

FORCE MEASUREMENT IMADA Product Catalog

Force Gauges & Associated Equipment
DIGITAL FORCE GAUGE
MECHANICAL FORCE GAUGE
MOTORIZED TEST STAND
2025-4



Next Series

A group of upgraded measurement devices with new PCBs. Those devices under Next Series enable a variety of benefits online through the user support site.



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

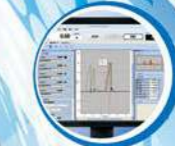
We provide a wide range of grips and fixture to meet your force measurement needs. One force gauge can be combined with various attachments to handle a wide range of force testing applications.



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.
- And more



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 MEASUREMENT IMADA

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The further product information is on our Product and Service Site.
<https://www.forcegauge.net/en/>

IMADA users support site provides various type of services for our customers.
<https://www.imada-connected.com/>

Please visit our Corporate Site which introduce a wide range of information of force measurement.
<https://force-channel.com/en/>

- The contents will be changed without any notices.
- We can custom design and manufacture to meet your particular requirements.
- Please feel free to contact us or our distributor for further information of our products.
- The colors and shapes might be slightly different from the actual products.
- We show specifications partially, so please see full specifications on our website or contact us before purchase.

Distributor

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The best force measurement solution by IMADA

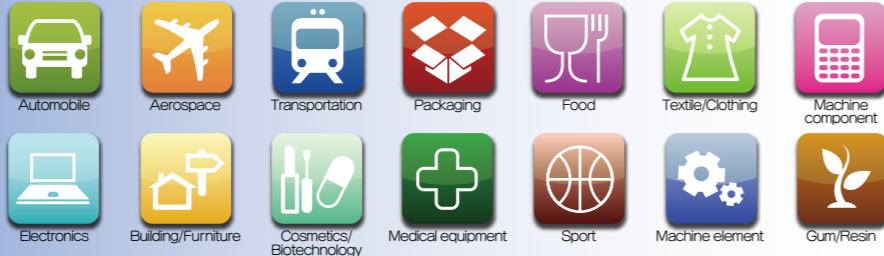
We are an expert of force measurement.

IMADA force gauges have been used worldwide for more than 75 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 $\text{Mass} \times \text{Acceleration} = \text{Force}$. 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.

75 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.

(Evolved to Next Series in 2021)

Before-sales services

Test Method Consulting

We provide the best measurement solution based on our 75 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 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



● Crashing 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 by hand

Compression and tension force can be easily measured.



For use as a tabletop testing machine

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



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.



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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.

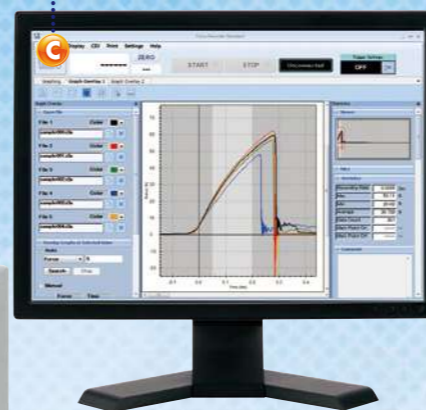


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C Software

Software draw graphs of the relationships between Force and Time or Force and Displacement. Utilize it for detailed analysis.

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D Test Stands

Test stands move a force gauge vertically or horizontally. It helps high-repeatability measurements by keeping the speeds and the angles.



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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.



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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
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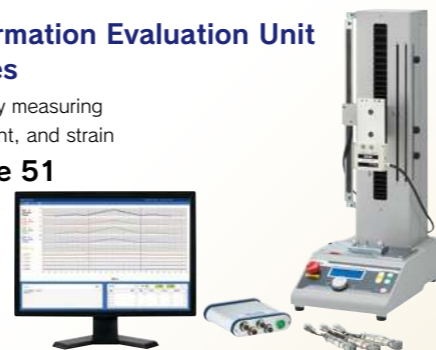
FSA Force-Displacement Analysis Unit

Easy graph drawing of force and displacement relationships
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Force-Deformation Evaluation Unit FSA-Q series

For simultaneously measuring force, displacement, and strain
To page 51



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

Texture Analyzer FRTS

Digitizing food texture such as stickiness, hardness and more



See "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 16

- 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 17

- 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 11~12

- 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 13~14

- 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 27

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



- This is the most economical model

PS To page 27

- 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 28

PSM To page 28

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



- This is the most accurate model with high resolution dial.

Digital force gauges

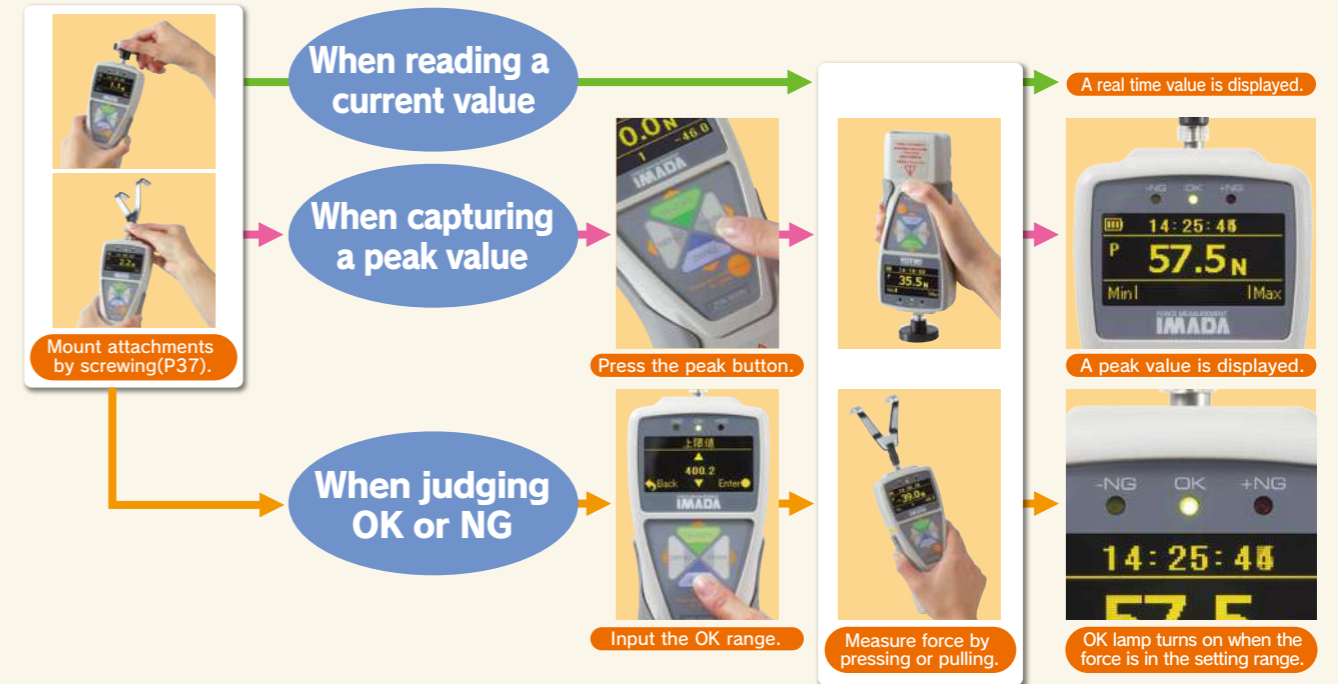
A digital force gauge has an internal sensor. It has 2 remarkable features; 1. Its digital indication prevents human reading error. 2. Easily manage or analyze test data with connecting it to a PC.



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

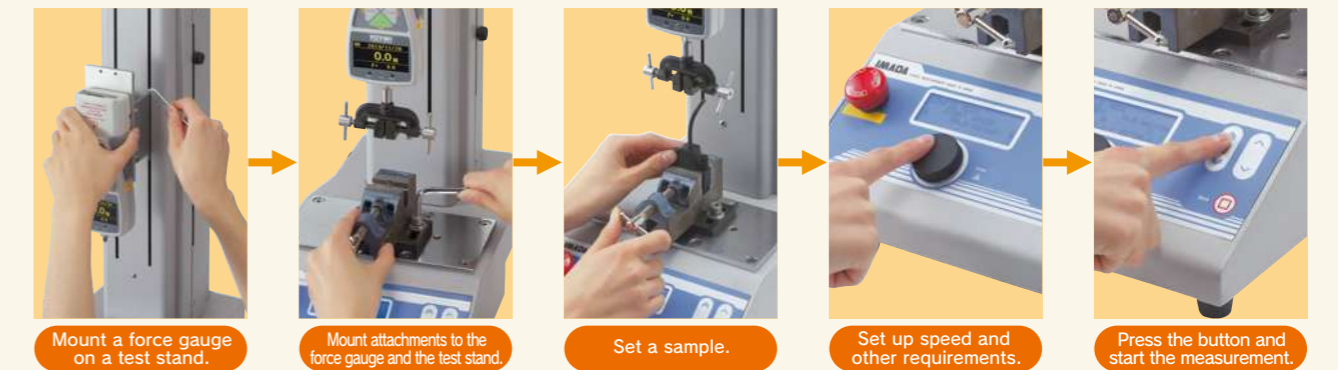
Simple Method

Easily measure force by hand.



Highly Repeatable Method

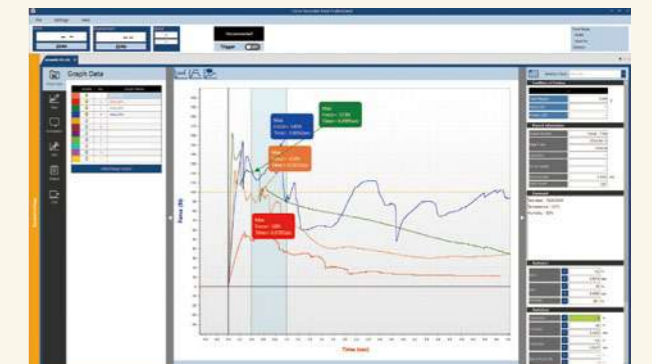
Combining a digital force gauge with a test stand (page 30), enables you to conduct a highly repeatable test since the test stand provides constant test speed and angle.



Graphing

With software (page 21), 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.





Next Series ~Continue to Evolve

Typified by ZT digital force gauge series and Force Recorder Next software series, Next Series is a generic term to describe the next generation models of IMADA measurement devices and software.

These devices under Next Series are equipped with new PCBs allowing them to avail various benefits on our user support website.

Especially additional functions downloadable on the site expand the usage scenes of the devices by improving efficiency or safety in measurement, and by enhancing the compatibility of test data.


Likewise Next Series software can be updated and add plug ins online, both of which are unable for CD versions. Thus, more advanced data management and analysis are realized.

IMADA, a solution provider in Force Measurement, increases both hard and software product line-ups to enable various measurements for more comprehensive requirements of each user.



Scan the QR code for the latest line-ups of the Next Series and additional functions



Refer to  for the Nest Series products in this catalogue (as of Apr 2025)

User Support Site
IMADA Connected



IMADA Connected

With your account and product registrations, You can download additional functions, software, operating manuals, etc. from this website.



<https://www.imada-connected.com/>

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

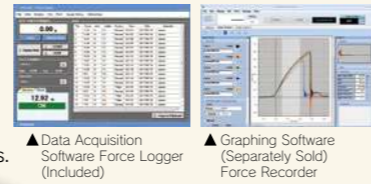
Size: Approx. W75×D34×H191mm
Weight: Approx. 490g

- Check Force Transition on Graphs
Data Graphing Software — To Page 21
- Connect with External Devices
Cable — To Page 25
- Improve Measuring Repeatability
Test Stands — To Page 30

Easy Data Management on PC

Data Acquisition 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.



Standard Type Model List

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	100.0N(10.00kgf)	
ZTS-200N	200N	200.0N(20.00kgf)	
ZTS-500N	500N	500.0N(50.00kgf)	
ZTS-1000N	1000N	1000N/1.000kN(100.0kgf)	

ZTS series specifications

Accuracy	+/-0.2%F.S. +/- 1 digit (Excepted 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	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
Operating environment	Temperature: 0 to +40 degree Celsius, Humidity: 20 to 80%RH
Output	USB, RS232C, ±2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/+NG), Overload alarm
Battery	6.5 hours (2 hours full re-charging)
Accessory	Attachments(*2), AC adapter, Inspection certificate, CD-driver(including simple software for data logging), USB cable, Carrying case.

*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 lbf units.
*2 Please refer to Page 37 for the detail of accessory attachments.
©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)	

ZTS series (Separated Sensor Model)



- 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 19 to 20.
* Sensor interchangeable model eZ-Connect (page 18) is recommended for those who change load cells.



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

- Check Force Transition on Graphs
Data Graphing Software — To Page 21
- Connect with External Devices
Cable — To Page 25
- Improve Measuring Repeatability
Test Stands — To Page 30
- Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB — To Page 26

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	100.0N	
ZTS-DPU-200N	200N	200.0N	
ZTS-DPU-500N	500N	500.0N	

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

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

©Please refer to Page 19 for the detail of load cell DPUH series

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) Next Series

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 continuous data.



ZTA has all the functions of ZTS(Page 11) 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] 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 36] can be used together to show displacement on a force gauge. Need an optional cable [Page 25] for that.

Measuring force-displacement with external facilities
Built-in linear scale [Page 26] can be used together with ZTA.



Force-displacement measurement unit FSA series



ZTA set

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

Data Saving to a USB Flash Drive

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



Check Force Transition on Graphs
Data Graphing Software ————— To Page 21

Connect with External Devices
Cable ————— To Page 25

Improve Measuring Repeatability
Test Stands ————— To Page 30

Apply Stable Force by Hand
Handle FOH-1 ————— To Page 46
Hand Grip Belt HGB-1 ————— To Page 46

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

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB ————— To Page 26

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 lbf units.
*2 Maximum 100 data/sec capturing series of data with a USB flash drive.
*3 A USB flash drive and a liner scale consume more battery. Thus, when you combine ZTA with the USB flash drive or the liner scale, the battery runs out faster.
*4 A USB flash drive is not included.
*5 Please refer to Page 37 for the detail of accessory attachments.
©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, ±2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/+NG), Overload alarm, Sub comparator 2 steps (output of large or small judgment), USB flash drive(*2), Displacement(*3)
Operating environment	Temperature: 0 to +40 degree Celsius, Humidity: 20 to 80%RH
Battery	6.5 hours (2 hours full re-charging)
Accessory(*4)	Attachments (*5), AC adapter, Inspection certificate, CD driver (including simple software for data logging), USB cable, Carrying case, Adaptor for USB flash drive.

ZTA series (High Capacity Model) Next Series

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



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 (250kgf)	2500N/2.500kN (250.0kgf)	M10
ZTA-5000N	5000N (500kgf)	5000N/5.000kN (500.0kgf)	

Check Force Transition on Graphs
Data Graphing Software ————— To Page 21

Improve Measuring Repeatability
Test Stands ————— To Page 30

Connect with External Devices
Cable ————— To Page 25

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

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB — To Page 26



ZTA series (Separated Sensor Model) Next Series



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 19 to 20.
* Sensor interchangeable model eZ-Connect (page 18) 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
Data Graphing Software ————— To Page 21

Connect with External Devices
Cable ————— To Page 25

Connect with a Linear Scale
Built-in Linear Scale Unit ————— To Page 26

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB ————— To Page 26

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 DPUH series [High capacity model])

Model	Capacity	Display	Thread
ZTA-DPUH-1000N	1000N	1000N (1.000kN)	M10
ZTA-DPUH-2000N	2000N	2000N (2.000kN)	
ZTA-DPUH-5000N	5000N	5000N (5.000kN)	
ZTA-DPUH-10kN	10kN	10.00kN	M18P1.5 Depth 22 (female screw)
ZTA-DPUH-20kN	20kN	20.00kN	

Please refer to Page 19 for the detail of load cell DPUH 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

Advanced Measurement Examples using ZT series

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 refer to page. 25 for the combinations.

following functions

Overload Stop Function

- Ⓞ A test stand stops when a force gauge senses too much force over its capacity.



STOP!

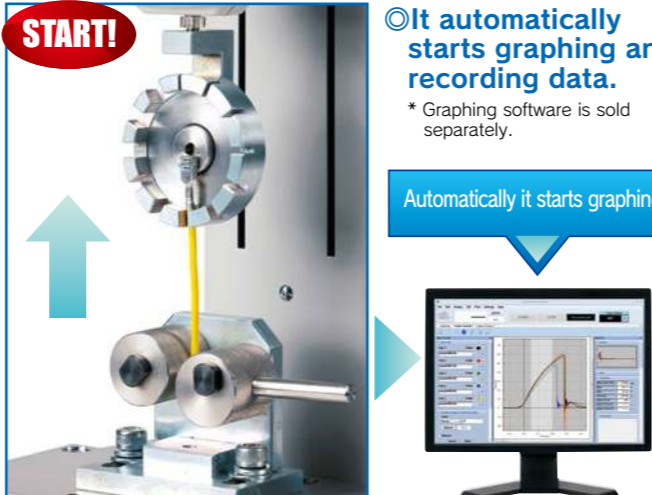
If the motorized stand goes beyond the overload value during its operation, it will not continue to operate.

Making Efficient

- Ⓞ It automatically starts graphing and recording data.

* Graphing software is sold separately.

Automatically it starts graphing.



START!

©It does not guarantee the entire prevention of the overload failures of the measuring instruments

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.



Affordable & Simple Type

DST Series

Covering measurement of low, medium force area, from 2N to 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



- 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

Compression / Tension compatible

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

Check force transition on graphs

Software ZLINK4 ————— To Page 24

Improve Measuring Repeatability

Test Stand ————— To Page 30

Apply Stable Force by Hand

Handle FOH-1 ————— To Page 46
Hand Grip Belt HGB-1 ————— To Page 46



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(gf), lbf (*1)
Display	4-digit
Sampling rate	1000Hz (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 to 40° C Humidity: 20 to 80% RH
Function	Peak hold (tension and compression)/Comparator (judgement of acceptance or rejection)/Setting sensitivity (3 Levels)/Reversible display/Reversible symbols/Setting lock/ Date time setting/Off timer/ Calibration time 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 adaptor/ 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 37 for the detail of accessory attachments.
Ⓞ Weight are slightly different by the ranges.
Ⓞ 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 to 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 16)

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 24

Improve Measuring Repeatability
Test Stand ————— To Page 30

Apply Stable Force by Hand
Handle FOH-1 ————— To Page 46
Hand Grip Belt HGB-1 ————— To Page 46

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(gf), lbf (*1)
Display	4-digit
Sampling rate	1000Hz (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 adaptor)
Operating environment	Temperature: 0 to 40° C Humidity: 20 to 80% RH
Function	Peak hold (tension and compression)/Comparator (judgement of acceptance or rejection)/Setting sensitivity(3 Levels)/Reversible display/Reversible symbols/Setting lock/ Date time setting/ Off timer/Calibration time notice/Tilt alarm/Continuous peak mode/Internal memory(1000 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 adaptor/ 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 37 for the detail of accessory attachments.
◎Weight are slightly different by the ranges.
◎Specifications for international models only.
◎Specifications for Japanese domestic models vary on 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 19 to 20 to connect with the amplifier. Available load cells have a mark **eZ**.
 - 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

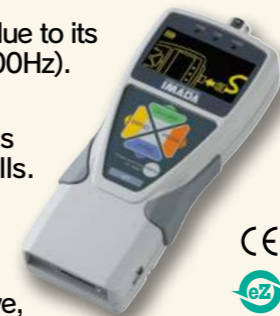
● Add "e" to model name of a load cell for eZ-Connect series as stated below.

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**
Data Graphing Software ————— To Page 21
- Connect with External Devices**
Cable ————— To Page 25

- Connect with a Linear Scale**
Built-in Linear Scale Unit ————— To Page 26
- Transmit Data Wirelessly**
Wireless Unit WL01-ADP/WL01-USB ————— To Page 26

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 19 to 20 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 interchangeable eZ-Connect series (no need for adjustment)
Unit of measurement	Depends on load cell and settings (N, kN, kgf, lbf, N-m, N-cm, kgf-m, kgf-cm, lbf-in, ozf-in) (*1)	Depends on load cell and settings (N, kN, kgf, lbf, N-m, N-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 or NG), Display of AD value, Reversible display, 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, setting lock	Customized display (header and footer), Peak hold (tension and compression), Comparator (judgment of OK or NG), Display of AD value, Reversible display, 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, setting lock
Output	RS232C (baud rate available from 57600bps to 9600bps), USB, ±2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/+NG), Overload alarm, Sub comparator 2 steps (output of large or small judgment), USB flash drive, Displacement.	RS232C (baud rate available from 57600bps to 9600bps), USB, ±2 VDC analog output (D/A), Comparator 3 steps (-NG/OK/+NG), Overload alarm, Sub comparator 2 steps (output of large or small judgment), USB flash drive, Displacement.
Accessories	AC adaptor (only for standard model), Force Logger (software for data logging), USB cable, Adaptor for USB flash drive (*2), Instruction manual	AC adaptor (only for standard model), Force Logger (software for data logging), USB cable, Adaptor 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

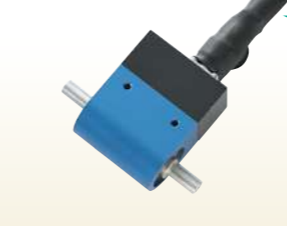
<p>for Compression and Tension</p> <p>Standard Type DPU series</p>  <p>Mountable to IMADA test stands or other equipment by screwing in the threaded holes. Various attachments can be also installed to the load cell.</p> <table border="1"> <tr><td>Capacity</td><td>2N to 500N</td></tr> <tr><td>Accuracy</td><td>±0.2%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W58×D21×H71 to W72×D21×H73mm</td></tr> <tr><td>Measuring Shaft</td><td>Male Screw M6P1.0</td></tr> </table>	Capacity	2N to 500N	Accuracy	±0.2%F.S. or less	Size	Approx. W58×D21×H71 to W72×D21×H73mm	Measuring Shaft	Male Screw M6P1.0	<p>for Compression and Tension</p> <p>High Capacity Type DPUH series</p>  <p>Mountable to IMADA test stands or other equipment by screwing in the threaded holes. Various attachments can be also installed to the load cell.</p> <table border="1"> <tr><td>Capacity</td><td>1000N to 20kN</td></tr> <tr><td>Accuracy</td><td>±0.25%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W58×D26×H130 to W88×D42×H155mm</td></tr> <tr><td>Measuring Shaft</td><td>1000N to 5000N: Male Screw M10P1.5 *1 10kN to 20kN: N/A*2</td></tr> </table> <p>*1 A female screw M12 P1.75 is available by removing the measuring shaft. *2 DPUH-10kN/20kN equips a female screw M18 P1.5.</p>	Capacity	1000N to 20kN	Accuracy	±0.25%F.S. or less	Size	Approx. W58×D26×H130 to W88×D42×H155mm	Measuring Shaft	1000N to 5000N: Male Screw M10P1.5 *1 10kN to 20kN: N/A*2	<p>for Compression and Tension</p> <p>Water proof and Dust-proof Type SW1 series</p>  <p>Designed with threaded holes on both ends, allowing for secure mounting and the attachment of eyebolt for measurement.</p> <table border="1"> <tr><td>Capacity</td><td>100N to 500N</td></tr> <tr><td>Accuracy</td><td>±0.5%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W40×D20×H40mm</td></tr> <tr><td>Thread</td><td>Male Screw M6P1.0 to M10P1.5 (Depends on the model)</td></tr> </table> <p>Please contact us for the measuring shaft.</p>	Capacity	100N to 500N	Accuracy	±0.5%F.S. or less	Size	Approx. W40×D20×H40mm	Thread	Male Screw M6P1.0 to M10P1.5 (Depends on the model)	<p>for Compression and Tension</p> <p>Water proof and Dust-proof Type SW3 series</p>  <p>Designed with threaded holes on both ends, capable of measuring high force up to 20 kN.</p> <table border="1"> <tr><td>Capacity</td><td>20kN</td></tr> <tr><td>Accuracy</td><td>±0.5%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W80×D25×H80mm</td></tr> <tr><td>Thread</td><td>Female Screw M16P2.0</td></tr> </table> <p>Please contact us for the male thread.</p>	Capacity	20kN	Accuracy	±0.5%F.S. or less	Size	Approx. W80×D25×H80mm	Thread	Female Screw M16P2.0
Capacity	2N to 500N																																		
Accuracy	±0.2%F.S. or less																																		
Size	Approx. W58×D21×H71 to W72×D21×H73mm																																		
Measuring Shaft	Male Screw M6P1.0																																		
Capacity	1000N to 20kN																																		
Accuracy	±0.25%F.S. or less																																		
Size	Approx. W58×D26×H130 to W88×D42×H155mm																																		
Measuring Shaft	1000N to 5000N: Male Screw M10P1.5 *1 10kN to 20kN: N/A*2																																		
Capacity	100N to 500N																																		
Accuracy	±0.5%F.S. or less																																		
Size	Approx. W40×D20×H40mm																																		
Thread	Male Screw M6P1.0 to M10P1.5 (Depends on the model)																																		
Capacity	20kN																																		
Accuracy	±0.5%F.S. or less																																		
Size	Approx. W80×D25×H80mm																																		
Thread	Female Screw M16P2.0																																		
<p>for Compression and Tension</p> <p>Extra Small Type SCX series</p>  <p>The load cell with an extra compact body and threaded holes on both ends, ideal for measurements in extremely small spaces and for integration into equipment and machinery.</p> <table border="1"> <tr><td>Capacity</td><td>100N to 2000N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W16×D12×H19.1mm</td></tr> <tr><td>Thread</td><td>Female Screw M6</td></tr> </table>	Capacity	100N to 2000N	Accuracy	±1.0%F.S. or less	Size	Approx. W16×D12×H19.1mm	Thread	Female Screw M6	<p>for Compression and Tension</p> <p>Extra Small Type LMU series</p>  <p>Extra small type load cell capable of attaching an attachment the measuring shaft (male thread part) for measurements.</p> <table border="1"> <tr><td>Capacity</td><td>50N to 500N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ18×H25mm</td></tr> <tr><td>Measuring Shaft</td><td>Male Screw M5P0.8 *1</td></tr> </table> <p>*1 Conversion adaptor CA-F5T6 (Page 47) is required when M6 screw attachments mounting on the load cell.</p>	Capacity	50N to 500N	Accuracy	±1.0%F.S. or less	Size	Approx. Φ18×H25mm	Measuring Shaft	Male Screw M5P0.8 *1	<p>for Compression and Tension</p> <p>Small Type LU series</p>  <p>Compact load cell with threaded holes on both sides. It can be fixed using the female threads or used for measurements by connecting eyebolts.</p> <table border="1"> <tr><td>Capacity</td><td>100N to 2000N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ28×H35mm</td></tr> <tr><td>Thread</td><td>Female Screw M8P1.25 *1</td></tr> </table> <p>*1 Conversion adaptor CA-8T6 (for M6 screw)/CA-8T10 (for M10 screw) (Page 47) is required when M6/M10 screw attachments mounting on the load cell.</p>	Capacity	100N to 2000N	Accuracy	±1.0%F.S. or less	Size	Approx. Φ28×H35mm	Thread	Female Screw M8P1.25 *1	<p>for Compression and Tension</p> <p>Pen Type PN-50N</p>  <p>Ideal for operativity test of small samples such as parts and switch. Various attachments can be attached to the measuring shaft (threaded part) of the load cell.</p> <table border="1"> <tr><td>Capacity</td><td>50N</td></tr> <tr><td>Accuracy</td><td>±2.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ20×H90mm</td></tr> <tr><td>Measuring Shaft</td><td>Male Screw M6P1.0</td></tr> </table>	Capacity	50N	Accuracy	±2.0%F.S. or less	Size	Approx. Φ20×H90mm	Measuring Shaft	Male Screw M6P1.0
Capacity	100N to 2000N																																		
Accuracy	±1.0%F.S. or less																																		
Size	Approx. W16×D12×H19.1mm																																		
Thread	Female Screw M6																																		
Capacity	50N to 500N																																		
Accuracy	±1.0%F.S. or less																																		
Size	Approx. Φ18×H25mm																																		
Measuring Shaft	Male Screw M5P0.8 *1																																		
Capacity	100N to 2000N																																		
Accuracy	±1.0%F.S. or less																																		
Size	Approx. Φ28×H35mm																																		
Thread	Female Screw M8P1.25 *1																																		
Capacity	50N																																		
Accuracy	±2.0%F.S. or less																																		
Size	Approx. Φ20×H90mm																																		
Measuring Shaft	Male Screw M6P1.0																																		
<p>for Compression</p> <p>Coin Shaped Type LM series</p>  <p>Coin-shaped load cell that can be inserted into narrow spaces. Compressive force is applied to the protruding part of the tip to measure.</p> <table border="1"> <tr><td>Capacity</td><td>10N to 20kN</td></tr> <tr><td>Accuracy</td><td>10N to 10kN: ±2.0%F.S. or less 20kN: ±3.5%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ12×H4 to Φ21×H10mm</td></tr> </table>	Capacity	10N to 20kN	Accuracy	10N to 10kN: ±2.0%F.S. or less 20kN: ±3.5%F.S. or less	Size	Approx. Φ12×H4 to Φ21×H10mm	<p>for Compression</p> <p>High Accuracy Type LC series</p>  <p>High accuracy type coin-shaped load cell that can be inserted into narrow spaces. Compressive force is applied to the protruding part of the tip to measure.</p> <table border="1"> <tr><td>Capacity</td><td>500N to 20kN</td></tr> <tr><td>Accuracy</td><td>±0.5%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ50×H25mm</td></tr> </table>	Capacity	500N to 20kN	Accuracy	±0.5%F.S. or less	Size	Approx. Φ50×H25mm	<p>for Compression</p> <p>Extra Small Type CFX series</p>  <p>Compact compression load cell with large force-receiving area. It can be integrated into facilities using the female threaded part.</p> <table border="1"> <tr><td>Capacity</td><td>20N to 200N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ15×H9mm</td></tr> <tr><td>Thread</td><td>Female Screw M2</td></tr> </table> <p>Attaching FBO-CFX (Page 46) enables measurement of the operating force by fixing the load cell to the fingertip.</p>	Capacity	20N to 200N	Accuracy	±1.0%F.S. or less	Size	Approx. Φ15×H9mm	Thread	Female Screw M2	<p>for Compression</p> <p>Thin and Flat Type CLFX series</p>  <p>Thin and flat type compression load cell with large force-receiving area. Extra-thin and can be inserted into narrow spaces. Equipped with threaded holes.</p> <table border="1"> <tr><td>Capacity</td><td>50N to 500N</td></tr> <tr><td>Accuracy</td><td>±2.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ20×H6mm</td></tr> <tr><td>Thread</td><td>Female Screw M2</td></tr> </table>	Capacity	50N to 500N	Accuracy	±2.0%F.S. or less	Size	Approx. Φ20×H6mm	Thread	Female Screw M2				
Capacity	10N to 20kN																																		
Accuracy	10N to 10kN: ±2.0%F.S. or less 20kN: ±3.5%F.S. or less																																		
Size	Approx. Φ12×H4 to Φ21×H10mm																																		
Capacity	500N to 20kN																																		
Accuracy	±0.5%F.S. or less																																		
Size	Approx. Φ50×H25mm																																		
Capacity	20N to 200N																																		
Accuracy	±1.0%F.S. or less																																		
Size	Approx. Φ15×H9mm																																		
Thread	Female Screw M2																																		
Capacity	50N to 500N																																		
Accuracy	±2.0%F.S. or less																																		
Size	Approx. Φ20×H6mm																																		
Thread	Female Screw M2																																		

* The model code varies according to the capacity. For more details, please refer to the specifications from the QR code or contact us.

<p>for Compression</p> <p>Washer Type CHX series</p>  <p>Ideal for press-fit force measurement due to the washer (through hole) design. It measures press-fit force by pushing in a rod-shaped sample through a part.</p> <table border="1"> <tr><td>Capacity</td><td>100N to 2000N</td></tr> <tr><td>Accuracy</td><td>100N to 500N: ±2.0%F.S. or less 2000N: ±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>100N to 500N: Approx. Φ25×H7.1mm 2000N: Approx. Φ30×H14mm</td></tr> </table>	Capacity	100N to 2000N	Accuracy	100N to 500N: ±2.0%F.S. or less 2000N: ±1.0%F.S. or less	Size	100N to 500N: Approx. Φ25×H7.1mm 2000N: Approx. Φ30×H14mm	<p>for Tension</p> <p>High Capacity Type ZU series</p>  <p>Load cell with rod ends on both sides. It can measure tensile force by attaching hardware such as carabiners.</p> <table border="1"> <tr><td>Capacity</td><td>10kN to 20kN</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ30×210 to Φ50×234mm</td></tr> </table> <p>By removing the rod end, male screws (10kN: M12, 20kN: M14) can be used.</p>	Capacity	10kN to 20kN	Accuracy	±1.0%F.S. or less	Size	Approx. Φ30×210 to Φ50×234mm	<p>Special Use Load Cell</p> <p>Door Tester DM-2000N</p>  <p>Exclusively for measuring closing force of automatic doors and revolving doors. It measures force by making the blue sensor part touch a closing door.</p> <table border="1"> <tr><td>Capacity</td><td>2000N</td></tr> <tr><td>Accuracy</td><td>±2.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W94×D66×H380mm</td></tr> </table> <p>Complies with the corresponding part of BS EN 12453 (2017) "Industrial, commercial and garage doors and gates - safety in use of power operated doors - requirements and test methods", JIS A 4722 (2017) "Power operated pedestrian doorsets - Safety"</p>	Capacity	2000N	Accuracy	±2.0%F.S. or less	Size	Approx. W94×D66×H380mm	<p>Special Use Load Cell</p> <p>Closing Force of Car Windows SKM-1000N</p>  <p>Exclusively for automatic closing force of car windows. Put the load cell between window and its frame to measure the closing force.</p> <table border="1"> <tr><td>Capacity</td><td>1000N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W70×D50×H32mm</td></tr> </table> <p>This product is united to the indicator. The united model: ZTS-SKM-1000N/ZTA-SKM-1000</p>	Capacity	1000N	Accuracy	±1.0%F.S. or less	Size	Approx. W70×D50×H32mm
Capacity	100N to 2000N																										
Accuracy	100N to 500N: ±2.0%F.S. or less 2000N: ±1.0%F.S. or less																										
Size	100N to 500N: Approx. Φ25×H7.1mm 2000N: Approx. Φ30×H14mm																										
Capacity	10kN to 20kN																										
Accuracy	±1.0%F.S. or less																										
Size	Approx. Φ30×210 to Φ50×234mm																										
Capacity	2000N																										
Accuracy	±2.0%F.S. or less																										
Size	Approx. W94×D66×H380mm																										
Capacity	1000N																										
Accuracy	±1.0%F.S. or less																										
Size	Approx. W70×D50×H32mm																										
<p>Special Use Load Cell</p> <p>Handbrakes Force of Two-Wheelers PK1-500N</p>  <p>Motorcycle brake lever load cell is specially designed to measure the force to grip the handbrake of two-wheelers. Measure the operating force of the handbrake.</p> <table border="1"> <tr><td>Capacity</td><td>500N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W100×D25×H24mm</td></tr> </table>	Capacity	500N	Accuracy	±1.0%F.S. or less	Size	Approx. W100×D25×H24mm	<p>Special Use Load Cell</p> <p>Foot Brakes Force of Cars PK2-1500N</p>  <p>Load cell for measuring the force applied to the car's foot brake. Clip a load cell onto a pedal and step them on together to measure force.</p> <table border="1"> <tr><td>Capacity</td><td>1500N</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. W50×D70×H28mm</td></tr> </table>	Capacity	1500N	Accuracy	±1.0%F.S. or less	Size	Approx. W50×D70×H28mm	<p>For Torque(only for eZ-connect)</p> <p>Torque Load Cell eHT series</p>  <p>Load cell for torque measurement (rotating/twisting force). The optional jig is attached to the tip of the sensor to match the object to be measured.</p> <table border="1"> <tr><td>Capacity</td><td>0.5N-m to 10N-m</td></tr> <tr><td>Accuracy</td><td>±0.5%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ38×183mm</td></tr> </table> <p>Please see another torque catalog for the details of the attachments.</p>	Capacity	0.5N-m to 10N-m	Accuracy	±0.5%F.S. or less	Size	Approx. Φ38×183mm	<p>For Torque(only for eZ-connect)</p> <p>Flange Type Torque Load Cell eTFX series</p>  <p>Flange type torque load cell measures the twisting (turning) force. Ideal for integration to equipment or machinery by fixing it with its equipped through holes on both sides.</p> <table border="1"> <tr><td>Capacity</td><td>5N-m to 10N-m</td></tr> <tr><td>Accuracy</td><td>±1.0%F.S. or less</td></tr> <tr><td>Size</td><td>Approx. Φ35×28mm</td></tr> </table>	Capacity	5N-m to 10N-m	Accuracy	±1.0%F.S. or less	Size	Approx. Φ35×28mm
Capacity	500N																										
Accuracy	±1.0%F.S. or less																										
Size	Approx. W100×D25×H24mm																										
Capacity	1500N																										
Accuracy	±1.0%F.S. or less																										
Size	Approx. W50×D70×H28mm																										
Capacity	0.5N-m to 10N-m																										
Accuracy	±0.5%F.S. or less																										
Size	Approx. Φ38×183mm																										
Capacity	5N-m to 10N-m																										
Accuracy	±1.0%F.S. or less																										
Size	Approx. Φ35×28mm																										

For Torque(only for eZ-connect)

Rotating Torque Load Cell eRT-5N



Load cell for measuring torque during continuous rotation.

Capacity	5N-m
Accuracy	±1.0 %F.S. or less
Size	Approx. 85×32×62mm

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 ■ ●

- : Protection rating against solid foreign objects
- : Protection rating against water

(Some IMADA load cells are rated with IP67 /65/ 64.)

IP 6 7 — Protected from immersion in water under the specified time and water pressure (depth).

IP 6 5 — Protected against water jets from any direction.

IP 6 4 — Protected against water splashed from any direction.

— No ingress of dust (Refers to IEC 60529; 2001)

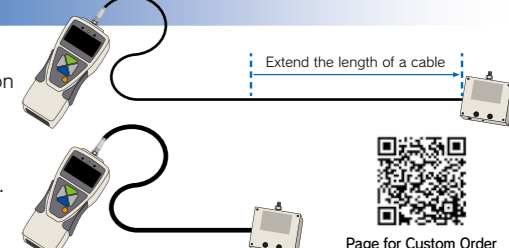
Only the load cell part is rated with IP. Its amplifier (indicator), connecting parts, and connector parts do not comply with IP.

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 them for some models. Please contact us for further information.



Page for Custom Order

* Load cells with eZ can be combined with eZ-Connect series amplifier. Put "e" at the head of a load cell model for eZ-Connect to tell it apart from normal model. Please see the page 18 for details.
* The model code varies according to the capacity. For more details, please refer to the specifications from the QR code or contact us

Data Acquisition and Graphing 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.

Software Lists

Downloadable Software

Software	Purpose	Compatible model	Max. Data Transfer Speed	Specification Sheet
Force Recorder Next Standard	For Force-Time Graph	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 2000Hz	
Force Recorder Next Professional	For Force-Time Graph and Force-Displacement Graph *1	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 2000Hz	
Force Logger Next	For Data Acquisition to PC (Not available for drawing a graph)	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, DST To Page 16, DSV To Page 17, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 10Hz	

CD version Software

Software	Purpose	Compatible model	Max. Data Transfer Speed	Specification Sheet
Force Recorder Light	For Force-Time Graph (Moderate-priced edition with limited functions)	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 2000Hz	
Force Recorder Standard	For Force-Time Graph	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 2000Hz	
Force Recorder Professional	For Force-Time Graph and Force-Displacement Graph *1	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 2000Hz	
Force Recorder Plus	For Force-Time Graph (for simultaneous data graphing of multiple gauges up to 4 pcs)	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 1000Hz	
Force Logger Plus	For Data Acquisition to PC (for simultaneous data acquisition from multiple gauges up to 4 pcs) (Not available for drawing a graph)	ZTS To Page 11, ZTA To Page 13, eZT To Page 18, FA Plus2 To Page 18, DST To Page 16, DSV To Page 17, HTGS/HTGA(-TFX/RT) See a torque catalog., DTXS/DTXA See a torque catalog.	Max. 10Hz	
ZLINK4	For Force-Time Graph	DST To Page 16, DSV To Page 17	Max. 50Hz	

Comparison Table

Software	Force Recorder Next Standard	Force Recorder Next Professional	Force Logger Next	Force Recorder Light	Force Recorder Standard	Force Recorder Professional	Force Recorder Plus	Force Logger Plus	ZLINK4
Graphing	Force-Time	Force-Time Force-Displacement *1	N/A	Force-Time	Force-Time	Force-Time Force-Displacement *1	Force-Time	N/A	Force-Time
Max data transfer speed	2000 data/sec	2000 data/sec	10 data/sec	2000 data/sec	2000 data/sec	2000 data/sec	1000 data/sec	10 data/sec	50 data/sec
Max recording data point	7.2 million	7.2 million	65 thousand	7.2 million	7.2 million	7.2 million	300 thousand	65 thousand	7.2 million
Displacement output	N/A	✓	✓ (Data acquisition only)	N/A	N/A	✓	N/A	✓ (Data acquisition only)	N/A
Preset function	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Graph overlay function	✓ (Max. 10 graphs)	✓ (Max. 10 graphs)	N/A	N/A	✓ (Max. 5 graphs)	✓ (Max. 5 graphs)	✓ (Max. 10 graphs)	N/A	N/A
Reference graph	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trigger function	✓	✓	N/A	N/A	✓	✓	✓	N/A	✓
Guideline function	✓	✓	N/A	N/A	✓	✓	N/A	N/A	N/A
Graph scaling	✓	✓	N/A	✓	✓	✓	✓	N/A	✓
Statistical calculation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Selection data setting	✓	✓	N/A	✓	✓	✓	✓	N/A	N/A
Image and Comment	✓	✓	✓ (Comment only)	✓ (Comment only)	✓ (Comment only)	✓ (Comment only)	N/A	N/A	✓ (Comment only)
Save file/Print	✓	✓	✓	✓	✓	✓	✓	✓	✓
CSV file converting	✓	✓	✓	✓	✓	✓	✓	✓	✓
Export function (PDF/Word/Excel)	✓	✓	N/A	✓	✓	✓	✓	N/A	✓
Force gauge setting	✓	✓	✓	✓	✓	✓	✓	✓	✓
Managing force gauge	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	N/A
Operator management	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A
Additional function downloads	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A

* To use downloadable software, user & product registration on IMADA Connected and downloading the software are required. Only Next series products with firmware version 5.00 or later are available for the product registration. After downloading, it can be also connected to and used with compatible models with earlier version firmware. An internet connection is required in process of user & product registration and downloading the software.
 * Any DSV or DSTs are NOT applicable for Next series, however, DST/V with firmware Ver. 1.02 or later can be registered on IMADA Connected. By registration, Force Logger Next can be downloaded.
 * An internet connection is required to download additional functions. Available additional functions differ depending on the software. Please refer to our website or contact us for details.
 * For information on the operating environment of each software, please refer to the specifications on our website or contact us.

*1 To create force-displacement graph, it is necessary to connect a force gauge with displacement input/output functionality to a built-in linear scale unit (measuring test stand with linear scale) using a dedicated cable.

Data Acquisition and Graphing Software (Download version)

Downloadable Graphing Software Force Recorder Next Standard Force Recorder Next Professional



* With ZTS series, HTGS series, and DTXS series, force/torque-displacement/angle graph is not available.

Supports precise graphing and comprehensive data analysis

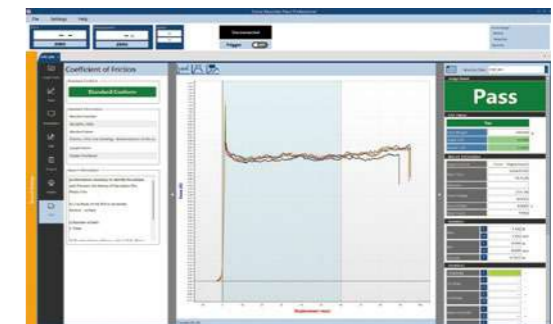
Force Recorder Next series is a downloadable graphing software that records data with high precision, based on data acquired through high-speed communication at up to 2000Hz. The Standard version allows for drawing force-time graph, while the Professional version enables drawing both force(torque)-time and force(torque)-displacement(angle) graphs. Purchase a download card and input the redemption code printed on the card into IMADA Connected to download.*1

Efficient Measurement Data Analysis



- Offers a wide range of graph viewing functions, such as overlaying up to 10 graphs, to support analysis.
- With the preset function, measurement conditions and graph viewing features do not need to be set each time, enabling efficient measurement and analysis.

Download Additional Function



- Various additional functions, such as the ability to automatically convert measurement results into peel units and friction coefficients, can be downloaded from IMADA Connected (some functions are paid).



IMADA Connected

Downloadable Data Acquisition Software Force Logger Next



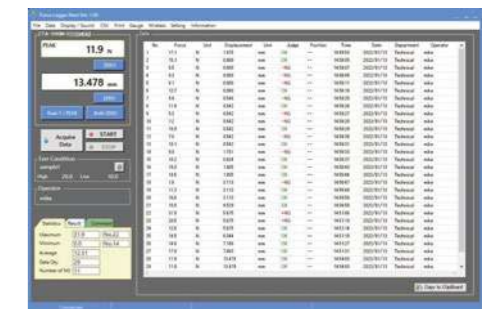
Easily Data Management on PC

Efficient management of measurement data

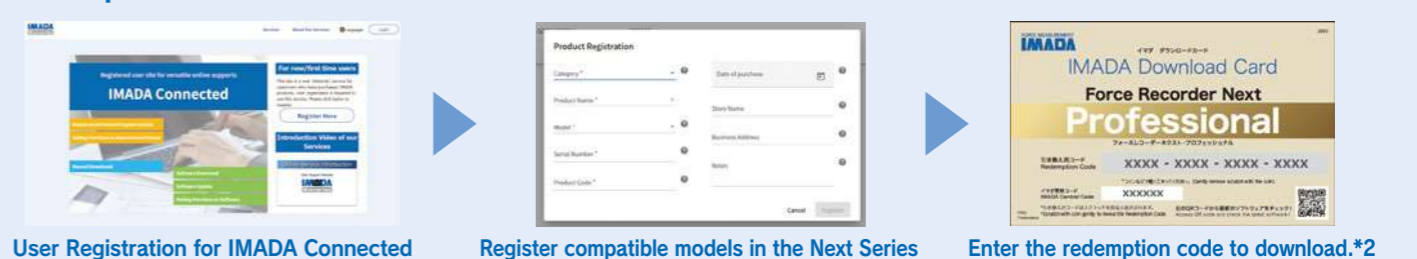
- Import measurement data onto PC and display pass/fail judgements and statistic.

Available for free download

- By signing up on IMADA Connected and registering compatible models in the Next Series, you can download for free.*1



Steps to Download the Software



*1 To use the downloadable software, you need to register as a user on IMADA Connected and register a compatible model from the Next series with firmware version 5.00 or later. (Force Logger Next is also compatible with DST and DSV models with firmware version 1.02 or later). After downloading, it can be also connected to and used with compatible models with earlier version firmware. Please note that an internet connection is required for all registrations and software downloads.
 *2 Force Logger Next can be downloaded without a redemption code.



Force Recorder Light

Force-Time Graphing Software

Moderated Price Model

Compatible models

- ZTS to Page 11
- ZTA to Page 13
- eZT to Page 18
- FA Plus2 To Page 18
- HTGS/HTGA(-TFX/RT) See a torque catalog.
- DTXS/DTXA See a torque catalog.

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.




Force Recorder Standard

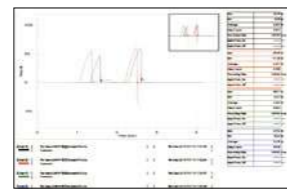
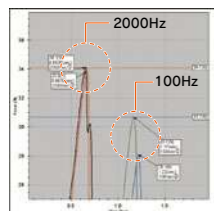
Force-Time Graphing Software

Compatible models

- ZTS to Page 11
- ZTA to Page 13
- eZT to Page 18
- FA Plus2 To Page 18
- HTGS/HTGA(-TFX/RT) See a torque catalog.
- DTXS/DTXA See a torque catalog.

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.




Force Recorder Professional

Force-Displacement Graphing Software

Compatible models

- ZTS to Page 11
- ZTA to Page 13
- eZT to Page 18
- FA Plus2 To Page 18
- HTGS/HTGA(-TFX/RT) See a torque catalog.
- DTXS/DTXA See a torque catalog.

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 26) or test stand with inbuilt linear scale (FA model) (Page 36) together with force gauge.*1
 - FSA series (Page 49) include this software.
- **Professional is basically the same as Standard in performance&function**



*1 Connecting force gauge and a torque gauge with displacement output functionality is required. With ZTS series, force-displacement graph is not available. With HTGS series and DTXS series, torque-angle graph is not available.



Force Recorder Plus

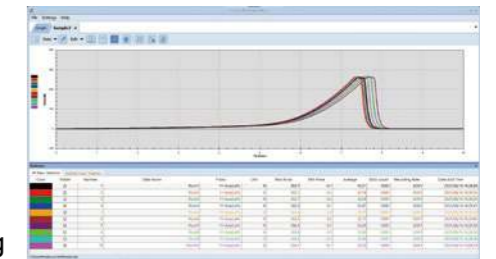
Multiple gauges Force-Time Graphing Software

Compatible models

- ZTS to Page 11
- ZTA to Page 13
- eZT to Page 18
- FA Plus2 To Page 18
- HTGS/HTGA(-TFX/RT) See a torque catalog.
- DTXS/DTXA See a torque catalog.

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




Force Logger Plus

Multiple Gauges Managing Software

Compatible models

- ZTS to Page 11
- ZTA to Page 13
- eZT to Page 18
- FA Plus2 To Page 18
- DST to Page 16
- DSV to Page 17
- HTGS/HTGA(-TFX/RT) See a torque catalog.
- DTXS/DTXA See a torque catalog.

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.



* The wire less Unit(P26) is available only for Ver.1.10 and later. Force Logger is available with Ver.2.10 and later.



ZLINK4

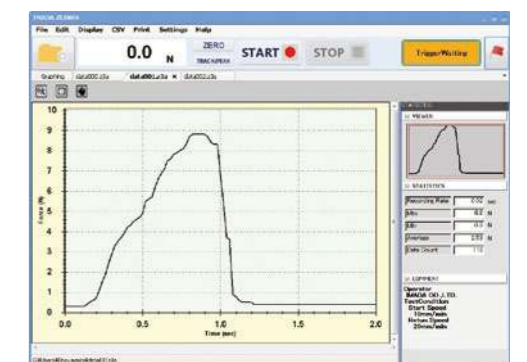
Force-Time Graphing Software for DST/DSV

Compatible models

- DST to Page 16
- DSV to Page 17

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.



Cables

Cables expand the functionality of digital force gauges and test stands.



To Page 13 To Page 11 To Page 18 To Page 17 To Page 16 To Page 18

The Cables to Connect a Force Gauge to an External Devices

RS232C cable Enables data recording and operation from external devices such as PLC.	CB-208 (9-pin) Length: Approx. 3m	CB-208 (9-pin) Length: Approx. 3m	CB-208 (9-pin) Length: Approx. 3m	CB-203 (9-pin) Length: Approx. 3m	CB-203 (9-pin) Length: Approx. 3m	CB-208 (9-pin) Length: Approx. 3m
Analog cable Connects to analog devices and output the voltage. *CB-118 works for "-AN" option. *1	CB-108 Length: Approx. 3m	CB-108 Length: Approx. 3m	CB-108 Length: Approx. 3m			CB-108 Length: Approx. 3m
Open End cable A cable with all input/output functions of the compatible model connectors.	CB-908 Length: Approx. 3m	CB-908 Length: Approx. 3m	CB-908 Length: Approx. 3m			CB-908 Length: Approx. 3m
Cable with Terminal Block A cable with all input/output functions of the compatible model connectors.	CTB-A Length: Approx. 1m	CTB-A Length: Approx. 1m	CTB-A Length: Approx. 1m			CTB-A Length: Approx. 1m
External Contact Point cable Enables you to measure external contact points.	CB-808 Length: Approx. 3m	CB-808 Length: Approx. 3m	CB-808 Length: Approx. 3m			CB-808 Length: Approx. 3m

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

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

The Cable to Connect a Test Stand to an External Device

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

*1 ZTS/A 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 15
(A test stand stops when a force gauge senses force beyond its capacity(overload stop function). It does not guarantee the entire prevention of the overload failures of the measuring instruments.
*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.
*6 CB-308 are required to connect Mitutoyo Digimatic Mini Processor to ZTS/A series (earlier than Ver.5.00).



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	
Adapter which connected to force gauge to send data	
Model	
WL01-ADP	
Compatible Models *2	ZTA/ZTS(Separated Sensor Models Included)eZT, FA Plus2, eFA Plus2, DTXA/DTXS, HTGA/HTGS, HTGA/HTGS-TFX
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

USB Wireless Receiver	
Receiver which connected to PC to receive data	
Model	
WL01-USB	
Compatible Software *3	Force Logger (Attachment, available from the Ver. 2.10 later) Force Logger Plus (Sold Separately, available from Ver. 1.10 later)
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

*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: 4 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(P13) series/eZT(P18) 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)	254X25	454X25	654X25	954X25
Fixing screw	M4	M4	M4	M4

* Select from 37 pin connector or cable without connector.

RS232C Printer BL2-58 series

RS232C printer is connected to a digital force gauge to print measurement data.

Model *1	BL2-58SNWJQ (for Japan)	BL2-58SNWQG (for EU countries)
Printing method	Direct line thermal	
Compatible models	ZTS/ZTA/eZT/FA Plus2/eFA Plus2/HTGS/HTGA/DTXS/DTXA series/ACT-1000N	

*1 BL2-58 series can be sold to customers in Japan and EU markets only.
*2 Data output from ZTS/ZTA/eZT/FA Plus2/eFA Plus2/HTGS/HTGA/DTXS/DTXA series to RS232C printer is supported only for products with firmware Ver. 3.10 or later; For Next Series products, "RS232C Print Function" must be installed via network.
- The packages of RS232C printer BL2-58 series and a dedicated cable are also available, please refer to the specifications from the QR code or contact us



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-504 if CB-204 and CB-501 are required to use at the same time.

Customized Cable Examples

- **Extension of cable length**
- **Sprit Cable**
- **Change in connector shape**

Example: sprit cable for connecting a measuring instrument simultaneously to a motorized test stand and external equipment



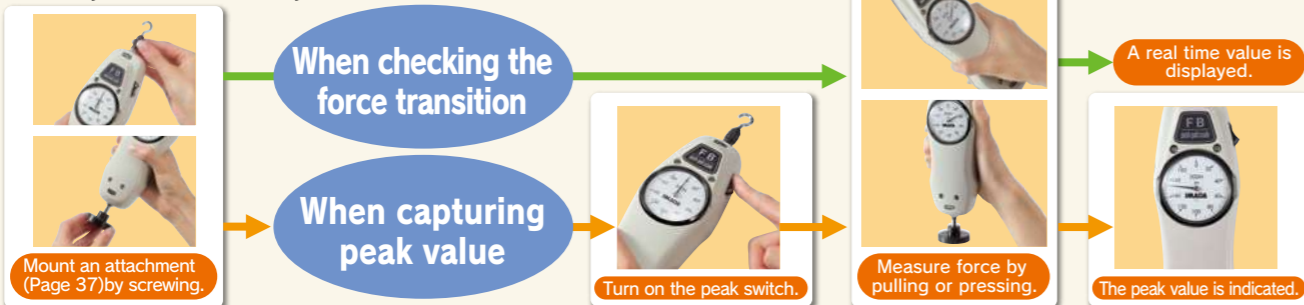
Mechanical Force Gauges

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)

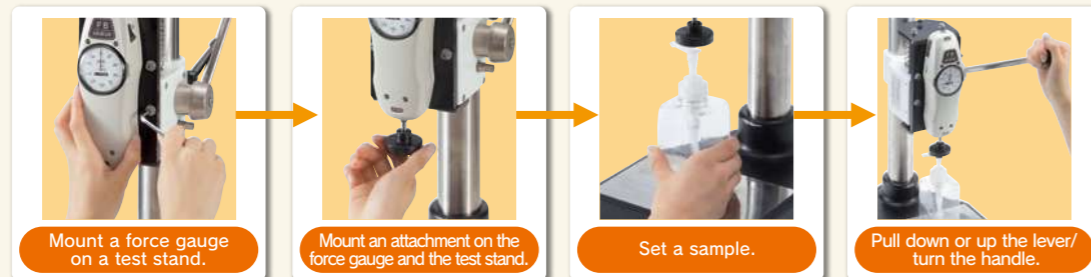
Simple Method

Readily measure force by hand.



Reproducible Method

Combine a test stand(P30) with a force gauge to improve repeatability.



Economical Type FB/FS series

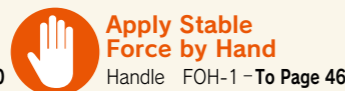
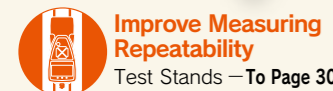
The Most Simple Model

Compression and Tension Compatible

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



FB/FS Standard set



Specifications

Accuracy	±0.3%F.S. or less
Division	100lines(*1)
Reading method	Real time/Peak hold(Switchable)
Standard accessories	Attachment 6pcs(*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	M6
FB-300N	300N	2.5N	
FB-500N	500N	5N	

International model lists(*2)

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

Standard Type PS/PSS series

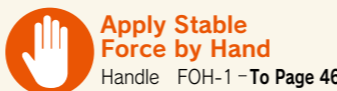
High Accuracy Model

Compression and Tension Compatible

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



PS/PSS Standard set



Specifications

Accuracy	±0.1%F.S. or less
Division	100lines(*1)
Reading method	Real time/Peak hold (Switchable)
Standard accessories	Attachment 8pcs(*3); the instruction manual-the 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	M6
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	
PS-10K	10kgf	100gf	M6
PS-20K	20kgf	200gf	
PS-30K	30kgf	250gf	
PS-50K	50kgf	500gf	
Model	Capacity	Resolution	Thread
PS-5lb	5lbf	0.05lbf	M6
PS-10lb	10lbf	0.1lbf	
PS-20lb	20lbf	0.2lbf	
PS-30lb	30lbf	0.25lbf	
PS-50lb	50lbf	0.5lbf	
PS-100lb	100lbf	1lbf	

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



PSM Standard set



Specifications

Accuracy	±0.1%F.S. or less
Division	200lines(*1)
Reading method	Real time/Peak hold(Switchable)
Standard accessories	Attachment 8pcs(*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	M6
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	M6
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×H290mm
Weight: Approx. 3.1kg



PSH Standard set



Specifications

Accuracy	±0.1%F.S. or less
Division	100lines(*1)
Reading method	Real time/Peak hold(Switchable)
Standard accessories	Attachment 6 pcs(*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	

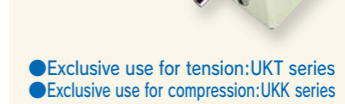
International model lists(*2)

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×H156mm
Weight: Approx. 300g



UKT/UKK series



Specifications

Accuracy	±0.3%F.S. or less
Division	100lines(*1)
Reading method	Real time/Peak hold(memory pointer type)
Standard accessories	Attachment(UKT-5pcs/UKK-4pcs)-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	
UKT-100N	100N	1N	M6
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	M6
UKT-10K	10kgf	100gf	
UKK-10K	10kgf	100gf	
UKT-20K	20kgf	200gf	M6
UKK-20K	20kgf	200gf	
UKT-30K	30kgf	250gf	
UKK-30K	30kgf	250gf	

Notes: ©The weight is depending on the range. (*1)120 lines for 30N, 300N, 30k and 30lb.(150lines for PSM)
(*2) The international models are NOT able to sell in Japan due to the Measurement Act.(*3)Please refer to Page 37 for the accessory 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]



Compression and Tension Compatible



[Specification chart]

Model	RZTA-1000N	RDSV-1000N	RFB-750N
Capacity	1000N	1000N	750N
Size	Approx. W302×D37×H200mm	Approx. W302×D36×H189mm	Approx. W302×D51×H218mm
Weight	Approx. 1kg	Approx. 1kg	Approx. 1.1kg

Tabletop Force Gauge Calibration Unit

A tabletop calibration unit for in-house force gauge calibration.

TFCU series

- For compression and tension forces accuracy checks up to 500N.
- Applicable to Digital and Mechanical force gauges.
- Smooth and sensitive movements and easy position adjustments available with the handle operation.

Model	TFCU-20N	TFCU-50N	TFCU-100N	TFCU-200N	TFCU-500N	TFCU-Z
Included force gauge	PSM-20N	PSM-50N	PSM-100N	PSM-200N	PSM-500N	- *1
Size (Stand)	約W435×D170×H122mm					
Capacity (Stand)	500N *2					

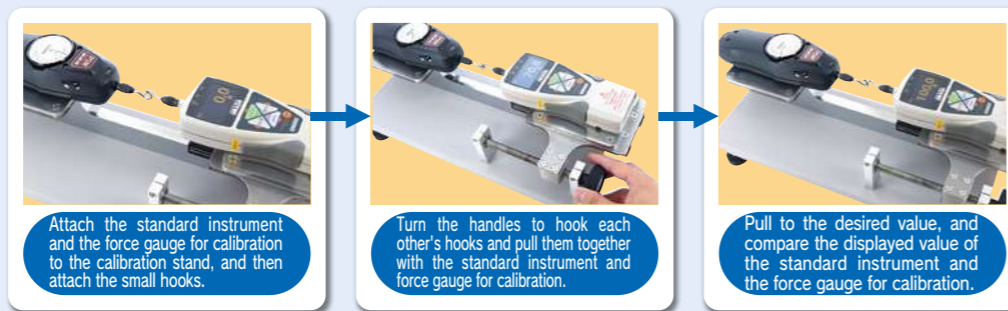
*1 TFCU-Z is a model with a Calibration Stand Only. PSM force gauge is not included.
*2 The maximum force value of the entire calibration unit varies depending on the force gauge mounted.



TFCU-500N

How to Use TFCU Series

(Accuracy Check in the Tensile Direction)



Attach the standard instrument and the force gauge for calibration to the calibration stand, and then attach the small hooks.

Turn the handles to hook each other's hooks and pull them together with the standard instrument and force gauge for calibration.

Pull to the desired value, and compare the displayed value of the standard instrument and the force gauge for calibration.

Accuracy Checks of Measuring Instruments

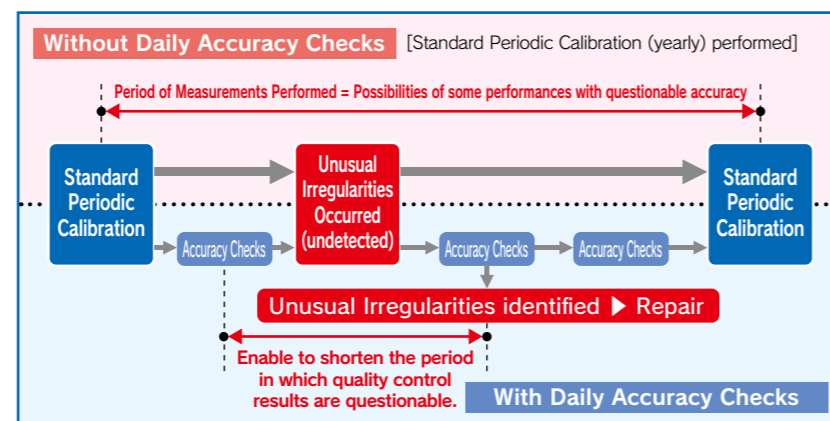
In the accuracy management of measuring instruments, regular calibration is extremely important. Calibration is the process of applying a specific force to a measuring instrument using a standard instrument to verify that the values indicated by the measuring instrument are within the acceptable range. Measuring instruments, including force gauges, experience slight shifts in their displayed values over time and with repeated use. For this reason, it is important to regularly perform calibration and make necessary adjustments to maintain the high reliability of measurement results.

IMADA offers calibration and repair services for force gauges. To ensure long-term, reliable use of your force gauge after purchase, please take advantage of IMADA's after-sales services. IMADA is accredited as a calibration laboratory in compliance with ISO/IEC 17025:2017. If you require calibration results and certificates that are internationally recognized, please consider using our ISO/IEC 17025 calibration services.

* Please contact us for specific compatible models to ISO/IEC 17025 accredited calibration service.

Benefits of In-House Calibration

The main advantage of in-house calibration is that it allows for daily calibration of force gauges without having to send them to external institutions. By conducting daily inspections, it is possible to detect any unusual irregularities early and decrease the severity of quality issues. IMADA recommends conducting daily in-house calibration (accuracy checks) in addition to regular calibrations by external institutions.



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 33

Capacity:
(MX) 500N to 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.

Standard MX2 (Vertical)/MH2 (Horizontal)



To Page 32

Capacity:
(MX2) 500N to 5000N
(MH2) 500N to 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.

High Performance EMX



To Page 33

Capacity: 500 to 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.

Manual Test Stands

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

Simple

SVL-1000N

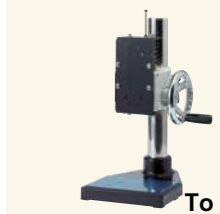


To Page 34

Capacity: 1000N

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

SVH-1000N



To Page 34

Capacity: 1000N

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

Low Capacity

FCA-50N



To Page 35

Capacity: 50N

- Simple Lever Test Stand can set travel distance.

KV-50N



To Page 35

Capacity: 50N

- Ideal for small force measurement.

MSF-50N



To Page 35

Capacity: 50N

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

Long Stroke

HV



To Page 34

Capacity: 500N to 3000N

- Ideal for stretching or large sample measurement.

Horizontal

SH



To Page 34

Capacity: 1000N to 3000N

- Sensitive movements with the handle operation.

* Please note that the capacity of the entire measuring instruments will be determined by the smallest capacity among the combined test stand, force gauge, and attachments.

On our website, you can see a wide range of force testing applications, and download a specification sheet of each product.

IMADA

Search

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

Motorized Test Stands

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.



Compression Test



Tension Test



Peeling Test

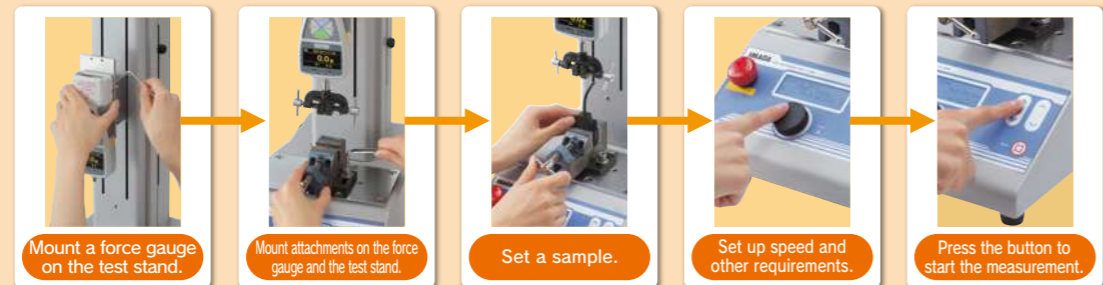


Friction Test



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 liner scale (FA version) to measure / analyze the relationships of force and displacement. The details are on Page 36.

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

Adjusting Speed

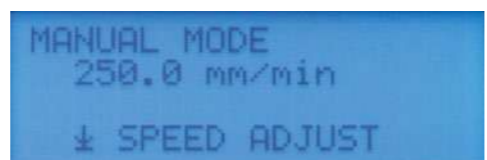


Testing speed is easily adjustable with the dial.

Model	Speed Range
MX2 series	10 to 300mm/min (MX2-5000N: 0.5 to 300mm/min)
MH2 series	10 to 300mm/min
EMX series	0.5 to 600mm/min

* Adjustable speed types: Start/Measuring/Return

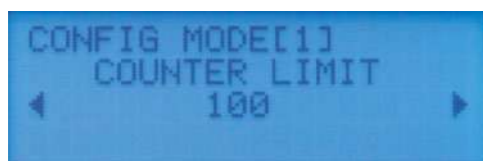
Three Measuring Modes



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 Stop:** A test stand stops when a force gauge senses too much force over its capacity.*1
- **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.15 for details

*1 It does not guarantee the entire prevention of the overload failures of the measuring Instruments.

Motorized Test Stand

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 Page36

Measure under the safe environment
 Accessory
To Page 35

Connect with External Devices
 Application examples of how cables are used
To Page 15 and Page 25

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

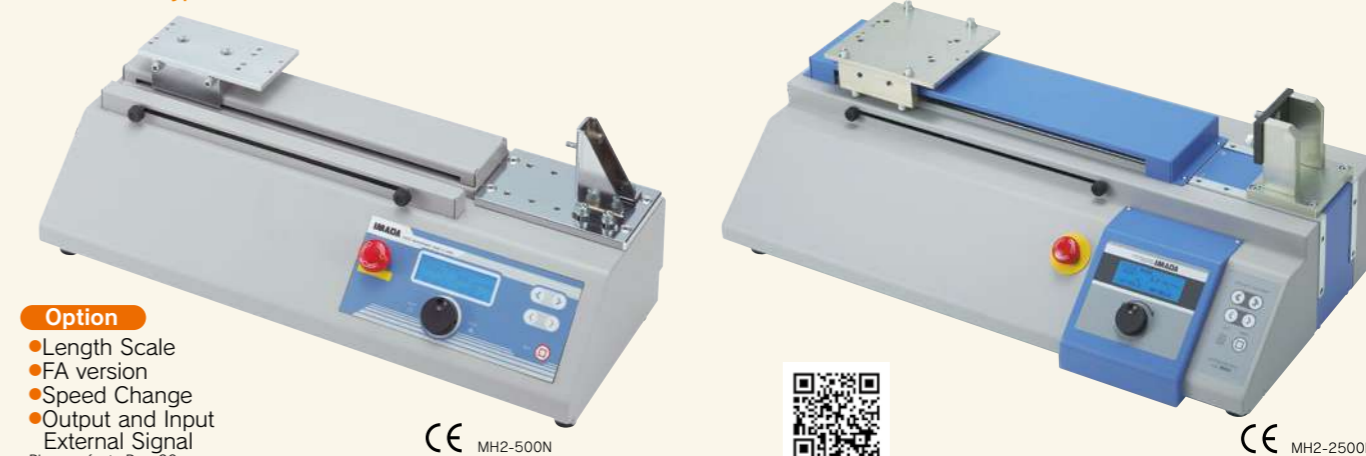


Specification

Model	MX2-500N	MX2-1000N	MX2-2500N	MX2-5000N
Capacity	500N	1000N	2500N	5000N
Speed	10 to 300mm/min	10 to 300mm/min	10 to 300mm/min	0.5 to 300mm/min
Maximum Sample Height(*1)	Approx.235mm	Approx.300mm	Approx.320mm	Approx.380mm
Weight	Approx.1.8kg	Approx.1.9kg	Approx.2.6kg	Approx.5.1kg
Size	Approx.W220xD380xH62mm	Approx.W280xD410xH660mm	Approx.W280xD410xH644mm	Approx.W295xD444xH823mm

MH2 series

Horizontal Type



Option

- Length Scale
 - FA version
 - Speed Change
 - Output and Input External Signal
- Please refer to Page36

Connect with External Devices
 Application examples for using cables
To Page 15 and Page 25

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

Specification

Model	MH2-500N	MH2-2500N
Capacity	500N	2500N
Speed	10 to 300mm/min	10 to 300mm/min
Maximum Sample Length(*1)	Approx.245mm	Approx.340mm
Weight	Approx.1.4kg	Approx.2.7kg
Size	Approx.W554xD220xH219mm	Approx.W666xD340xH261mm

Advanced Type EMX series

- Meets your various measuring requirements by wide speed range (0.5 to 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

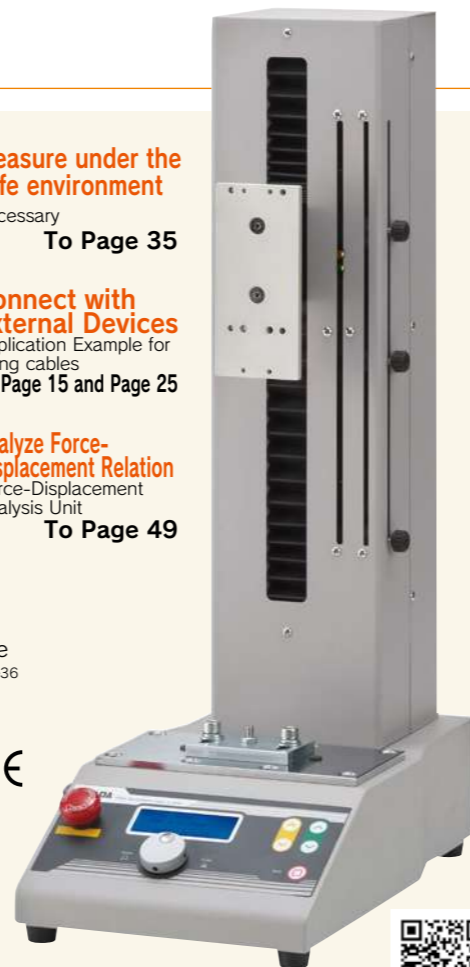


Measure under the safe environment
Accessory
To Page 35

Connect with External Devices
Application Example for using cables
To Page 15 and Page 25

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

Option
●FA version
●Long Stroke
Please refer to Page36



EMX-500N



Specification

Model	EMX-500N	EMX-1000N
Capacity	500N	1000N
Speed	0.5 to 600mm/min	0.5 to 600mm/min
Maximum Sample Height(*1)	Approx. 295mm	Approx. 320mm
Weight	Approx. 19kg	Approx. 23.5kg
Size	Approx. W220xD380xH637mm	Approx. W280xD410xH643mm

Simple Type

- This type is the simplest.

MX series

- Option**
- Speed/ Length Meter
 - Length Scale
 - Long Stroke
 - Speed Change
- Please refer to Page36



Measure under the safe environment
Accessory
To Page 35



MX-500N

Specification

Model	MX-500N	MX-1000N
Capacity	500N	1000N
Speed	10 to 300mm/min	8 to 240mm/min
Maximum Sample Height(*1)	Approx. 235mm	Approx. 420mm
Weight	Approx. 13kg	Approx. 24kg
Size	Approx. W214xD428xH573mm	Approx. W263xD368xH903mm

MH-1000N

Horizontal Type

- Option**
- Speed/ Length Meter
 - Length Scale
 - Speed Change
- Please refer to Page36



MH-1000N

Specification

Model	MH-1000N
Capacity	1000N
Speed	6 to 180mm/min
Maximum Sample Length(*1)	Approx. 280mm
Weight	Approx. 14kg
Size	Approx. W700xD195xH210mm

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

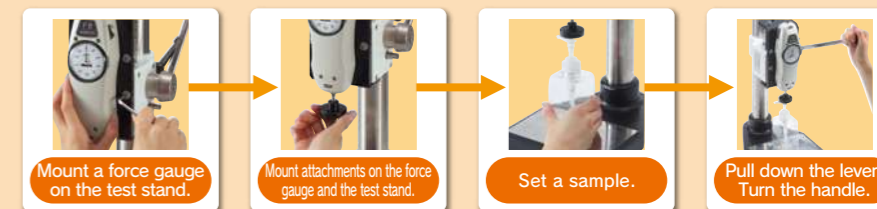
They provide constant test angles, offering higher repeatability than measurement by hand.



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

How to Use Manual Test Stand

(Using Example: SVL-1000N)



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(*1)	Approx. 225mm	Approx. 225mm
Maximum Stroke*A	60mm	60mm
Feed Amount	60 mm / 170 degree turn of the lever	3mm/1 turn
Weight	Approx. 7.3kg	Approx. 7.7kg
Size	Approx. W200xD280xH410mm	Approx. W200xD280xH410mm

*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)



SVL-1000N

SVH-1000N

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(*1)	Approx. 240mm	Approx. 375mm	Approx. 415mm
Feed Amount	2mm/1 turn	1.2mm/1 turn	0.6mm/1 turn
Weight	Approx. 1.0kg	Approx. 1.8kg	Approx. 2.4kg
Size	Approx. W327xD309xH597.5mm	Approx. W325xD275xH730mm	Approx. W355xD310xH744mm

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 HV-3000N or SH-3000N is in case of mounting ZT series high capacity type.



HV-500N II

HV-1000N

Horizontal Type SH series

- Horizontal type: Sets a sample easily.

Specification

Model	SH-1000N	SH-3000N
Capacity	1000N	3000N
Maximum Sample Length(*1)	Approx. 250mm	Approx. 355mm
Feed Amount	1.2mm/1 turn	0.6mm/1 turn
Weight	Approx. 15kg	Approx. 22kg
Size	Approx. W560.5xD265xH219.5mm	Approx. W696.5xD285xH225mm



Option
●Length Scale
Please refer to Page 36

SH-1000N

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 to 45mm (Adjustable with the limit knob)
Measuring Space	50 to 80mm (*1)
Weight	Approx. 3kg
Size	Approx. W175xD296xD178mm
Compatible force gauge	ZTS ZTA DST DSV (*2)

*1 The measuring space means the distance between the test stand table and the thread of a force gauge. The distance depends on where you put the force gauge.
*2 You cannot combine high capacity model force gauges with this stand.
* We also offer a food testing unit including this FCA-50N. For further information, please see "Catalog for Torque testers and Food testers."

KV-50N

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



KV-50N



Specifications

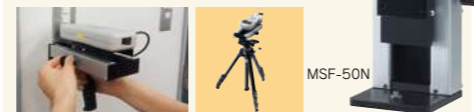
Model	KV-50N
Capacity	50N
Maximum Sample Height(*1)	Approx. 63mm
Feed Amount	1.0mm/1turn
Weight	Approx. 2kg
Size	Approx. W140xD180xH220mm

MS series

- Various measurements are possible by the different installing ways.



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	MSF-50N	MSL-50N
Type	Standard	FA version(Page33)
Capacity	50N	
Maximum Sample Height(*1)	Approx. 44mm	
Feed Amount	18mm/1turn	
Weight	Approx. 1.2kg	
Size	Approx. W110xD81xH204mm	

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

Length Scale (-S) 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.)		Long Stroke (-L,-2L) We extend the stand's stroke. Extended Column (-EXT) We extend the stand's column. The stand's stroke does Not change.	
--	--	---	--

Limited Options for The Motorized Test Stands

Speed / Length Meter (-E) It displays the measuring speed and travel distance of force gauges.		FA version (-FA) 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.	
Speed Range Change (-V○○) 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.)		Output and Input External Signals (-CN) 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.	

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	○	○	○	○	○	○	○	○	○	○	○
	-2L			○	○	○	○	○	○	○	○	○
Extended Column (mm)*3	-EXT						○					
							+200					
O/I External Signals	-CN											
Speed Range Change (mm/min)*5	-V●●	○	○	○	○	○	○					
		40~1200 20~600 2~60	40~1200 27~800 20~600 15~400 4~120	30~900 20~600 15~450 3~90 1.5~45	35~1000 25~750 15~150 2.5~75	2.5~75 5~150				30~900 20~600 15~450 10~300 3~90	30~900 20~600 15~450 10~300 1.5~45	2.5~75 5~150

*1 User mounted unit is available. *2 The -2L option is incompatible with length scale (-S option).
*3 The column is extended but the stroke remains the same. *4 It is already installed as the standard function. *5 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.

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. W410xD312xH650mm	Approx. W375xD250xH803mm
Compatible Test Stand (*1)	MX2-500N/1000N/2500N EMX series	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)
Custom manufacturing is available if you need an interlocking shield for test stand with the long stroke option (-L, -2L) or the column extension option (-EXT).

Safety Shield ST-SS

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



Specification

Model	ST-SS
Cover Material	Acrylic
Weight	Approx. 500g
Size	Approx. W406xD305xH628mm

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

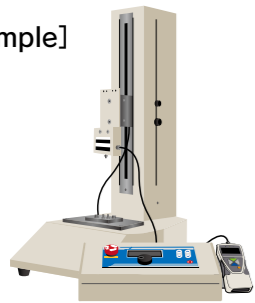
Model	OP-EMX-FA	OP-EMX-L-FA
Size	Approx. W81xD82xH455mm	Approx. W81xD82xH755mm
Fixing Screw	Use included M3 truss head screws (Short: 2pcs, Long: 4pcs).	

* Use CB-718 Sold separately to measure displacement.

Customized Test Stand Examples

In addition to the options (P36), custom products can be manufactured to suit your requirements.

[Example]



Separation of Drive Part and Control Unit



Testing Large Samples



Electromagnetic Lock Cover



Custom Manufacturing

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	○	○								
		+200 *1	+200 *1								

*1 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 Stop Function
- ② Force Control Functions

For further information, see page 15

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.*

- !** 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.

A-1/S-1/SR-1

A-2/S-2

A-3/S-3

A-4/S-4

A-5/S-5

A-6/S-6

A-7/S-7

A-8/S-8

High Capacity Type **M10**

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

B-1

B-2

B-3

B-4

B-5

B-6

B-7

B-8

The number of attachments varies by models.
 ZTS/ZTA Basic model:①~⑧, ZTS/ZTA-DPU-2~500N:①~⑧,
 DST/DSV:①~⑥, PS/PSM:①~⑧, FB:①~⑥
 For 1000N capacity, SR-1 is included instead of S-1.

The number of attachments varies by models.
 ZTS/ZTA-2500N/5000N:①~⑧,
 ZTS/ZTA-DPUH-1000~5000N:①~⑥, PSH:①~⑧

Attachments are not included with the sensor-separate type force gauges (except for ZTS/ZTA-DPU-2 to 500N and ZTS/ZTA-DPUH-1000 to 5000N).

Compression Attachments

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**

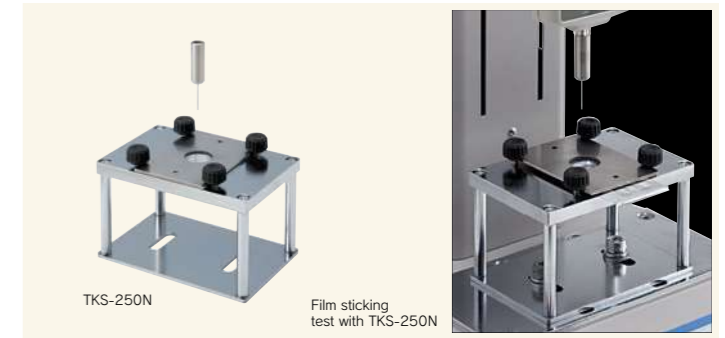
Designed for puncture strength test of thin samples such as film.

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.22.2(Pin+Pin vice)	Approx.16
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

Plastic injection components Switch LCD panel Food

Model	PG-2	PG-3	PG-4	PG-5
Capacity(N)	100	100	200	200
External 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

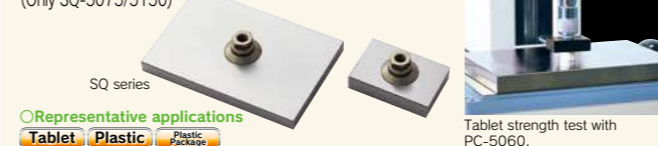
Switch Electrical components Touch panel

Model	UR-8S	UR-8M
Capacity(N)	50	50
Weight(g)	Approx.5.4	Approx.5.2
Hardness	ShoreA50	ShoreA70
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. (Only SQ-5075/5150)



Representative applications

Tablet Plastic Plastic Package

Model	SQ-5030	SQ-5075	SQ-5150
Capacity(N)		5000	
Size(mm)	30X20	75X50	150X100
Weight(g)	Approx.65	Approx.500	Approx.1560
Mounting screw		M10	

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

Ideal for crushing tests. Type A is made of aluminum and Type S is made of steel. S-40-SL is designed with slots on the compression surface, ideal for top load testing of PET bottles.



Representative applications

Cushioning materials Cushion Tablet Ball Spring

Model	A-40	A-60	S-40	S-40-SL	S-60
Capacity(N)	200	200	1000	1000	1000
External diameter(mm)	φ40	φ60	φ40	φ40	φ60
Weight(g)	Approx.38	Approx.84	Approx.110	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
External 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	
External diameter(mm)	φ10	φ20	φ30
Weight(g)	Approx.26	Approx.55	Approx.135
Mounting screw		M10	

Compression Attachments

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

Press 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

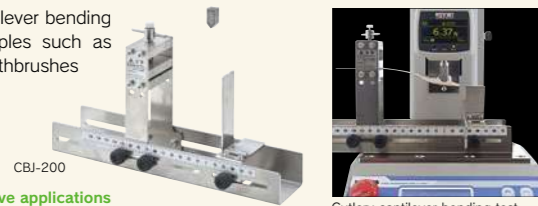
Cardboard box durability test with PR-2500N.

Model	PR-500N	PR-2500N
Capacity(N)	500	2500
Measurable size(mm)	W194XD120XH156	W200XD140XH105
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 0238(1998)

Cantilever Bending Test Jig **CBJ-200N**

Ideal for cantilever bending tests of samples such as cutlery or toothbrushes



Representative applications
Cutlery, toothbrush, plastic, needle

Cutlery cantilever bending test with CBJ-200N/

Model	CBJ-200N
Capacity(N)	200N
Measurable size(mm)	Max Width:50, Max Thickness:25
Weight(g)	Probe + Extension Shaft: Approx. 45g
Mounting screw	M6

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 C35*			
Weight(g)	Approx.95	Approx.75	Approx.30	Approx.140
Mounting screw	M6			

Tension Attachments

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

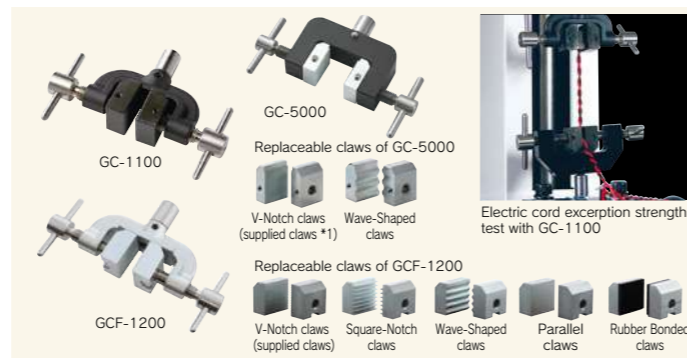
Flat Chuck **GC series**

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.) GCF-1200 and GC-5000 are multi-purpose model, replaceable the claws.

Representative applications
Connector, Cable, Fastener, Booklet, Plastic, Piece of metal

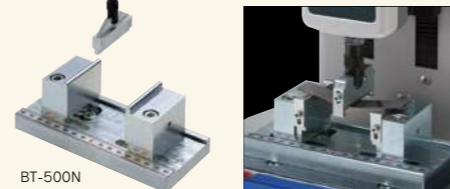
Model	GC-1100	GC-1200	GC-5000	GCF-1200
Capacity(N)	1000	1000	5000	1000
Aperture opening width(mm)	Max. 10	Max. 20	Max. 30	Max. 20
Weight(g)	Approx.160	Approx.170	Approx.1400	Approx.170
Mounting screw	M6	M6	M10	M6
Replaceable claws exchange	-	-	○	○

GCF-1200 with wave-shaped claws complies with the corresponding part of ISO 1924-2(1994)/JIS P 8113(2006). The mounting part of GCF-1200 can be switched between Fixed and Swivel by tightening/loosening the screw.



*1 GC-5000 with Wave-Shaped claws instead of V-Notch claws is available: GC-5000-C30

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



Representative applications
Metal board, Plastic board, Carbon, Wire net, Plywood board, Ceramic

Metal material bending test with BT-5000N.

Model	BT-500N	BT-5000N	BT-5000N-CB
Capacity(N)	500	5000	5000
Upper anvil diameter(mm)	R2.5	R3	R5
Block diameter(mm)	R2.5	R3	R2
Upper anvil Weight(g)	Approx.100g	Approx.130g	Approx.150g
Mounting screw	M6	M10	M10

BT-5000N Complies with the corresponding part of JIS C2141(1992)/R1601(2008)/R1602(1995)/IEC60672-2(1991)/ISO14704(2000)
BT-5000N-CB Complies with the corresponding part of JIS K7074(1988)/K7071(1999)/K2141(1992)/H7406(1993)/K7088(1996)/IEC60672-2(1999)/ISO FDIS-1425(1998)

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	MX2-500N, MX2-1000N, MX2-2500N, MX2-5000N, EMX-1000N, MX-500N, MX-1000N, SVL-1000N(Lever type), SVH-1000N(Handle type), HV-500N, HV-1000N, HV-3000N, KV-500N(Only for OT-8IN)

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

Tension Attachments

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

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

180 degree peel testing of adhesive tapes with FC-21

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	Wide type up to 500N	One side urethane	Wide grip cone	One side urethane with a lever
Aperture width(mm)	Approx.20	Approx.20	Approx.40	Approx.20	Approx.40	Approx.20
Aperture opening width(mm)	Max.2	Max.2	Max.2	Max.2	Max.2	Max.0.2
Weight(g)	Approx.16	Approx.73	Approx.125	Approx.40	Approx.58	Approx.38
Mounting screw	M6					

* We provide a film cutter(P44) * Fixed model: Flare available, recommended when you attach it on a test stand since their attaching parts(mounting screws)are fixed.

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 fabric, Plastic

Rubber tension strength test with PGC-0510.

Model	PGC-0505	PGC-0510	PGC-2530
Capacity(N)	500	500	2500
Aperture opening 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 SR-1s is required when mounting PGC-0510 or 0505 on a force gauge.
* PGC-AD6 is required when mounting PGC-0510 or 0505 on a test stand.
* PGC-2530 can NOT be attached to test stand.

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	Model	BC-15
Capacity(N)	300	Capacity(N)	300
Aperture opening width(mm)	Max.20	Measurable diameter(mm)	Max. φ15
Weight(g)	Approx.125	Measurable height(mm)	Max.3.5

* S-1 or SR-1 is required when mounting PGC-BC on a force gauge.

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

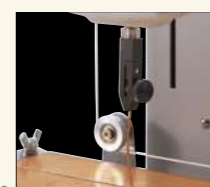
Cable tension strength test with CW-500N.

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

* CW-500N is attachable to our horizontal stands.

Small Grip **SC-3/8**

Ideal for gripping fine samples or measuring it in measurement at narrow spaces.



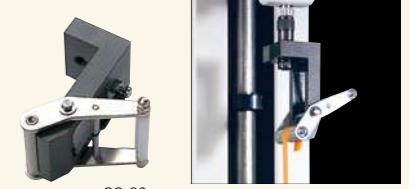
Representative applications
Electrical lead, Copper foil

Copper foil peeling test with SC-8.

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

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

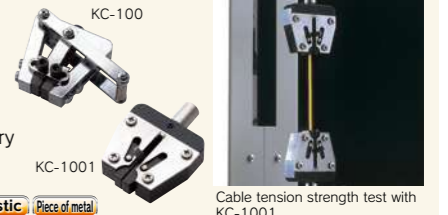
Rubber tape tension strength test with GC-60.

Model	GC-60	GC-100
Capacity(N)	500	500
Measurable width(mm)	Max.30	Max.50
Measurable thickness(mm)	Max.2	
Weight(g)	Approx.158	Approx.300
Mounting screw	M6	

* We provide a film cutter (P44)

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, Optical fiber cable, Plastic, Piece of metal

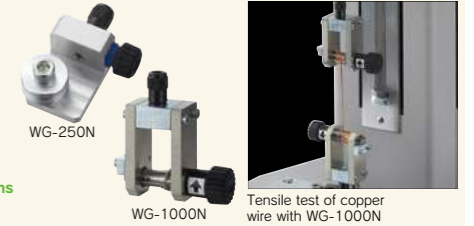
Cable tension strength test with KC-1001.

Model	KC-100	KC-1001	KC-5000
Capacity(N)	500	1000	5000
Aperture opening width(mm)	Max.8	Max.2	Max.5
Weight(g)	Approx.330	Approx.95	Approx.565
Mounting screw	M6	M6	M10

* Installation of KC-100 on a test stand is not recommended since the lever contacts the table.

Wire Winding Grip **WG Series**

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



Representative applications
Textile, Wire, Fur

Tensile test of copper wire with WG-1000N

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.610
Mounting screw	M6		

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

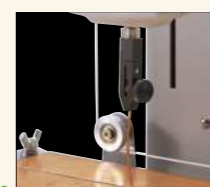
Cable tension strength test with CW-500N.

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

* CW-500N is attachable to our horizontal stands.

Small Grip **SC-3/8**

Ideal for gripping fine samples or measuring it in measurement at narrow spaces.



Representative applications
Electrical lead, Copper foil

Copper foil peeling test with SC-8.

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

Metal line tension strength test with FP-51.

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

Tension Attachments

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
Aperture opening width(mm)	Max.2	Max.4
Measurable width(mm)	Max.30	Max.50
Weight(g)	Approx.180	Approx.870
Mounting screw	M6	M10

* We provide a film cutter(P44)

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.

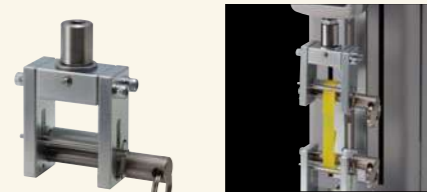


○Representative applications
Rubber **Cable** **Silicone** **Elastomer**

Model	GP-15	GP-30
Capacity(N)	250	1000
Aperture opening width(mm)	Max.4.5	Max.10
Weight(g)	Approx.70	Approx.880
Mounting screw	M6	—

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
Mandrel diameter (mm)	9.53 (Sample length below 127mm), 38.1 (Sample length exceed 127mm)
Mandrel weight (g)	Force gauge side(S):Approx 140g Force gauge side(L):Approx 195g
Mounting screw	M6

It is in accordance with a part of SAE AS23190 UL62275

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

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



○Representative applications
Pull-tab of beverage can

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

PTD-100N is in accordance with a part of JIS S 0021-2(2018) / ISO1748(2015)
 A-1,S-1, or SR-1 (Page37) 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.



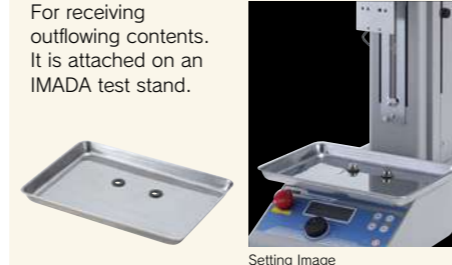
○Representative applications
Pull-tab of canned food's container

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

A-1,S-1, or SR-1 (Page37) are required to attach the upper part of the fixture to a force gauge.
 You cannot open the full lid of the container.

Optional tray **PTW-10IN**

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



Model	PTW-10IN
Size (mm)	264 x 178
Attachments using with this tray	P45-50N, PTD-100N, PTF-100N, MED-SCT-500N

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

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.145
Mounting screw	M6

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	SHF-2500N
Capacity(N)	100		2500
Opening width(mm)	31		17
Throat depth(mm)	31	56	40
Weight(g)	Approx. 100	Approx. 110	Approx. 720
Mounting screw	M6		M10

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
Maximum sample size	Approx.11 mm
Weight (g)	Approx.15
Mounting screw	M6

Compression and Tension Attachments

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
Aperture opening width(mm)	Approx. φ 0 to 3.2
Weight(g)	Approx.22
Mounting screw	M6

Cap Clamping Jig **CCJ Series**

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

Model	CCJ-100N	CCJ-100N-01	CCJ-100N-02	CCJW-100N	CCJW-100N-01	CCJW-100N-02
Capacity (N)				100		
Allowable sample diameter(mm)		7 to 50			10 to 100	
Clamping Pin	Standard Pin (Urethan)	Notch Pin	Long clamp pin	Standard Pin (Urethan)	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

Jacobs Chuck **GC-5/15**

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



○Representative applications
Plastic

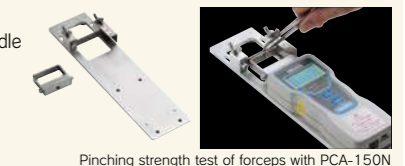
Model	GC-5	GC-15
Capacity(N)	500	1000
Aperture opening width(mm)	Approx. φ 0.5 to 6.5	Approx. φ 2.0 to 13
Weight(g)	Approx.235	Approx.500
Mounting screw		M6

Resin molding tension exception strength test with GC-5.

Pinching Force Test Attachment

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**

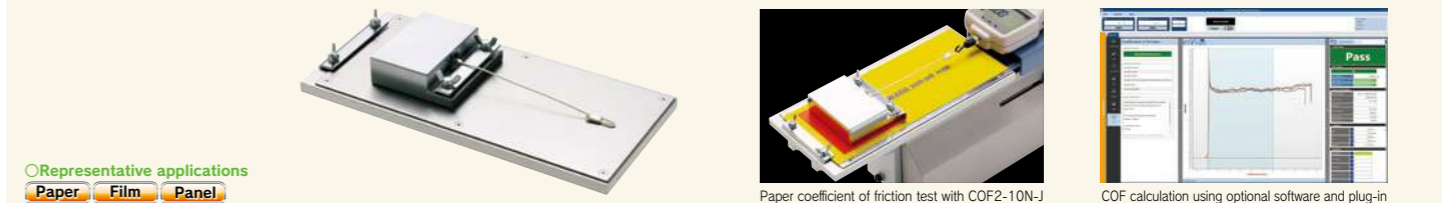
Model	PCA-150N
Capacity (N)	150
Pinching widths (mm)	5 to 15
Spreading section widths of the jig (mm)	1 to 15
Weight (g)	Force gauge mounting side : Approx. 50

Pinching strength test of forceps with PCA-150N

Friction Attachments

Attachment designed to measure static and kinetic COF.

Coefficients of Friction Fixture **COF Series**



○Representative applications
Paper **Film** **Panel**

Model	COF2-2N-J	COF2-10N-J	COF-2N-V-J	COF-10N-V-J
Compatible test stand		MH2-500N		Vertical type *1
Weight of the weight part(g)	200	1000	200	1000
Measurable size(mm)		Thickness:Max.1.5 Length:Max.150		

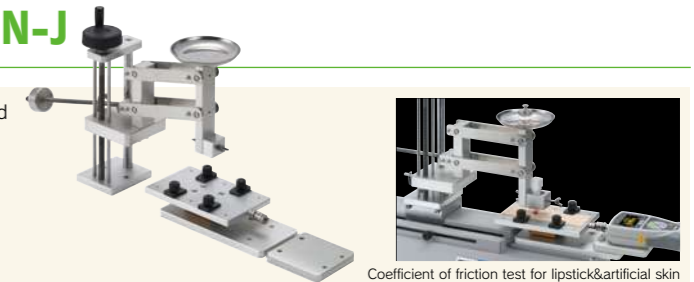
* You need A-1 or S-1 (Page37) to attach the weight to a force gauge.

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

COF2-2N-J, COF-2N-V-J: In accordance with a part of JIS K 7125(1999).

Variable Weight Reciprocating Friction Test Jig **VWF-10N-J**

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.



○Representative applications
Pen&Paper **Urethane** **Spindle** **Spatula&glass**

Model	VWF-10N-J
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	φ 6 Ball Holder	Blade Holder

Wire Crimp Pull Test Attachments

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.

to 500N Accessory Attachments for A Manual Wire Clamp pull Tester [LH-500N(P53)]

Terminal clamp jig It is designed to secure a crimp terminal easily and quickly. For engaging it, you only have to hook it between its jaws.

Model	CH-500N
Capacity(N)	500
Aperture opening width(mm)	Max. 6
Weight(g)	Approx. 210
Mounting screw	M6

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

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

to 1000N Attachments for Vertical Test Stands

Rotary wire terminal jig The grip secures wire terminals and other samples. It has grooves of different sizes to accommodate wire diameters up to 8mm. Rotate the wheel to the desired size.

Model	FW-12
Capacity(N)	1000
Measurable Diameter(mm)	φ 1 to 8
Weight(g)	Approx. 380
Mounting screw	M6

Rotary wire terminal jig The grip secures wire terminals and other samples. It has pins of different sizes to accommodate the round terminal diameters up to 8mm. Rotate the wheel to the desired size.

Model	PW-4
Capacity(N)	1000
Dimensions of pins (mm)	φ3/φ5/φ8/M4 Female Screw*
Weight(g)	Approx. 310
Mounting screw	M6

* The M4 tapped hole enables you to install desired size of pin to suit your sample.

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

Model	GP-30
Capacity(N)	1000
Aperture opening width(mm)	Max. 10
Weight(g)	Approx. 880

to 5000N Attachments for High Capacity

Wire terminal jig It engages terminals from φ 4 to φ 12mm diameter.

Model	CH-5000N
Capacity(N)	5000
Measurable diameter(mm)	φ 4 to 12 (Internal diameter of the terminal hole)
Weight(g)	Approx. 315
Mounting screw	M10

Wire clamp jig It is designed for preventing wire coating from breaking.

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

Chip Components Tension/Shear Test Attachments

QFP Lead Hook/Chip Shear Jig **SJ Series**

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, Flange cap

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-100N-L/S**

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. W236×D155×H247	Approx. W236×D155×H190
Weight(kg)*1	Approx. 3.2	Approx. 2.8
Moving distance of XY stage	± 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.

Peel Test Fixtures

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

90 Degree Peel Test Fixture **P90-200Nシリーズ**

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 tape, Copper foil, Magnetic card, Poulitice

Adhesive tape peeling strength test at 90 degree with P90-200N.

Model	P90-200N	P90-200N-EZ	P90-200N-BB
Measurable force(N)	to 200	0.4 to 200	to 200
Measurable size(mm)	Length: Max. 155 Width: Max. 80		Contact us

P90-200N Complies with the corresponding part of JIS C5016(1994)/Z0237(2022), IEC249-1(1982)/326-2(1990), ASTM D6862-11(2016)/D3330(2010), ISO29862(2007)
P90-200N-BB Complies with the corresponding part of IEC249-1(1982)/326-2(1990), ISO4525(2003), JIS H 8630(2006).

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.

Representative applications
Film for cup container

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

Model	P45-50N
Capacity(N)	50
Measurable size(mm)	Height: Approx. 10 to 100 Diameter: Approx. 20 to 140
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 (Page 37) are required to attach the upper part of the fixture to a force gauge.

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
Painted surface

Model	TH-1000N-7	TH-1000N-20	TH-5000N-20
Capacity(N)	1000	1000	5000
Upper fixture Adhesive area shape	Diameter 7mm	Diameter 20mm	Diameter 20mm
Weight(g)	Approx. 40	Approx. 90	Approx. 195
Mounting screw	M6	M6	M10
Lower fixture The center hole diameter (mm)	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).

Rubber Roller for Peel Test **APR-97 series**

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

Representative applications
Rubber (Hardness A80)

Model	APR-97-1K	APR-97-2K
The roller weight(g)	Approx. 1000	Approx. 2000
The sample contacting part material	Rubber (Hardness A80)	Rubber (Hardness A80)

APR-97-1k is in accordance with a part of JIS Z 0237(2022), ISO 29862(2018).
APR-97-2k is in accordance with a part of JIS Z 0237(2022), ISO 29862(2018), and ISO 29863(2018).

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 to 70mm
Width adjustment block	15mm / 1inch

FSC-1525 is in accordance with ASTM F88, JIS Z 0238 (1998), and JIS Z 1707 (2019).

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

Adhesive tape peeling strength test with P180-200N.

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

P180-200N Complies with the corresponding part of IEC249-1(1982)/326-2(1990), ISO29862(2007), ASTM D3330(2010), JIS C5016(1994)/JIS Z 0237(2022).
P180-200N-BB Complies with the corresponding part of IEC249-1(1982)/326-2(1990), JIS C5016(1994).
* 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).

Sample Plate for Adhesive Tape Peel Test **ATP-50N**

A jig for improving the efficiency of peel tests for adhesive tapes. The sample is simply attached to the plate of the jig.

Representative applications
Adhesive tape

90-degree peel test for adhesive tapes with ATP-50N.

Model	ATP-50N
Capacity(N)	50
Measurable size(mm)	Width: 30
Weight(g)	Approx. 24
Mounting screw	M6

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

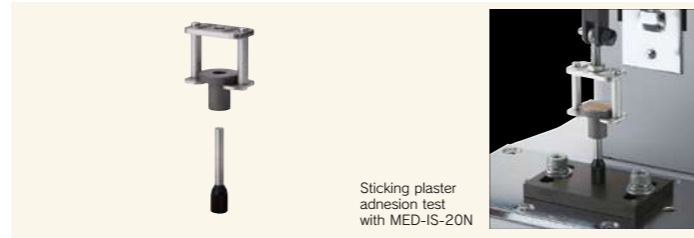
Ideal for measuring adhesiveness of sticking plaster etc. by tack test.

Representative applications

Sticking plaster

Model	MED-IS-20N
Capacity (N)	20
Surface diameter of contact (mm)	5
Weight (g)	Force gauge mounting side: Approx. 70g
Mounting screw	M6

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**

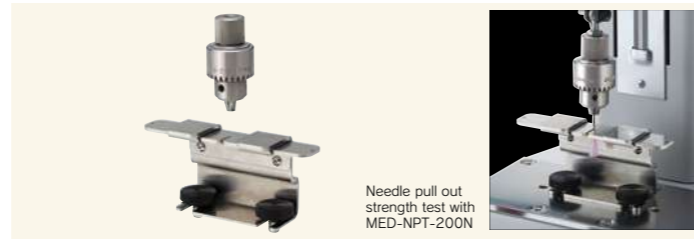
Ideal for testing pull out strength of a needle from a needle base.

Representative applications

Needle

Model	MED-NPT-200N
Capacity (N)	200
Measurable needle diameter (mm)	0.3 to 2.0
Measurable length diameter (mm)	above 10
Weight (g)	Force gauge mounting side: Approx. 210g
Mounting screw	M6

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 7864(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	MED-SCT-500N
Capacity (N)	500N
Measurable capacity(ml)	0.5 to 50
Diameter of attached outer cylinder (mm)	10/15/24/33
Installation	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 (Page37) to push syringe.



Syringe compression test with MED-SCT-500N

Luer fitting adapters **MED-LFA-20N series**

Designed to connect sample needles to force gauges without removing their needle hubs.

Representative applications

Needle, Vial stopper

Model	MED-LFA-20N-MS	MED-LFA-20N-FS	MED-LFA-20N-ML
Capacity(N)	20	20	20
Weight(g)	Approx. 15	Approx. 15	Approx. 15
Mounting Screw	M6	M6	M6
Product Type	Male Luer Slip Adapter	Female Luer Slip Adapter	Male Luer Lock Adapter

Complies with a part of ISO 8871-5(2016)/ISO 7864(2016)



Vial stopper Penetrability test with MED-LFA-20N

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

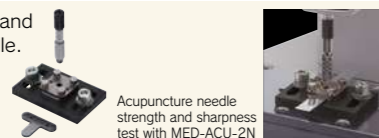
Designed to measure strength and sharpness of acupuncture needle.

Representative applications

Acupuncture needle

Model	MED-ACU-2N
Capacity (N)	2
Applicable Diameter (mm)	φ0.1 to 1.0
Weight (g)	The side with force gauge: 22g
Mounting screw	M6

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



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

Vial holder **MED-VH-5N**

Ideal for penetrability test of vial stoppers

Representative applications

Vial stopper

Model	MED-VH-5N
Capacity(N)	5(*)
Weight(g)	Approx.220

Complies with a part of ISO 8871-5(2016)
* Force value applied to the clammer when extracting the needle cannot exceed 5N.

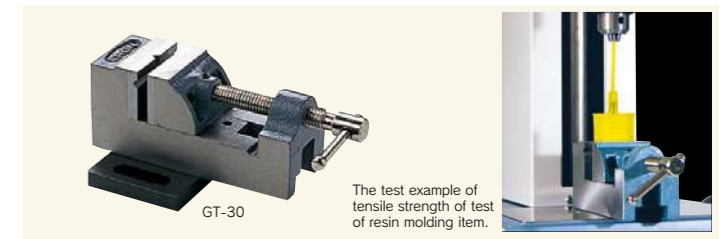


Vise Grip **GT-30/2000N**

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

Model	GT-30	GT-30-E	GT-30-U	GT-2000N
Features	Compatible with 1000N	Notch Jaw *1	One side urethan Jaw One side Notch Jaw *1	Compatible with 2000N interchangeable mounting directors
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.

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	GTW-2500N
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	XY-500N-BB	XY-500N-M8	XY-500N-EZ
Features	Breadboard type	M8 screw type	M8 screw and free movable table type
Capacity (N)	Tension:500 Compression:1000	Tension:500 Compression:1000	Tension:500 Compression:-
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	XST-500N
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 XY directions.

Model	TS-5000N
Capacity (N)	5000 (2500N for 1pc, 5000N for 2pcs)
Diameter of T-nut hole	M8
The space between T-nuts	Max. 125
Movement amount (mm)	X: ±64 Y: ±15
Mounting	To test stand table



TS-5000N

Optional Handles

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

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



When mounted with force gauge

Model	FOH-1
Compatible model	1000N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSM/FS/FB series
Capacity (N)	1000
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.



When mounted with force gauge

Model	HGB-1
Compatible model	1000N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSM/FS/FB
Capacity (N)	200
Weight (g)	Approx.45

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

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



When mounted with force gauge

Model	HDC-1
Compatible model	1000N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSM/FS/FB
Capacity (N)	500
Weight (g)	Approx.330

Fixing Belt for Operativity Measurement **FBO-CFX**

Dedicated fixing belt for the load cell CFX series to attach it to your finger or the edge of a tool to measure the operating force of levers and switches.



When mounted with load cell

Model	FBO-CFX
Compatible model	CFX
Capacity (N)	200
Weight (g)	Approx. 5

Conversion Adapters

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	JF6-50N	EJ6-1000N	EJ10-5000N
Capacity(N)	50	1000	5000
Mounting screw for a force gauge	—	M6	M10
Mounting screw for a chuck fixture	M6	M6	M10
Weight(g)	Approx.8	Approx.29	Approx.140

* Please contact us for the detail that which attachment is available.
* A-1/S-1/SR-1(Page 37) is required to mount JF6-50N on a force gauge.

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.



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	UJ6-1000N	UJ10-5000N
Capacity (N)	1000	5000
Mounting screw for a force gauge	M6	M10
Mounting screw for an attachment	M6	M10
Weight (g)	Approx.25	Approx.140

Model	Screw diameter	Capacity	Purpose
CA-F6T4	M6(Female Screw)→M4	100N	When mounting a M4 screw attachment of FRTS to a M6 screw thread of a force gauge.
CA-F6T10	M6(Female Screw)→M10	1000N	When mounting a M10 screw attachment to a M6 screw thread of a force gauge.
CA-F10T6	M10(Female Screw)→M6	1000N	When mounting a M6 screw attachment to a M10 screw thread of a force gauge.
CA-F4T6	M4(Female Screw)→M6	100N	When mounting a M6 screw attachment to FRTS series.
CA-F5T4	M5(Female Screw)→M4	100N	When mounting a M4 screw attachment to a M5 screw thread of Load cell LMU series.
CA-F5T6	M5(Female Screw)→M6	500N	When mounting a M6 screw attachment of FRTS series to a M5 screw thread of a load cell LMU series.
CA-8T4	M8→M4	100N	When mounting a M4 screw attachment of FRTS series to M8 screw thread of a load cell LU series. *It does not mount a T nut.
CA-8T6	M8→M6	1000N	When mounting a T nut / M6 screw thread of load cell LU series to M8 screw attachment.
CA-8T10	M8→M10	2000N	When mounting a T nut / M8 screw thread of load cell LU series to M10 attachment.
CA-6T6	M6→M6	1000N	For mounting of M6 force gauge attachment to M6 screw thread of load cell.
CA-10T10	M10→M10	5000N	For mounting of M10 force gauge attachment to M10 screw thread of load cell.
CA-16T16	M16→M16	20kN	For mounting of M16 force gauge attachment to M16 screw thread of load cell.
CA-12T10	M12→M10	5000N	For mounting of M10 force gauge attachment to M12 screw thread of load cell.
CA-18T18	M18→M18	20kN	For mounting of M18 force gauge attachment to M18 screw thread of load cell.

Eye Bolt and Eye Nut for Load Cells

Hoisting attachment for tension test by load cells (Page 19).

Eye Bolt **EB series**

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

Model	EB-500N-M6	EB-500N-M8	EB-5000N	EB-20kN
Compatible load cell	DPU-5N to 500N SW1-100N/200N	LU series SW1-500N	DPU-1000N to 5000N	DPUH-10kN/ 20kN
Capacity(N)	500	500	5000	20k
Weight(g)	Approx.18	Approx.39	Approx.137	Approx.1100
Mounting screw	M6 Male Screw	M8 Male Screw	M12 Male Screw	M18 Male Screw



Rod End[for shafts] **RE-20kN**

A shaft can be put through it.

Model	RE-20kN
Compatible load cell	DPUH-10kN/20kN
Capacity(kN)	20
Weight(g)	Approx.300
Mounting screw	M18 Male Screw



Eye Nut **EN-500N**

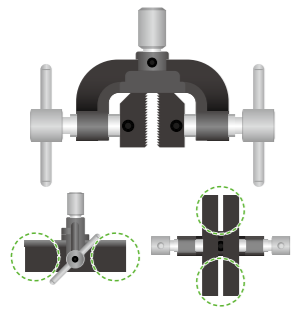
It hangs a test sample or a load cell by hooking chain, rope, hook etc.

Model	EN-500N
Compatible load cell	LMU series
Capacity(N)	500
Weight(g)	Approx.11
Mounting screw	M5 Female Screw



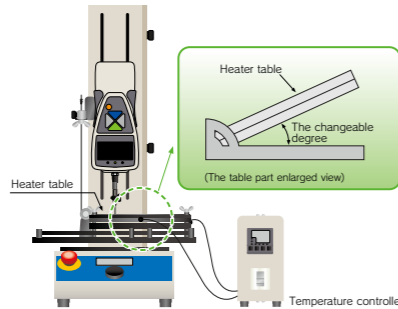
Customized Attachment Examples

Custom manufacturing of individual attachments is available. Production is possible from a single unit.



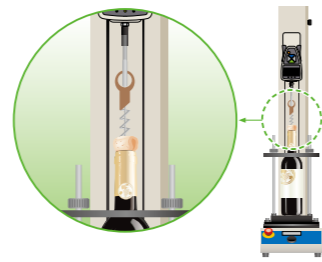
The size customization for standard products available depending on the requirements of the specimens. Likewise, material changes applicable for weight reduction, rust prevention, etc.

Sizes / Materials
Modifications



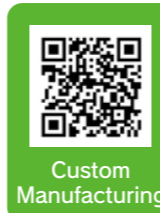
Additional functions such as anti-slip / peeling angle adjustment applicable to the standard products inquire other options available).

Added Functions



We accept made-to-order attachments and specialized fixtures dedicated to specific requirements (e.g., Jig for testing the opening force of cardboard boxes, jig for wine cork extraction test).

Made-to-order for
Specific Measurement



Custom
Manufacturing

List of QR Codes for Specifications

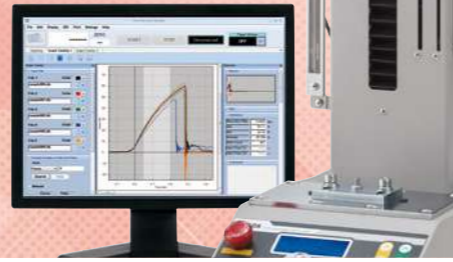
Model	QR code	Model	QR code	Model	QR code	Model	QR code
TKS-20N/250N (P38)		CW-500N (P40)		FW-12 (P43)		MED-ACU-2N (P45)	
PG-2/3/4/5 (P38)		SC-3/8 (P40)		PW-4 (P43)		MED-VH-5N (P45)	
A-40/60 S-40/40-SL/60 (P38)		FP-50/51 (P40)		CH-5000N (P43)		GT-30/2000N (P46)	
UR-8S/8M (P38)		GR-30/2000 (P41)		CW-5000N (P43)		GTW-2500N (P46)	
PC series (P38)		GP-15/30 (P41)		SJ series (P43)		XY-500N series (P46)	
SQ series (P38)		PPC-5000N (P41)		GT-10/20 (P43)		XST-500N (P46)	
SP series (P38)		LOP-1000N (P41)		SJS-100N-L/S (P43)		TS-5000N (P46)	
PR-500N/2500N (P39)		PTD-100N PTF-100N (P41)		P90-200N series (P44)		FOH-1 (P46)	
BT-500N/5000N/5000N-CB (P39)		PTW-10IN (P44)		P180-200N P180-200N-BB (P44)		HDC-1 (P46)	
CBJ-200N (P39)		DF-60 (P41)		P45-50N (P44)		HGB-1 (P46)	
OT-8IN (P39)		SHF series (P41)		ATP-50N (P44)		FBO-CFX (P46)	
PAD series (P39)		HFC-50N (P41)		TH-1000N/5000N (P44)		JF/EJ series (P47)	
GC series (P39)		CP-150N (P42)		APR-97 series (P44)		UJ6-1000N UJ10-5000N (P47)	
FC series (P40)		GC-5/15 (P42)		FSC-1525 (P44)		CA series (P47)	
GC-60/100 (P40)		CCJ series (P42)		GRP-50 (P44)		EB series (P47)	
PGC series (P40)		PCA-150N (P42)		MED-IS-20N (P45)		RE-20kN (P47)	
KC series (P40)		COF series (P42)		MED-NPT-200N (P45)		EN-500N (P47)	
BC-15 PGC-BC (P40)		VWF-10N-J (P42)		MED-SCT-500N (P45)			
WG series (P40)		CH-500N (P43)		MED-LFA-20N series (P45)			

FSA series Force-Displacement Analysis Unit

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

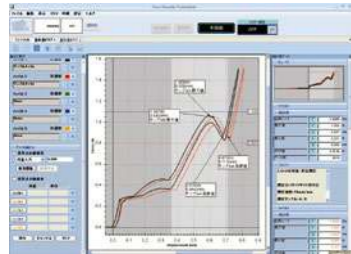
With this unit, deformation amount (displacement) to compression (tension) force can be measured.

It is ideal for tactile test and material characteristic evaluation.



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

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



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)

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.

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.



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.)

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. *xMSL-FSA does not have this Trigger function.



Measurement unit	Force	N, kgf, lbf *
	Displacement	mm, inch *
Range		2N(200gf), 5N(500gf), 20N(2kgf), 50N(5kgf), 100N(10kgf), 200N(20kgf), 500N(50kgf), 1000N(100kgf), 2500N(250kgf), 5000N(500kgf)
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. +/-1digit
	Displacement	+/-0.1mm +/-1 digit (with 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		Instruction 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: ○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. *The unit is different from Japanese domestic models.

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

Vertical Type (Standard)

A unit featuring the vertical motorized test stand MX2 series, offering a standard model with a wide range of maximum capacity options from 2N to 5000N.



Model: FSA-0.5K2-2 to 500N
 Capacity: 2N to 500N
 Supplied test stand: MX2-500N-FA

Model: FSA-2.5K2-2 to 2500N
 Capacity: 2N to 2500N
 Supplied test stand: MX2-2500N-FA

Model: FSA-1K2-2 to 1000N
 Capacity: 2N to 1000N
 Supplied test stand: MX2-1000N-FA

Model: FSA-5K2-2 to 5000N
 Capacity: 2N to 5000N
 Supplied test stand: MX2-5000N-FA

Vertical Type (Advanced)

A unit featuring the high-performance vertical motorized stand EMX series. This unit incorporates advanced features, including digital travel distance settings and motion pattern memory, allowing for highly accurate displacement measurement due to its high rigidity.



Model: FSA-0.5KE-2 to 500N
 Capacity: 2N to 500N
 Supplied test stand: EMX-500N-FA

Model: FSA-1KE-2 to 1000N
 Capacity: 2N to 1000N
 Supplied test stand: EMX-1000N-FA

Horizontal Type

A unit featuring the horizontal motorized test stand MH2 series, offering standard models with a wide range of maximum capacity options from 2N to 2500N.



Model: FSA-0.5HK2-2 to 500N
 Capacity: 2N to 500N
 Supplied test stand: MH2-500N-FA

Model: FSA-2.5HK-2 to 2500N
 Capacity: 2N to 2500N
 Supplied test stand: MH2-2500N-FA

Portable

A unit with the manual stand MSL-50N, enabling portable measurements without a power supply. An adapter for tripod mounting is also sold separately.

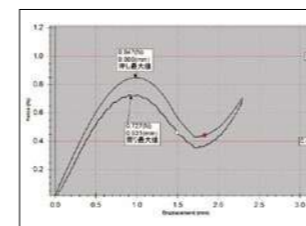


Model: FSA-MSL-2 to 50N
 Capacity: 2N to 50N
 Supplied test stand: MSL-50N

* Please refer to the page of each test stand for its specifications about the speed setting, maximum sample height etc. Options such as Long Stroke are also available (P36).
 * The capacity depends on the model.

FSA series Application Example

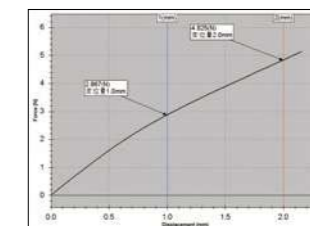
Example of A Switch Characteristic Evaluation



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). Moreover, the point of switch ON/OFF can be automatically defined and displayed by using Mark On function.

* Custom-made cable is required for Mark-On function

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)?"

Downloadable Graphing Software Option

With this option, Downloadable Graphing Software Force Recorder Next Professional is included instead of CD version Graphing Software. *1,*2

Option code: -NEXT (Add the code to the end of model.)
 Example: FSA-0.5K2-500N-NEXT



Force Recorder Next Professional

- Comprehensive graph viewing functions for analysis, including the graph overlay function (up to 10 graphs)
- Various additional functions are downloadable from IMADA Connected (some functions are chargeable).

*1 To download Force Recorder Next Professional, user & product registration on IMADA Connected is required. Please note that an internet connection is required for all registrations and software downloads.
 *2 When -NEXT option is applied, the dedicated download card providing the redemption code is included. To use the software, downloading the software from IMADA Connected is required.

FSA-Q series Force-Deformation Evaluation Unit

Force-deformation evaluation unit that can simultaneously measure force, displacement, and strain

Ideal for evaluating deformation of products and materials due to loads.



Real-time graphing of force and deformation

Ideal for evaluating the correlation between force, displacement, and strain, as measurement data can be acquired on the same time axis.

Configuration

- The load cells and strain gauges can be connected simultaneously up to 4.
- Real-time graphing of deformation (displacement/strain) by force application.
- Capable of recording measured values with aligned time axis.
- High-speed sampling rate (2000 times/sec)

Model: **FSA-Q-□□KE-△△N**

- □□KE: Select the model of motorized test stand → EMX-500N-FA:0.5KE, EMX-1000N-FA:1KE
* For long stroke option (-L), add "-L" at the end of the model number.
- △△N: Enter capacity of the load cell* → e.g. eDPU-200N:200N
Example: For a configuration with EMX-500N-L-FA and eDPU-200N → FSA-Q-0.5KE-200N-L
* Select from 2N to 500N for FSA-Q-0.5KE or 2N to 1000N for FSA-Q-1KE.

Quad Sensor Measuring Amplifier QSMA-400

Measuring amplifier caters to the input of Force, Torque, Strain, and Voltage of up to 4 channels. (Force, strain, voltage (total 4 channels) + displacement 1 channel) In addition, it is possible to record up to five I/O signal inputs (*1). Downloadable graphing software, Quad Graph Drawer, is included.(*2)

Dedicated Software: Quad Graph Drawer (included)

Dedicated software for QSMA-400, designed for PC data acquisition and graphing. Measurements from all connected sensors can be recorded simultaneously, allowing for easy correlation analysis through graphs displayed on an aligned time axis. After recording is completed, statistical data for each channel (maximum and minimum values) is automatically displayed. Additionally, data at any time point can be displayed. Comment input and CSV output of measurement data are also supported.

Motorized test stand with a linear scale EMX-FA series

Motorized test stand with a linear scale (High-performance type). Capacities of 500N and 1000N are available for selection.

Force Control Cable QCB-ST01

A cable for connecting QSMA-400 and a motorized test stand. The operation of a test stand can be controlled based on the measured values from the load cell connected to QSMA-400. (*3)

Load Cell eDPU/eDPUH Serie

A sensor for force measurement that allows for various types of measurements by attaching attachments to the measurement shaft. The included load cell differs depending on the selected capacity.

Strain Gauge Connection Cable QST-350

A cable for connecting QSMA-400 and a strain gauge (350Ω). Three cables are included.

Strain gauge (Not included)

A sensor with lead wires for strain measurement, designed to measure localized deformation when attached to a sample. (P52)



*1 A dedicated cable (sold separately) is required for voltage input and I/O signal input/output (P50). Note that I/O signal input/output with external devices cannot be used when connected to a motorized test stand.
*2 To download Quad Graph Drawer, user registration on IMADA Connected is required, along with product registration for QSMA-400. Please note that an internet connection is required for all registrations and software download. Measurement values are not displayed on the QSMA-400 itself. A PC with Quad Graph Drawer installed is required to display the measurement values.
*3 The force control function is only activated for load cell values connected to CH1 of the QSMA-400.

Specification for Force-Deformation Evaluation Unit FSA-Q series

	FSA-Q-0.5KE-2N to 500N	FSA-Q-1KE-2N to 1000N
Measurement target	Force / Strain / Displacement *1	
Maximum force capacity	According to the Maximum Capacity of the Load Cell	
Accuracy	Force	FSA-Q-1KE-2N to 500N: ±0.7 %F.S.±1digit FSA-Q-1KE-1000N: ±0.75%F.S.±1digit
	Strain	Based on the Strain Gauge and Applied settings
	Displacement	±0.1mm ±1 digit (at no Load) *2
Display resolution *3	Force	4 digits with signed decimal point (Eg: Display resolution of DPU- 5N is 0.001N)
	Strain	Based on the Strain Gauge and Applied settings
	Displacement	0.001mm
Measurement unit *3	Force	N (ranges below 5N converted to mN), kgf, lbf *4
	Strain	Based on the Strain Gauge and Applied settings
	Displacement	mm
Sampling rate	2000 times/sec (synchronous sampling / channel)	
Max. sample height *5	415mm: with eDPU-2N to 10N	380mm: with eDPU-2N to 10N
	410mm: with eDPU-20N to 500N	375mm: with eDPU-20N to 500N 300mm: with eDPUH-1000N
Amplifier output function	USB communication (2.0 or later) / 3-stage Comparator (-NG/OK/+NG) / Overload signal *6)	
Operating environment	Temperature: 0 to 40°C / Relative Humidity: 20 to 80%	

*1 The QSMA-400, the Quad Sensor Measuring Amplifier, also supports torque input, voltage, contact signal, and angle. A separate dedicated cable is required for voltage and contact signal input. Please contact us for further information on Angle Input.
*2 When the maximum force of capacity is applied at the maximum stroke, the motorized test stand deflects 0.25 mm or less.
*3 Measurement values are not displayed on the QSMA-400 itself. A PC with a Quad Graph Drawer installed is required to display the measurement values.
*4 The unit is different from Japanese domestic models.
*5 The distance from the table to the Measurement Axis of the Load Cell at the head at maximum elevation.
*6 Comparator and Overload signal are outputted only for load cell values connected to CH1 of the QSMA-400.

Use Case

Evaluating Board Deformation when a switch is pressed

A switch on the board is pressed at a constant force, and the deformation (deflection) of the entire board and localized strain (3 locations) are measured. Identifying the position where deflection (strain) is likely to occur helps identify the component placement confirmation on the board.



Quad Sensor Measuring Amplifier

QSMA-400

- Measuring amplifier caters to the input of Force, Torque, Strain, and Voltage of up to 4 channels.(Force, strain, voltage (total 4 channels) + displacement 1 channel)
- Downloadable graphing software, Quad Graph Drawer, is included.(*1)

Ideal for evaluating the correlation between data, as it allows data from each channel to be acquired at an aligned time axis.

Model	QSMA-400
Compatible input signals	Load cell / Strain Gauge / Voltage Input (5V): Total 4 Channels Linear Scale / Angle Meter: 1 Channel Contact signal (non-voltage contact): At most 5 Channels
Amplifier accuracy *2	Force, Torque: ±0.5 %F.S. / Voltage: ±0.1V
Sampling rate	2000 times/sec (synchronous sampling for each input channel)
Operating Environment	Ambient Temperature: 0 to 40°C / Relative Humidity: 20 to 80%
Output Function	USB communication (2.0 or later) / 3-step comparator (-NG/OK/+NG)/overload signal *3

*1 To download Quad Graph Drawer, user registration on IMADA Connected is required, along with product registration for QSMA-400. Please note that an internet connection is required for all registrations and software download. Measurement values are not displayed on the QSMA-400 itself. A PC with Quad Graph Drawer installed is required to display the measurement values.
*2 When connecting the eZ-Connect series load cell, the measurement accuracy is the amplifier accuracy plus the load cell accuracy. Overall measurement accuracy will vary depending on the sensor, input cable and settings used.
*3 The comparator signal and overload signal output to the Test Stand and external devices (using the I/O connector) are only valid for the measurement value of the load cell connected to CH1.



Peripheral Devices

Cable

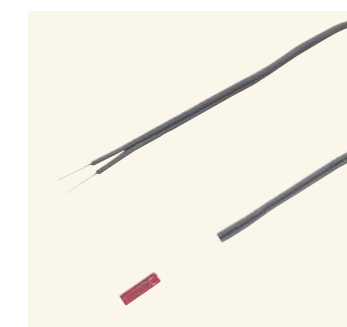


Cables for connecting the strain gauge to QSMA-400, as well as those for voltage and signal inputs.

QST-350: Strain Gauge (350Ω) Connection Cable
QVI-05: Voltage Input Cable (Open End)

■ **Customized Cable Examples**
I/O Signal Connection Cable
Strain Gauge (120Ω) Connection Cable
Voltage Input Cable (BNC, Clip)

Strain Gauges (Recommended)



Strain Gauge (350Ω) (20 bottles / box set) by Tokyo Measuring Instruments Laboratory Co., Ltd.

For iron: **FLAB-5-350-11-1LJC-F**
For aluminum: **FLAB-5-350-23-1LJC-F**

To connect to QSMA-400, QST-350 cable for strain gauge (350Ω) connection is required.

Automatic crimp tester

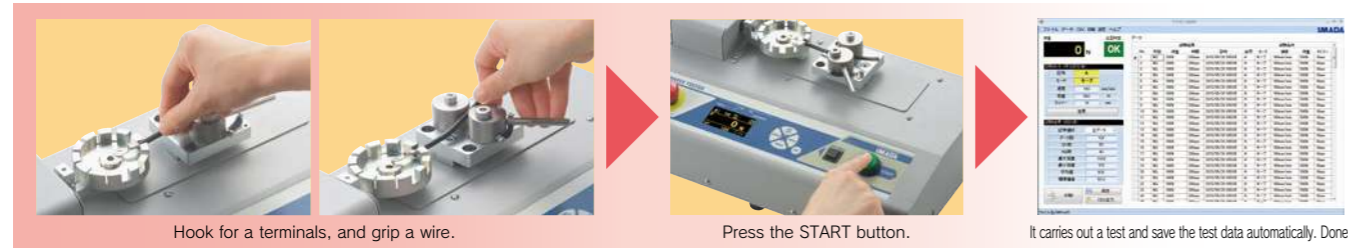
ACT-1000N



You can carry out the test in accordance with a part standards UL 486A-486B and JISC2805.

- 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.



Hook for a terminals, and grip a wire.

Press the START button.

It carries out a test and save the test data automatically. Done.

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.

ACT-T-03S/L
Jig for ferrule terminal:
Easily fix ferrule terminal

Model	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 to 8mm Harness side: 1 to 8mm	
Allowable sample length	100mm or more	
Mode	BREAK mode / KEEP mode	
Output	USB/RS232C/pass or fail decision signal(OK/NG)	
Security lock	Emergency stop button and Overload prevention(at the power on)	
Power supply	AC100 to 240V	
Operating environment	Temperature:0 to 40 degree Celsius Humidity:20 to 80%RH	
Accessory	Software, USB cable, Power cord, Inspection Certificate	

It comes with fixtures for wire and terminal.

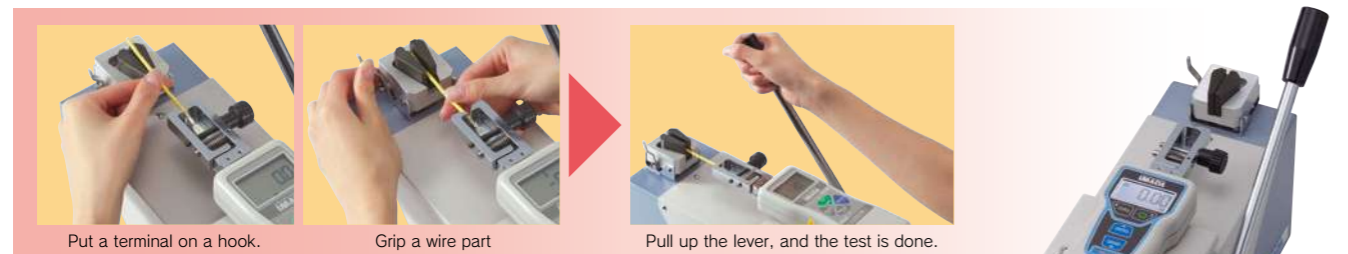
□Size:W400×D240×H150mm
□Weight:Approx. 1.1kg

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

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



Put a terminal on a hook.

Grip a wire part

Pull up the lever, and the test is done.

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.W155×D450×H182mm
□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.



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.

Related Standards

- A part of JIS C0806-3(2021)[Packaging of components for automatic handling-Part 3: Packaging of surface mount components on continuous tapes]
- A part of IEC 60286-3(2022)[Packaging of components for automatic handling - Part 3: Packaging of surface mount components on continuous tapes](Peel test part)



□Size:Approx.W702×D300×H140mm
□Weight:Approx. 1.1kg

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.

Test Samples

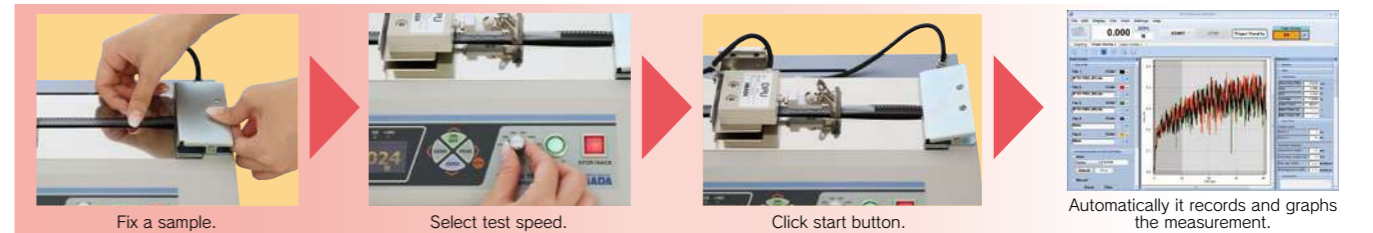
Label, adhesive tape, stickers, screen protector sheet, laminated package, adhesive tape for first-aid, postcard, magnetic tape, foil laminated film, electrode's line of solar cell, copper foil of circuit board.



□Size:Approx.W702×D300×H140mm
□Weight:Approx. 1.1kg

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.



Fix a sample.

Select test speed.

Click start button.

Automatically it records and graphs the measurement.

Model	IPTS-5N	IPTS-20N	IPTS-50N
Capacity	5N	20N	50N
Resolution	0.001N		
Unit*	N, gf, ozf		
Accuracy	±0.2%F.S. ±1digit		
Overload	Approx. 150%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° to 180° (Height and angle are adjustable.)		
Max. sample width	Adhesion: 88mm(Film clip: 40mm, Sample clip: 95mm)	Adhesion: 88mm(Grip: 20mm, Clamp: 50mm)	
Max. sample thickness	Cover film: 0.5mm	Grip: 3mm	Clamp: 13mm
Safety device	Emergency stop button, Overload stop (Valid only when the power is ON) (*1)		
Power	AC100 to 240V free input(*2)		
Weight	Approx. 1.1kg		
Operating environment	Temperature: 0 to 40°C Humidity: 20 to 80%RH		
Accessories	Force Recorder Standard (graphing software), USB cable, Power cable, Film grip, Inspection certificate, Instruction manual		
Option	Interlocking shield(Add -IC to the end of model)		

*1 You cannot prevent overload in some cases.
*2 Please specify the voltage when you order.(Accessory 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 ozf/lbf.