Model	Capacity (N)	Display	Thread
DSV-2N	2N	2.000N (2000mN)	M6
DSV-5N	5N	5.000N (5000mN)	
DSV-20N	20N	20.00N	
DSV-50N	50N	50.00N	
DSV-200N	200N	200.0N	
DSV-500N	500N	500.0N	
DSV-1000N	1000N	1000N (1.000kN)	

Specifications of DSV series

Accuracy	+/-0.2%F.S./±1 digit
Unit of measurement	N(mN/kN), kgf(g), lbf (※1)
Display	4-digit
Sampling rate	1000 lbf (1000 data / sec) at maximum
Battery	Approx. 30 hours (backlight off), Approx. 14 hours (backlight on) (4.5 hours full charge)
Power	Built-in Ni-MH battery, USB power supply (PC, mobile battery, AC adapter)
Operating environment	Temperature: 0 ~ 40° C Humidity: 20 ~ 80% RH
Function	Peak hold, tension and compression, Comparator (judgment of acceptance or rejection), Setting sensitivity (3 levels), Reversible display, Reversible symbol, Setting lock, the setting of linear/curvature line, notes, 11 items, Continuous peak mode, manual menu (100 data)
Output	USB / RS232C
Overload alarm	Advance notice alarm: Range 90% or above Overload warning (Alarm/Display): range 110%
Accessory	Force Logger (Data capturing software)/USB cable/AC adapter/ Attachment (※2)/Carrying/Operation manual/Inspection certificate

※1 kN is available at 1000N, mN and gf are available at 2N and 5N ranges.  
The available units are different from Japanese domestic model and international one.  
※2 Please refer to Page 36 for the detail of accessory attachments.  
※3 Weight are slightly different by the ranges.  
※4 Specifications for international models only.  
※5 Specifications for Japanese domestic models vary by functions and performance.

Load Cells and Amplifiers

Load cells convert sensing force to electric signal. You need an amplifier to indicate the force value measured by load cells. They are ideal for built-in or use under unique environment such as dangerous / narrow / dusty, and the like.



eZ-Connect series

eZ-Connect series are...

- eZ-Connect is composed of an amplifier and load cells. Load cells can be replaced without additional adjustment.
  - Choose a load cell from page 17 to 19 to connect with the amplifier. Available load cells have a mark
  - Its overall accuracy is calculated as the total of the accuracy of the amplifier (+/- 0.2%F.S.) and a load cell connected with it.
  - We do not offer inspection certificate when we ship it out. Therefore, please calibrate it by yourself, or request calibration for each combination if needed (available at a charge).

[This is recommended in these cases below.]

Measure things from low load to high load.

Carry out different types of tests such as tension and torque.

Keep a spare load sensor to reduce risks in operation.

Models of load cells for eZ-Connect series

- Add "e" to model name of a load cell for eZ-Connect series as stated below.

Example Normal load cell: DPU-50N

Load cell for eZ-Connect series: eDPU-50N

Sensor Interchangeable Amplifier eZT

Precise

- Capture test data precisely due to its high sampling rate (Max.2000Hz).

Easy

- No additional adjustment is needed to replace load cells.

Multifunctional

- It has many useful functions such as OK/NG judgement, saving data in USB flash drive, and more.

- Size (Amplifier only) : Approx. W75 × D34 × H188mm
- Weight (Amplifier only) : Approx. 490g



- Check Force Transition on Graphs  
Software Force Recorder ——— To Page 21~22
- Print The Results  
Printer DP-1VR ————— To Page 24  
+Cable CB-308 ————— To Page 23
- Connect with External Devices  
Cable Using Applications ——— To Page 24

eZT Specifications

Model	eZT
Accuracy	+/-0.2%F.S. (※1)
Unit of measurement	Depends on load cell and settings (N, kN, kgf, lbf, mN, m, cm, kgf·cm, lbf·in, ozf·in)
Display	4-digit
Display update	16 / sec
Sampling rate	2000 data / sec at maximum (※2)
Functions	Customized display (header and footer), Peak hold (tension and compression), Internal 1000 counts data memory, Comparator (judgment of OK/NG), Reversible display, Symbol inversion, Zero clear linear, -NG alarm, 01 line (auto power off), During, Time display, 1st/2nd peak/Displacement detection at force peak value, Displacement detection at selected force, setting lock
Output	USB, RS232C, Multitype digital (8/3, 2V, 0.2V analog output, D/A), Comparator 3 steps (-NG/OK/-NG), Overload alarm, Sub-comparator 2 steps (output of edge or small judgment), USB flash drive, Displacement
Operating environment	Temperature: 0 to +40 degree Celsius, Humidity: 20 to 80%RH
Battery	5 hours (2 hours charge) (※4)
Accessories	AC adapter, CD driver (including simple software for data logging), USB cable, Operation manual, Carrying case, Adapter for USB flash drive (※5)

※1 Japanese domestic model does not indicate kgf (kgf·m, kgf·cm) and lbf (lbf·in, ozf·in).  
※2 The accuracy of load cell is added during measurement.  
※3 You can save up to 100 data/sec in USB flash drive (selectable among 1, 50, and 100 /sec).  
※4 A USB flash drive and a linear scale consume more battery.  
※5 Thus, when you combine ZTA with the USB flash drive or the linear scale, the battery runs out faster.  
※6 USB flash drive is not included.  
※7 If you would like to use this amplifier combined with a test stand, please contact us or our sales partner.

- Connect with a Linear Scale  
Built-in Linear Scale Unit ————— To Page 24
- Transmit Data Wirelessly  
Wireless Unit WL01-ADP/WL01-USB ————— To Page 24

Desktop Amplifier FA Plus2 series

- Its box-shaped design is ideal for integration into facilities.
- Its rich output functions allow easy connection to external devices such as PLC.



- Size: W151 × D150 × H90mm
- Weight: Approx. 1.1kg

This amplifier is available with all load cells from page 17 to 19 except SKM-1000N and eZ-Connect load cells.  
Load cells can be replaced in the most cases although they need adjustments. However, some load cells are incompatible, and they cannot be combined with an amplifier. Please contact us for the details.

Accuracy

- High speed sampling :2000Hz  
It shows force value precisely and even follows rapid force change due to its high sampling rate.

Connect with external equipment

- It can be used as a part of factory automation equipment using input and output signals.

Model	FA Plus2	eFA Plus2
Features	Adjustment is required when change the load cell	Load cell changeable (2-combination for force and displacement)
Unit of measurement	Depends on load cell and settings	(N, kN, kgf, lbf, mN, m, cm, kgf·m, kgf·cm, lbf·in, ozf·in) (※1)
Display	4-digit	4-digit
Sampling rate	2000 data / sec at maximum	2000 data / sec at maximum
Functions	Customized display (header and footer), Peak hold (tension and compression), Comparator (judgment of OK/NG), Display of AD value, Reversible display, Zero clear linear, -NG alarm, 01 line (auto power off), During, Time display, 1st/2nd peak, Displacement detection at force peak value, Displacement zero reset at selected force, setting lock	Customized display (header and footer), Peak hold (tension and compression), Comparator (judgment of OK/NG), Display of AD value, Reversible display, Zero clear linear, -NG alarm, 01 line (auto power off), During, Time display, 1st/2nd peak, Displacement detection at force peak value, Displacement zero reset at selected force, setting lock
Output	RS232C (send rate available from 57600bps to 28800bps), USB, 2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/-NG), Overload alarm, Sub-comparator 2 steps (output of edge or small judgment), USB flash drive, Displacement	RS232C (send rate available from 57600bps to 28800bps), USB, 2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/-NG), Overload alarm, Sub-comparator 2 steps (output of edge or small judgment), USB flash drive, Displacement
Accessories	AC adapter (only for standard model), Force logger (software for data logging), USB cable, Adapter for USB flash drive (※2), Instruction manual	AC adapter (only for standard model), Force logger (software for data logging), USB cable, Adapter for USB flash drive (※2), Instruction manual

※1 The available units are different from Japanese domestic model and international one.  
※2 USB flash drive is not included.

# Load Cells

for Compression and Tension

## Standard Type DPU

Easy built-in shape to external equipment.



It measures force by mounting an attachment on the thread (the male screw part).

Capacity	2N~500N
Accuracy	±0.2%F.S. or less
Size	Approx. 45X25X17 (H)X21X3mm
Cable Length	Approx. 2m

Model	Capacity	Thread
DPU-2N	2N	Male Screw M8P1.0
DPU-5N	5N	
DPU-10N	10N	
DPU-20N	20N	
DPU-50N	50N	
DPU-100N	100N	Female Screw M10P1.0
DPU-200N	200N	
DPU-500N	500N	

for Compression and Tension

## High Capacity Type DPU

Easy built-in shape to external equipment.



It measures force by mounting an attachment on the thread (the male screw part).

Capacity	1000N~20kN
Accuracy	±0.2%F.S. or less
Size	Approx. 60X25X13 (H)X24X15mm
Cable Length	Approx. 3m

Model	Capacity	Thread
DPU-1000N	1000N	Male Screw M10P1.5
DPU-2000N	2000N	
DPU-5000N	5000N	None
DPU-10kN	10kN	
DPU-20kN	20kN	

※There is no thread on the load cell head while it equips a female screw M10 (P1.5) Depth 22. The thread is able to attach on the head optionally.

for Compression and Tension

## Small Type SW1

Able to connect samples to the two sides of the sensor.



Fix it with female screws or connect it to eye bolts to measure force.

Capacity	100~5000N
Accuracy	±0.5%F.S. or less
Size	Approx. W40XD20XH40mm
Cable Length	Approx. 0.5~2m (Cur. cable)

Model	Capacity	Thread
SW1-100N	100N	Female Screw M8P1.0
SW1-200N	200N	Female Screw M8P1.25
SW1-500N	500N	
SW1-1000N	1000N	Female Screw M10P1.0
SW1-2000N	2000N	
SW1-5000N	5000N	

※Please contact us if the users need the thread.

for Compression and Tension

## High Capacity Type SW3

Able to connect samples to the two sides of the sensor.



Fix it with female screws or connect it to eye bolts to measure force.

Capacity	10kN~20kN
Accuracy	±0.5%F.S. or less
Size	Approx. W90XD25XH80mm
Cable Length	Approx. 5m

Model	Capacity	Thread
SW3-10kN	10kN	Female Screw M10P2.0
SW3-20kN	20kN	

※Please contact us if the users need the thread.

for Compression or Tension

## Small Type ZD

Small-size sensor in capacity from 1000N up to 20kN.



It measures force by mounting an attachment on the thread (the male screw part)

Capacity	1000N~20kN
Accuracy	±0.5%F.S. or less
Size	Approx. 78X30X44 (H)X38X25mm
Cable Length	Approx. 3m

Model	Capacity	Thread
ZD1-1000N	1000N	Male Screw M12P1.75
ZD1-2000N	2000N	
ZD1-5000N	5000N	Male Screw M20P1.5
ZD1-10kN	10kN	
ZD1-20kN	20kN	

※Please choose tension or compression

for Compression

## General Type LC

Coin type load cell.



It measures force by applying compression on the top of projection.

Capacity	500N~20kN
Accuracy	±0.5%F.S. or less
Size	Approx. 45X25X25mm
Cable Length	Approx. 5m

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

for Compression

## High Accuracy Type DD2

High accuracy model. Available for high capacity measurement.



It measures force by applying compression on the top of projection.

Capacity	5000N~20kN
Accuracy	±0.5%F.S. or less
Size	Approx. 45X25X25mm
Cable Length	Approx. 5m

Model	Capacity
DD2-5000N	5000N
DD2-10kN	10kN
DD2-20kN	20kN

for Compression

## Small Type LM

It can be inserted in narrow spaces due to the coin shape.



It measures force by applying compression on the top of projection.

Capacity	10N~20kN
Accuracy	10N~10kN: ±2.0%F.S. or less 20kN: ±3.5%F.S. or less
Size	Approx. 12XH4~12XH10mm
Cable Length	10N~2000N: Approx. 2m 5000N~20kN: Approx. 3m

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

for Compression and Tension

## Extra Small Type LMU

Sensor part diameter is Approx. φ18mm.



It measures force by mounting an attachment on the thread (the male screw part).

Capacity	50~500N
Accuracy	±1.0%F.S. or less
Size	Approx. φ18XH25mm
Cable Length	Approx. 2m

Model	Capacity	Thread
LMU-50N	50N	Male Screw M8P0.5
LMU-100N	100N	
LMU-200N	200N	
LMU-500N	500N	

※1 Conversion adaptor CA-FST6 (Page 47) is required when M8 screw attachments mounting on the load cell.

for Compression and Tension

## Small Type LU

Able to connect samples to the two sides of the sensor.



Fix it with female screws or connect it to eye bolts to measure force.

Capacity	50~2000N
Accuracy	±1.0%F.S. or less
Size	Approx. φ28XH35mm
Cable Length	Approx. 3m

Model	Capacity	Thread
LU-50N	50N	Female Screw M8P1.25
LU-100N	100N	
LU-200N	200N	
LU-500N	500N	
LU-1000N	1000N	
LU-2000N	2000N	

Conversion adaptor CA-0T6 (for M8 screw)/CA-0T10 (for M10 screw) (Page 47) is required when M8/M10 screw attachments mounting on the load cell.

for Compression and Tension

## Pen Type PN-50N

Ideal for touching force measurements such as small manipulation force.



It measures force by mounting an attachment on the thread (the male screw part).

Capacity	50N
Accuracy	±2.0%F.S. or less
Size	Approx. φ20XH80mm
Cable Length	Approx. 2m

Model	Capacity	Thread
PN-50N	50N	M8P1.0

for Compression or Tension

## High Accuracy Type SK

Durable sensor.



Mount metal fittings in 3 holes as required.

Capacity	2000N~20kN
Accuracy	±0.25%F.S. or less
Size	Approx. W130XD30XH130mm
Cable Length	Approx. 5m

Model	Capacity
SK-2000N	2000N
SK-5000N	5000N
SK-10kN	10kN
SK-20kN	20kN

for Compression

## Wide Temperature Range Type LMT-1000N

It can be used in temperatures between -40 degrees Celsius and +130 degrees Celsius.



It measures force by applying compression on the top of projection.

Capacity	1000N
Accuracy	±1.0%F.S. or less
Size	Approx. φ14XH23mm
Cable Length	Approx. 2m

Model	Capacity
LMT-1000N	1000N

for Tension

## High Capacity Type ZU

Two rod ends are included. Small-size sensor in capacity from 10kN up to 20kN.



Force is measured by attaching a sample on the rod end.

Capacity	10kN~20kN
Accuracy	±1.0%F.S. or less
Size	Approx. 45XH25~45XH25mm
Cable Length	Approx. 5m

Model	Capacity
ZU-10kN	10kN
ZU-20kN	20kN

for Tension

## Crane Scale Type ZW1-10kN

A hook is included. Light weight and user-friendly.



It can be used as a crane scale.

Capacity	10kN
Accuracy	±1.0%F.S. or less
Size	Approx. W79XL250
Cable Length	Approx. 0.5~2m (Cur. cable)

Model	Capacity
ZW1-10kN	10kN

Special Use Load Cell

## Door Tester DM-2000N

Exclusively for measuring closing force of automatic doors and revolving doors.



It measures force by making the blue sensor part touch a closing door.

Capacity	2000N
Accuracy	±2.0%F.S. or less
Size	Approx. W94XD86XH380mm
Cable Length	Approx. 2m

Model	Capacity
DM-2000N	2000N

Complies with the corresponding set of BS EN 12453 (2017) "Industrial, commercial and garage doors and gates - safety in use of power operated doors - requirements and test methods", BS A4722 (2017) "Power operated section roller doors - Safety"

# Load Cells

## Special Use Load Cell

### Closing Force of Car Windows SKM-1000N

Exclusively for automatic closing force of car windows.



Put this sensor between a car window and its frame to measure the closing force.

Capacity	1000N
Accuracy	±1.0%F.S. or less
Size	Approx. W70XD50XH32mm
Cable Length	Approx. 200mm (flexible arm)

This product is united to the indicator.  
The united model: ZTS-SKM-1000N/ZTA-SKM-1000N

Model	Capacity
SKM-1000N	1000N



\*You cannot combine it with FA Plus due to its flexible arm.

## Special Use Load Cell

### Handbrakes Force of Two-Wheelers PK1-500N

Exclusively for gripping hand breaks force of two-wheelers.



Put this sensor on hand breaks and grip them together to measure the force.

Capacity	500N
Accuracy	±1.0%F.S. or less
Size	Approx. W100XD25XH24mm
Cable Length	Approx. 1.5m

Code	Capacity
PK1-500N	500N



## Special Use Load Cell

### Foot Brakes Force of Cars PK2-1500N

Exclusively for stepping foot brakes of cars.



It measures footbrake manipulating force by putting the load cell on foot breaks and stepping them together.

Capacity	1500N
Accuracy	±1.0%F.S. or less
Size	Approx. W50XD70XH28mm
Cable Length	Approx. 1.5m

Model	Capacity
PK2-1500N	1500N



## For Torque(only for eZ-connect)

### Torque Load Cell eHT series

It measures turning/twisting force.



It measures torque using optional attachments such as pin chuck, socket holder, torque driver etc. Please see another torque catalog for the details of the attachments.

Capacity	0.5N-m~10N-m
Accuracy	±0.5%F.S. or less
Size	φ38×138mm
Cable length	Approx.0.5~1m (curl cable)

Model	Capacity
eHT-0.5N	0.5N-m(200N-cm)
eHT-2N	2N-m(200N-cm)
eHT-5N	5N-m(500N-cm)
eHT-10N	10N-m(1000N-cm)

\*1 Displayed unit is "N-cm" only.  
\*2 You can switch N-m(N-cm) to kgf-m(kgf-cm) or lbf-in(ozf-in).

\*Load cells with the mark (eZ) can be combined with eZ-Connect series. eZ-Connect series are composed of a sensor, interchangeable amplifier and a load cell. Put "e" at the head of a load cell model for eZ-Connect to tell it apart from normal model. Please see the page 16 for the details.

## What is IP?

IP (International Protection) is a standard which is based on IEC Standard 529 for solid foreign materials, electric devices for water and cabinet.

(Explanation of the IP code)

IP x x

The second code (IP 0 to 8 for water penetration)

The first code (IP 0 to 8 for human body and solid foreign materials)

(Some IMADA load cells are IP67 or IP65.)

IP 6 7

Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion for 30 minutes.).

No ingress of dust; complete protection against contact (dust tight)

IP 6 5

Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects at least for 3 minutes 100 liter per minute.

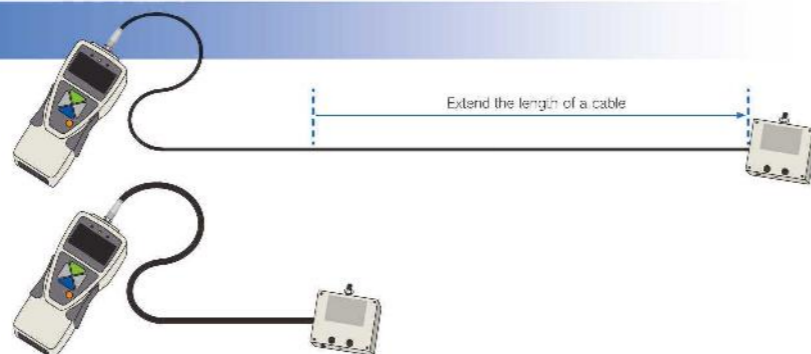
The load cell itself comply with IP.

Amplifier (indicator), connecting parts and connector parts do not comply with IP.

## Custom Order Examples

### [Example:Extend the length of a cable]

We can extend the length of a cable for gauge-PC connection or loadcell-amplifier connection.



### [Example:Enhance flexibility of a cable]

We can offer high-flex cable to reduce risks of disconnection.  
\*We cannot offer it in some cases. Contact us for further information.

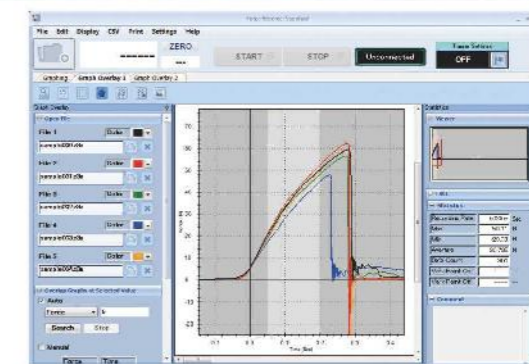
# Data Collection and Analysis Software

Force transition can be graphically confirmed in real time by connecting force gauge and PC via USB cable. Software allows easy data management and analysis.

## Advantage of Using The Software

Transfer data from a force gauge to a PC in real time via a cable. It shows test data graphically on a PC, and force transition can be confirmed visually. Moreover, it automatically calculates the statistics and stores recorded data, enabling you to manage data with ease.

\*All software is available in English and Japanese by language setting.



## Software Lists

CD	Name of software	Purpose	Compatible mode	Connecting port	Sampling frequency
	<b>Force Recorder Light</b>	for drawing Force-Time Graph This software is moderate-priced edition.	ZTS To Page 09, ZTA To Page 11, eZT To Page 16, FA Plus2 To Page 16, HTGS/HTGA See a torque catalog, DTXS/DTXA See a torque catalog	USB	Max. 2000Hz
	<b>Force Recorder Standard</b>	for drawing Force-Time Graph	ZTS To Page 09, ZTA To Page 11, eZT To Page 16, FA Plus2 To Page 16, HTGS/HTGA See a torque catalog, DTXS/DTXA See a torque catalog	USB	Max. 2000Hz
	<b>Force Recorder Professional</b>	for drawing Force-Displacement Graph	ZTA To Page 11, eZT To Page 16, FA Plus2 To Page 16, HTGA See a torque catalog, DTXS/DTXA See a torque catalog	USB	Max. 2000Hz
	<b>Force Recorder Plus</b>	for drawing Force-Time Graph up to 4 force gauges.	ZTS To Page 09, ZTA To Page 11, eZT To Page 16, FA Plus2 To Page 16, HTGS/HTGA See a torque catalog, DTXS/DTXA See a torque catalog	USB	Max. 1000Hz
	<b>Force Logger Plus</b>	for acquiring data from up to 4 force gauges *Not available for drawing a graph	ZTS To Page 09, ZTA To Page 11, eZT To Page 16, FA Plus2 To Page 16, DST To Page 14, DSW To Page 15, HTGS/HTGA See a torque catalog, DTXS/DTXA See a torque catalog	USB	Max. 10Hz
	<b>ZLINK4</b>	for drawing Force-Time Graph	DST To Page 14, DSW To Page 15	USB	Max. 50Hz

## Operating Environment for Force Recorder series, Force Logger Plus, ZLINK4, Force Recorder Plus

Model	Force Recorder Light/Standard/Professional	Force Recorder Plus	Force Logger Plus
OS	Windows 7 / 8 / 8.1 / 10	Windows 8 / 8.1 / 10	Windows 7 (SP1) / 8 / 10
Hardware	CPU: Pentium 4 / 0 or more core recommended Memory: 2GB or more recommended Hard disk: 10GB Data storage available recommended	CPU: Core 2 / 1 or more core recommended Memory: 4GB or more recommended Hard disk: 10GB Data storage available recommended	CPU: Pentium 4 / 0 or more core recommended Memory: 2GB or more recommended Hard disk: 10GB Data storage available recommended
Platform	.NET Framework 4.6 later	.NET Framework 4.8 later	.NET Framework 4.8 later
Image size	Resolution: 1024×768 pixel or more	Resolution: 1920×1080 pixel or more	Resolution: 1280×768 pixel or more
Connection port	USB 1.1, USB 2.0 connector *1 *2	USB 2.0 connector *1	USB 2.0 connector *1

\*1 The operation with USB 3.0 not guaranteed. \*2 RS232C cable is required for ZLINK4 when connects old models. Contact us for further details.

## Comparison Table Function Comparison

Software	Force Recorder Light	Force Recorder Standard	Force Recorder Professional	Force Recorder Plus	Force Logger Plus	ZLINK4
Feature	Graphing only	With editing functions	Force-displacement graphing	Edge graphing, force-displacement graphing	Connect up to max. 4 force gauges	Simple Graphing
Graph	Force-time	Force-time	Force-time, Force-displacement	Force-time	Force-time	Force-time
Data transferring speed (Max)	2000 data/sec	2000 data/sec	2000 data/sec	1000 data/sec	10 data/sec	50 data/sec
Recording data point (Max)	7.2 million	7.2 million	7.2 million	3 million	60 thousand	7.2 million
Displacement output	N/A	N/A	✓	✓	N/A	N/A
Graph overlaying function	N/A	✓ (Max. 5 graphs)	✓ (Max. 5 graphs)	✓ (Max. 10 graphs)	N/A	N/A
Trigger function	N/A	✓	✓	✓	✓	✓
Point marking	N/A	✓	✓	N/A	N/A	N/A
Border line function	N/A	✓	✓	N/A	N/A	N/A
Capture function	N/A	✓	✓	✓	N/A	N/A
Graph scaling	✓ (Auto)	✓ (Auto)	✓ (Auto)	✓ (Auto/Manual)	N/A	N/A
Statistics output	✓	✓	✓	✓	✓	✓
Comment	✓	✓	✓	N/A	✓	✓
Print	✓	✓	✓	✓	✓	✓
CSV file converting	✓	✓	✓	✓	✓	✓
Force saving (P/P/Force/Sec)	✓	✓	✓	✓	N/A	✓
Force gauge setting	✓	✓	✓	✓	✓	✓
Managing force gauge	N/A	N/A	N/A	✓	✓	N/A

NOTE: models of force gauges may not be compatible partially or wholly. Contact us for the detail about old models.



## Force Recorder Light

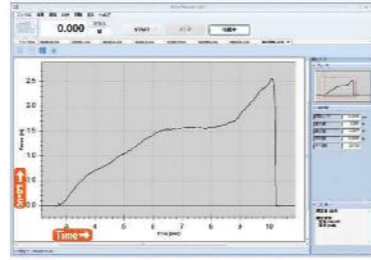
### Force-Time Graphing Software

Moderated Price Model



### Affordable model focusing on graph acquisition

- **Acquire measuring data accurately and precisely**
    - It graphs measurement accurately and precisely at high sampling rate, up to max. 2000Hz.
  - **Create report instantly**
    - Easily saves data in Word, Excel and PDF format, reducing time to create reports.
    - It automatically inputs graphs, dates & time, and statistics. Comments also can be input manually.
- Refer to the [Operating Environment] on the previous page for the details of operating environment.



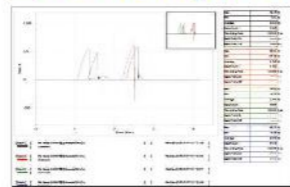
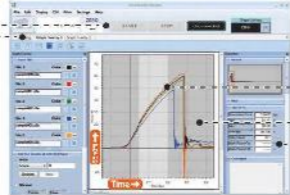
## Force Recorder Standard

### Force-Time Graphing Software



### Analyze data easily and accurately, and create report with ease

- **Make efficient by simple manipulations and useful functions**
    - Easy steps for recording: Connect a force gauge and PC with a USB cable, and click START.
    - Data can be easily compared due to plural tabs.
    - It automatically calculates Max/Min/Ave values.
    - Comments can be inserted.
    - Maximum 5 graphs can be overlaid in a table, allowing easy comparison and accurate analysis.
  - **Capture measuring data accurately**
    - It graphs the measurement accurately due to high sampling rate, at Max.2000Hz
    - A peak value can be captured more precisely due to the higher sampling rate.
    - Comparison of 2000Hz and 100Hz: 2000Hz is more to capture peak value than 100 Hz.
  - **Create reports quickly**
    - Data can be easily saved in Word, Excel, and PDF format, reducing the time to create reports.
    - It automatically inputs graphs, date & time, and statistics. Comments also can be input manually if necessary.
- Refer to the [Operating Environment] on the previous page for the details of operating environment.



## Force Recorder Professional

### Force-Displacement Graphing Software

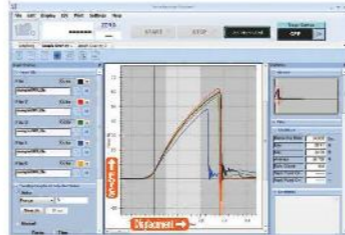


### Draw and analyze force vs displacement graphs (FS curve)

In force-displacement measurement, a dedicated device measures force and travel amount (compression, tension) of the force gauge on the motorized stand as displacement at the same time.

- **Force vs displacement graphs can be drawn.**
  - Force-displacement graph can be created by connecting the linear scale (Page 24) or test stand with inbuilt linear scale (FA model) (Page 34) together with force gauge.
  - FSA series (Page 49~51) include this software.

■ **Professional is basically the same as Standard in performance&function**  
 • Refer to the [Operating Environment] on the previous page for the details of operating environment.



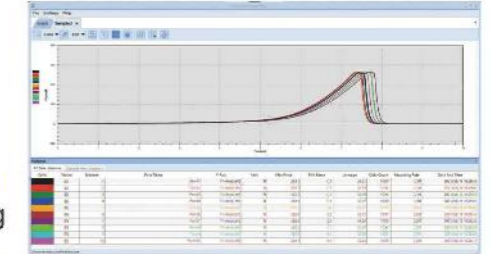
## Force Recorder Plus

### Multiple gauges Force-Time Graphing Software



### Graph the data up to 4 force gauges, and display different measurement unit such as force and torque in 1 screen

- **Acquire data up to 4 force gauges**
    - Easy USB connection ※A self-power USB hub is required separately.
    - Acquire synchronized data (up to 1000 times/sec)
    - The force applied to different parts of the sample can be measured up to 4 points at the same time
  - **Display different unit such as force and torque in 1 screen**
    - Record the transition of the multiple movements such as pressing and turning
  - **Maximum 10 graphs can be overlaid in a table and compared**
    - It enables you to analyze test results more easily since 10 graphs can be compared at the same time, which is more than other software
- Refer to the [Operating Environment] on the previous page for the details of operating environment.



## Force Logger Plus

### Multiple Gauges Managing Software



### Manage data up to 4 force gauges

- **Acquire data up to 4 force gauges**
    - Easy USB connection ※A self-power USB hub is required separately.
    - Acquire single data or synchronized data (up to 10 times/sec)
  - **Simple data management**
    - Record data by each serial number of the force gauge, together with the date & time of recording and person in charge.
    - Register the force gauge by each serial number and manage the force gauge with an operator's name and a department.
  - **Force gauge setting**
    - Easily set functions of the force gauge by the software.
- Refer to the [Operating Environment] on the previous page for the details of operating environment.



※The wireless Unit(P24) is available only for Ver.1.10 and later.  
 Force Logger is available with Ver.2.10 and later.



## ZLINK4

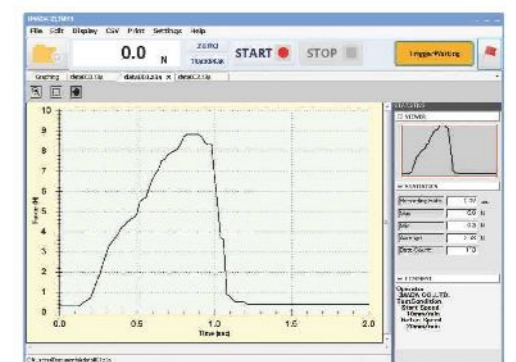
### Force-Time Graphing Software for DST/DSV



### Draw force-time graph easily

- **Graphing at Max. 50Hz**
  - Open multiple graphs with tabs
  - Zoom specific parts in detail easily with zoom function
- **High operability by trigger function**
  - Automatic recording by setting the force value of when to start and end. The recording time also can be set.

• Refer to the [Operating Environment] on the previous page for the details of operating environment.





**The Cables to Connect a Force Gauge to an External Devices**

<b>RS232C cable</b> Connects a PC to a force gauge, enabling to record the measurement and transmit command signals from the PC to the gauge.	<b>CB-208</b> Length: Approx. 3m	<b>CB-208</b> Length: Approx. 3m	<b>CB-208</b> Length: Approx. 3m	<b>CB-203 (9P)</b> Length: Approx. 3m	<b>CB-203 (9P)</b> Length: Approx. 3m	<b>CB-208</b> Length: Approx. 3m
<b>Digimatic cable</b> Connects Mitutoyo Digimatic Mini Processor (a portable printer) to a force gauge for printing the measurement.	<b>CB-308</b> Length: Approx. 3m	<b>CB-308</b> Length: Approx. 3m	<b>CB-308</b> Length: Approx. 3m	<b>Contact us.</b>		
<b>Analog cable</b> Connects analog devices such as a pen recorder to a force gauge, enabling to record force transition. ※CB-118 works for "AN" option. ※1	<b>CB-108</b> Length: Approx. 3m	<b>CB-108</b> Length: Approx. 3m	<b>CB-108</b> Length: Approx. 3m			
<b>Open End cable</b> Connects a force gauge to a special device.	<b>CB-908</b> Length: Approx. 3m	<b>CB-908</b> Length: Approx. 3m	<b>CB-908</b> Length: Approx. 3m	<b>CB-908</b> Length: Approx. 3m		
<b>Cable with Terminal Block</b> Connects an external equipment such as PLC	<b>CTB-A</b> Length: Approx. 1m	<b>CTB-A</b> Length: Approx. 1m	<b>CTB-A</b> Length: Approx. 1m	<b>CTB-A</b> Length: Approx. 1m		
<b>External Contact Point cable</b> Enables you to measure external contact points.	<b>CB-808</b> Length: Approx. 3m	<b>CB-808</b> Length: Approx. 3m	<b>CB-808</b> Length: Approx. 3m	<b>CB-808</b> Length: Approx. 3m		

**The Cables to Connect a Force Gauge/an Amplifier to a Test Stand**

<b>Force Control cable</b> ※2 Connects a test stand (MX/MH) to a force gauge/an amplifier, activating motion control by set force values and an overload-preventing function.	<b>CB-508</b> Length: Approx. 1.5m	<b>CB-508</b> Length: Approx. 1.5m	<b>CB-508</b> Length: Approx. 1.5m	<b>CB-508</b> Length: Approx. 1.5m		
<b>Force Control cable</b> ※2 Connects a test stand (MX2/MH2/EMX) to a force gauge/an amplifier, activating motion control by set force values and an overload-preventing function.	<b>CB-528</b> Length: Approx. 1.5m	<b>CB-528</b> Length: Approx. 1.5m	<b>CB-528</b> Length: Approx. 1.5m	<b>CB-528</b> Length: Approx. 1.5m		
<b>Displacement cable (EMX-FA/MX2-FA/MH2-FA connecting)</b> ※2※3※4 Allows displacement output by connecting a force gauge/an amplifier to a test stand equipping a linear scale (EMX-FA/MX2-FA/MH2-FA).	<b>CB-718</b> Length: Approx. 1.5m			<b>CB-718</b> Length: Approx. 1.5m	<b>CB-718</b> Length: Approx. 1.5m	
<b>Displacement cable (EMX-FA connecting)</b> ※2※3※4 Allows displacement output by connecting a test stand equipping a linear scale (EMX-FA) to a force gauge/an amplifier.	<b>CB-728</b> Length: Approx. 1.5m			<b>CB-728</b> Length: Approx. 1.5m	<b>CB-728</b> Length: Approx. 1.5m	

**The Cable to Connect a Test Stand to an External Device**

<b>External Signals I/O Cable</b> Connects a test stand (MX2-CN/MH2-CN/EMX), activating the external control.	<b>CB-706</b> Length: Approx. 1.5m
--	---------------------------------------

※1 ZTA series force gauges output raw sensor data as fast analog voltage without conversion with "AN" option.  
 ※2 Please refer to "ZT series Advanced Measurement Examples" on Page 13.  
 (A test stand stops when a force gauge senses force beyond its capacity (overload-preventing function); however, it cannot prevent overload completely. We do not guarantee the complete overload prevention.)  
 ※3 It also activates motion control by set force values and an overload-preventing function.  
 ※4 EMX series with firmware ver. 2.0 or later requires CB-718.  
 ※5 We offer custom-made options for the cables such as extending the length, changing the connector (from analog output to BNC connector), enhancing the flexibility and more.

**Wireless Data Transmit System WL01-ADP/ WL01-USB**

It transmits measurement data wirelessly from a force gauge to a PC or other device.

- **Reliable data transmission/reception:** It equips reception-detecting function such as "group-name" setting and send-error detection.
- **High security data protection:** It prevents data leak with AES data encryption
- **Various methods of data management:** Using published communication-command, you can import data to your Excel format or other software, and it can receive data from 26pcs of force gauge at a maximum. ※1



Wireless Transmit Adapter		USB Wireless Receiver	
Adapter which connected to force gauge to send data		Receiver which connected to PC to receive data	
Model	<b>WL01-ADP</b>	Model	<b>WL01-USB</b>
Compatible Models ※2	ZTA/ZTS (Separated Sensor Models Included) eZT, FA Plus2, eFA Plus2, DTXA/DTXS, HTGA/HTGS	Compatible Software ※3	Force Logger (Attachment, available from Ver. 2.10 later) Force Logger Plus (Sold Separately, available from Ver. 1.10 later)
Communication Distance ※4	Approx. 20m	Communication Distance ※4	Approx. 20m
Wireless Communication Standard / Frequency	Complies with IEEE802.15.4 World Common Frequency: 2.4GHz Complies with CE: Radio Equipment Directive 2014/53/EU Complies with Japanese Technical Standard: ARIB STD-T66 ※Please contact us for use in other available areas	Wireless Communication Standard / Frequency	Complies with IEEE802.15.4 World Common Frequency: 2.4GHz Complies with CE: Radio Equipment Directive 2014/53/EU Complies with Japanese Technical Standard: ARIB STD-T66 ※Please contact us for use in other available areas

※1 In the case of using the output signal by connecting force gauge to a test stand or external device while using wireless communication you can use Wireless Transmit BOX (WL01-BOX).  
 ※2 Depending on the software used, the number of connectable devices is limited.  
 ※3 All compatible models are available from firmware Ver. 3.10 and later.  
 ※4 The maximum number of gauges connected to it in IMADA software is Force Logger: 1 unit / Force Logger Plus: 2 unit.  
 In the case of using Wireless Data Transmission System Unit with IMADA software, you cannot use some functions. Please contact us for the details. E.g. Acquire continuous data  
 ※5 The communication distance may vary depending on the obstacles and environmental conditions. Please contact us for the details.

**Built-in Linear Scale Unit**

Connect this linear scale to ZTA(P11) series/eZT(P16) series to measure force and displacement. It can be mounted on your equipment easily.



Model	DMK-100	DMK-300	DMK-500	DMK-800
Stroke (mm)	Max. 100	Max. 300	Max. 500	Max. 800
Size (mm)	25X25	45X25	65X25	95X25
Fixing screw	M4	M4	M4	M4

※Select from 37 pin connector or cable without connector.

**Printer DP-1VA**

(Mitutoyo Digimatic Mini Processor)

It prints out force values indicated in the force gauge. Digimatic cable is required to print.



Compatible models

ZTA/ZTS/eZT/HTGS/HTGA/DTXS/DTXA  
 ※Please contact us for the printer which is compatible with DST/DSV.

**The Cables for Past Models**

If you need a cable for past-model force gauges/torque gauges, please refer to the right list. If your model is not mentioned in the list, please contact us.

**[The Model List]**

Model	ZP,Z2 series	HTG2,DTX2 series	DS2 series
Analog cable	CB-104	CB-104	CB-101
RS-232C cable	CB-204	CB-204	CB-203
Digimatic cable	CB-304	CB-304	CB-301
Force Control cable	CB-501 (Connect with MX series)		

※Please select CB-501 / CB-204 and CB-501 are required to use at the same time.

**Examples of Cable Applications**

- **with Digital Force Gauge ZT series**
  - It enables you to
    - detect abnormalities using a buzzer / light / your equipment together. (Using the functions of comparator and overload output)
    - record the force value of contact point in a switch tactile test or broken point in a cable strength test. (Using the function of the external contact point output)
    - show the point at the moment contact point of switch tactile test or a broken point of cable strength test on a graph using software (Force Recorder Standard/Professional). (Using the mark point function)
    - control an external device when the force gauge senses a set point. (Using sub-comparator function; Available only in ZTA/eZT series)
- **with Motorized Test Stand EMX, MX2(MH2) series (Option-CN version)**
  - It enables you to
    - Operate externally from a foot switch and the like.
    - Improve equipment safety with an interlock mechanism.
    - Link wire conduction and test stand activities.



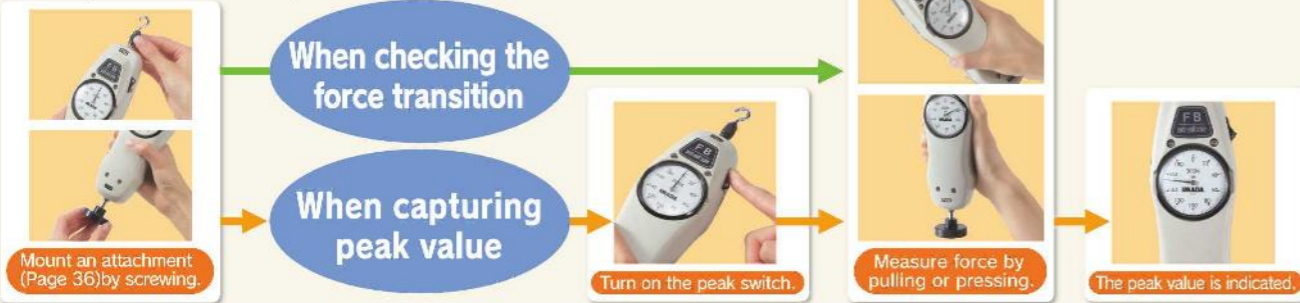
Analog type force gauges. It is easy to read force transition. Electricity is not needed. They are stout and long-lasting.



**How to Use Mechanical Force Gauges (Using Example Model: FB series)**

**Simple Method**

Readily measure force by hand.



**Reproducible Method**

Combine a test stand (P28) with a force gauge to improve repeatability.



**Economical Type FB series**

○ The Most Simple Model

Compression and Tension Compatible

□ Size: Approx. W67×D48×H232.5mm  
□ Weight: Approx. 630g



○ Improve Measuring Repeatability  
Test Stands – To Page 28

○ Apply Stable Force by Hand  
Handle FOH-1 – To Page 47

■ Specifications

Accuracy	±0.3%F.S. or less
Division	100lines(※1)
Reading method	Real time/Peak hold (Switchable)
Standard accessories	Attachment (Box:※3); the instruction manual; the carry case; inspection certificate etc.

■ Model lists

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	

■ International model lists(※2)

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

**Standard Type PS series**

○ High Accuracy Model

Compression and Tension Compatible

□ Size: Approx. W67×D48×H232.5mm  
□ Weight: Approx. 630g



○ Improve Measuring Repeatability  
Test Stands – To Page 28

○ Apply Stable Force by Hand  
Handle FOH-1 – To Page 47

■ Specifications

Accuracy	±0.1%F.S. or less
Division	100lines(※1)
Reading method	Real time/Peak hold (Switchable)
Standard accessories	Attachment (Box:※3); the instruction manual; carry case; inspection certificate etc.

■ Model lists

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	

■ International model lists(※2)

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

**Precision Type PSM series**

○ The Highest Accuracy Model with The Small Divisions

Compression and Tension Compatible  
□ Size: Approx. W67×D48×H232.5mm  
□ Weight: Approx. 630g

○ Improve Measuring Repeatability  
Test Stands – To Page 28

○ Apply Stable Force by Hand  
Handle FOH-1 – To Page 47



■ Specifications

Accuracy	±0.1%F.S. or less
Division	200lines(※1)
Reading method	Real time/Peak hold (Switchable)
Standard accessories	Attachment (Box:※3); the instruction manual; the carry case; inspection certificate etc.

■ Model lists

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	
PSM-500N	500N	2.5N	

■ International model lists(※2)

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	
PSM-50K	50kgf	250gf	

**High Capacity Type PSH series**

○ High Capacity Model in capacity from 500N to 3000N

Compression and Tension Compatible  
□ Size: Approx. 95×D63.4×290mm  
□ Weight: Approx. 3.1kg

○ Improve Measuring Repeatability  
Test Stands – To Page 28



■ Specifications

Accuracy	±0.1%F.S. or less
Division	100lines(※1)
Reading method	Real time/Peak hold (Switchable)
Standard accessories	Attachment (Box:※3); the instruction manual; the carry case; inspection certificate etc.

■ Model lists

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

■ International model lists(※2)

Model	Capacity	Resolution	Thread
PSH-50K	50kgf	0.5kgf	M10
PSH-100K	100kgf	1kgf	
PSH-200K	200kgf	2kgf	
PSH-300K	300kgf	2.5kgf	

**Built-in Type UKT/UKK series**

○ Small Model Ideal for Built-in Equipment

□ Size: Approx. W60×D40×156mm  
□ Weight: Approx. 300g

● Exclusive use for tension:UKT series  
● Exclusive use for compression:UKK series



■ Specifications

Accuracy	±0.3%F.S. or less
Division	100lines(※1)
Reading method	Real time/Peak hold (memory counter type)
Standard accessories	Attachment (Box:※3); the instruction manual; the carry case; inspection certificate etc.

■ Model lists

Model	Capacity	Resolution	Thread
UKT-20N	20N	0.2N	M6
UKK-20N	20N	0.2N	
UKT-30N	30N	0.25N	
UKK-30N	30N	0.25N	
UKT-50N	50N	0.5N	
UKK-50N	50N	0.5N	
UKT-100N	100N	1N	
UKK-100N	100N	1N	
UKT-200N	200N	2N	
UKK-200N	200N	2N	
UKT-300N	300N	2.5N	
UKK-300N	300N	2.5N	

■ International model lists(※2)

Model	Capacity	Resolution	Thread
UKT-2K	2kgf	20gf	M6
UKK-2K	2kgf	20gf	
UKT-3K	3kgf	25gf	
UKK-3K	3kgf	25gf	
UKT-5K	5kgf	50gf	
UKK-5K	5kgf	50gf	
UKT-10K	10kgf	100gf	
UKK-10K	10kgf	100gf	
UKT-20K	20kgf	200gf	
UKK-20K	20kgf	200gf	
UKT-30K	30kgf	250gf	
UKK-30K	30kgf	250gf	
UKT-5lb	5lb	0.05lb	M6
UKK-5lb	5lb	0.05lb	
UKT-10lb	10lb	0.1lb	
UKK-10lb	10lb	0.1lb	
UKT-20lb	20lb	0.2lb	
UKK-20lb	20lb	0.2lb	
UKT-30lb	30lb	0.25lb	
UKK-30lb	30lb	0.25lb	
UKT-50lb	50lb	0.5lb	
UKK-50lb	50lb	0.5lb	

Notes: ①The weight is depending on the range. (※1)120 lines for 30N, 300N, 30kg and 30lb. (※2) 50 lines for PSM. (※2) The international models are NOT able to sell in Japan due to the Measurement Act.(※3) Please refer to Page 38 for the necessary attachments.

**Muscle Force Measurement Device**

**Muscle Force Measurement Device**

○ Muscle force measurement device is a kit including a force gauge, a handle, and pads, designed for measurement of muscle strength and job task analysis (workload test).



6 types of included attachments deal with wide variety of test samples. [Application]



[Specification chart]

Model	RZTA-1000N	RDSV-1000N	RFB-750N
Capacity	1000N	1000N	750N
Size	Approx.W302×D37×H1200mm	Approx.W302×D36×H189mm	Approx.W302×D51×H218mm
Weight	Approx. 1kg	Approx. 1kg	Approx. 1.1kg

## What is Unit "N"?

The "N" is a force unit called "Newton." <1kgf=9.80665N>

In Japan, Measurement Act established in 1993 requires you to use only Newton for force measurement.

Thus, in Japan our gauges indicate N.

For outside of Japan, we offer international models providing N/kgf/lbf. To be specific, as for digital force gauges you can switch units (N/kgf/lbf), and as for mechanical force gauges you have to select one from the 3 units before purchase.

For your information, in Japan the unit only in the table below can be used according to Measurement Act.

Excerpt of "Measurement Units pertaining to the International System of Units" (Ministry of Economy, Trade and Industry)

Quantity of the state of physical phenomena	Measurement unit
Force	Newton
Moment of force	Newton-meter
Pressure	Pascal or Newton per square meter bar
Stress	Pascal or Newton per square meter
Viscosity	Pascal second or Newton second per square meter

Reduced value for conventional force unit 1kgf=9.80665N

## What is the best way to choose the most suitable range of a force gauge / a load cell?

Capacity in specifications means the maximum force that can be applied to a force gauge / a load cell. Force gauges or load cells would be broken if you applied force over their capacity. Therefore, we recommend that you choose the force gauge whose capacity is a little larger than expected force in your testing. Please utilize the information below to prolong gauges' lives.

### Shock or Breaking Test : When Measuring Rapid Force Change

→Please choose the force gauge whose capacity is 200% of expected force in your testing.

**Ex) Expected force: 10N, Measuring instrument: Digital force gauge ZTS →ZTS-20N is recommended.**

(①Double the expected force(10N) → 20N, ②Choose the ZTS whose capacity is 20N → ZTS-20N)

### Elongation Test : When Measuring Slow Force Change

→Please choose the force gauge whose capacity is 150% of expected force in your testing.

**Ex) Expected force: 30N, Measuring instrument: Digital force gauge ZTS series →ZTS-50N is recommended.**

(①Increase expected force(30N) by half → 45N, ②Choose the ZTS whose capacity is 45N  
→ We do not offer ZTS-45N, then ZTS-50N is the nearest one.)

## What Is "F.S." for Accuracy, for example +/-0.2%F.S.?

"F.S." is abbreviation of "Full Scale," and it means the capacity.

**Ex) ZTS-50N offers +/-0.2%F.S. accuracy, and has 50N capacity.**

→The error is...  $50N \times \pm 0.2\% = \pm 0.1N$ .

→When the measured value is 30N using ZTS-50N,  
guaranteed result is...  $30N \pm 0.1N = 29.9$  to  $30.1N$ .

## Key Point of Maintenance of Measuring Instrument

Measuring instruments should be calibrated periodically. Calibrating means checking if they maintain initial accuracy or not. All of the measuring instruments including force gauges reduce their accuracy slightly day by day, therefore, they should be calibrated, and adjusted as required to conduct precise measurement continuously.

IMADA offers calibration services, so you can keep using our force gauges for long after purchase at ease. Besides, our calibration center is certified with ISO/IEC17025:2017, therefore, we offer high quality of calibration service if required.

※Some products cannot be calibrated for some reasons.

## Test Stands

### Test Stands Improve Repeatability.

**They provide constant test speed and apply load straight, reducing the variation from a person to a person.**

A force gauge can be used by hand, and also it can be used with a test stand for greater accuracy. Combine a test stand with a force gauge and attachments to create a force testing machine, which offers a significant advantage over handheld use in precision.



### Motorized Test Stands

**They provide constant test speed and apply force straight, offering high repeatability.**

#### Simple MX(Vertical)/MH(Horizontal)



To Page 31

Capacity:  
<MX>500N~1000N  
<MH>1000N

#### The Simplest Type

- For simple compression/tension tests

Measuring speed can be changed with its dial, however, the setting speed is not able to be seen in digital. MX2/MH2 or EMX can display the speed on its monitor.

### Manual Test Stands

**With a manual test stand, force can be applied straight, offering higher repeatability than measurement by hand.**

#### Simple

##### SVL-1000N



To Page 32

Capacity:1000N

- The simplest test stand
- The lever improves measuring efficiency.

##### SVH-1000N



To Page 32

Capacity:1000N

- The simplest test stand
- The handle realizes stable measurement.

#### Standard MX2(Vertical)/MH2(Horizontal)



To Page 30

Capacity:  
<MX2>500N~5000N  
<MH2>500N~2500N

#### User Friendly and High Functionality

- Digitally set testing speed and see it on its monitor.
- The equipped monitor indicates measuring conditions which can be easily set.
- MX2/MH2 include Timer and Counter function which enable you to conduct durability tests and repeat tests.

#### Low Capacity

##### FCA-50N



To Page 33

Capacity:50N

- Simple Lever Test Stand can set travel distance.

##### KV-50N



To Page 33

Capacity:50N

- Ideal for small force measurement.

##### MSF-50N



To Page 33

Capacity:50N

- Varieties of measurements can be realized by the different installing ways.

#### High Performance EMX



To Page 31

Capacity:500~1000N

#### Advanced type of MX2 with several features below

- It provides a wide range of testing speed (0.5-600mm/min) and travel distance setting, covering a wide variety of testing conditions.
- It has highest rigidity, offering great precision.
- 5 types of measuring pattern (speed/repeat frequency etc.) can be stored.

#### Long Stroke



To Page 32

Capacity:500N~3000N

- Ideal for stretching or large sample measurement.

#### Horizontal



To Page 33

Capacity:1000N~3000N

- A sample can be set very easily.

※Actual measuring capacities are depending on the force gauge capacities.

However, measurements are depending on test stand capacities when the test stand capacity is less than the force gauge capacity.

On our website, you can see a wide range of force testing applications, and download a specification sheet of each product. Please feel free to contact us.

IMADA service group telephone number: +81(0)532-33-3288

IMADA

Search

<https://www.forcegauge.net/en/>

They provide constant test speed and apply force straight. They realize the high-repeatable measurement.

Combining a test stand with a force gauge and attachments enables you to create a testing machine to meet your testing needs.



### How to Use Motorized Test Stand

(Using Example: MX2 series)



As options, we can extend stroke, change speed range, and more to meet your measurement needs. Some models can equip a linear scale (FA version) to measure / analyze the relationships of force and displacement. The details are on Page 34.

### Common overview of Motorized Test Stand (Compatible Test Stand : MX2 series, MH2 series, EMX series)

#### Adjusting Speed ※1

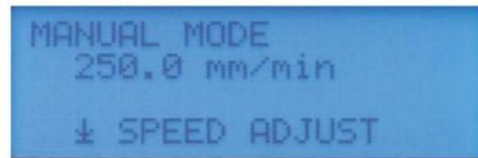


Testing speed is easily adjustable with the dial. Setting Resolution:

Speed Range	UNIT
10-20mm/min	0.5mm/min
20-100mm/min	5mm/min
100-300mm/min	10mm/min

※Adjustable speed types: Start/Measuring/Return

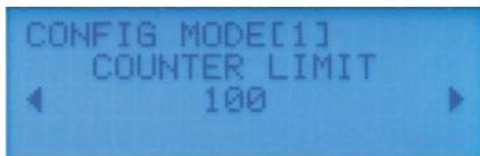
#### Three Measuring Modes



Three Testing Modes are available:

- MANUAL MODE:** It moves a force gauge at the set speed while Up/Down or Left/Right button pressed.
- JOG MOVE:** It moves a force gauge at light feeds (approx. 0.05mm/1 turn) by turning the dial.
- CYCLE MODE:** It reciprocate a force gauge between stroke-limit knobs.

#### Other Functions



In CYCLEMODE, you can set the reciprocating frequency and pausing time.  
**Counter (the reciprocating frequency):**Max. 65535 times  
**Timer (pausing time):**Max. 99 min 59 sec 9 (by 0.1 sec)

#### Versatile Functions with Force Gauge



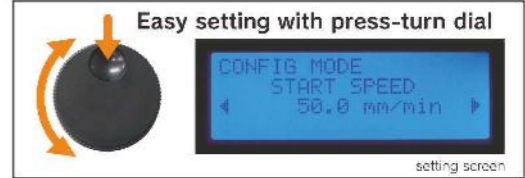
Versatile functions are available with the Force Gauge (ZT Series) and the CB series cables.

- Overload Prevention:** A test stand stops when a force gauge senses too much force over its capacity.
- Force Control:** A test stand stops when a force gauge senses a pre-set force limit. Or it can automatically regulate the load so as to be in a pre-set range for a pre-set time period.
- Measurement Speed Control:** Auto-switch function between the Moving direction and the Measurement Speed.
- Auto-Functions:** Auto-Zero Reset of the Force Gauge and Auto-recording of the measured values reflected in the Software during the measurement.

Refer to the P.13 for details.

### Standard Type

- Measuring speed can be set digitally.
- This type of stands have a monitor to show measuring conditions which enables you to set them easily.
- Durability test using its timer function and repeat test using its counter functions can be conducted.



## MX2 series

#### Option

- Length Scale
  - FA version
  - Long Stroke
  - Extended Column (MX2-5000N only)
  - Speed Range Change
  - Output and Input External Signal
- Please refer to Page 34

- **Measure under the safe environment**  
Accessory  
To Page 33
- **Connect with External Devices**  
Application examples of how cables are used  
To Page 13 and Page 23
- **Analyze Force-Displacement Relation**  
Force-Displacement Analysis Unit  
To Page 49



#### Specification

Model	MX2-500N	MX2-1000N	MX2-2500N	MX2-5000N
Capacity	500N	1000N	2500N	5000N
Speed	10-300mm/min	10-300mm/min	10-300mm/min	0.5-300mm/min
Stroke Length (mm)	Approx. 235mm	Approx. 300mm	Approx. 320mm	Approx. 380mm
Weight	Approx. 18kg	Approx. 19kg	Approx. 26kg	Approx. 51kg
Size	Approx. 220x135x150mm	Approx. 220x135x150mm	Approx. 220x135x150mm	Approx. 220x135x150mm

## MH2 series

#### Horizontal Type



#### Option

- Length Scale
  - FA version
  - Speed Change
  - Output and Input External Signal
- Please refer to Page 34

- **Connect with External Devices**  
Application examples for using cables  
To Page 13 and Page 23

- **Analyze Force-Displacement Relation**  
Force-Displacement Analysis Unit  
To Page 49

#### Specification

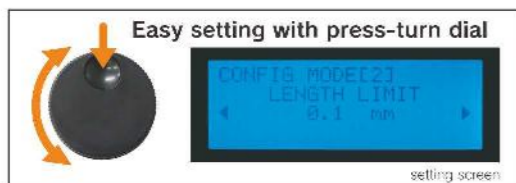
Model	MH2-500N	MH2-2500N
Capacity	500N	2500N
Speed	10-300mm/min	10-300mm/min
Stroke Length (mm)	Approx. 245mm	Approx. 340mm
Weight	Approx. 14kg	Approx. 27kg
Size	Approx. W55xH132xH219mm	Approx. W65xH134xH261mm

※1 The speed ranges vary per product.



## Advanced Type EMX series

- Meets your various measuring requirements by wide speed range (0.5-600mm/min)
- Enables you to measure precisely with the highest rigidity
- Sets the travel distance digitally and unify measuring condition
- Improves measuring efficiency by storing up to 5 measuring patterns
- Allows communication with various external devices by equipped I/O connector
- Improves measuring accuracy and efficiency by CONTACT/BREAK DETECTION
- Makes it simple to set measuring conditions by Easy set-up mode

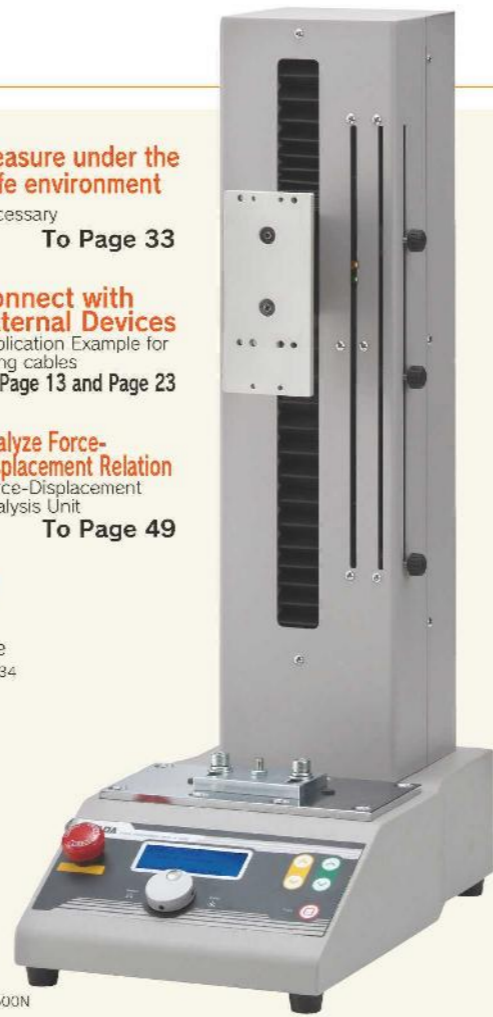


**Measure under the safe environment**  
Accessory  
To Page 33

**Connect with External Devices**  
Application Example for using cables  
To Page 13 and Page 23

**Analyze Force-Displacement Relation**  
Force-Displacement Analysis Unit  
To Page 49

**Option**  
●FA version  
●Long Stroke  
Please refer to Page 34



EMX-500N

### Specification

Model	EMX-500N	EMX-1000N
Capacity	500N	1000N
Speed	0.5-600mm/min	0.5-600mm/min
Maximum Sample Height	Approx. 295mm	Approx. 320mm
Weight	Approx. 19kg	Approx. 23.5kg
Size	Approx. W220xD330xH637mm	Approx. W230xD410xH643mm

## Simple Type

- This type is the simplest.

## MX series

- Option**
- Speed/ Length Meter
  - Length Scale
  - Long Stroke
  - Speed Change
- Please refer to Page 34

**Measure under the safe environment**  
Accessory  
To Page 33



MX-500N

### Specification

Model	MX-500N	MX-1000N
Capacity	500N	1000N
Speed	10-300mm/min	8-240mm/min
Maximum Sample Height	Approx. 235mm	Approx. 420mm
Weight	Approx. 13kg	Approx. 24kg
Size	Approx. W214xD28xH573mm	Approx. W263xD368xH903mm

## MH-1000N

- Horizontal Type



MH-1000N

- Option**
- Speed/ Length Meter
  - Length Scale
  - Speed Change
- Please refer to Page 34

### Specification

Model	MH-1000N
Capacity	1000N
Speed	6-180mm/min
Maximum Sample Height	Approx. 280mm
Weight	Approx. 7kg
Size	Approx. W700xD195xH270mm

**Note:** ○A force gauge is separately sold. ○Actual measuring capacity depends on the force gauge's capacity. However, when the test stand's capacity is less than the force gauge's capacity, you can measure force up to the test stand's capacity. (※1) The maximum height or length means the distance between the test stand table and the thread of the force gauge ZT series general type (1000N or less) at the highest position of the test stand. The distance does not include attachments. The distance of MX2-2500, MX2-5000N or MH2-2500N is in the case of mounting ZT series high capacity type.

## Manual Test Stands

They provide constant test angles, offering higher repeatability than measurement by hand.



Combining a test stand with a force gauge and attachments, you can create a testing machine to meet your testing needs.

### Cloth Button Pull Off Test

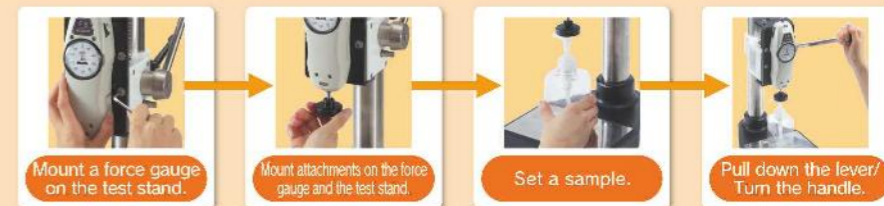


### Ball Hardness Test



## How to Use Manual Test Stand

(Using Example: SVL-1000N)



As options, we can extend its stroke or mount a length scale. The detail is on Page 34.

## Simple Type SVL-1000N/SVH-1000N

- The lever type improves the measuring efficiency. The handle type realizes stable measurement.

### Specification

Model	SVL-1000N (Lever type)	SVH-1000N (Handle type)
Capacity	1000N	1000N
Maximum Sample Height	Approx. 265mm	Approx. 265mm
Maximum Stroke	60mm	60mm
Feed Amount	60mm/170 degree turn of the lever	3mm/1 turn
Weight	Approx. 7.3kg	Approx. 7.7kg
Size	Approx. W200xD280xH410mm	Approx. W200xD260xH410mm

※A Maximum stroke means maximum traveling distance of a force gauge.  
※B GF-1/2: These are necessary adapters for mounting a chuck fixture on the tables of the stand. (Separately sold)



## Long Stroke Type HV series

- HV series have a long stroke, ideal for testing extensible or large specimens.
- They are operated by a handle.

### Specification

Model	HV-500NII	HV-1000N	HV-3000N
Capacity	500N	1000N	3000N
Maximum Sample Height	Approx. 240mm	Approx. 375mm	Approx. 415mm
Feed Amount	2mm/1 turn	1.2mm/1 turn	0.8mm/1 turn
Weight	Approx. 1.0kg	Approx. 1.8kg	Approx. 2.4kg
Size	Approx. W270xD330xH375mm	Approx. W325xD275xH750mm	Approx. W355xD310xH744mm

- Option**
- Length Scale
  - Long Stroke (except HV-3000N)
- Please refer to Page 34



Low Capacity or Small Type

- This type is ideal for measurement in capacity up to 50N.
- A force gauge can be moved at light feed.

FCA-50N

- Sets a travel distance to move a force gauge, and measures the force value to the distance.



FCA-50N

■ Specifications

Model	FCA-50N
Capacity	50N
Distance	0~75mm (Adjustable with the limit knob)
Measuring Space	50~80mm (※1)
Weight	Approx. 3kg
Size	Approx. W175xD129xD78mm
Compatible force gauge	ZTS ZTA DST DSV (※2)

KV-50N

- It is a desktop type.
- It can move a force gauge at light feed (1.0mm/1 turn).



KV-50N

- Option
- Length Scale
- Please refer to Page 34.

■ Specifications

Model	KV-50N
Capacity	50N
Main Scale (kg) (※1)	Approx. 63mm
Feed Amount	1.0mm/1turn
Weight	Approx. 2kg
Size	Approx. W140xD180xD120mm

MS series

- Various measurements are possible by the different installing ways.



Analyze Force-Displacement Relation  
Force-Displacement Analysis Unit  
To Page 49

You can combine this stand with an optional handle or your tripod to expand the range of measuring opportunity.  
※ You need an optional adaptor (sold separately) to combine it with a tripod.  
※ We do not sell any tripods.

■ Specifications

Model	FCA-50N	MSL-50N
Type	Standard	FA version (Page 33)
Capacity	50N	50N
Main Scale (kg) (※1)	Approx. 44mm	Approx. 44mm
Feed Amount	1.8mm/1turn	1.8mm/1turn
Weight	Approx. 1.2kg	Approx. 1.2kg
Size	Approx. W110xD81xD204mm	Approx. W110xD81xD204mm

Horizontal Type SH series

- Horizontal type: Sets a sample easily.

■ Specification

Model	SH-1000N	SH-3000N
Capacity	1000N	3000N
Main Scale (kg) (※1)	Approx. 250mm	Approx. 355mm
Feed Amount	1.2mm/1turn	0.6mm/1turn
Weight	Approx. 15kg	Approx. 22kg
Size	Approx. W560.5xD265xD129.5mm	Approx. W696.5xD285xD125mm



- Option
- Length Scale
- Please refer to Page 34.

Accessories for Test Stand

Interlocking Shield OP-MX2EMX-IC OP-MX250-IC

- Interlocking shield for MX2 and EMX series automatically stops operation when the door is open.



OP-MX2EMX-IC

■ Specification

Model	OP-MX2EMX-IC	OP-MX250-IC
Cover Material	PET	Polycarbonate
Weight	Approx. 9.1kg	Approx. 5.5kg
Size	Approx. W413xD312xH650mm	Approx. W363xD250xH503mm
Compatible Test Stand (※1)	MX2-500N/1000N/2500N/3000N	MX2-5000N

※1 CN option and safety setting of MX2 series are required to activate interlock function. (-CN option is installed standardly for EMX series)

Safety Shield ST-SS

- It is a safety shield put in front of a test stand, protecting an operator from sample debris.



ST-SS

■ Specification

Model	KV-50N
Cover Material	Acrylic
Weight	Approx. 500g
Size	Approx. W406xD330xD628mm

User Mounted Kit FA version OP-EMX-FA

- Displacement unit can be mounted by yourself to EMX series firmware ver 2.0 or later.



■ Specification

Model	OP-EMX-FA	OP-EMX-L-FA
Size	Approx. W81xH234xD55mm	Approx. W81xH234xD55mm
Fixing Screw	Use included M3 hex head screw (not for Long Arm)	Use included M3 hex head screw (not for Long Arm)

※ Use CB-716 Sold separately to measure displacement.

Options for Test Stands

The options below can be added to expand functionality of test stands or improve measuring efficiency.

Options for The Manual and Motorized Test Stands

<p><b>Length Scale (-S)</b> It digitally indicates travel distance of a force gauge. (We recommend another option [FA version] below if you need to analyze the relations of force and displacement.)</p>		<p><b>Long Stroke (-L,-2L)</b> We extend the stand's stroke. <b>Extended Column (-EXT)</b> We extend the stand's column. The stand's stroke does Not change.</p>	
---	--	--	--

Limited Options for The Motorized Test Stands

<p><b>Speed / Length Meter (-E)</b> It displays the measuring speed and travel distance of force gauges.</p>		<p><b>FA version (-FA)</b> We build a linear scale into a test stand to output travel distance of a force gauge, and you can utilize it for analysis of force-displacement relations. For further information of force-displacement analysis unit, please see page 45.</p>	
<p><b>Speed Range Change (-V○○)</b> We can change the range of measuring speed. (The customizable range differs among models. Besides, some models could decrease their force capacity. Please contact us for further information.)</p>		<p><b>Output and Input External Signals (-CN)</b> We can equip a connector for external input and output. For example, you can connect a footswitch with the stand via the connector to operate it by the footswitch (like step on it to start measurement). Please contact us for further information.</p>	

Options Available for Motorized Test Stands

	Model	MX-500N	MX-1000N	MX2-500N	MX2-1000N	MX2-2500N	MX2-5000N	EMX-500N	EMX-1000N	MH-1000N	MH2-500N	MH2-2500N
Speed/ Length Meter	-E	○	○	○	○	○	○	○	○	○	○	○
Length Scale	-S	○	○	○	○	○	○※1	○	○	○	○	○※1
FA Specification	-FA	○	○	○	○	○	○※1	○※1	○※1	○	○	○※1
Long Stroke (mm)	-L	○+200※2	○+250※2	○+200	○+300	○-300	○	○+300	○+300	○	○	○
	-2L	○	○	○+400※3	○	○	○	○	○	○	○	○
Extended Column (mm)※4	-EXT	○	○	○	○	○	○+200	○	○	○	○	○
O/I External Signals	-CN	○	○	○	○	○	○	○※5	○※5	○	○	○
Speed Range Change (m/min)※6	-V●●	○	○	○	○	○	○	○	○	○	○	○

※1 User mounted unit is available. ※2 It may decrease its capacity. ※3 The -2L option is incompatible with length scale (-S option). Additional charge for wooden packaging is required for shipping.  
※4 The column is extended but the stroke remains the same. ※5 It is already installed as the standard function. ※6 Some models could decrease their force capacity. Please contact us for further information.

Examples of Model with Options

- When you want to extend the stroke of MX2-500N → Choose the option "Long Stroke (-L)" = MX2-500N-L
  - When you want to change the speed range of MX2-500N → Choose the option "Speed Range Change (-V●●)" = MX2-500N-V600
- ※ In ●●, we put figure of speed. → Example) When the speed range changes into the fastest speed  
20~**600**mm/min (The number is here.)

Options Available for Manual Test Stands

	Model	SVL-1000N	SVH-1000N	HV-500NII	HV-1000N	HV-3000N	KV-50N	MSF-50N	MSL-50N	SH-1000N	SH-3000N
Length Scale	-S	○	○	○	○	○	○	○	○	○	○
Long Stroke (mm)	-L	○	○	○	○	○	○	○	○	○	○
Extended Column (mm)	-EXT	○	○	○	○	○	○	○	○	○	○

※1 It may decrease its capacity. ※2 We can extend the column length, but travel distance of force gauge does Not change.

Examples of Model with Options.

- When you want to see the travel distance of a force gauge using SVH-1000N → Choose the option "Length Scale (-S)" = SVH-1000N-S

The Helpful Functions of Motorized Test Stand

The optional functions can be activated by connecting a force gauge ZTS/ZTA series to a motorized test stand via the suitable cable.

- ① The Overload Preventing Function
- ② Force Control Functions

For further information, see page 13

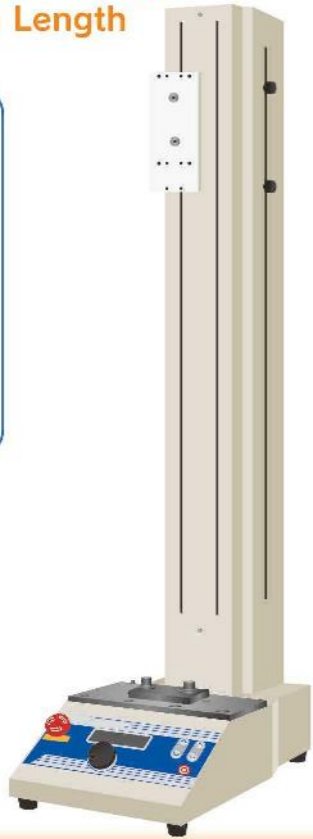
## Examples of Customized Test Stands

We provide made-to-order test stands to fit your needs.

### Changing Test Speed Range / Extending Column Length

[This is recommended when you...]

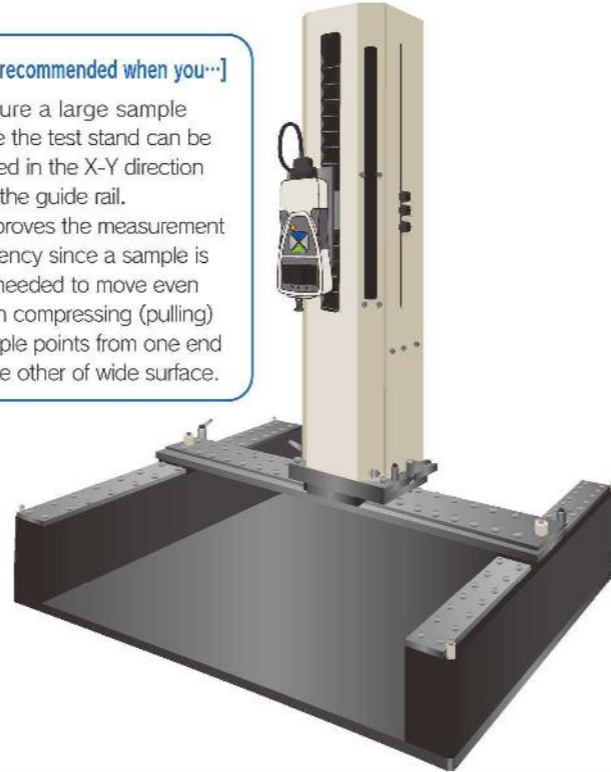
- Test stretch samples.
- Compress (Tensile) long.
- ↑ We can extend column length of both horizontal and vertical test stands.
- Test speedily.
- Test slowly.
- ↑ We can change the range of measuring speed.



### Testing Large Samples

[This is recommended when you...]

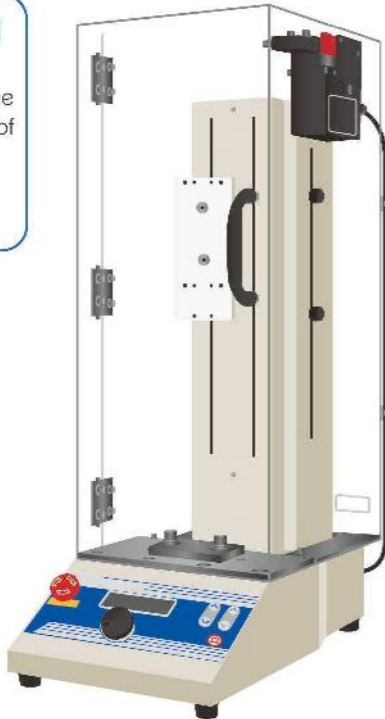
- Measure a large sample since the test stand can be moved in the X-Y direction with the guide rail.
- It improves the measurement efficiency since a sample is not needed to move even when compressing (pulling) multiple points from one end to the other of wide surface.



### The electromagnetic lock cover provides safety

[This is recommended when you...]

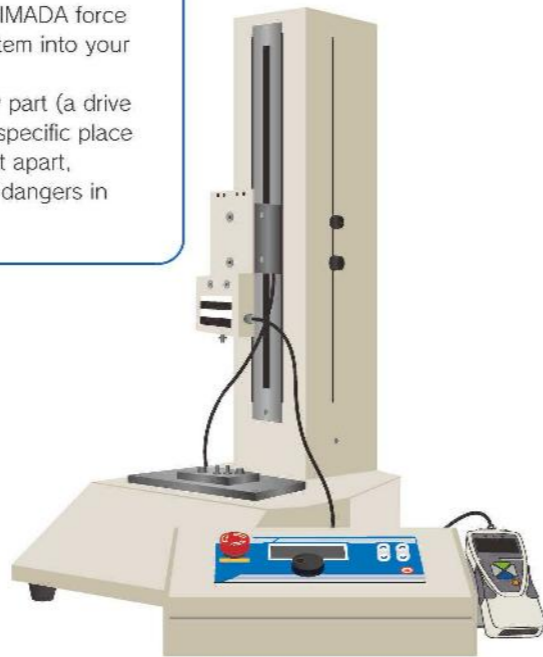
- Would like to stop the test stand completely before the door is unlocked, instead of unlocking the door at the same time as the stand stops.



### Separating a Display Part from a Drive Part for Built-in

[This is recommended when you...]

- Incorporate IMADA force testing system into your equipment
- Fix a display part (a drive part) on a specific place
- Manipulate it apart, preventing dangers in testing.



## Attachments

### The fixtures mounting on a force gauge thread or a test stand table

Attachments are integral components of testing systems, designed for a wide variety of force testing applications for tension, compression, peeling, COF, and more.



### The Attachment Types and How to Use

IMADA attachments are separated to 2 types generally.

1 Attachments to be mounted on a force gauge.



A force gauge's thread is M6 or M10 screw, and type 1 attachments are designed to fit into either screw. You can choose desired one from a wide range of attachments, and mount it on a force gauge's thread to complete a force tester.

2 Attachments to be mounted on a test stand table.



Type 1 can be mounted on a test stand with a grip mounting adapter.※



※It is attached with test stands (except some models).

- ⚠ Weight of an attachment is applied as force to a force gauge, therefore, please choose an attachment whose weight is 10% or less of the force gauge's capacity.
- ⚠ Please contact us before purchase to choose the most appropriate attachment for your testing. Some samples cannot be tested appropriately due to their shapes or materials. We are pleased to help you choose the best attachment to meet your testing needs.
- ⚠ Some attachments are in accordance with Japanese Industrial Standard (JIS). A force gauge and a test stand are required for measurements complying with JIS. Please feel free to contact us for the details. When you need other standard such as ISO or ASTM, please contact us as well.

## Accessory Attachments

The IMADA force gauges come with attachments below for basic compression/tension tests.

### Standard Type M6

(Accessory attachments for the force gauges whose capacities are 1000N or less)

Force gauges whose capacities are 100N or less come with aluminum made attachments (A-type). Steel made attachments (S-type) are included in force gauges whose capacities are from 200N to 1000N.



The number of attachments varies by models.  
ZTS/ZTA Basic model: ①~⑧, ZTS/ZTA-DPU-2~500N: ①~⑧,  
DST/DSV: ①~⑧, PS/PSM: ①~⑧, FB: ①~⑧  
For 1000N capacity, SR-1 is included instead of S-1.

### High Capacity Type M10

(Accessory attachments for the force gauges whose capacities are higher than or equal to 1000N)



The number of attachments varies by models.  
ZTS/ZTA-2500N/5000N: ①~⑧,  
ZTS/ZTA-DPU-1000~5000N: ①~⑧, PSH: ①~⑧

Please feel free to contact us about made-to-order issues. We will provide the best solution for you.

# Attachments for Compression Testing

We offer fixtures for a variety of compression testing such as a durability test, a bending test, a sticking test, and more.

## Puncture Test Fixture **TKS-20N/250N**

Designed for puncture strength test of thin samples such as film.

Representative applications

- Film
- Metal foil
- PET bottle
- Cloth
- Fiber material

Model	TKS-20N	TKS-250N
Capacity(N)	20	250
Pin diameter(mm)	Approx. φ1	Approx. φ1
Pin weight(g)	Approx. 2.2 (Pin+Pin vice)	Approx. 1.6
Mounting screw		M6

In accordance with a part of JIS Z 1707(2019)



## Compression Test Fixture for Small Spots **PG-2/3/4/5**

Ideal for compression and penetration tests of small samples.



Representative applications

- Switch
- LCD panel
- Food

Model	PG-2	PG-3	PG-4	PG-5
Capacity(N)	100	100	200	200
Ball diameter(mm)	Approx. φ2	Approx. φ3	Approx. φ4	Approx. φ5
Weight(g)	Approx. 2	Approx. 3	Approx. 4	Approx. 5
Mounting screw			M6	

## Compression Test Fixture **UR-8S/8M**

Hemisphere shaped fixture made of urethane. It produces finger-touch.



Representative applications

- Switch
- Electrical components
- Touch panel

Model	UR-8S	UR-8M
Capacity(N)	50	50
Weight(g)	Approx. 5.4	Approx. 5.2
Hardness	Shore A50	Shore A70
Mounting screw	Hardness like eraser	Hardness like rubber ball for base ball

\* Please note the fixture does not react to capacitance touch panels.

## For High Capacity [Rectangle type] **SQ series**

Ideal for high capacity compression/ breaking testing up to 5000N. They can contact a test sample closely due to a free joint design.



Representative applications

- Tablet
- Plastic
- Printed boards

Model	SQ-5030	SQ-5075	SQ-5150
Capacity(N)	5000	5000	5000
Size(mm)	30X90	75X50	150X100
Weight(g)	Approx. 65	Approx. 500	Approx. 1560
Mounting screw		M10	

## Compression Test Fixture **A-40/60, S-40/60**

Ideal for crushing tests. Type A is made of aluminum and Type S is made of steel. Type A is for low capacity force gauges.



Representative applications

- Cushion
- Cushion
- Tablet
- Ball
- Spring

Model	A-40	A-60	S-40	S-60
Capacity(N)	200	200	1000	1000
Dial diameter(mm)	φ40	φ60	φ40	φ60
Weight(g)	Approx. 38	Approx. 64	Approx. 110	Approx. 238
Mounting screw			M6	

## For High Capacity [Disc type] **PC series**

Ideal for high capacity compression/ breaking testing up to 5000N. They can contact a test sample closely due to a free joint design.



Representative applications

- PET bottle
- Ball
- Tablet
- Plastic

Model	PC-5040	PC-5060	PC-5100
Capacity(N)	5000	5000	5000
Dial diameter(mm)	φ40	φ60	φ100
Weight(g)	Approx. 160	Approx. 330	Approx. 820
Mounting screw		M10	

## For High Capacity [Spherical type] **SP series**

Ideal for high capacity compression/ breaking testing up to 5000N.



Representative applications

- Cushioning materials

Model	SP-5010	SP-5020	SP-5030
Capacity(N)	5000	5000	5000
Ball diameter(mm)	φ10	φ20	φ30
Weight(g)	Approx. 28	Approx. 55	Approx. 135
Mounting screw		M10	

## Durability Test Fixture **PR-500N/2500N**

Designed for durability tests for retort pouch, heat sealed packages, box and so on.

Representative applications

- Retort pouch
- Packing box
- Food pack
- Tube container

Model	PR-500N	PR-2500N
Capacity(N)	500	2500
Measurable size(mm)	W194XD120XH1105	W200XD140XH1105
Weight(g)	Force gauge side: Approx. 900	Force gauge side: Approx. 3100
Mounting screw	M6	M10

PR-2500N: In accordance with a part of JIS Z C238(1998)



## Bending Test Fixture **BT-500N/5000N/5000N-CB**

Designed for 3 points bending tests for metals, glasses, and more.



Representative applications

- Metal board
- Plastic board
- Carbon
- Wire net
- Printed board
- Ceramic

Model	BT-500N	BT-5000N	BT-5000N-CB
Capacity(N)	500	5000	5000
Upper arm diameter(mm)	R2.5	R3	R5
Block diameter(mm)	R2.5	R3	R2
Upper arm Weight(g)	Approx. 100g	Approx. 132g	Approx. 150g
Mounting screw	M6	M10	M10

BT-500N: Complies with the corresponding part of JIS C2141(1992), R1621(2036), R1622(1993), R088E(2057), 2(1991), JIS C1474(2016)  
BT-5000N-CB: Complies with the corresponding part of JIS K0774(1988), K0917(1995), K1411(1992), R438(1993), R055E(2006), 2(1991), ISO FDS-1425

## Soft Pad Attachments **PAD series**

Ideal for when not damage the surface of sample and apply force slowly not to generate the impact force.

Representative applications

- Furniture
- Plastic cup
- Human body

Model	PAD-100-25	PAD-R80	PAD-25-25	PAD-D80
Capacity(N)	1000	1000	1000	1000
Size(mm)	100×25×25	100×31.4×25	25×25×25	φ80×25
Hardness		Asker C30*		
Weight(g)	Approx. 95	Approx. 75	Approx. 30	Approx. 140
Mounting screw		M6		



## Optional Tray **OT-8IN**

Protective tray for test stand. Receives the contents from leaking out during measurement.



Model	OT-8IN
Capacity(N)	500(Compression)
Weight(g)	Approx. 160
Attachment for this tray	
Compatible test stands	MX-500N, MX-1000N, MX-2500N, MX-5000N, Max-1000N, MX-500N, MX-1000N, SV-1000N (Level type), SV-1000N (angle type), HV-5000N, HV-1000N, HV-2000N, HV-5000N by BT-CR-N

\* This product does not guarantee waterproofing to all equipment.  
\* Designed to be placed on the test stand, not to be fixed.

# Attachments for Tensile Testing

We offer a wide range of fixtures and grips for tensile testing such as a tearing test, a breaking tension test, and more.

## Flat Chuck GC-1100/1200/5000

These grips can be used for a wide range of testing applications. Its jaw is manually tightened, and individually adjusted for samples up to 10-30mm thick. (The maximum thick differs among models.)

○Representative applications  
Connector Cable Fastener Booklet Plastic Piece of metal

Model	GC-1100	GC-1200	GC-5000
Capacity(N)	1000	1200	5000
Aperture width(mm)	Max.10	Max.20	Max.30
Weight(g)	Approx.180	Approx.170	Approx.1400
Mounting screw	M6	M6	M10

※If use model(-F) are available, recommended when you attach it on a test stand since the attaching pins (mounting screws) are fixed.

## Film Grip FC series

Ideal for gripping thin samples such as film and the like. FC-21U/41U/21UQ has urethane gripping part (only one side), thus the grips can hold the sample tightly but gently enough to avoid breaking samples. FC-21UQ is lever type, easy to grip samples.

○Representative applications  
Film Heat sealing Adhesive tape Magnetic card Substrate

Model	FC-21	FC-20	FC-40	FC-21U	FC-41U	FC-21UQ
Capacity(N)	250	500	500	250	250	250
Features	Light type	Up to 500N	Up to 500N	Case-jaw	PP band	Urethane
Aperture width(mm)	Approx.20	Approx.20	Approx.40	Approx.20	Approx.40	Approx.20
Aperture depth(mm)	Max.2	Max.2	Max.2	Max.2	Max.2	Max.0.2
Weight(g)	Approx.18	Approx.73	Approx.125	Approx.40	Approx.58	Approx.38
Mounting screw			M6			

※If use model(-F) are available, recommended when you attach it on a test stand since the attaching pins (mounting screws) are fixed.

## Wire Clamp Grip CW-500N

The wedge type grip for wire/cable, designed to secure a sample easily. It is not suitable for slippery or hard samples.

○Representative applications  
Cable Wire

Model	CW-500N
Capacity(N)	500
Aperture width(mm)	Max.5
Weight(g)	Approx.220
Mounting screw	M6

## Small Grip SC-3/8

Ideal for gripping fine samples or measuring at narrow spaces.

○Representative applications  
Electrical lead Copper foil

Model	SC-3	SC-8
Capacity(N)	100	150
Aperture width(mm)	Max.1	Max.1
Weight(g)	Approx.21	Approx.21
Mounting screw	M6	M6

## Fine Point Chuck FP-50/51

Ideal for testing fine strings or threads. You can utilize it in measurement at narrow spaces.

○Representative applications  
Textile Fur Soft wire

Model	FP-50	FP-51
Capacity(N)	100	50
Aperture width(mm)	Max.0.5	Max.0.5
Weight(g)	Approx.19	Approx.8
Mounting screw	M6	M6

## Hook for Corrugated Cardboard Adhesion Test DF-60

Designed exclusively for corrugated cardboard opening strength testing.

○Representative applications  
Corrugated cardboard

Model	DF-60
Capacity(N)	250
Width(mm)	Approx.60
Weight(g)	Approx.175
Mounting screw	M6

SC-3

○Representative applications  
Electrical lead Copper foil

Copper foil peeling test with SC-3.

FP-50

○Representative applications  
Textile Fur Soft wire

Metal line tension strength test with FP-51.

DF-60

○Representative applications  
Corrugated cardboard

Corrugated card board opening strength test with DF-60

## Roller Grip GC-60/100

Ideal for testing elastic or deformable samples such as rubber, film, tape and so on. This grip holds a sample tightly since the sample is wound around the grip.

○Representative applications  
Rubber Film

Model	GC-60	GC-100
Capacity(N)	500	500
Measurable width(mm)	Max.90	Max.50
Measurable thickness(mm)		Max.2
Weight(g)	Approx.155	Approx.300
Mounting screw		M6

※We provide a film cutter (F44).

## Cam Grip GR-30/2000

Ideal for gripping thin and rectangle shaped samples. Easy steps to set a sample (1. Put through sample, 2. Pull its lever) improves measurement efficiency.

○Representative applications  
Tape Film

Model	GR-30	GR-2000
Capacity(N)	500	2000
Measurable width(mm)	Max.2	Max.4
Measurable thickness(mm)	Max.30	Max.50
Weight(g)	Approx.160	Approx.670
Mounting screw	M6	M10

※We provide a film cutter (F44).

## Knurled Cam Grip GP-15/30

Ideal for testing resin or soft samples becoming thin when they are pulled. Knurled cam mechanism reduces the possibility of breaking samples.

○Representative applications  
Rubber Cable Silicone Elastomer

Model	GP-15	GP-30
Capacity(N)	250	1000
Aperture width(mm)	Max.4.5	Max.10
Weight(g)	Approx.70	Approx.280
Mounting screw	M6	

※We provide a film cutter (F44).

## Wedge Grip KC series

A self-tightening grip for wire, cable and so on. Designed to grip samples very easily, improving measurement efficiency. (It is not suitable for slippery or hard samples.)

○Representative applications  
Wire Cable Crystal fiber Plastic Piece of metal

Model	KC-100	KC-1001	KC-5000
Capacity(N)	500	1000	5000
Aperture width(mm)	Max.6	Max.2	Max.5
Weight(g)	Approx.330	Approx.95	Approx.565
Mounting screw	M6	M6	M10

## Pantograph Grip PGC series

A self-tightening grip designed to grip samples easily like a cloth pin. It can grip even deformable samples like rubber, resin, and so on. It is not suitable for slippery or hard samples.

○Representative applications  
Film Rubber Wire Cable Nonwoven Plastic

Model	PGC-0505	PGC-0510	PGC-2530
Capacity(N)	500	500	2500
Aperture width(mm)	Max.20	Max.15	Max.15
Sample diameter	Max.6	Max.6	Max.10
Weight(g)	Approx.170	Approx.110	Approx.750
Mounting screw			M10

※S 1 or S1-1 is required when mounting PGC-0510 or 0505 on a force gauge.  
※PGC-ADB is required when mounting PGC-0510 or 0505 on a test stand.

## Wire Winding Grip WG Series

Ideal for tensile test of wire-type material. Winding clamp reduces crimping of sample.

○Representative applications  
Textile Wire Fur

Model	WG-250N	WG-1000N	WG-5000N
Capacity(N)	250	1000	5000
Diameter of bolt(mm)	17	9	12
Sample diameter(mm)	Max.φ1	Max.φ1.2	Max.φ3
Weight(g)	Approx.60	Approx.180	Approx.810
Mounting screw		M6	M10

## Attachment for polypropylene band (PP band) tensile test PPC-5000N

Designed to clamp polypropylene band firmly without slipping.

○Representative applications  
PP band

Model	PPC-5000N
Capacity(N)	5000
Measurable width (mm)	40
Measurable thickness (mm)	1
Weight (g)	Approx.620
Mounting screw	M10

Complies with the corresponding part of JIS Z 1527(2002).

## Loop Tensile Test Fixture LOP-1000N

Ideal for tightening strength measurement of binding band.

○Representative applications  
Binding band

Model	LOP-1000N
Capacity(N)	1000
Aperture width (mm)	10
Measurable diameter (mm)	9.53 (Sample length below 127mm), 35.1 (Sample length exceed 127mm)
Measurable weight (g)	Force gauge side(S): Approx.70g, Force gauge side(L): Approx.95g
Mounting screw	M6

It is in accordance with a part of SAE AS23190 UL62275

## For Tensile Strength Test of Sewed Button BC-15/PGC-BC

Designed for tensile strength test of cloth button. It can grip the button whose diameter is up to 15mm. You can set a sample easily, improving measurement efficiency.

○Representative applications  
Cloth button

Model	PGC-BC	BC-15
Capacity(N)	300	300
Aperture width (mm)	Max.20	Max.φ15
Weight (g)	Approx.125	Approx.115

※S-1 or S1-1 is required when mounting PGC-BC on a force gauge.

## Double Arm Hook SHF Series

Designed to hook a sample by two claws. Ideal for tension test of cap or cap-shaped samples.

○Representative applications  
Plastic Bottle

Model	SHF-100N	SHF-100N-L
Capacity(N)	100	100
Maximum sample size	30(W)x30(H)mm	30(W)x55(H)mm
Weight (g)	Approx.100	Approx.110
Mounting screw	M6	M6

## Flip Cap Opening Force Test Hook HFC-50N

Designed for flip cap (plastic made) opening force test, shortens the adjusting time of sample by moveable hook.

○Representative applications  
Flip Cap

Model	HFC-50N
Capacity(N)	50
Hook width	Approx.11mm
Weight (g)	Approx.15
Mounting screw	M6

## Attachments for Compression and Tension Testing

These attachments can be used for both compression and tension testing.

### Pin Grip CP-150N

For gripping thin wire-shaped samples. You can utilize it in measurement at narrow spaces.

Representative applications

Wire

Model	CP-150N
Capacity(N)	150
Radius span width(mm)	Approx. $\phi$ 0~3.2
Weight(g)	Approx.22
Mounting screw	M6



Wire tension strength test with CP-150N

### Jacobs Chuck GC-5/15

Ideal for gripping round cylindrical shaped samples. Designed to prevent the samples from slipping.

Representative applications

Plastic

Model	GC-5	GC-15
Capacity(N)	500	1500
Radius span width(mm)	Approx. $\phi$ 0.5~6.5	Approx. $\phi$ 2.0~13
Weight(g)	Approx.230	Approx.500
Mounting screw	M6	



Resin molding tension exertion strength test with GC-5.

### Cap Clamping Jig CCJ-100N/CCJ-100N-01

Firmly Clamps small cylindrical specimen such as bottle caps with 4 adjustable pins. (Not suitable for soft or easy-to-deform samples.)

Representative applications: Plastic

Plastic

Model	CCJ-100N	CCJ-100N-01	CCJ-100N-02	CCJW-100N	CCJW-100N-01	CCJW-100N-02
Capacity (N)			100			
Adjustable diameter(mm)		7~50			10~100	
Clamping Pin	Standard Type	Notch Pin	Long clamp pin	Standard Type	Notch Pin	Long clamp pin
Weight (g)	Approx.250	Approx.300	Approx.260	Approx.330	Approx.380	Approx.340



Bottle cap insertion/extraction test with CCJ-100N

## Pinching Force Measurement Jig

### Pinching Force Measurement Jig PCA-150N

Designed for pinching/spreading force measurement of double-handle tools, like clips and calipers. Easy adjusting of the measuring widths along with the scale.

Representative applications

Caliper Pliers Forceps Clips

Model	PCA-150N
Capacity (N)	150
Pinching width (mm)	5~15
Spreading width (mm)	1~15
Weight(g)	Force gauge mounting side : Approx. 50

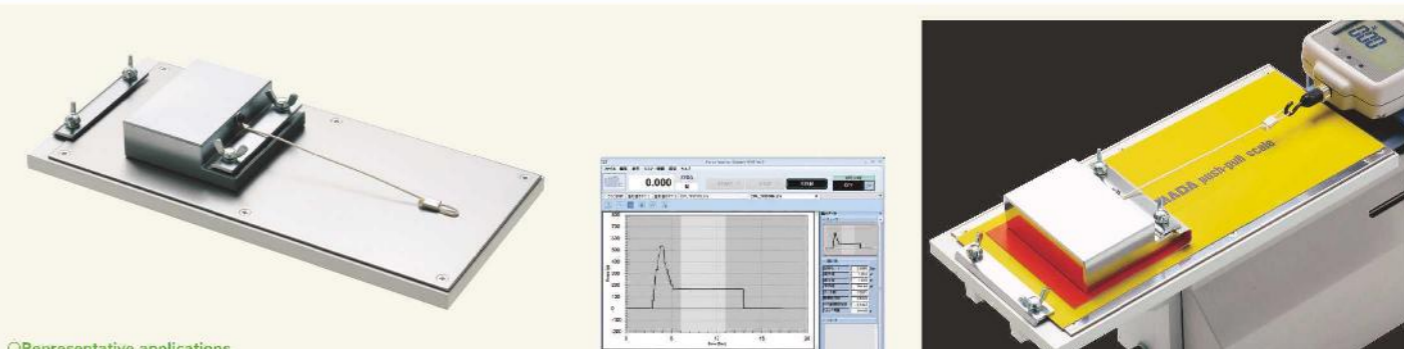


Pinching strength test of forceps with PCA-150N

## Attachments for Coefficients of Friction Testing

The included software automatically calculates Coefficient of Kinetic friction and coefficient of Static friction and draws graphs.

### Coefficients of Friction Fixture COF Series



Representative applications

Paper Film Panel

Force Recorder Standard COF Ver.

Paper coefficient of friction test with COF2-10N

Model	COF2-2N	COF2-10N	COF2N-V	COF10N-V
Compatible test stand		MH2-500N		Vert cal. type #1
Weight of the weight (g)	200	1000	200	1000
Measurable size(mm)	Thickness:Max.1.5 Length:Max.150			

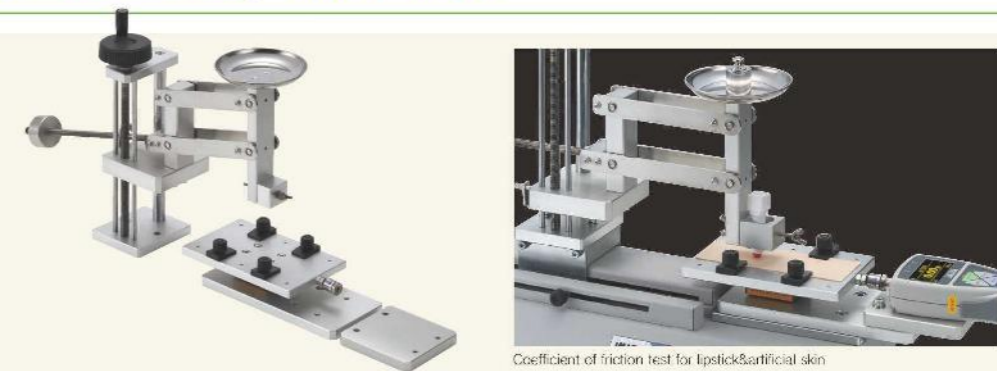
\*You need A-1 or S-1 (Page36) to attach the weight to a force gauge.

\*1 Some vertical test stand can not be combined with the fixture. Please contact us if you need the details.

COF-2N,COF-2N-V:In accordance with a part of JIS K 7125(1999).

### Variable Weight Reciprocating Friction Test Jig VWF-10N

This jig enables you to measure the friction occurring when vertical force is applied by a weight, reciprocating friction, repeated friction and more. Various holders which are sold separately allow you to diversity test applications. The included software (Force Recorder Standard COF Ver.) automatically calculates Coefficient of friction.



Coefficient of friction test for lipstick/artificial skin

Representative applications

Pen&Paper Ink&Wick Ink&Ball&Glass

Model	VWF-10N
Capacity #	1000g
Sample diameter	8mm
Compatible force gauge	ZTS/ZTA Series
Compatible test stand	MH2-500N

\*Weight is required separately.

Model	①VWF-STH	②VWF-STH-VA	③VWF-ATH-VA	④VWF-BAH6	⑤VWF-BLH
Feature	Stick Holder	Variable Angle Stick Holder	Variable Angle Attachment Holder	$\phi$ 8 Ball Holder	Blade Holder

Attachments for Wire Harness Testing

Combining these attachments with a force gauge and a test stand, enables you to create a wire harness testing machine. These attachments are designed to grip different sizes of harnesses.

~500N Accessory Attachments for A Manual Wire Clamp Pull Tester [LH-500N(P52)]

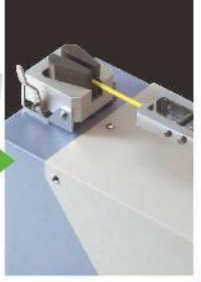
Terminal clamp jig

It is designed to secure a crimp terminal easily and quickly. For engaging it, you only have to hook it between 2 lines.

Wire clamp jig

It is designed to secure the ends of wire/cable lightly and easily. For engaging sample, you only have to pull the lever and put your sample on.

Model	CH-500N	Model	CW-500N
Capacity(N)	500	Capacity(N)	500
Measurable size(mm)	Max.6	Measurable size(mm)	Max.5
Weight(g)	Approx.210	Weight(g)	Approx.220
Mounting screw	M6	Mounting screw	M6



~1000N Attachments for Vertical Test Stands

Rotary wire terminal jig

They secure wire terminals, cones, connectors, and other samples. This device of different sizes to accommodate a wide range of wire diameters up to 8mm. You only have to rotate the wheel to the desired size.

Wire clamp jig

It is for securing the end of wire/cable. Knurled cam mechanism reduces the possibilities of breaking samples.

Model	FW-12	Model	GP-30
Capacity(N)	1000	Capacity(N)	1000
Measurable size(mm)	φ 1~8	Measurable size(mm)	Max. 10
Weight(g)	Approx.380	Weight(g)	Approx.860
Mounting screw	M6	Mounting screw	M6



~5000N Attachments for High Capacity

Wire terminal jig

It engages terminals from φ 4 to φ 12mm diameter.

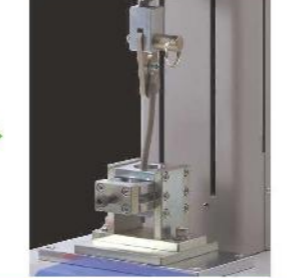
Wire clamp jig

It is designed for preventing wire coating from breaking.

Model	CH-5000N
Capacity(N)	5000
Measurable size(mm)	φ 4~12 (Internal diameter of the terminal hole)
Weight(g)	Approx.3*5
Mounting screw	M10

Model	CW-5000N
Capacity(N)	5000
Measurable size(mm)	Max. φ 30 (Cable diameter)

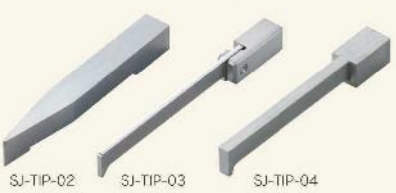
A test can be conducted complying with a part of JIS C 2605 (2010) using CH-5000N and CW-5000N together.



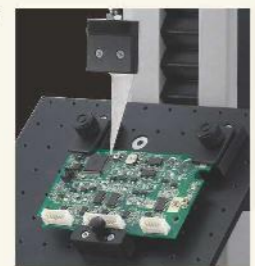
Attachments for test of surface mount solder joint

Set for test of surface mount solder joint SJ

5 types of attachment for QFP lead hook/ chip shear jig meet your testing requirements.



Representative applications: QFP Lead, Chip



Endurance test for surface mount solder joint with SJ-QFP-01.

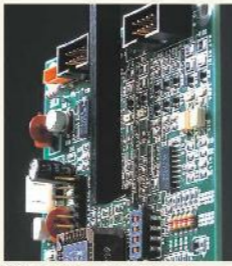
Model	SJ-QFP-01	SJ-TIP-01	SJ-TIP-02	SJ-TIP-03	SJ-TIP-04
Capacity(N)			100		
Dimension(mm)	Approx.118	Approx.79	Approx.78	Approx.93	Approx.75
Mounting screw			M6		
Weight(g)*1	Approx.60	Approx.50	Approx.50	Approx.15	Approx.25

Chip Peel Fixture GT-10/20

Ideal for peel (shear) testing for soldered or adhered electric components.



Representative applications: Electrical components, Range case



Chip peeling strength test with GT-10

Model	GT-10	GT-20
Applying force	for Tension	for Compression
Capacity(N)		500
Weight(g)		Approx.34
Mounting screw		M6

Alignment stage for solder joint strength test SJS

Designed for solder joint strength test. The table enables you to finely adjust the stage position. The direction of stage is switchable and enables you to perform solder joint strength test of 45 and 90 degrees.

Representative applications: QFP Lead, Chip, Electronic Components

Model	SJS-100N-L	SJS-100N-S
Capacity(N)		100
Dimension(mm)	Approx. W238×D155~×H247	Approx. W236×D155×H130
Weight(g)*1	Approx.3.2	Approx.2.5
Measurable size(mm)	±30mm	

\*1 Weight of the attachment is also applied as a load on the force gauge. Consider it when selecting the capacity of a force gauge.



Attachments for Peel Testing

We offer fixtures for peel testing (adhesive testing) of sticky tapes, coating surfaces, and more.

90 Degree Peel Test Fixture P90-200N/200N-EZ/200N-BB

Ideal for 90 degree peel testing for adhesive tape and the like. P90-200N keeps the peeling degree at 90 degree. The moderated price model is P90-200N-EZ.

Representative applications: Adhesive, Copper foil, Magnet card, Pouch

Model	P90-200N	P90-200N-EZ	P90-200N-BB
Measurable force(N)	~200	0.4~200	~200
Measurable size(mm)	Length: Max.155	Width: Max.50	Contact Us

P90-200N Complies with the corresponding part of IEC 249-1(1982)/326-2(1990), ISO 29862(2007), P90-200N-BB Complies with the corresponding part of IEC 249-1(1982)/326-2(1990), ISO 4525(2003), JIS H 8630(2006).



Adhesive tape peeling strength test at 90 degree with P90-200N. We provide a film cutter (P44). With the cutter, you can cut film in constant-width. We also provide a rubber roller according to JIS (See P44 for further information).

180 Degree Peel Test Fixture P180-200N/200N-BB

Ideal for 180 degree peel testing for adhesive tape and so on.

It is in accordance with a part of JIS Z 0237(2009).

Representative applications: Adhesive tape

Model	P180-200N	P180-200N-BB
Measurable force(N)	0.5~200	0.5~200
Measurable size(mm)	Length: Max.150	Width: Max.40

P180-200N Complies with the corresponding part of IEC 249-1(1982)/326-2(1990), ISO 29862(2007), ASTM D3330(2010), JIS C 5016(1994), P180-200N-BB Complies with the corresponding part of IEC 249-1(1982)/326-2(1990), JIS C 5016(1994).



Adhesive tape peeling strength test with P180-200N.

45 Degree Peel Test Fixture P45-50N

Ideal for peel testing of cup container's film covers. It standardize the peeling degree at 45 degree which is similar to practically opening a cup container.

You cannot open the full lid of the container. Representative applications: Cup container cover

Model	P45-50N
Capacity(N)	50
Measurable size(mm)	Height: Approx.10~100
Chuck opening width(mm)	Max.2

We provide an optional tray to receive outflowing contents. (See P44 for further information.) \*A-1, S-1, or SR-1 (Page36) are required to attach the upper part of the fixture to a force gauge.

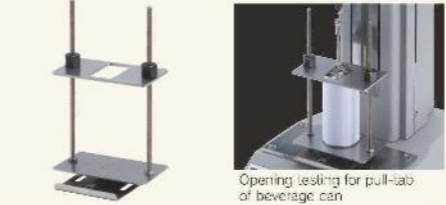


Cup container cover peeling strength test with P45-50N.

Jig for opening pull-tab of beverage can PTD-100N

Designed to pull up aluminum beverage can's pull-tab to 90 degree.

Pull tab of beverage can



Opening testing for pull-tab of beverage can

Model	PTD-100N
Capacity(N)	100
Measurable size(mm)	Height:170
	Width:90

PTD-100N is in accordance with a part of JIS S 0021-2(2016), ISO 1748(2015). We provide an optional tray to receive outflowing contents. (See P44 for further information.) \*A-1, S-1, or SR-1 (Page36) are required to attach the upper part of the fixture to a force gauge.

Jig for opening pull-tab of canned food's container PTF-100N

Designed to pull up a pull-tab of canned food's container to 90 degree to measure force opening the container's lid.

You cannot open the full lid of the container. Representative applications: Canned food's container

Model	PTF-100N
Capacity(N)	100
Measurable size(mm)	Height:170
	Width:110

We provide an optional tray to receive outflowing contents. (See P44 for further information.) \*A-1, S-1, or SR-1 (Page36) are required to attach the upper part of the fixture to a force gauge.



Opening testing for pull-tab of canned food's container

Surface Coating Pull-Off Test Fixture TH-1000N/5000N

Ideal for pull-off testing of surface coating. It comes with 5 peeling heads, (10 peeling heads for TH-1000N-7).

Representative applications: Paint surface

Model	TH-1000N-7	TH-1000N-20	TH-5000N-20
Capacity(N)	1000	1000	5000
Upper blade	Diameter 7mm	Diameter 20mm	Diameter 20mm
Force gauge	Approx.40	Approx.90	Approx.195
Mounting screw	M5	M6	M10
Lower blade (for TH-1000N-7)	Diameter 30	Diameter 30	Diameter 30

TH-1000N-7 is in accordance with a part of JIS K 5600-5-7 (2014). TH-1000N-20 and TH-5000N-20 are in accordance with a part of JIS K 5600-5-7 (1999).



TH-5000N-20N

Rubber Roller for Peel Test APR-97

With this roller, you can apply stable pressure to stick samples, improving repeatability.



Model	APR-97
The roller weight(g)	Approx.2000
Material of roller	Rubber(Hardness A80)

It is in accordance with a part of JIS Z 0237(2009)

Film Cutter FSC-1525

This cutter enables you to cut film in constant-width, improving measurement efficiency. It comes with 2 sets of spare edges.



Model	FSC-1525
Width to cut	15~70mm
Width adjustment lock	15mm/1 inch

FSC-1525 is in accordance with ASTM F88, JIS Z 0238 (1998), and JIS Z 1707 (2018).

Optional tray PTW-10IN

For receiving outflowing contents. It is attached on an IMADA test stand.



Model	PTW-10IN
Size(mm)	264 x 178
Applicable size(mm)	P90-200N, P180-200N, PTF-100N, PTD-100N, MED-500N

\*Even though you combine the tray with a test stand, remember that the stand is still weak in water.

Attachment for Probe Tack Test **MED-IS-20N**

Ideal for measuring adhesiveness of sticking plaster etc. by tack test.

Representative applications

Sticking plaster

Model	<b>MED-IS-20N</b>
Capacity (N)	20
Stalica diameter of contact (mm)	5
Weight (g)	Force gauge mounting side: Approx. 70g
Mounting screw	M5

In compliance to 6.12.3.4 of the Probe Tack Method by the Japanese Pharmacopoeia



Sticking plaster adhesion test with MED-IS-20N

Attachment for Needle Pull Out Test **MED-NPT-200N**

Ideal for testing pull out strength of a needle from a needle base.

Representative applications

Needle

Model	<b>MED-NPT-200N</b>
Capacity	200
Measurable needle diameter (mm)	0.3-2.0
Measurable length (mm)	above 10
Weight (g)	Force gauge mounting side: Approx. 210g
Mounting screw	M5

Complies with a part of JIS T3209(2011)/T3220(2011)/T3221(2011)/T3222(2011)/T3223(2016)/T3228(2018)/T3229(2011)  
Complies with a part of ISO 7884(2016)/10555-5(2013)/11608-2(2012)



Needle pull out strength test with MED-NPT-200N

Attachment for Compression Test of Syringe **MED-SCT-500N**

Ideal for compression test of syringe.

Representative applications

Syringe

Model	<b>MED-SCT-500N</b>
Capacity (N)	500N
Measurable capacity (ml)	0.5~50
Inner diameter of syringe (mm)	10/15/24/33
Installer	Mounting on the stand

Complies with a part of ISO 7886-1(2017)  
\*We provide an optional tray to receive outflowing contents. (See P44 for further information.)  
\*You need S-2 (Page36) to push syringe.



Syringe compression test with MED-SCT-500N

Attachment for Acupuncture Needle: Strength and Sharpness **MED-ACU-2N**

Designed to measure strength and sharpness of acupuncture needle.

Representative applications

Acupuncture

Model	<b>MED-ACU-2N</b>
Capacity (N)	2
Applicable Diameter (mm)	Φ0.1~1.0
Weight (g)	The side with force gauge: 22g
Mounting screw	M5

Complies with the corresponding part of JIS T 9301 (2016)



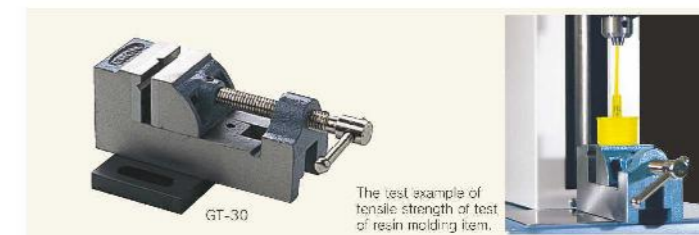
Acupuncture needle strength and sharpness test with MED-ACU-2N

Vise Grip **GT-30/2000N**

Wide opening range accommodates different sizes or shaped samples. Use with vertical test stands. (Contact us for models available with this grip.)

Model	<b>GT-30</b>	<b>GT-30-E</b>	<b>GT-30-U</b>	<b>GT-2000N</b>
Features	Compatible with 1000N	Notch Jaw #1	One-shoulder jaw One-side notch jaw #1	Compatible with 2000N Test stand, microscope
Capacity (N)	1000	1000	250	2000
Aperture opening width (mm)	38	35	35	66
Mounting	To test stand table			

\*1 We provide spare notch jaw.



The test example of tensile strength of test of resin molding item.

Self-centering Vise Grip **GTW-50R/50L**

Self-centering vice. 2 models are available: 1. Knob model (high operability type) 2. Lever model (Strong clamp type) Use with vertical test stands. (Contact us for models available with this grip)

Model	<b>GTW-50R</b>	<b>GTW-50L</b>
Type	Knob type	Lever type
Capacity (N)	500	1000
Aperture opening width (mm)	Max. 68	
Mounting	To Test stand table	



Knob type

Lever type

High Capacity Self-centering Vise Grip **GTW-2500N**

A wide opening jaw enables gripping a larger samples. The stainless material unaffected magnetic specimen. It is designed to replace jaws easily and even mount your own jaw. \*It comes with standard jaw GTW-2500-MP(2pieces).

Model	<b>GTW-2500N</b>
Capacity (N)	2500
Aperture opening width (mm)	Max. 160
Mounting	To Test stand table

\*We provide the Jaw (GTW2500-MP10) which can be fixed up to 6 pieces and Sample stage (GTW-SP) which helps to put a sample stably.



Separate-sold accessory

GTW2500-MP10

GTW-SP

Motor extracting test with GTW-2500N

XY Table **XY-500N series**

A sample can be put at the center using this XY table since the stage can be moved manually in X and Y directions at light feed. Use with vertical test stands. (Contact us for models available with this table)

Model	<b>XY-500N-BB</b>	<b>XY-500N-M8</b>	<b>XY-500N-EZ</b>
Features	Breadboard type	M8 screw type	48 slots Charcoal plate
Capacity (N)	Tension: 500 Compression: 1000	Tension: 500 Compression: 1000	Tension: 500 Compression: 1000
X-Y movement amount (mm)	+/- 30		
Mounting	To test stand table		

\*The table position of -BB/-M8 can be adjusted with knobs, and feed amount of per turning the knob is 0.8mm.



XY-500N-BB

X-axis Slide Table **XST-500N**

This table enables you to align a test sample easily.

Model	<b>XST-500N</b>
Capacity (N)	500
Movement amount (mm)	70
Weight (kg)	1.9
Mounting	To test stand table



XST-500N

T-Slot Table **TS-5000N**

It is for holding attachments, being utilized to mount/remove attachments quickly. A sample also can be centered readily since the table moves in X/Y directions.

Model	<b>TS-5000N</b>
Capacity (N)	1000/500 Tension, 2000/1000 Compression
Sample of T-slot type	M5
The space between T-slots	Max. 125
Movement amount (mm)	X: ±64 Y: ±15
Mounting	To test stand table



TS-5000N



## Hand Grip Belt for Force Gauges

### Optional Handle for Force Gauges **FOH-1**

Combining a force gauge with this handle by screws, you can apply force stably.



Model	<b>FOH-1</b>
Compatible model	1000N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSV/FS/FB series
Weight(g)	Approx.500

### Hand Grip Belt **HGB-1**

Designed to prevent a force gauge slipping from hand. It enables you to apply force easily.



Model	<b>HGB-1</b>
Compatible model	200N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSV/FS/FB series
Weight(g)	Approx.75

## Connecting Attachment

### Attachment Adapter **JF/EJ series**

The mounting adapter for grip-type attachment for tension test. They help smooth sample fixation and precise adjustments of gripping positions and angle.



Model	<b>JF6-50N</b>	<b>EJ6-1000N</b>	<b>EJ10-5000N</b>
Capacity(N)	50	1000	5000
Mounting screw size	M6	M6	M10
Mounting screw thread	M6	M6	M10
Weight(g)	Approx.8	Approx.29	Approx.140

\*Please contact us for the detail that which attachment is available.  
 \*A-1/5-1/5R-1 (Page 36) is required to mount JF6-50N on a force gauge.

### Universal Joint **UJ6-1000N/UJ10-5000N**

It features free-joint design to reduce biased load to a force gauge. Combine this joint and an attachment, and mount them to a force gauge's thread, then the attachment uniformly contacts a test specimen, which improves repeatability.



Model	<b>UJ6-1000N</b>	<b>UJ10-5000N</b>
Capacity (N)	1000	5000
Mounting screw size	M6	M10
Mounting screw thread	M6	M10
Weight (g)	Approx.25	Approx.140

## Eye Bolt and Eye Nut for Load Cells

Hoisting attachment for tension test by load cells (Page 17).

for Load Cell DPU series

### Eye Bolt **EB series**

It hangs a test sample or a load cell by hooking chain, rope, hook etc.

Model	<b>EB-500N-M6</b>	<b>EB-2000N</b>	<b>EB-20kN</b>
Compatible load cell	DPU-5V-500N	DPU-1000-2000	DPU-10k-20k
Capacity	500N	2000N	20kN
Weight(g)	Approx.19	Approx.137	Approx.1700
Mounting screw	M6 Male Screw	M12 Male Screw	M18 Male Screw



for Load Cell LU series

### Eye Bolt **EB-500N-M8**

It hangs a test sample or a load cell by hooking chain, rope, hook etc.

Model	<b>EB-500N-M8</b>
Compatible load cell	LU series
Capacity(N)	500
Weight(g)	Approx.39
Mounting screw	M8 Male Screw



### Optional Handle for Fire Door Closing Measurement **HDC-1**

Specialized for fire door closing force measurement according to the Building Standard Law of Japan.



Model	<b>HDC-1</b>
Compatible model	1000N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSV/FS/FB series
Weight(g)	Approx.330

### Conversion Adapter **CA series**

Gauges' threads (a part to mount an attachment) differ in size among models, thus you can use these adaptors to combine a force gauge and a desired attachment even if their sizes are different.



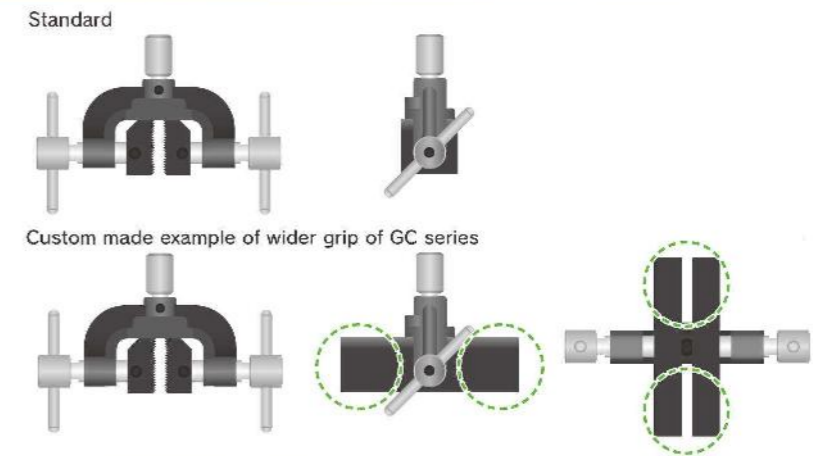
Model	Screw diameter	Capacity	Purpose
CA-F6T4	M6 (male screw) → M4	1000N	When mounting a M4 screw attachment to a M6 screw thread of a force gauge.
CA-F6T10	M6 (male screw) → M10	10000N	When mounting a M10 screw attachment to a M6 screw thread of a force gauge.
CA-F10T6	M10 (male screw) → M6	10000N	When mounting a M6 screw attachment to a M10 screw thread of a force gauge.
CA-F4T6	M4 (male screw) → M6	1000N	When mounting a V6 screw attachment to FRS series.
CA-F5T4	M5 (male screw) → M4	1000N	When mounting a M4 screw attachment to a M5 screw thread of a force gauge.
CA-F5T6	M5 (male screw) → M6	5000N	When mounting a M6 screw attachment to a M5 screw thread of a force gauge.
CA-8T4	M8 → M4	1000N	When mounting a M4 screw attachment to a M8 screw thread of a force gauge.
CA-8T6	M8 → M6	5000N	When mounting a M6 screw attachment to a M8 screw thread of a force gauge.
CA-8T10	M8 → M10	20000N	When mounting a M10 screw attachment to a M8 screw thread of a force gauge.

## Custom Order Examples

### 1. Resizing Ready-Made Attachment

[Example: GC-1200 series Length change of grip part]

We can resize the width and the length of the grip part.



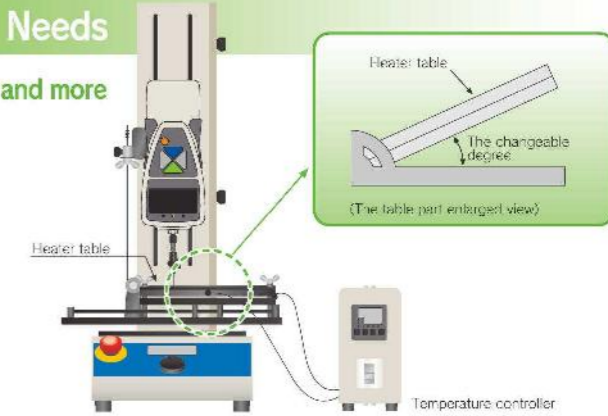
We flexibly change sizes (width, depth) of fixtures and grips to fit your testing needs. Please contact us for the details.

### 2. Changing Specifications to Fit Your Testing Needs

● Changing conditions such as measuring angles, temperatures, and more

[Example: Specification change of peeling test fixture]

We can offer a degree changeable table for peel testing. Besides, we can combine a heater with a table of a test stand.



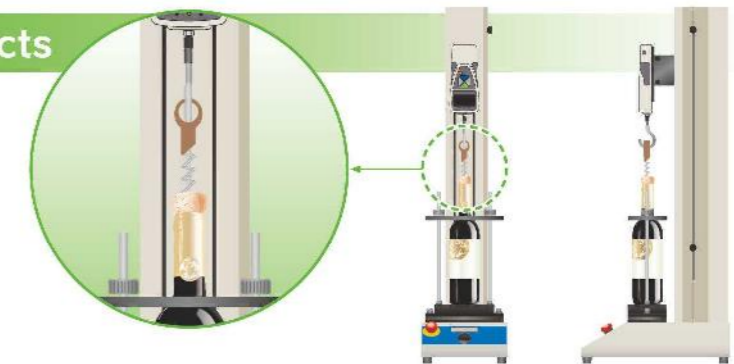
● Measurement in accordance with standards such as Japanese Industrial Standard, ISO or ASTM

We offer force measuring instrument complying with standards' requirement (measuring speed, fixture design, etc.).

### 3. Completely Original Products

[Example: Cork excerpction measuring unit]

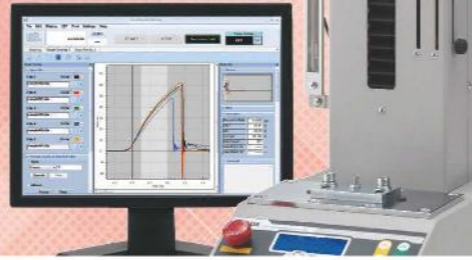
We offer the special use fixture for your sample to improve measuring repeatability and efficiency.



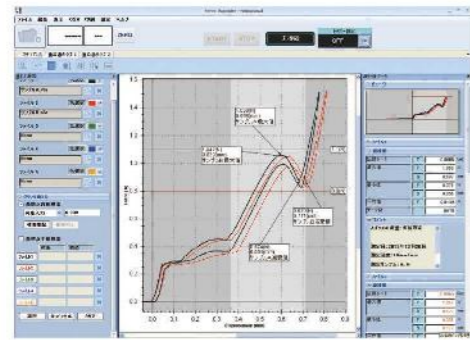
# FSA series Force-Displacement Analysis Unit

High-performance measurement unit that can easily analyze the relationship between force and displacement

With this unit, deformation amount (displacement) to compression (tension) force can be measured. It is ideal for tactile test and material characteristic evaluation.



## It draws Force vs Displacement graphs in real time at Max.2000Hz



### Basic Functions of Force-Displacement Measurements

- Easy connection to PC by USB
- Smooth graphing performance at 2000Hz
- Graph zooming function
- Comment insertion on graphs
- Quick data export to WORD, EXCEL, PDF

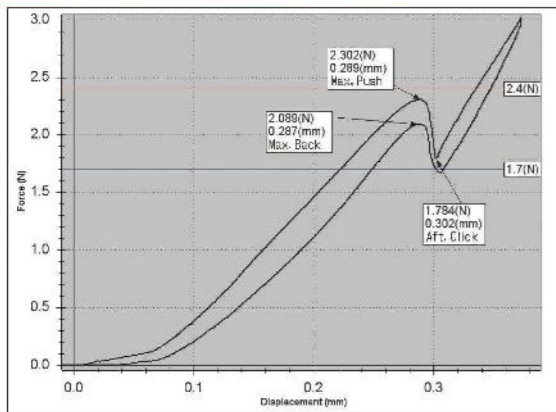
### Useful Functions for Measurements and Analysis

- Graph comparing function Max 5 graphs.
- Reference line function
- Statistical calculation (maximum/ minimum/ average values).
- Automatic displacement reset at the measurement start (when the force reaches the set force value)
- Test trigger function (when the force reaches the set displacement value)

## The Advantage of Measuring Displacement and Force Together.

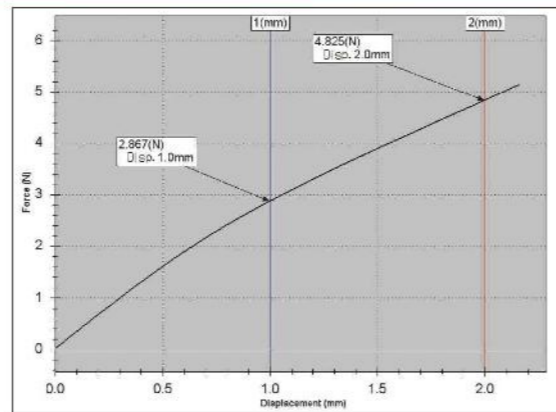
Since force transition with reference to displacement can be confirmed, this unit is perfect for tactile testing, material characteristic evaluation, and more.

### Example of A Switch Characteristic Evaluation



Curves in force-time graphs constantly goes from left to right, and never come back to left. On the other hand, curves in force-displacement graphs come back to left since it is drawn based on displacement. Therefore, force-displacement analysis method is better choice to identify the hysteresis(zero reversion).

### Example of Plastic Bending Test



Measuring displacement means identification of deformation amount. It is easy to check "How much force does it need to transform a testing sample(dent a sample at ○○mm)?"

### Other Test Examples

- Simple evaluation of spring characteristic
- Simple evaluation of rubber product characteristic
- Cushioning material repulsion test
- Car cushion hardness test
- Fitting quality test of cosmetic containers
- Extract test of connectors
- Peel test with distance of tape and films
- Compression and Breaking test for electric components
- Pulling test for slide structures.
- Repulsion test for sport equipment (Tennis ball)
- Food texture test
- LCD panel strength test

## Configuration

### A Force Gauge

It measures force, and indicates force and displacement values. Different attachments can be combined to handle a wide range of force testing applications. Easily put it on (off from) a test stand by screws.

### A Test Stand

It is a machinery to move a force gauge up and down (left and right). Move it with up/down (left/right) buttons. Easily set up test requirement such as test speeds, pause and more with its dial.

### A Cable

It connects the force gauge and the test stand for control. (FSA-MSL does not include this cable since it operates manually.)

### Standard Attachments

Attachments are integral components of this testing system. Although this testing system comes with some basic attachments, optional attachments can be combined as required. We offer a wide range of optional attachments to fit various measurement needs.



### Software

This software can draw force-displacement graph. It captures force and displacement values at Max. 2000/sec, and draw them into graphs smoothly. It automatically starts graphing using Trigger function. \*MSL-FSA does not have this Trigger function.



Measurement unit	Force	N, kgf, lbf ※
	Displacement	mm, inch ※
Range		2N(200gf), 5N(500gf), 20N(2kg), 50N(5kg), 100N(10kg), 200N(20kg), 500N(50kg), 1000N(100kg), 2500N(250kg), 5000N(500kg)
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 (w/h no load)
Sampling rate		2000 data/sec
Output		USB, Serial(RS232C), Analog(Approx. +/- 2V), Comparator, Overload, Sub comparator, USB flash drive * USB flash drive is not included.
Accessories		Instruct on manual, Inspection certificate, Power cable, 2 pcs of spare fuses, Driver CD-ROM(including software for data log "ZT-Logger"), Graphing software "Force-Recorder Professional".

Note: \*GA force gauge is separately sold. (Actual measuring capacity depends on the force gauge's capacity. However, when the test stand's capacity is less than the force gauge's capacity, you can measure force up to the test stand's capacity. (※) The maximum height (or length) means the distance between the test stand table and the fixed of the force gauge Z series general type (100N or less) at the highest position of the test stand. The distance does not include attachments. The distance of FSA-2.5K2, FSA-5K2, FSA-2.5IK2 is in case of mounting ZT series high capacity type. ※The unit is different from Japanese domestic models.

# We provide a wide range of testing system to fit your needs

## Easily

- Digitally set up test requirements such as speed, pause, a number of times, and more with simple operation (Except FSA-MSL).
- Start graphing by one click or record data automatically.

## Precisely

- Capture data accurately due to its high sampling rate (Max. 2000Hz).
- Overlay graphs for detailed analysis.

### Vertical

The MX2 series test stand is set. Testing speed can be adjusted digitally. It is compact enough to be put on a desk.

FSA-0.5K2, 1K2, 2.5K2

- Speed: 10-300mm/min (standard)

FSA-5K2

- Speed: 0.5-300mm/min (standard)



Models: **FSA-0.5K2-2~500N**

- Capacity: 2~500N
- The max. sample height: 235mm

Models: **FSA-2.5K2-2~2500N**

- Capacity: 2~2500N
- The max. sample height: 320mm

Models: **FSA-1K2-2~1000N**

- Capacity: 2~1000N
- The max. sample height: 300mm

Models: **FSA-5K2-2N~5000N**

- Capacity: 2~5000N
- The max. sample height: 380mm

### Multifunctional and Accurate

- Speed: 0.5~600mm/min (Standard)

The travel distance to move a force gauge can be set digitally. Test requirements also can be stored in it.

Since this test stand has high intensity, enables you to measure force and displacement more accurately.



Models: **FSA-0.5KE-2~500N**

- Capacity: 2~500N
- The max. sample height: 295mm

Models: **FSA-1KE-2~1000N**

- Capacity: 2~1000N
- The max. sample height: 320mm

### Horizontal

The MH2 series test stand is set. Testing speed can be adjusted digitally.

- Speed: 10-300mm/min (standard)



Models: **FSA-0.5HK2-2~500N**

- Capacity: 2~500N
- The max. sample height: 245mm

Models: **FSA-2.5HK2-2~2500N**

- Capacity: 2~2500N
- The max. sample height: 340mm

### Portable (Knob operation, Up to 50N)

- Capacity: 2~50N (※1)
- The sample maximum height: 80mm (※2)



Mounting on tripod enables you to measure wider range of testing applications. An optional adaptor is required to mount it on a tripod.

Easy knob operation



Since it is lightweight, it can be carried to various places. It also can be fixed on a wall by screws.

Models: **FSA-MSL-2~50N**

## Special Testers

### Automatic crimp tester

# ACT-1000N

[You can carry out the test in accordance with a part standards UL 486A-486B and JIS C2805.]

- The start button provides smooth flow from testing to saving data including OK/NG judgment.
- Test conditions can be saved up to 26 patterns in it, which is useful for multiple tests. Recall a suitable setting easily and instantly.
- 2 test modes are available; "BREAK mode" and "KEEP mode". With BREAK mode, Detect the force when a crimp terminal is broken. With KEEP mode, Test the tensile durability at a set point.

### ACT-1000N provides speedy test due to its ease of use.



#### Optional attachment



**ACT-T-01**  
Jig for round terminals:  
Easily fix round terminals.



**ACT-T-02**  
Jig for rod terminals:  
Grips a small terminal such as a rod terminal.

Code	ACT-1000N	ACT-1000N-V300
Capacity		1000N
Accuracy		+/-0.5% F.S +/-1digit
Unit		N, kgf, lbf (※1)
Sampling rate		2000Hz
Measuring speed	10/25/50/100 mm/min (Choose from 4 steps)	25/50/100/300 mm/min (Choose from 4 steps)
Stroke	Approx. 50mm	
Allowable sample diameter	Terminal side: 1~8mm Harness side: 1~8mm	
Allowable sample length	100mm or more	
Mode	BREAK mode / KEEP mode	
Output	USB/RS232C/Serial or fail decision signal (OK/NG)	
Security lock	Emergency stop button and Overload prevention (low power)	
Power supply	AC100~240V	
Operating environment	Temperature: 0~40 degree Celsius, Humidity: 20~80%RH	
Accessory	Software, USB cable, Power cord, Inspection Certificate	

※1 This is the specifications for international model.  
Please note Japanese domestic model shows force in N only.



It comes with fixtures for wire and terminal.

- Size: W400XD240XH150mm
- Weight: Approx. 1.1kg

### Test Lever Stand

# LH-500N

- It is ideal for tensile strength test of crimped terminal.

### Designed exclusively for wire harness testing = Easy manipulation → Improve measurement efficiency



#### Accessory Attachment



**CW-500N**  
Wire Clamp fixture:  
Wedge type. You can grip wire/cable easily by pulling the lever.



**CH-500N**  
Terminal Clamp fixture:  
It is wide size fixture as gripping a crimp contact.

- Size: Approx. W155XD450XH182mm
- Weight: Approx. 1.1kg

Model	LH-500N
Capacity	500N
Accessory	Terminal Clamp Fixture: CH-500N Wire Clamp Fixture: CW-500N * Force gauge is not included.



※ Force gauge's capacity denotes the capacity of testing system.  
※ The sample maximum height means the distance between the test stand table and the thread of the force gauge ZT series general model (1000N or less) at the highest position of the test stand head. The figure for FSA-2.5K2, FSA-2.5IK2, FSA-5K2 is in the case of ZT series high capacity model combined.

Peel Tester

# IPTS-5N

- It enables peel test of embossed carrier tape complying with IEC.
- It graphs the measurement accurately due to its high sampling rate, at Max. 2000Hz.
- It handles a wide range of test speed up to 1500mm/min.
- One-click Operation: The start button provides smooth flow from testing to data saving.



Size: Approx. W702 x D300 x H140mm  
Weight: Approx. 1.1 kg

Related Standards

- A part of JIS C0806-3(2014) [Packaging of components for automatic handling-Part 3: Packaging of surface mount components on continuous tapes]
- A part of IEC 60286-3(2019) [Packaging of components for automatic handling - Part 3: Packaging of surface mount components on continuous tapes] (Peel test part)



Peel test of embossed carrier tape

High Speed Peel Tester

# IPTS-20N/50N

- It graphs the measurement accurately due to its high sampling rate, at Max. 2000Hz.
- It handles a wide range of test speed up to 1500mm/min.
- One-click Operation: The start button provides smooth flow from testing to data saving.
- It enables to test samples at a thickness of up to 0.5mm.



Size: Approx. W702 x D300 x H140mm  
Weight: Approx. 1.1 kg

Related Standards

- A peel test part of ISO 29862:2018 [Self-adhesive tapes - Determination of peel adhesion properties] (A peel test part of JIS Z0237:2009)
- A peel test part of ISO 8510-2:2006 [Adhesives - Peel test for a flexible-bonded-to-rigid test specimen assembly - Part 2: 180° peel] (A peel test part of JIS K8854-2:1999)
- A peel test part of Japanese Pharmacopoeia

Test Samples

Label, adhesive tape, stickers, screen protector sheet, laminated package, adhesive tape for first-aid, postcard, magnetic tape, foil laminated film, electrode's line of solar cell, copper foil of circuit board.



Peel test of copper foil

IPTS series is specialized for 180-degree peel test. =It ensures the high performance of your works and accurate test.



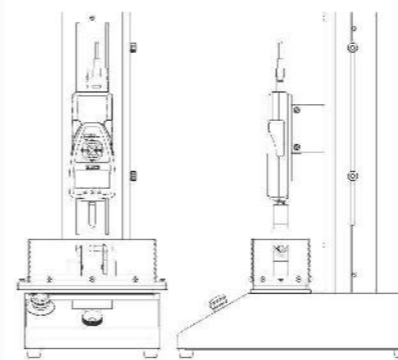
Model	IPTS-5N	IPTS-20N	IPTS-50N
Capacity	5N	20N	50N
Resolution	0.001N		0.01N
Unit	N, gf, ozf		N, kgf, lbf
Accuracy	±0.2%F.S. = 1digit		
Overload	Approx. ±50%F.S. (It warns with light flashing and buzzer when the force is over 110% of capacity.)		
Sampling rate	Max.2000 data / sec (2000Hz)		
Test speed	120, 200, 300, 500, 1000, 1500mm/min(Switchable)		
Stroke (length)	Travel of load cell: Approx. 400mm (Peel length: Approx.200mm)		
Peel angle	165°-190° (Height and angle are adjustable.)		
Max. sample width	Adhesion: 88mm (Film dia: 40mm, Sample clip: 95mm)	Adhesion: 58mm (Grip: 20mm, Clamp: 50mm)	
Max. sample thickness	Cover film: 0.5mm	Grip: 3mm	Clamp: 13mm
Safety device	Emergency stop button, Over load prevention (Valid only when the power is ON) (※1)		
Power	AC100~240V free input (※2)		
Weight	Approx. 1.1kg		
Operating environment	Temperature: 0~40°C Humidity: 20~80%RH		
Accessories	Force Recorder Standard (graphing software), USB cable, Power cable, Film grip, Inspection certificate, Instruction manual		

※1 You cannot prevent overload in some cases.  
※2 Please specify the voltage when you order. (Accessories varies depending on voltage.)  
※3 The film grip attachments for IPTS-5N and IPTS-20N/50N are different.  
※ Japanese domestic models do not indicate gf/kgf and oz/lbf.

We provide semi/full customized testers to comply with your desired standards. IMADA's products are highly evaluated because of the quality and the fact that they have been used worldwide in every industry for many decades, making your quality control a success.

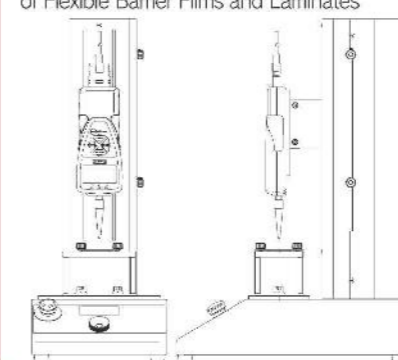
In Medical industry

Standard: **ISO9187-1**  
Measurement abstract:  
Injection equipment for medical use -- Part 1: Ampoules for injectables



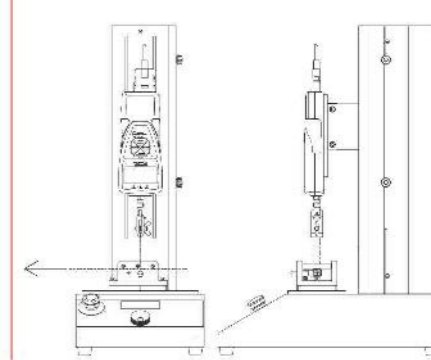
In Plastic industry

Standard: **ASTM F 1306-90**  
Measurement abstract:  
ASTM F1306 - 90(2002) Standard Test Method for Slow Rate Penetration Resistance of Flexible Barrier Films and Laminates



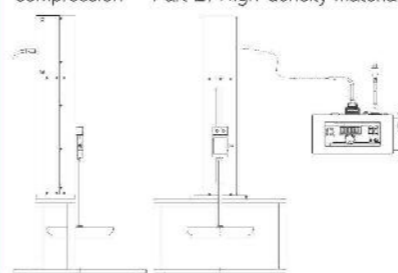
In Electric industry

Standard: **IEC249-1**  
Measurement abstract:  
Base materials for printed circuits. Part 1 : Test methods



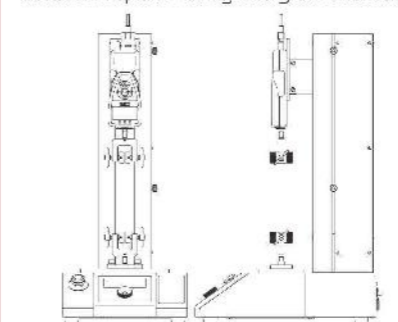
In Furniture industry

Standards: **ISO3386-1, ISO3386-2**  
Measurement abstract:  
(-1) Polymeric materials, cellular flexible -- Determination of stress-strain characteristics in compression -- Part 1: Low-density materials  
(-2) Flexible cellular polymeric materials -- Determination of stress-strain characteristics in compression -- Part 2: High-density materials



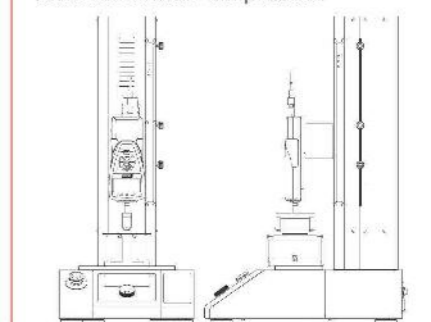
In Textile industry

Standard: **ISO13935-2**  
Measurement abstract:  
Textiles -- Seam tensile properties of fabrics and made-up textile articles -- Part 2: Determination of maximum force to seam rupture using the grab method



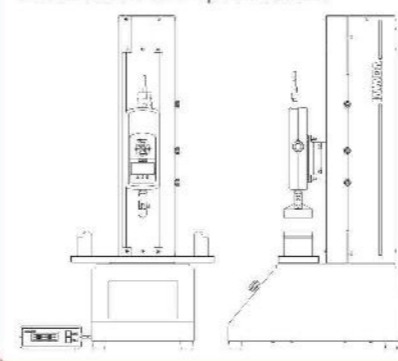
In Ceramic industry

Standard: **ISO 14704**  
Measurement abstract:  
Fine ceramics (advanced ceramics, advanced technical ceramics) -- Test method for flexural strength of monolithic ceramics at room temperature



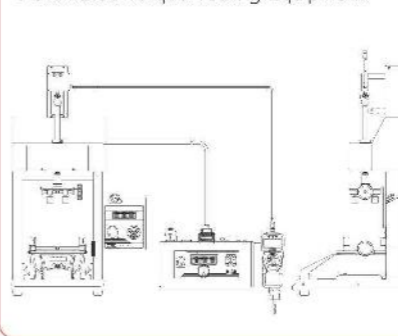
In Architecture industry

Standard: **ISO16894**  
Measurement abstract:  
Wood-based panels -- Oriented strand board (OSB) -- Definitions, classification and specifications



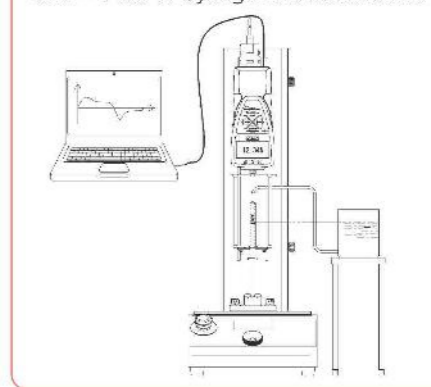
In Medicine industry

Standard: **ASTM D7860-14**  
Standard Test Methods for Measurement of Torque Retention for Child Resistant and Non-Child Resistant Packages with Continuous Thread Closures Using Automated Torque Testing Equipment



In Medical industry

Standard: **ISO7886-1**  
Measurement abstract:  
Sterile hypodermic syringes for single use -- Part 1 : Syringes for manual use



Standards are revised periodically, therefore, we will make a maximum effort to offer solution complying with the latest version, however, we may not catch up and we cannot to offer solution depending on what is revised.

FORCE MEASUREMENT  
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The further product information is on our  
Product and Service Site.

<https://www.forcegauge.net/en/>



Please visit our Corporate Site which introduce a  
wide range of information of force measurement.

<https://force-channel.com/en/>



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Agency