

FORCE MEASUREMENT IMADA Product Catalog

Force Gauges & Associated Equipment

DIGITAL FORCE GAUGE
MECHANICAL FORCE GAUGE
MOTORIZED TEST STAND **2023-1**



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.



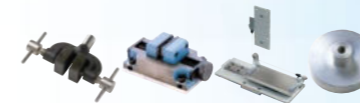
Software

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

IMADA CO.,LTD

99 Jinnoshinden-cho aza Kanowari Toyohashi Aichi 441-8077 Japan
Telephone: +81-(0)532-33-3288 Telefax: +81-(0)532-33-3866 E-mail: info@forcegauge.net

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

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

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

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



Agency



www.unimetra.cz

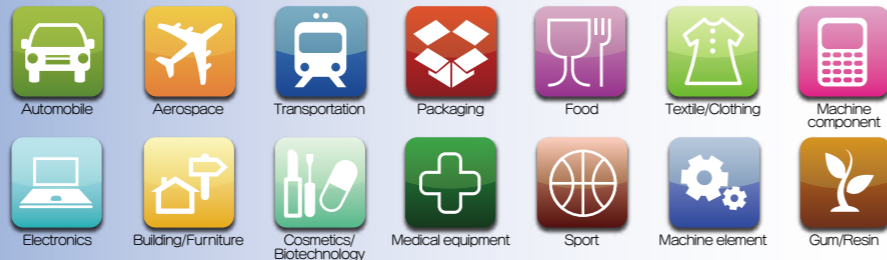
- The contents will be changed without any notices.
- We can custom design and manufacture to meet your particular requirements.
- Please feel free to contact us or our distributor for further information of our products.
- The colors and shapes might be slightly different from the actual products.
-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

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

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.

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 in short terms such as Calibration Certificate, Traceability Chart and so on.



● Pull force



● Insertion force



● Pushing force



● Extraction force



● Peeling/adhesive force



● Shearing force/Tension force



● Rotating/Twisting force



● Crushing force



● Opening force



● Bending force



● Closing force



● Frictional force

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

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

For use by hand

Compression and tension force can be easily measured.



For use as a simple 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.

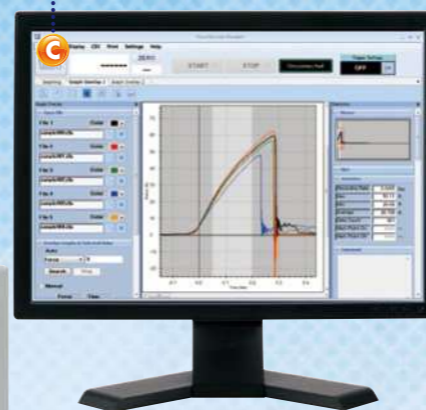


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C Software

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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Texture Analyzer FRTS

Digitizing food texture such as stickiness, hardness and more

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



Automatic crimp tester ACT-1000N

A specialized tester for tensile strength test of crimped terminal

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Torque Gauges

For rotating and twisting force measurement

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



Measurement Examples

Compression Test

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



Tension Test

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



Peel Test

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



Coefficient of Friction Test

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



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Force Gauges (Push Pull Scales)

Measuring instruments for compression/tension/peel force

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



Digital force gauges

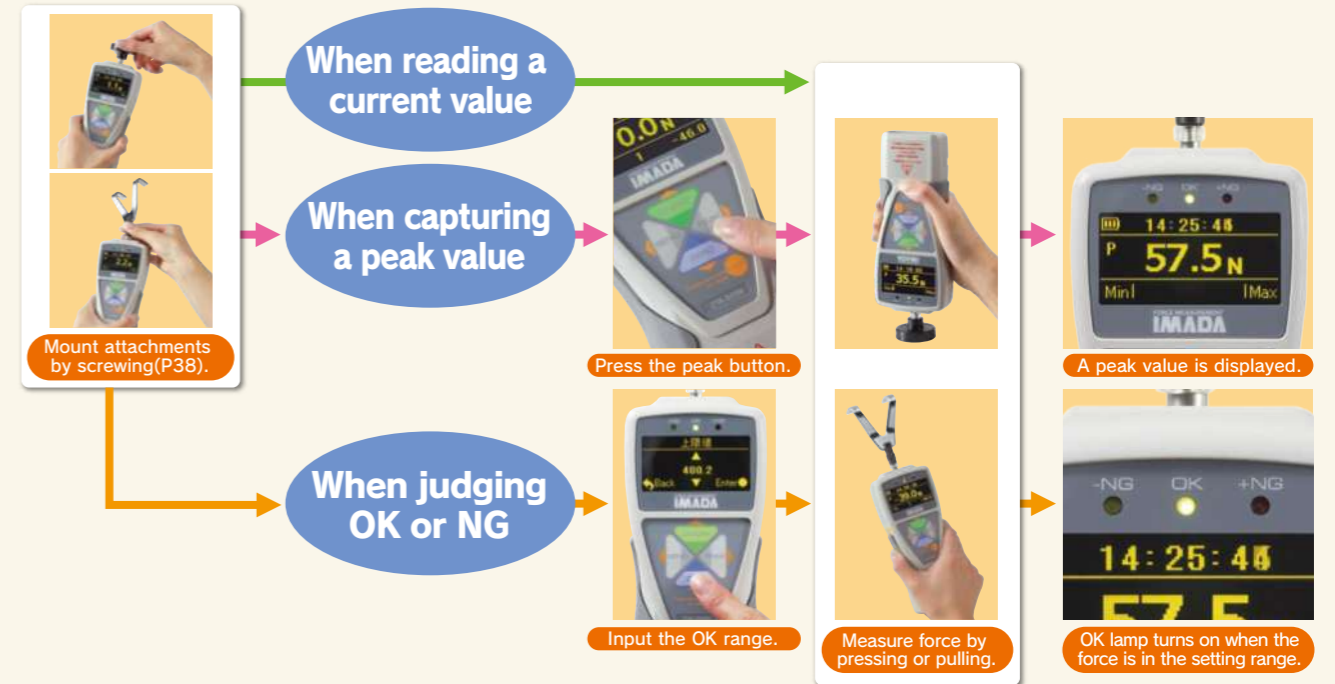
A digital force gauge has an internal sensor. It has 2 remarkable features; 1. Its digital indication prevents human reading error. 2. Easily manage or analyze test data with connecting it to a PC.



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

Simple Method

Easily measure force by hand.



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	DSV To page 17	ZTS To page 11~12	ZTA To page 13~14
<ul style="list-style-type: none"> ● Capacity: 2N~1000N ● Sampling speed: 1000Hz ● Accuracy: $\pm 0.2\%F.S. \pm 1$ digit 	<ul style="list-style-type: none"> ● Capacity: 2N~1000N ● Sampling speed: 1000Hz ● Accuracy: $\pm 0.2\%F.S. \pm 1$ digit 	<ul style="list-style-type: none"> ● Capacity: 2N~5000N ● Sampling speed: 2000Hz ● Accuracy: $\pm 0.2\%F.S. \pm 1$ digit 	<ul style="list-style-type: none"> ● Capacity: 2N~5000N ● Sampling speed: 2000Hz ● Accuracy: $\pm 0.2\%F.S. \pm 1$ digit
<ul style="list-style-type: none"> ○ It is ideal for simple measurements by hand. ○ Easily detect a peak value with its peak hold function. 	<ul style="list-style-type: none"> ○ Tilt-sensing-function improves the repeatability even in handheld measurement. 	<ul style="list-style-type: none"> ○ Captures a peak value accurately due to its high sampling rate. ○ Displays clearly. ○ Manages data easily with included software. 	<ul style="list-style-type: none"> ○ 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.

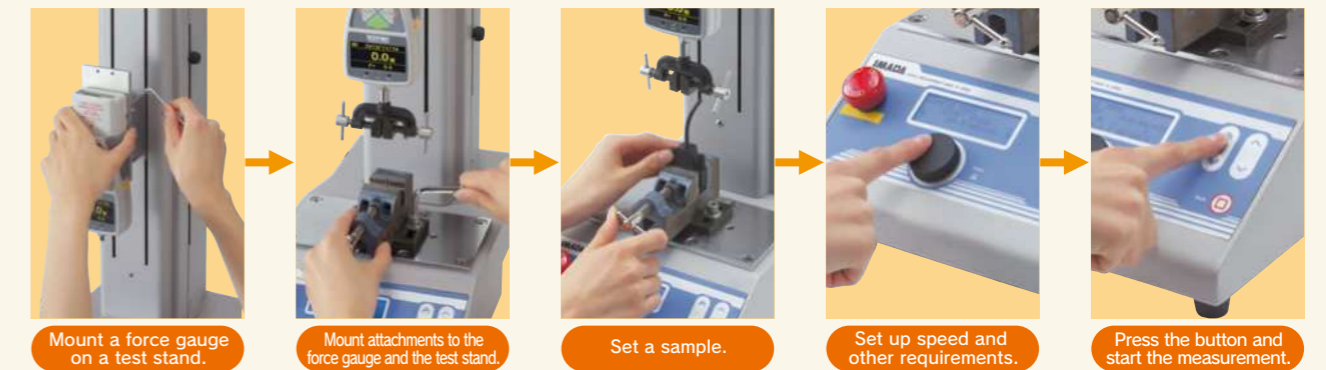
Weak Points

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

FB To page 27	PS To page 27	PSM To page 28
<ul style="list-style-type: none"> ● Capacity: 10N~500N ● Accuracy: $\pm 0.3\%F.S$ or less 	<ul style="list-style-type: none"> ● Capacity: 5N~500N ● Accuracy: $\pm 0.1\%F.S$ or less 	<ul style="list-style-type: none"> ● Capacity: 20N~500N ● Accuracy: $\pm 0.1\%F.S$ or less
<ul style="list-style-type: none"> ○ This is the most economical model 	<ul style="list-style-type: none"> ○ This is high accuracy model. ● When measuring high capacity more than 500N: PSH→To Page 28 	<ul style="list-style-type: none"> ○ This is the most accurate model with high resolution dial.

Highly Repeatable Method

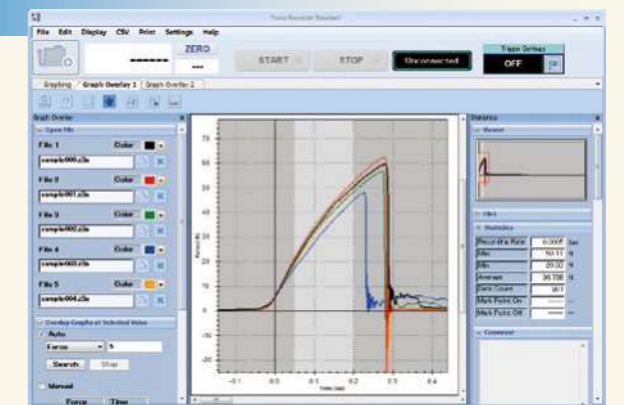
Combining a digital force gauge with a test stand (page 30), enables you to conduct a highly repeatable test since the test stand provides constant test speed and angle.



Graphing

With software (page 22), 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, Next Series is a generic term to describe the next generation models of IMADA measurement devices.

Unlike previous models, 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 or enhancing the compatibility of test data.


Consequently, Next Series devices have high customizability to meet complex needs of each user.

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



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



Refer to  for the Next Series products in this catalogue (as of Jan 2023)

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) Next Series

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

Accurately / Precisely

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

User-friendly

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

Making efficient

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

Compression and Tension Compatible

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

- Check Force Transition on Graphs
Software Force Recorder — To Page 23~24

- Connect with External Devices
Cable Using Applications — To Page 26

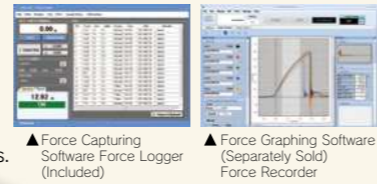
- Improve Measuring Repeatability
Test Stands — To Page 30

Easy Data Management on PC

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

Graphing by Optional Force Graphing Software

The software shows force vs time graphically on PC in real time (at Max. 2000Hz). The detail is in Page 22.



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 38 for the detail of accessory attachments.
◎The weights are slightly different by the ranges.

On our website, you can see a wide range of force testing applications, and download a specification sheet of each product. Please feel free to contact us.
●IMADA service group telephone number: +81(0)532-33-3288

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

ZTS series (High Capacity Model) Next Series

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



Compression and Tension Compatible

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

High Capacity Model List

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

- Check Force Transition on Graphs
Software Force Recorder — To Page 23~24
- Improve Measuring Repeatability
Test Stands — To Page 30
- Connect with External Devices
Cable Using Applications — To Page 26
- Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB — To Page 26

ZTS series (Separated Sensor Model) Next Series

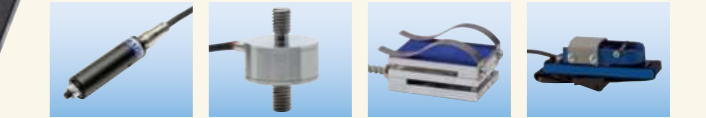


CE

ZTS (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 21.
※Sensor interchangeable model eZ-Connect (page 18) is recommended for those who change load cells.



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

- Check Force Transition on Graphs
Software Force Recorder — To Page 23~24

- Connect with External Devices
Cable Using Applications — 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
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 DPU series [High capacity model])

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

◎Please refer to Page 19 for the detail of load cell DPU 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 original graph 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 50~52] 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 32~33] 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

Data Saving to a USB Flash Drive

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



ZTA set

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

- Check Force Transition on Graphs** Software Force Recorder — To Page 23~24
- Connect with External Devices** Cable Using Applications — To Page 26
- Improve Measuring Repeatability** Test Stands — To Page 30

- Apply Stable Force by Hand** Handle FOH-1 — To Page 48 Hand Grip Belt HGB-1 — To Page 48
- Analyze Force-Displacement Relation** Force-Displacement Analysis Unit — To Page 50
- 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 38 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)	M10

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 21.
 ※ 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** Software Force Recorder — To Page 23~24
- Connect with External Devices** Cable Using Applications — To Page 26

- 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 DPU series [High capacity model])

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

※ Please refer to Page 19 for the detail of load cell DPU series.
 An example of separated sensor model combined with a load cell **ZTA-LM-500N** Load cell model Choose ZTS or ZTA
 ※ In the case where you combine ZTA with a load cell, LM-500N

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

following functions

Preventing Overload

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

STOP!

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

※Not able to prevent overload in some cases.

Making Efficient

- It automatically starts graphing and recording data.

※Graphing software is sold separately.

START!

Automatically it starts graphing.

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~1000N. It features simple functions and easy handling with light weight and compactness.

Ideal for hand use

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

Easy data management on PC

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



▲ Supplied force acquiring software Force Logger

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 48
 Hand Grip Belt HGB-1 ————— To Page 48



■ 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 - 40° C Humidity: 20 - 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 38 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~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 48
Hand Grip Belt HGB-1 ————— To Page 48

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 adapter)
Operating environment	Temperature: 0 - 40° C Humidity: 20 - 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 38 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 21 to connect with the amplifier. Available load cells have a mark
 - Its overall accuracy is calculated as the total of the accuracy of the amplifier (+/- 0.2%F.S.) and a load cell connected with it.
 - We do not offer inspection certificate when we ship it out. Therefore, please calibrate it by yourself, or request calibration for each combination if needed(available at a charge).

[This is recommended in these cases below.]

Measure things from low load to high load.

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

Keep a spare load sensor to reduce risks in operation.

Models of load cells for eZ-Connect series

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

Example Normal load cell: DPU-50N

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

Sensor Interchangeable Amplifier eZT

Precise

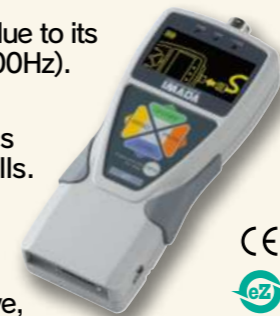
- Capture test data precisely due to its high sampling rate (Max.2000Hz).

Easy

- No additional adjustment is needed to replace load cells.

Multifunctional

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



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

- Check Force Transition on Graphs
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- Connect with External Devices
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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 21 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 adapter (only for standard model), Force Logger (software for data logging), USB cable, Adapter for USB flash drive (※2), Instruction manual	AC adapter (only for standard model), Force Logger (software for data logging), USB cable, Adapter for USB flash drive (※2), Inspection manual

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


Table of contents
Force Gauges and Related Items
Test Stands
Attachments and Fixtures
Force Measurement Units/Simple Testers

Load Cells

for Compression and Tension

Standard Type DPU

Easy built-in shape to external equipment.



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


Capacity	2N~500N
Accuracy	± 0.2%F.S. or less
Size	Approx. W58×D21×H71~W72×D21×H73mm
Cable Length	Approx. 2m

Model	Capacity	Thread
DPU-2N	2N	Male Screw M6P1.0
DPU-5N	5N	
DPU-10N	10N	
DPU-20N	20N	
DPU-50N	50N	
DPU-100N	100N	
DPU-200N	200N	
DPU-500N	500N	

for Compression and Tension

High Capacity Type DPU

Easy built-in shape to external equipment.



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

Capacity	1000N~20kN
Accuracy	± 0.2%F.S. or less
Size	Approx. W58×D26×H130~W88×D42×H155mm
Cable Length	Approx. 3m


Model	Capacity	Thread
DPU-1000N	1000N	Male Screw M10P1.5
DPU-2000N	2000N	
DPU-5000N	5000N	N/A(※2)
DPU-10kN	10kN	
DPU-20kN	20kN	

※1 A female screw M12 P1.75 is available by removing the measuring shaft.
※2 DPU-10kN/20kN equips a female screw M18 P1.5. The measuring shaft is separately sold.

for Compression and Tension

Waterproof and Dust-proof Type SW1

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



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

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


Model	Capacity	Thread
SW1-100N	100N	Female Screw M6P1.0
SW1-200N	200N	Female Screw M8P1.25
SW1-500N	500N	
SW1-1000N	1000N	Female Screw M10P1.5
SW1-2000N	2000N	
SW1-5000N	5000N	

※Please contact us if the users need the male thread.

for Compression and Tension

Waterproof and Dust-proof Type SW3

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



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

Capacity	10kN~20kN
Accuracy	± 0.5%F.S. or less
Size	Approx. W80XD25XH80mm
Cable Length	Approx. 5m


Model	Capacity	Thread
SW3-10kN	10kN	Female Screw M16P2.0
SW3-20kN	20kN	

※Please contact us if the users need the male thread.

for Compression and Tension

Extra Small Type SCX

Suitable for measurement where access is limited due to the extra compact body.



It measures force by mounted to equipment with female threads.


Capacity	100N~2000N
Accuracy	± 1.0%F.S. or less
Size	Approx. W16×D12×H19.1mm
Cable Length	Approx. 3m

Model	Capacity	Thread
SCX-100N	100N	Female Screw M6
SCX-200N	200N	
SCX-500N	500N	
SCX-2000N	2000N	

for Compression and Tension

Extra Small Type LMU

Sensor part diameter is Approx. φ 18mm.



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

Capacity	50~500N
Accuracy	± 1.0%F.S. or less
Size	Approx. φ 18XH25mm
Cable Length	Approx. 2m


Model	Capacity	Thread
LMU-50N	50N	Male Screw M5P0.8
LMU-100N	100N	
LMU-200N	200N	
LMU-500N	500N	
LMU-2000N	2000N	

※1 Conversion adaptor CA-F5T6 (Page 48) is required when M6 screw attachments mounting on the load cell.

for Compression and Tension

Small Type LU

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



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

Capacity	50~2000N
Accuracy	± 1.0%F.S. or less
Size	Approx. φ 28XH35mm
Cable Length	Approx. 3m


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

Conversion adaptor CA-8T6 (for M6 screw)/CA-8T10 (for M10 screw) (Page 48) is required when M6/M10 screw attachments mounting on the load cell.

for Compression and Tension

Pen Type PN-50N

Ideal for touching force measurements such as small manipulation force.



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

Capacity	50N
Accuracy	± 2.0%F.S. or less
Size	Approx. φ 20XH90mm
Cable Length	Approx. 2m

Model	Capacity	Thread
PN-50N	50N	M6P1.0

for Compression

Standard Type LM

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



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

Capacity	10N~20kN
Accuracy	10N~10kN: ± 2.0%F.S. or less 20kN: ± 3.5%F.S. or less
Size	Approx. φ 12XH4~φ 21XH10mm
Cable Length	10N~2000N: Approx. 2m 5000N~20kN: Approx. 3m

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

for Compression

High Accuracy Type LC

High accuracy model.



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

Capacity	500N~20kN
Accuracy	± 0.5%F.S. or less
Size	Approx. φ 50XH25mm
Cable Length	Approx. 5m

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

for Compression

Extra Small and Flat Type CFX

Extra small load cell with the large load-bearing area.



It measures force by applying compression on the flat sensor area.

Capacity	20N~200N
Accuracy	± 1.0%F.S. or less
Size	Approx. φ 15×H9mm
Cable Length	Approx. 3m

Model	Capacity	Thread
CFX-20N	20N	Female Screw M2
CFX-50N	50N	
CFX-200N	200N	

for Compression

Thin and Flat Type CLFX

Able to insert in narrow space due to the extra thin body.



It measures force by applying compression on the flat sensor area.

Capacity	50N~500N
Accuracy	± 2.0%F.S. or less
Size	Approx. φ 20×H6mm
Cable Length	Approx. 3m

Model	Capacity	Thread
CLFX-50N	50N	Female Screw M2
CLFX-500N	500N	

for Compression

Washer Type CHX

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.

Capacity	100N~2000N
Accuracy	100~500N: ± 2.0%F.S. or less 2000N: ± 1.0%F.S. or less
Size	100~500N: Approx. φ 25×H7.1mm 2000N: Approx. φ 30×H14mm
Cable Length	Approx. 3m

Model	Capacity
CHX-100N	100N
CHX-500N	500N
CHX-2000N	2000N

for Compression

High Capacity Type DD2

High accuracy model. Available for high capacity measurement.



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

Capacity	5000N~20kN
Accuracy	± 0.5%F.S. or less
Size	Approx. φ 94XH48mm
Cable Length	Approx. 5m

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

for Compression

Wide Temperature Range Type LMT-1000N

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



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

Capacity	1000N
Accuracy	± 1.0%F.S. or less
Size	Approx. φ 14XH4.3mm
Cable Length	Approx. 2m

Model	Capacity
LMT-1000N	1000N

for Compression or Tension

High Capacity ZD

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



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

Capacity	1000N~20kN
Accuracy	± 0.5%F.S. or less
Size	Approx. W78×D30×H44~W116×H38×D46mm
Cable Length	Approx. 3m

Model	Capacity	Thread
ZD1-1000N	1000N	Male Screw M12P1.75
ZD1-2000N	2000N	
ZD1-5000N	5000N	
ZD1-10kN	10kN	
ZD2-20kN	20kN	Male Screw M20P1.5

※Please choose tension or compression

※Load cells with the mark (eZ) can be combined with eZ-Connect series. eZ-Connect series are comprised of a sensor interchangeable amplifier and a load cell. Put "e" at the head of a load cell model for eZ-Connect to tell it apart from normal model. Please see the page 18 for the details.



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




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




Force Recorder Professional

Force-Displacement Graphing Software

Compatible models

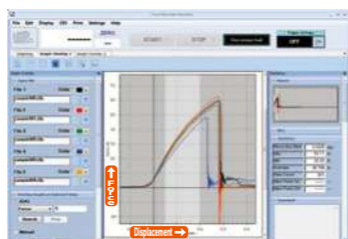
- ZTA To Page 13
- eZT To Page 18
- FA Plus2 To Page 18
- HTGA(-TFX) See a torque catalog.
- DTXA See a torque catalog.

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.
 - FSA series (Page 50~52) include this software.

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




Force Recorder Plus

Multiple gauges Force-Time Graphing Software

Compatible models

- ZTS To Page 11
- ZTA To Page 13
- eZT To Page 18
- FA Plus2 To Page 18
- HTGS/HTGA(-TFX) 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
- Refer to the [Operating Environment] on the previous page for the details of operating environment.




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

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



ZLINK4

Force-Time Graphing Software for DST/DSV

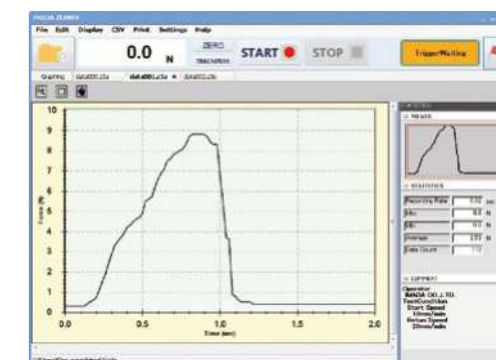
Compatible models

- 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.

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



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
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The Cables to Connect a Force Gauge to an External Devices

RS232C cable Connects a PC to a force gauge, enabling to record the measurement and transmit command signals from the PC to the gauge.	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 analog devices such as a pen recorder to a force gauge, enabling to record force transition. ※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 Connects a force gauge to a special device.	CB-908 Length: Approx. 3m	CB-908 Length: Approx. 3m	CB-908 Length: Approx. 3m			CB-908 Length: Approx. 3m
Cable with Terminal Block Connects an external equipment such as PLC	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-preventing function.	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-preventing 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-preventing function) however, it cannot prevent overload completely. We do not guarantee the complete overload-prevention.)
 ※3 It also activates motion control by set force values and an overload-preventing function.
 ※4 EMX series with firmware ver. 2.0 or later requires CB-718.
 ※ 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.
 ※ 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

※ 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).
 ※1 Depending on the software used, the number of connectable devices is limited.
 ※2 All compatible models are available from firmware Ver.3.10 and later.
 ※3 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
 ※4 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.

The Cables for Past Models

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

(The Model List)

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

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

Examples of Cable Applications

●with Digital Force Gauge ZT series

- It enables you to
 - detect abnormalities using a buzzer / light / your equipment together. (Using the functions of comparator and overload output)
 - record the force value of contact point in a switch tactile test or broken point in a cable strength test. (Using the function of the external contact point output)
 - show the point at the moment contact point of switch tactile test or a broken point of cable strength test on a graph using software (Force Recorder Standard/Professional). (Using the mark point function)
 - control an external device when the force gauge senses a set point. (Using sub-comparator function; Available only in ZTA/eZT series)



●with Motorized Test Stand EMX, MX2(MH2) series(Option-CN version)

- It enables you to
 - Operate externally from a foot switch and the like.
 - Improve equipment safety with an interlock mechanism.
 - Link wire conduction and test stand activities.

What is Unit "N"?

The "N" is a force unit called "Newton." $<1\text{kgf}=9.80665\text{N}>$
 In Japan, Measurement Act established in 1993 requires you to use only Newton for force measurement.
 Thus, in Japan our gauges indicate N.
 For outside of Japan, we offer international models providing N/kgf/lbf. To be specific, as for digital force gauges you can switch units (N/kgf/lbf), and as for mechanical force gauges you have to select one from the 3 units before purchase.

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

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

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

Reduced value for conventional force unit $1\text{kgf}=9.80665\text{N}$

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

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

Shock or Breaking Test : When Measuring Rapid Force Change

→Please choose the force gauge whose capacity is 200% of expected force in your testing.
Ex) Expected force: 10N, Measuring instrument: Digital force gauge ZTS →ZTS-20N is recommended.
 (①Double the expected force(10N) → 20N, ②Choose the ZTS whose capacity is 20N → ZTS-20N)

Elongation Test : When Measuring Slow Force Change

→Please choose the force gauge whose capacity is 150% of expected force in your testing.
Ex) Expected force: 30N, Measuring instrument: Digital force gauge ZTS series →ZTS-50N is recommended.
 (①Increase expected force(30N) by half → 45N, ②Choose the ZTS whose capacity is 45N
 → We do not offer ZTS-45N, then ZTS-50N is the nearest one.)

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

"F.S." is abbreviation of "Full Scale," and it means the capacity.
Ex) ZTS-50N offers +/-0.2%F.S. accuracy, and has 50N capacity.
 →The error is... $50\text{N} \times \pm 0.2\% = \pm 0.1\text{N}$.
 →When the measured value is 30N using ZTS-50N,
 guaranteed result is... $30\text{N} \pm 0.1\text{N} = 29.9$ to 30.1N .

Key Point of Maintenance of Measuring Instrument

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

IMADA offers calibration services, so you can keep using our force gauges for long after purchase at ease. Besides, our calibration center is certified with ISO/IEC 17025:2017, therefore, we offer high quality of calibration service if required.
 ※Some products cannot be calibrated for some reasons.

Test Stands

Test Stands Improve Repeatability.

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

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



Motorized Test Stands

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

Simple MX(Vertical)/MH(Horizontal)



To Page 33

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

The Simplest Type

- For simple compression/tension tests

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

Standard MX2(Vertical)/MH2(Horizontal)



To Page 32

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

User Friendly and High Functionality

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

High Performance EMX



To Page 33

Capacity: 500~1000N

Advanced type of MX2 with several features below

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

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~3000N

- Ideal for stretching or large sample measurement.

Horizontal

SH



To Page 35

Capacity: 1000N~3000N

- A sample can be set very easily.

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

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

IMADA

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

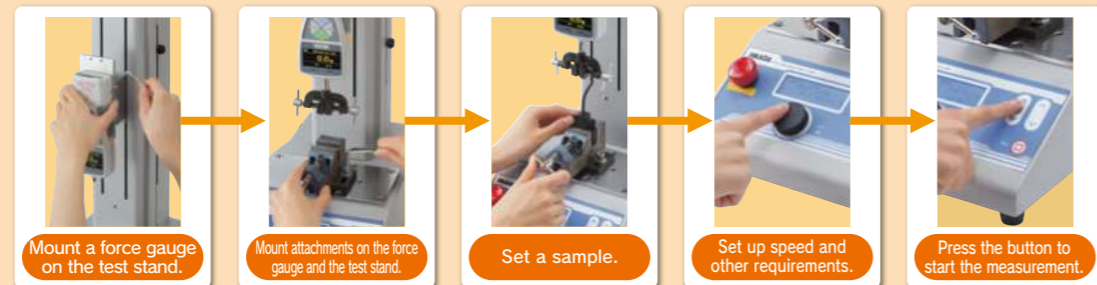


Friction Test



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 ※1



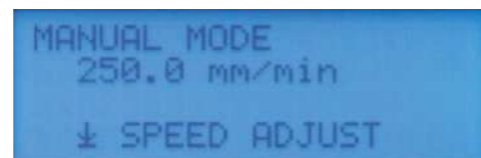
Testing speed is easily adjustable with the dial.

Setting Resolution:

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

※Adjustable speed types: Start/Measuring/Return

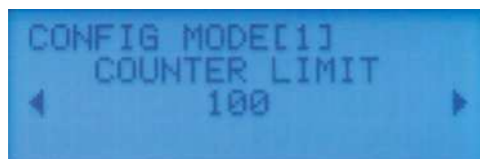
Three Measuring Modes



Three Testing Modes are available:

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

Other Functions



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

Versatile Functions with Force Gauge



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

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

Refer to the P.15 for details

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



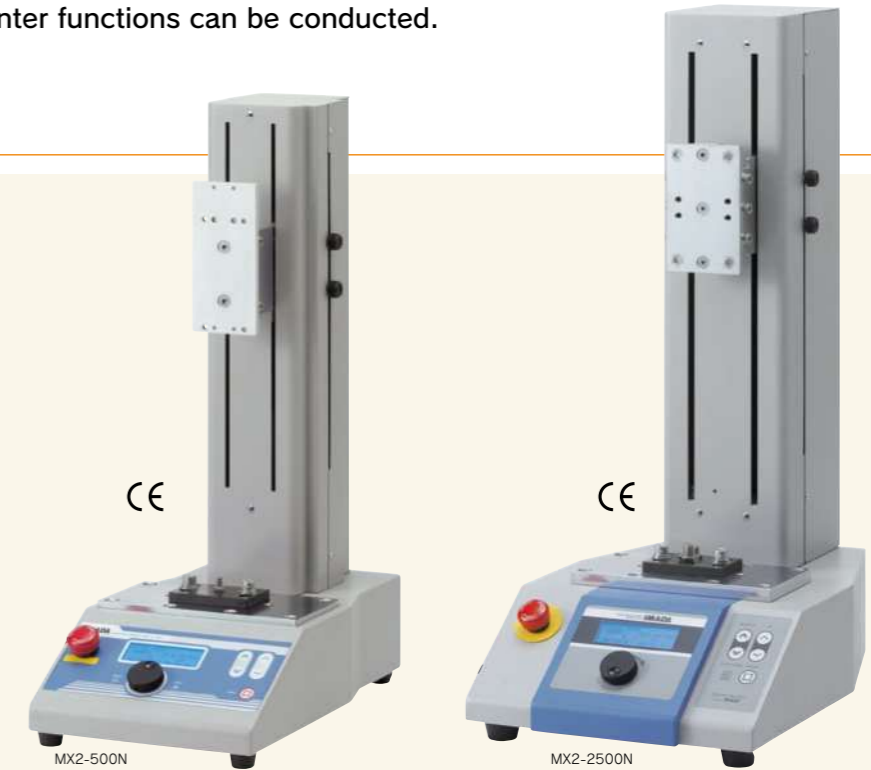
Connect with External Devices

Application examples of how cables are used
To Page 15 and Page 25



Analyze Force-Displacement Relation

Force-Displacement Analysis Unit
To Page 50



Specification

Model	MX2-500N	MX2-1000N	MX2-2500N	MX2-5000N
Capacity	500N	1000N	2500N	5000N
Speed	10-300mm/min	10-300mm/min	10-300mm/min	0.5-300mm/min
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 50

Specification

Model	MH2-500N	MH2-2500N
Capacity	500N	2500N
Speed	10-300mm/min	10-300mm/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 (0.5-600mm/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

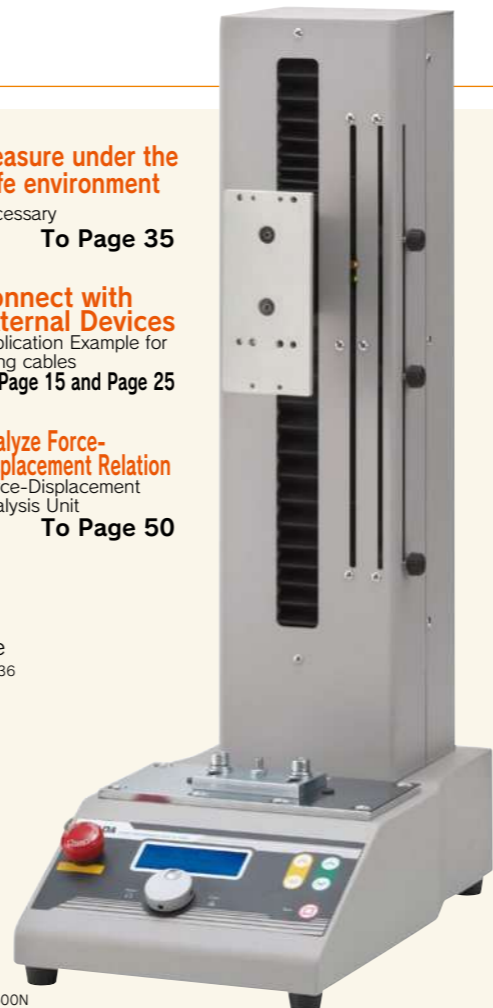


Measure under the safe environment
Accessory
To Page 35

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 50

Option
●FA version
●Long Stroke
Please refer to Page36



EMX-500N

■Specification

Model	EMX-500N	EMX-1000N
Capacity	500N	1000N
Speed	0.5-600mm/min	0.5-600mm/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	10-300mm/min	8-240mm/min
Maximum Sample Height(※1)	Approx. 235mm	Approx. 420mm
Weight	Approx. 13kg	Approx. 24kg
Size	Approx. W214xD428xH573mm	Approx. W263xD368xH903mm

MH-1000N

●Horizontal Type



MH-1000N

Option
●Speed/ Length Meter
●Length Scale
●Speed Change
Please refer to Page36

■Specification

Model	MH-1000N
Capacity	1000N
Speed	6-180mm/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.

Cloth Button Pull Off Test

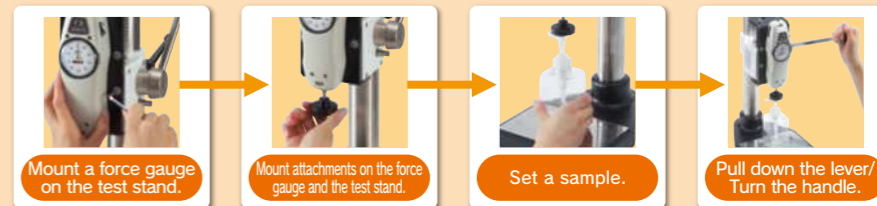


Ball Hardness Test



How to Use Manual Test Stand

(Using Example: SVL-1000N)



As options, we can extend its stroke or mount a length scale. The detail is on Page 36.

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

Option
●Length Scale
●Extended Column
Please refer to Page 36

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

Option
●Length Scale
●Long Stroke (except HV-3000N)
Please refer to Page 36



HV-500N II

HV-1000N

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.

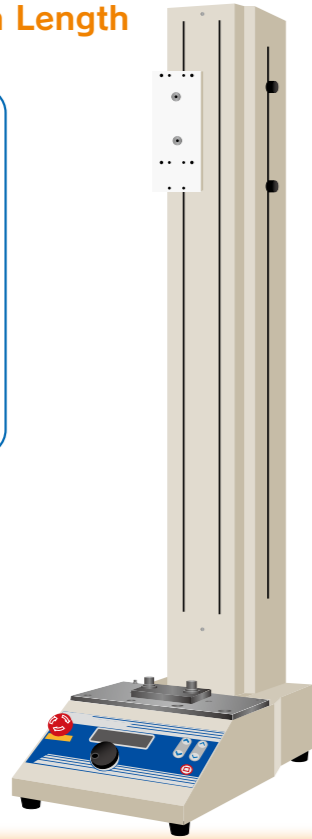
Examples of Customized Test Stands

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

Changing Test Speed Range / Extending Column Length

[This is recommended when you...]

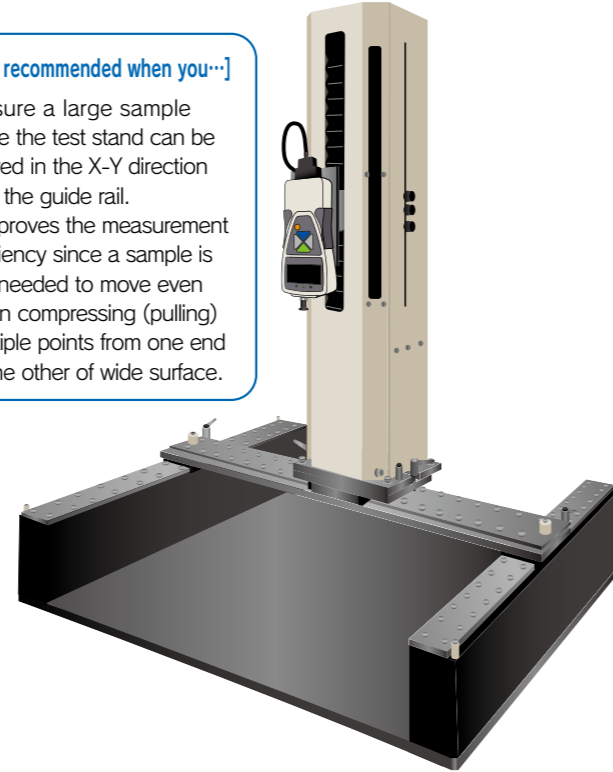
- Test stretch samples.
- Compress (Tensile) long.
- ↑ We can extend column length of both horizontal and vertical test stands.
- Test speedily.
- Test slowly.
- ↑ We can change the range of measuring speed.



Testing Large Samples

[This is recommended when you...]

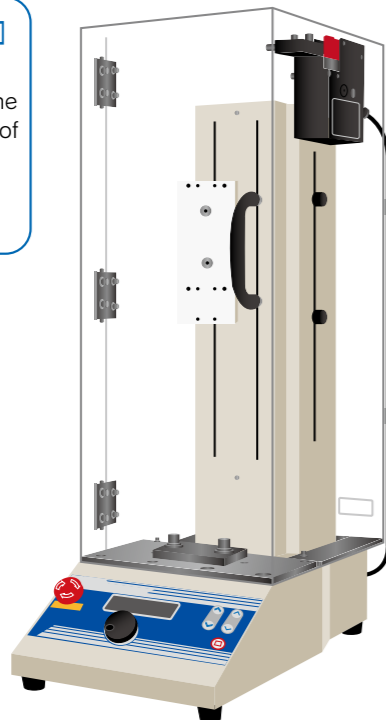
- Measure a large sample since the test stand can be moved in the X-Y direction with the guide rail.
- It improves the measurement efficiency since a sample is not needed to move even when compressing (pulling) multiple points from one end to the other of wide surface.



The electromagnetic lock cover provides safety

[This is recommended when you...]

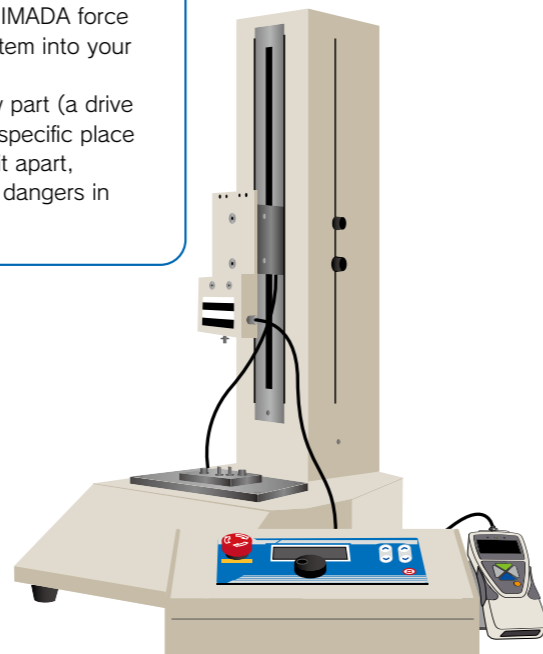
- Would like to stop the test stand completely before the door is unlocked, instead of unlocking the door at the same time as the stand stops.



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

[This is recommended when you...]

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



Attachments

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

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



The Attachment Types and How to Use

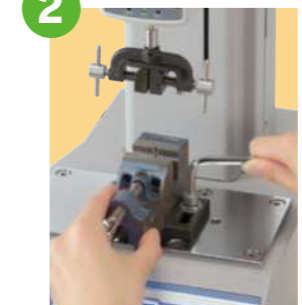
IMADA attachments are separated to 2 types generally.

1 Attachments to be mounted on a force gauge.



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

2 Attachments to be mounted on a test stand table.



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



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

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

Accessory Attachments

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

Standard Type

M6

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

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



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

High Capacity Type

M10

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



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

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

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

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

IMADA Search

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

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**

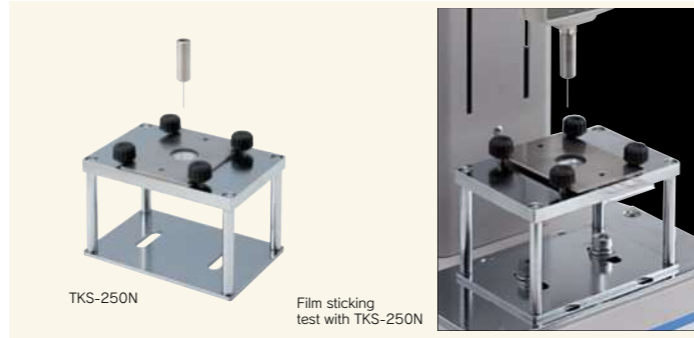
Designed for puncture strength test of thin samples such as film.

Representative applications

Film Metal foil PET bottle Cloth Fiber material

Model	TKS-20N	TKS-250N
Capacity(N)	20	250
Pin diameter(mm)	Approx. ϕ 1	Approx. ϕ 1
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. ϕ 2	Approx. ϕ 3	Approx. ϕ 4	Approx. ϕ 5
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

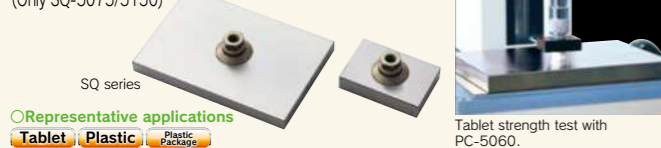
Switch Electrical component Touch panel

Model	UR-8S	UR-8M
Capacity(N)	50	50
Weight(g)	Approx. 5.4	Approx. 5.2
Hardness	ShoreA50	ShoreA70
	Hardness like eraser	Hardness like rubber ball for base ball
Mounting screw		M6

※ 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 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

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)



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

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



Representative applications

Metal board Plastic board Carbon Wire net Ply wood board Ceramic

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)/K7089/IEC60672-2(1991)/ISO14704-2016
BT-5000N-CB: Complies with the corresponding part of JIS K7074(1988)/K7017(1999)/C2141(1992)/H7406(1993)/K7088/IEC60672-2(1991)/ISO FDS-1425

Soft Pad Attachments **PAD series**

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

Representative applications

Furniture Plastic cup Human body

Model	PAD-100-25	PAD-R80	PAD-25-25	PAD-D80
Capacity(N)	1000	1000	1000	1000
Size(mm)	100x25x25	100x31.4x25	25x25x25	ϕ 80x25
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**

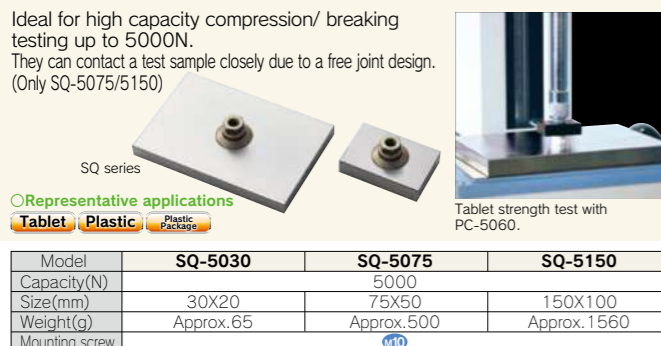
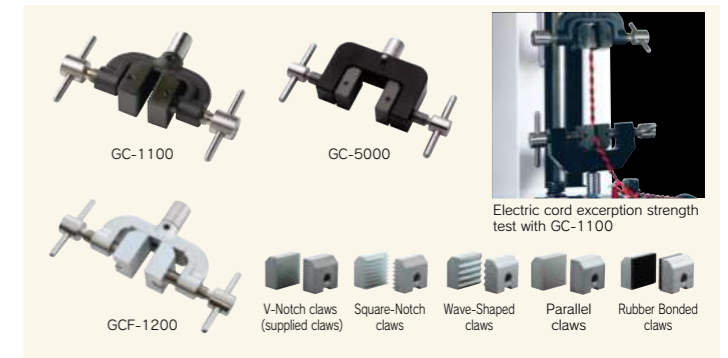
These grips can be used for a wide range of testing applications. Its jaw is manually tightened, and individually adjusted for samples up to 10-30mm thick. (The maximum thick differs among models.) GCF-1200 is multi-purpose model, replaceable the claws.

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	-	-	-	O

GCF-1200 with wave-shaped claws complies with the corresponding part of ISO 1924-2(1994)/JIS P 8113(2006).
※ Fixed models (-F) are available, recommended when you attach it on a test stand since their attaching parts are fixed. (Fixed mounting screw is standard equipped to GCF-1200.)



Representative applications

Cushioning materials

Model	SP-5010	SP-5020	SP-5030
Capacity(N)		5000	
External diameter(mm)	ϕ 10	ϕ 20	ϕ 30
Weight(g)	Approx. 26	Approx. 55	Approx. 135
Mounting screw		M10	

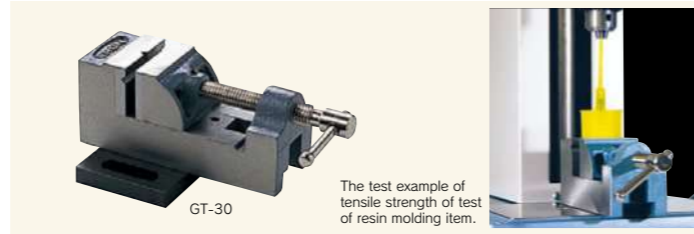
Vise Grips and Tables

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 rectangular mounting desig.
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.



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

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

Model	GTW-50R	GTW-50L
type	Knob type	Lever type
Capacity(N)	500	1000
Aperture opening width(mm)	Max.68	
Mounting	to Test stand table	



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

A wide opening jaw enables gripping a larger samples.
The stainless material unaffacts 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.

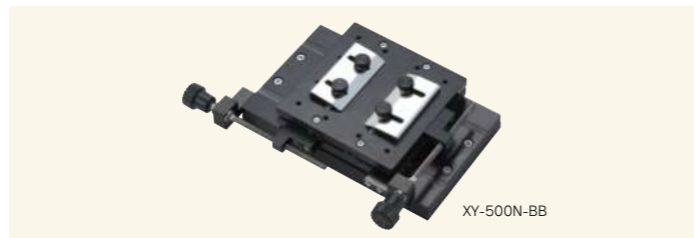


XY Table **XY-500N series**

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.



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



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

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

Model	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



Optional Handles

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

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



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

Hand Grip Belt **HGB-1**

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

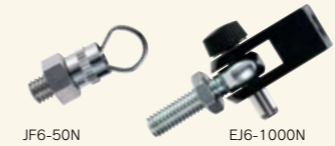


Model	HGB-1
Compatible model	200N or less range of ZTA/ZTS/DSV/DST/PSS/PS/PSM/FS/FB
Weight(g)	Approx.45

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 38) is required to mount JF6-50N on a force gauge.

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

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



Model	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

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~500N SW1-100N/200N	LU series SW1-500N	DPU-1000N~ 5000N	DPU-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	DPU-10kN, DPU-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.

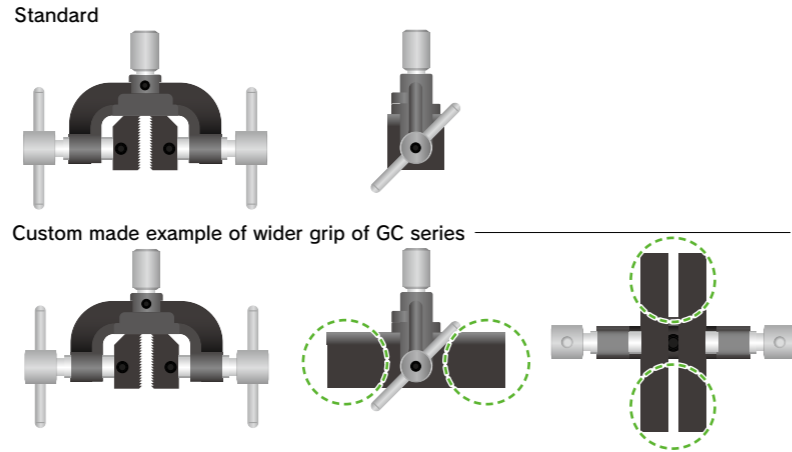
Model	EN-500N
Compatible load cell	LMU series
Capacity(N)	500
Weight(g)	Approx.11
Mounting screw	M5 Female Screw



1. Resizing Ready-Made Attachment

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

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



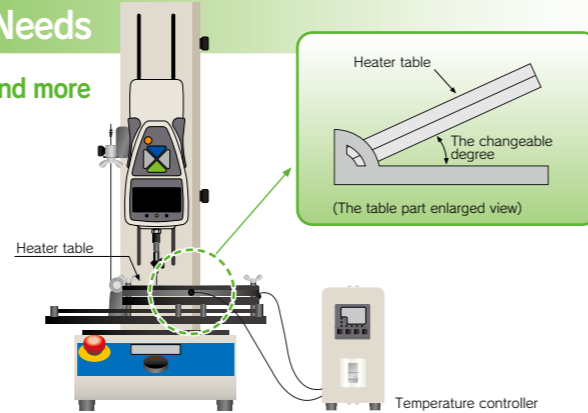
We flexibly change sizes (width, depth) of fixtures and grips to fit your testing needs. Please contact us for the details.

2. Changing Specifications to Fit Your Testing Needs

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

[Example: Specification change of peeling test fixture]

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



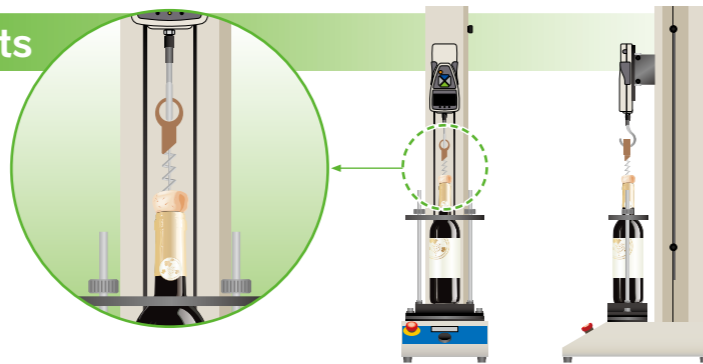
● Measurement in accordance with standards such as Japanese Industrial Standard, ISO or ASTM

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

3. Completely Original Products

[Example: Cork excerpion measuring unit]

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



FSA series Force-Displacement Analysis Unit

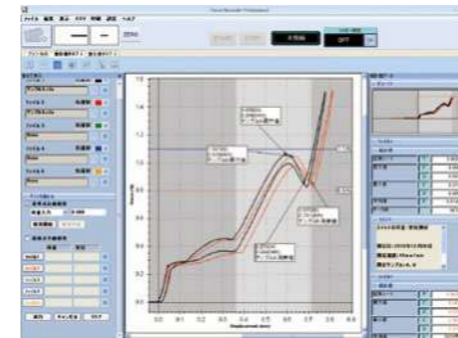
High-performance measurement unit that can easily analyze the relationship between force and displacement

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

It is ideal for tactile test and material characteristic evaluation.



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



Basic Functions of Force-Displacement Measurements

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

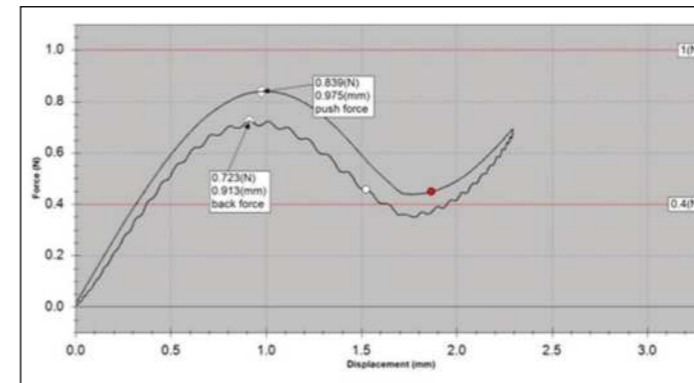
Useful Functions for Measurements and Analysis

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

The Advantage of Measuring Displacement and Force Together.

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

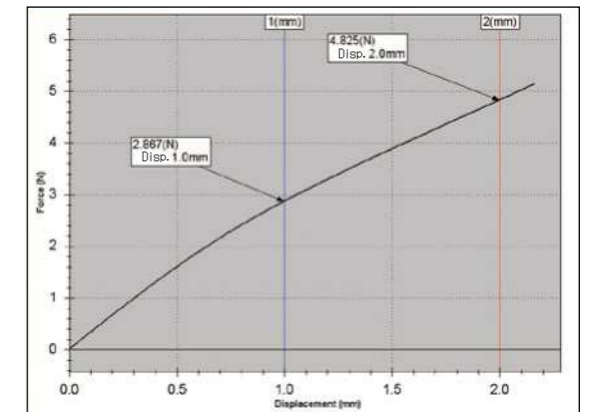
Example of A Switch Characteristic Evaluation



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

Other Test Examples

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

Configuration

A Force Gauge

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

A Test Stand

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

A Cable

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

Standard Attachments

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



Software

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



Measurement unit	Force	N, kgf, lbf ※
	Displacement	mm, inch ※
Range		2N(200gf), 5N(500gf), 20N(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. +/-1 digit
	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: ①A force gauge is separately sold. ②Actual 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 FSA-2.5K2' FSA-5K2,FSA-2.5HK2 is in case of mounting ZT series high capacity type. ※The unit is different from Japanese domestic models.

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

Easily

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

Precisely

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

Vertical

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

FSA-0.5K2, 1K2, 2.5K2
Speed: 10-300mm/min (standard)

FSA-5K2
Speed: 0.5-300mm/min (standard)



Models: FSA-0.5K2-2~500N

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

Models: FSA-2.5K2-2~2500N

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

Models: FSA-1K2-2~1000N

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

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

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

Horizontal

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

Speed: 10-300mm/min (standard)



Models: FSA-0.5HK2-2~500N

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

Models: FSA-2.5HK2-2~2500N

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

Multifunctional and Accurate

Speed: 0.5~600mm/min (Standard)

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

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



Models: FSA-0.5KE-2~500N

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

Models: FSA-1KE-2~1000N

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

Portable (Knob operation, Up to 50N)

Capacity: 2~50N (※1)
The sample maximum height: 44mm (※2)



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

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

Models: FSA-MSL-2~50N

※1 Force gauge's capacity decides the capacity of testing system.

※2 The sample maximum height means the distance between the test stand table and the thread of the force gauge ZT series general model (1000N or less) at the highest position of the test stand head. The figure for FSA-2.5K2' FSA-2.5HK2,FSA-5K2 is in case of ZT series high capacity model combined.

Automatic crimp tester

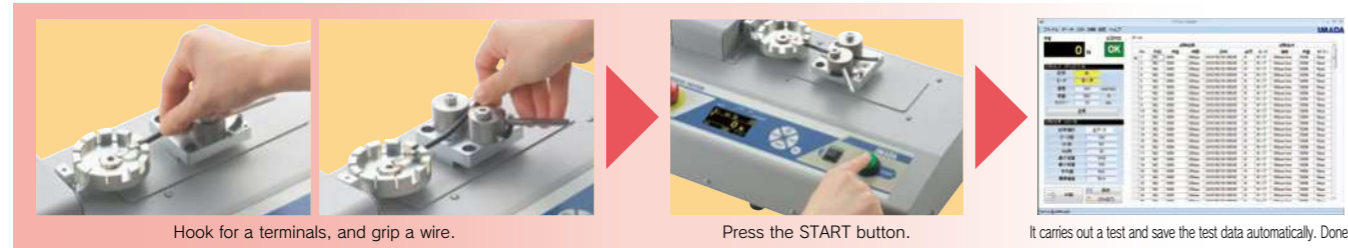
ACT-1000N



[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.



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: 1~8mm Harness side: 1~8mm	
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	AC100~240V	
Operating environment	Temperature:0~40 degree Celsius Humidity:20~80%RH	
Accessory	Software, USB cable, Power cord, Inspection Certificate	

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

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.

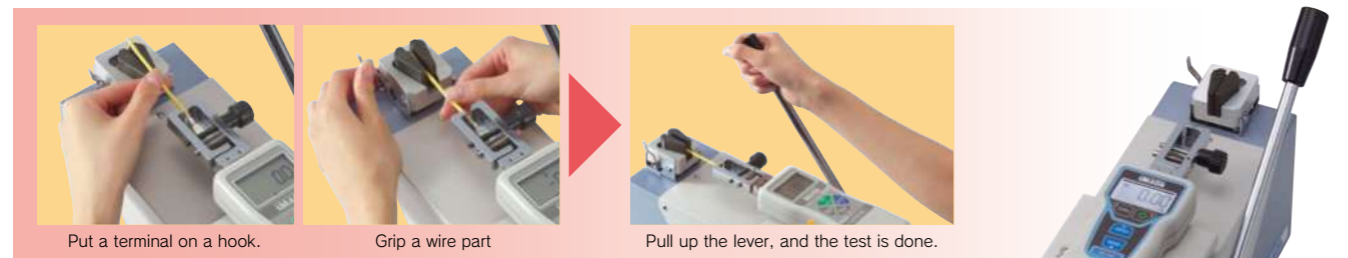
It comes with fixtures for wire and terminal.

□Size:W400×D240×H150mm
□Weight:Approx.11kg

Test Lever Stand LH-500N

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

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



Accessory Attachment

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

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

□Size:
Approx.W155×D450×H182mm
□Weight:
Approx.11kg

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.



□Size:Approx.W702×D300×H140mm
□Weight:Approx.11kg

Related Standards

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



Peel test of embossed carrier tape

High Speed Peel Tester

IPTS-20N/50N



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



□Size:Approx.W702×D300×H140mm
□Weight:Approx.11kg

Related Standards

- A peel test part of ISO 29862:2018 [Self adhesive tapes - Determination of peel adhesion properties] (A peel test part of JIS Z 0237:2022)
- A peel test part of ISO 8510-2:2006 [Adhesives - Peel test for a flexible-bonded-to-rigid test specimen assembly - Part 2 : 180° peel] (A peel test part of JIS K6854-2:1999)
- A peel test part of Japanese Pharmacopoeia

Test Samples

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



Peel test of copper foil

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



Model	IPTS-5N	IPTS-20N	IPTS-50N
Capacity	5N	20N	50N
Resolution	0.001N	0.01N	
Unit※	N, gf, ozf	N, kgf, lbf	
Accuracy	±0.2%F.S. ±1digit		
Overload	Approx.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° - 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 prevention (Valid only when the power is ON) (※1)		
Power	AC100~240V free input(※2)		
Weight	Approx. 11kg		
Operating environment	Temperature: 0~40°C Humidity: 20~80%RH		
Accessories	Force Recorder Standard (graphing software), USB cable, Power cable, Film grip, Inspection certificate, Instruction manual		

※1 You cannot prevent overload in some cases.
※2 Please specify the voltage when you order.(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.