FORCE MEASUREMENT

IMADA
Product Catalog
Torque and Food Testers

TORQUE GAUGES
TEXTURE ANALYZER

2025-4

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.

Next Series

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.

Torque Testers

IMADA's torque testers can measure various torque such as twisting, turning, etc.
We offer a wide range of torque testing products such as test stands for higher repeatability, torque-angle testers, and more to fit your measurement needs.

Testers for Food Industries

IMADA'S food texture analyzer can be used for analyzing food texture (firmness, elastic force, and more).
We offer a wide variety of food testers and jigs to meet your measurement needs.
Some of our testers can perform tests according to standards.

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/

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

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

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

Exclusive Importer

LP Products Lupa Sp.j.
ul. Konstytucji 3 Maja 76
PL 34-120 Andrychów

tel. : (+48) 33 870 45 95
kom: (+48) 662 158 749
e-mail: pomiary@Lp-p.pl
www.Lp-p.pl www.Imada.pl

CATALOG No.ST-2504E

Turning / Twisting Force Testing

Torque Gauges

Food characteristic testing

Texture Analyzer

Index

Utilize this index to find the number of the page of your desired product.

01

IMADA gauges can be used for a wide range of force testing applications.

IMADA force gauges have been used worldwide for more than 75 years to assess and ensure quality by professionals in every industries. We provide the best solutions from simple testing to professional testing.
For further information, please see another catalog "Catalog for Force Gauges and Associated Equipment" or our web page.

Compression Force Testing

Switch activation force testing

Cushion/pillow repulsion testing

Package crushing strength testing

Tension Force Testing

Fiber cutting force testing

Film breaking force testing

Cork pull-off force testing

FORCE MEASUREMENT
IMADA

Peeling / Adhesion Force Testing

Packaging opening force testing

Corrugated cardboard adhesion testing

Tape peel testing

Coefficient of Friction

Film coefficient of friction testing

Floor coefficient of friction testing

Grip coefficient of friction testing
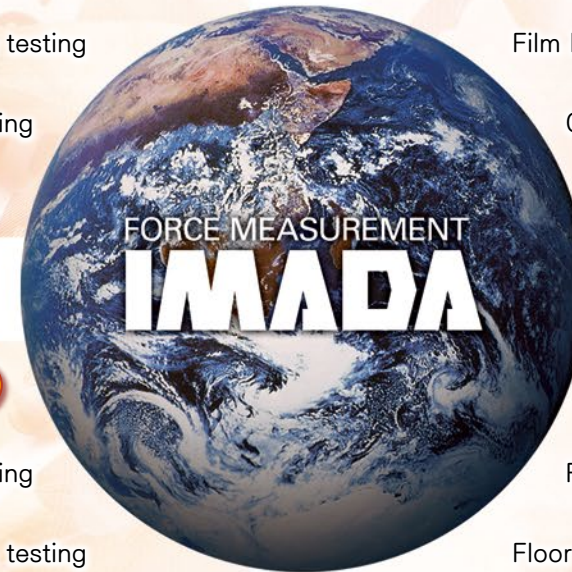
75 Years History of IMADA Force Gauge

In 1947
Developed the first force gauge in Japan.

The Latest Force Gauges
Capable, Functional and User-friendly force gauge, ZT series are released.

PS
PS (1959)
PS (1965)
PS (1972)
PS (1979)
PS/FB/PSM (1993)

DPS (1984)
DPS-S (1987)
SS II (1989)
DPSS-T/DPSS (1995)
DPS (1996)
DS2 (2006)
DSV/DST (2017)

DPRS-T (1988)
DPRSX-T (1994)
DPX-T/DPX (1997)
DPZ (2002)
ZP/Z2 (2004)
ZTA/ZTS (2013)

〈Evolved to Next Series in 2021〉

02

Next Series
~Continue to Evolve

Next Series

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

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

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

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

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

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

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

User Support Site
IMADA Connected

IMADA Connected

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

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

Handheld Digital Torque Gauge

HTGS/HTGA series
Next Series

Accurately / Precisely

◎It captures torque values accurately due to high sampling rate (2000Hz).

◎HTGS and HTGA are designed to reduce the influence by its bearing mechanism, achieving greater accuracy. (Torque measurement is influenced by bending/compression/tension force during measurement, decreasing accuracy.)
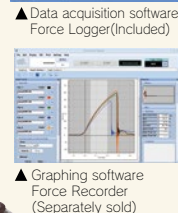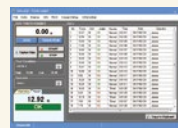
User friendly

◎High Luminance Organic EL display
Clear organic display has excellent readability.

◎8 languages are available
Setting menu in 8 languages helps easy operation.

Making efficient

◎OK/NG judgment
Picks out defective products easily.
(+NG or –NG light goes on when the torque is over or under the borderline that you decide.)

◎3 line indicator
A torque value is indicated in the middle tier, and you can select information as required in the upper and lower tiers.
◎The available information is such as time / the number of memory / set points etc.

◎Connecting to / interlock external equipment

Varieties of torque can be measured

◎HTGS/HTGA can handle a wide range of torque testing applications using different attachments.
Go to page 08 for further information.

HTGA
High functional type

HTGA series include all the functions of HTGS series, with a few additional features below.

Inputting/Outputting Angle

◎HTGA indicates both torque and angle on its monitor, combined with an angle meter.
Torque-Angle Analysis with HTGA – Go to page 17

Easy data management on PC

◎Easy connection with USB interface
◎Data acquisition software Force-Logger is included
 −It sends 10 data/sec
 −It automatically detects maximum and minimum values.
 −It saves data in CSV format.

◎Graphing by optional graphing software
The software shows torque vs time graphically on PC in real time (at Max. 2000Hz)
Go to page 12 for further information.

▲ Data acquisition software Force-Logger(Included)
▲ Graphing software Force Recorder (Separately sold)

HTGS
Standard Type

□Size (The indicator) : Approx.W75XD34XH187mm
(The sensor) : Approx. φ39XL120mm
□Weight (The indicator) : Approx.490g
(The sensor) : Approx.430g

CE

Capturing 2 Peaks

◎Captures 1st and 2nd peaks of measurement.

Saving Data to USB Flash Drive

◎Saves continuous data into USB flash drive at 100Hz.
In other words, data can be saved even without PC.

Check Torque Transition on Graphs
Graphing software ——————— To page 12

Analyze the Relation of Torque and Angle
Torque-Angle Analysis Unit TAA series − To page 17

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB
——————— To Page 14

HTGS series | HTGA series

Accuracy	±0.5%F.S.+1digit	
Unit of measurement	N-m, N-cm, kgf-m, kgf-cm, lbf-in, ozf-in(Switchable)(*1)	
Display	4-digit Organic EL	
Sampling rate	2000 data / sec at maximum	
Function	Customized display (header and footer), Peak hold (clockwise and counter-clockwise), Internal 1000 points data memory, Comparator (judgment of OK or NG), Reversible display, Sign inversion, Zero clear timer, +NG alarm, Off timer (auto power off), Dumping,Time display 1st/2nd peak(only for HTGA), Angle detection at torque peak value(Only for HTGA)(※2),Angle zero reset at selected torque(only for HTGA)(※2)	
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) (only for HTGA), USB flash drive(only for HTGA) , Angle(displacement)(only for HTGA) (*2)	
Accessory	CD driver (including simple software for data logging), USB cable, AC adapter, Carrying case, Instruction manual, Inspection certificate, L wrench, Handles (10N-m range only) USB flash drive adapter(only for HTGA) (*3)	

Model	Capacity	Display
HTGS-0.5N(*4)	50N-cm	50.00N-cm
HTGS-2N	2N-m(200N-cm)	2.000N-m(200.0N-cm)
HTGS-5N	5N-m(500N-cm)	5.000N-m(500.0N-cm)
HTGS-10N	10N-m(1000N-cm)	10.00N-m(1000N-cm)
HTGA-0.5N(*4)	50N-cm	50.00N-cm
HTGA-2N	2N-m(200N-cm)	2.000N-m(200.0N-cm)
HTGA-5N	5N-m(500N-cm)	5.000N-m(500.0N-cm)
HTGA-10N	10N-m(1000N-cm)	10.00N-m(1000N-cm)

*4 The Unit shown in only "N-cm"

*1 These are the specifications for International model. Please note that this unit is different from Japanese domestic model.
*2 Angle(displacement) scale is necessary to valid this function.
*3 USB flash drive is not included.
◎No attachments are included.

07

Attachments for HTGS/HTGA

We provide a wide range of interchangeable attachments to fit various testing needs.

How to Measure

Mount an attachment. → Fix a sample. → Turn the sensor to measure torque.

Screws | Rotary switch
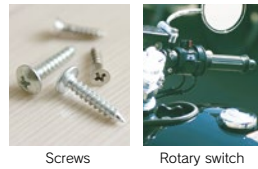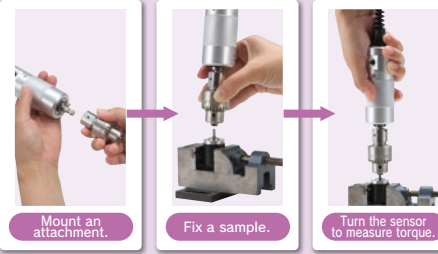
Attachments for HTGS/HTGA series

Pin chuck
Ideal for gripping columnar samples.

Usage image

Model	HT-DC-13	HT-DC-6.5	HT-DC-6.5SUS(*1)	HT-DC-4
Capacity	10N-m	10N-m(*3)	10N-m(*3)	5N-m
Opening width	φ1.2 to 13mm	φ0.5 to 6.5mm	φ0.5 to 6.5mm	φ0.5 to 4mm
Weight	Approx.600g	Approx.200g	Approx.190g	Approx.100g

*1 HT-DC-6.5SUS (Stainless model) is recommended under easy-to-rust environment.
*2 HT-DC-13 cannot be used for torque gauges with capacity of 2N-m or less.
*3 HT-DC-6.5 series cannot be used for torque gauges with capacity of 0.5N-m or less.

Torque driver
Ideal for measuring tightening / loosing torque.

Model	HT-DBH*1	HT-DBH-P*2
Bit	⊕1 ⊕2 ⊕3×⊖6×45	⊕00×50
Weight	Approx.100g	Approx.12g

*1 HT-DBH cannot be used for torque gauges with capacity of 0.5N-m or less.
*2 HT-DBH-P is only for torque gauges with capacity of 0.5N-m.

Socket holder
Ideal for torque wrench or screwdriver bit.

Model	HT-9.5SQ
Socket	9.5mm square
Weight	Approx.100g

* HT-9.5SQ cannot be used for torque gauges with capacity of 0.5N-m or less.

M10 adaptor
This adaptor is used to mount M10 attachment.

Model	HT-AD-M10
Screw	M10×L20
Weight	Approx.50g

Small table and Pins

HT-ST | Standard pins | Notch pins | Long clamp pins
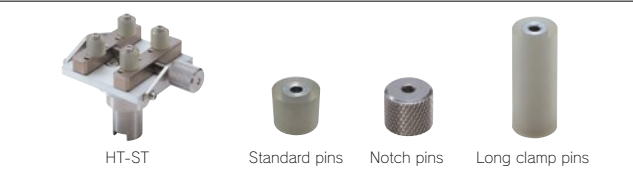
Model	HT-ST	HT-ST-01	HT-ST-02
Capacity	5N-m	5N-m	5N-m
Allowable sample diameter	φ7 to 50mm	φ7 to 50mm	φ7 to 50mm
Attached pin	Standard pins	Notch pins	Long clamp pins

*1 HT-ST series cannot be used for torque gauges with capacity of 0.5N-m or less.
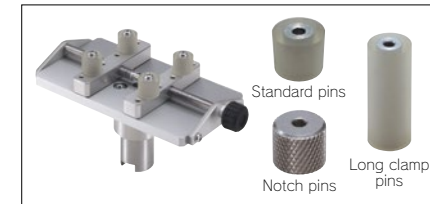* Image is for illustration purpose. Actual attached pins differ depending on the model.

Wide table and Pins

HT-STW | Standard pins | Notch pins | Long clamp pins
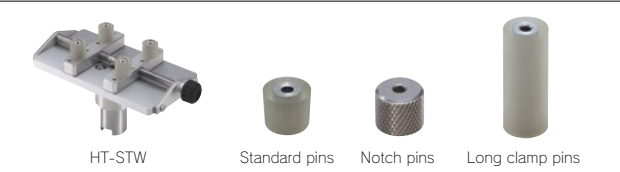
Model	HT-STW	HT-STW-01	HT-STW-02
Capacity	5N-m	5N-m	5N-m
Allowable sample diameter	φ10 to 100mm	φ10 to 100mm	φ10 to 100mm
Attached pin	Standard pins	Notch pins	Long clamp pins

*1 HT-ST series cannot be used for torque gauges with capacity of 0.5N-m or less.
* Image is for illustration purpose. Actual attached pins differ depending on the model.

Light weight small table and Pins

HT-STL | Standard pins | Notch pins | Long clamp pins
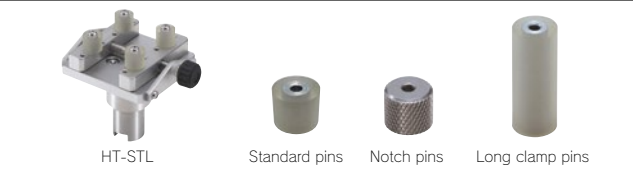
Model	HT-STL	HT-STL-01	HT-STL-02
Capacity	2N-m	2N-m	2N-m
Allowable sample diameter	φ7 to 50mm	φ7 to 50mm	φ7 to 50mm
Attached pin	Standard pins	Notch pins	Long clamp pins

* Image is for illustration purpose. Actual attached pins differ depending on the model.

Light weight wide table and Pins

HT-STLW | Standard pins | Notch pins | Long clamp pins
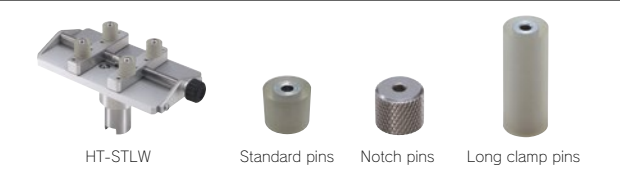
Model	HT-STLW	HT-STLW-01	HT-STLW-02
Capacity	2N-m	2N-m	2N-m
Allowable sample diameter	φ10 to 100mm	φ10 to 100mm	φ10 to 100mm
Attached pin	Standard pins	Notch pins	Long clamp pins

* Image is for illustration purpose. Actual attached pins differ depending on the model.

Accessory
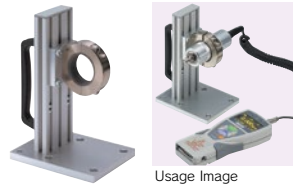
Sensor holder
The holder is used to fix sensor.
Model:SHT-5N
Capacity:5N-m

Usage Image

Angle Meter Unit AMK-360
·Angle Meter Unit for HTGA series(P07) and eHT Series(P11).
·Enables torque-angle measurement.

Model	AMK-360	AMKL-360
Features	Standard	For low torque (0.5 to 2N-m)
Accuracy	±0.2°	
Angle Range	0.1 to 9999.9°	
Cable Length	Approx. 1m	
Compatible devices	HTGA-2N/5N/10N, eHT-2N/5N/10N	HTGA-0.5N/2N, eHT-0.5N/2N

Rotation Support Jig for HTGS/A

Manual rotation support jig for torque gauge HTGS/A series to measure torque in the horizontal direction

Model	RSH-5N	RSH-5N-EXT	RSH-5N-EXT2	RSH-5N-RA	RSH-5N-RA-EXT	RSH-5N-RA-EXT2
Features	Standard type			With angle-meter		
Capacity	5N-m (500N-cm)					
Maximum depth of a sample (With HT-ST,DT-TB series)	205mm	305mm	405mm	205mm	305mm	405mm
Weight	Approx.5.1kg	Approx.5.5kg	Approx.5.9kg	Approx.5.1kg	Approx.5.5kg	Approx.5.9kg

08

HTGS/HTGA-RT-5N `Next Series`

A rotating torque gauge capable of measuring the torque of continuously rotating samples. Ideal for measuring the torque of samples like rollers and gears, which turn more than 360 degrees.

Accurately / Precisely

◎It captures torque values accurately due to high sampling rate (2000Hz).

User friendly

◎High Luminance Organic EL display
Clear organic display has excellent readability.

◎8 languages are available
Setting menu in 8 languages helps easy operation.

Making efficient

◎OK/NG judgment
Picks out defective products easily.
(+NG or −NG light goes on when the torque is over or under the borderline that you decide.)

◎3 line indicator
A torque value is indicated in the middle tier, and you can select information as required in the upper and lower tiers.
◎The available information is such as time / the number of memory / set points etc.

◎Connecting to / interlock external equipment

□Size (The indicator) : Approx.W75XD34XH187mm
　(The sensor) : Approx.W85×D32×H62mm
□Weight (The indicator) : Approx.490g
　(The sensor) : Approx.450g

Easy data management on PC

◎Easy connection with USB interface
◎Data acquisition software Force-Logger is included
 − It sends 10 data/sec
 − It automatically detects maximum and minimum values.
 − It saves data in CSV format.

◎Graphing by optional graphing software
The software shows torque vs time graphically on PC in real time (at Max. 2000Hz)
Go to page 12 for further information.

▲ Data acquisition software Force-Logger(Included)
▲ Graphing software Force Recorder (Separately sold)

HTGS-RT-5N
Standard Type

HTGA-RT-5N
High functional type

HTGA series include all the functions of HTGS series, with a few additional features below.

Inputting/Outputting Angle

◎HTGA indicates both torque and angle on its monitor, combined with an angle meter.
Torque-Angle Analysis with HTGA – Go to page 17

Capturing 2 Peaks

◎Captures 1st and 2nd peaks of measurement.

Saving Data to USB Flash Drive

◎Saves continuous data into USB flash drive at 100Hz.
In other words, data can be saved even without PC.

Check Torque Transition on Graphs
Graphing software ——— To page 12

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB ——— To Page 14

Accuracy	±1.0%F.S.±1digit
Unit of measurement	N-m, N-cm, kgf-m, kgf-cm, lbf-in, ozf-in (*1)
Display	4-digit Organic EL
Sampling rate	2000 data/sec at maximum
Max. Rotation Speed	4000rpm
Expected Durability	Max. of approx. 50 million rotations
Function	Customized display (header and footer)/Peak hold (clockwise and counter-clockwise)/Internal 1000 points data memory/Comparator (judgment of OK or NG)/Reversible display/Sign inversion/Zero clear timer/+NG alarm/Off timer (auto power off)/Dumping/Time display/setting lock/1st2nd peak (only for HTGA-RT-5N)/ Angle detection at torque peak value (only for HTGA-RT-5N)(*1)/Angle zero reset at selected torque (only for HTGA-RT-5N)(*2)
Output	USB/RS232C/±2VDC analog output (D/A)/Comparator 3 steps (-NG/OK/+NG)/ Overload alarm/Sub comparator 2 steps (output of large or small judgment)(only for HTGA-RT-5N)/USB flash drive (only for HTGA-RT-5N)/Angle (only for HTGA-RT-5N)(*3)
Accessory	AC adapter/inspection certificate/CD driver (including data logging software)/USB cable/ carrying case/L wrench/USB flash drive adapter (only for HTGA-RT-5N)(*3)

Model	Capacity	Display
HTGS-RT-5N	5N-m(500N-cm)	5.000N-m(500.0N-cm)
HTGA-RT-5N	5N-m(500N-cm)	5.000N-m(500.0N-cm)

*1 These are the specifications for international model. Note that available units are different from Japanese domestic model.
*2 Angle meter is necessary to activate these functions.
*3 USB flash drive is not included.

HTGS-RT-5N　　HTGA-RT-5N

HTGS/HTGA-TFX series `Next Series`

Ideal for integration to equipment by fixing the sensor with its equipped holes on both sides

HTGS-TFX
Standard Type

□Size (The indicator) : Approx.W75XD34XH187mm
　(The sensor) : Approx.φ35XH28mm
□Weight (The indicator) : Approx.490g
　(The sensor) : Approx.63g

HTGA-TFX
High functional type

HTGA-TFX series include all the functions of HTGS series, with a few additional features below.

Inputting/Outputting Angle

◎By connecting with a customized angle meter, the angle value can be measured and displayed.

Accurately / Precisely

◎It captures torque values accurately due to high sampling rate (2000Hz).

User friendly

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

Making efficient

◎OK/NG judgment
Picks out defective products easily.
(+NG or −NG light goes on when the torque is over or under the borderline that you decide.)

◎3 line indicator
A torque value is indicated in the middle tier, and you can select information as required in the upper and lower tiers.
◎The available information is such as time / the number of memory / set points etc.
◎Connecting to / interlock external equipment

Capturing 2 Peaks

◎Captures 1st and 2nd peaks of measurement.

Saving Data to USB Flash Drive

◎Saves continuous data into USB flash drive at 100Hz.
In other words, data can be saved even without PC.

Easy data management on PC

◎Easy connection with USB interface
◎Data acquisition software Force-Logger is included
 − It sends 10 data/sec
 − It automatically detects maximum and minimum values.
 − It saves data in CSV format.

◎Graphing by optional graphing software
The software shows torque vs time graphically on PC in real time (at Max. 2000Hz)
Go to page 12 for further information.

▲ Data acquisition software Force-Logger(Included)
▲ Graphing software Force Recorder (Separately sold)

Check Torque Transition on Graphs
Graphing software ——— To page 12

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB ——— To Page 14

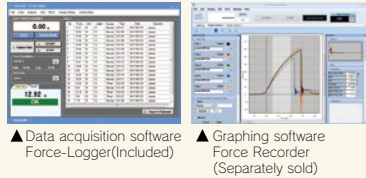| Accuracy	±1.0%F.S. ±1digit
Unit of measurement	N-m, N-cm, kgf-m, kgf-cm, lbf-in, ozf-in (*1)
Display	4-digit Organic EL
Sampling rate	2000 data/sec at maximum
Function	Customized display (header and footer)/Peak hold (clockwise and counter-clockwise)/Internal 1000 points data memory/Comparator (judgment of OK or NG)/Reversible display/Sign inversion/Zero clear timer/+NG alarm/Off timer (auto power off)/Dumping/Time display/setting lock/1st2nd peak (only for HTGA-TFX)/Angle detection at torque peak value (only for HTGA-TFX)(※2)/Angle zero reset at selected torque (only for HTGA-TFX)(*2)
Output	USB/RS232C/±2VDC analog output (D/A)/Comparator 3 steps (-NG/OK/+NG)/Overload alarm/Sub comparator 2 steps (output of large or small judgment)(only for HTGA-TFX)/USB flash drive (only for HTGA-TFX)/Angle (only for HTGA-TFX)(*2)
Accessory	AC adapter/inspection certificate/CD driver (including data logging software)/USB cable/carrying case/L wrench/USB flash drive adapter (only for HTGA-TFX)(*3)

Model	Capacity	Display
HTGS-TFX-5N	5N-m(500N-cm)	5.000N-m(500.0N-cm)
HTGS-TFX-10N	10N-m(1000N-cm)	10.00N-m(1000N-cm)
HTGA-TFX-5N	5N-m(500N-cm)	5.000N-m(500.0N-cm)
HTGA-TFX-10N	10N-m(1000N-cm)	10.00N-m(1000N-cm)

*1 These are the specifications for international model. Note that available units are different from Japanese domestic model.
*2 Angle meter is necessary to activate these functions.
*3 USB flash drive is not included.

HTGS-TFX series　　HTGA-TFX series

Torque Meter for Motor Screw Drivers and Torque Drivers

I-8/I-80

Torque of a motor screw driver and torque driver can be easily measured. It is ideal for daily torque maintenance.

Driver adapter OW Series

Model	I-8	I-80
Measuring range	0.20 to 78.60 cN-m	0.020 to 7.860 N-m
	0.020 to 8.000 kgf-cm	0.20 to 80.00 kgf-cm
	0.020 to 6.970 lbf-in	0.20 to 69.70 lbf-in
		2.0 to 786.0 cN-m
Accuracy	+/- 0.5% (reading value) or +/-3digit in less than 499 digit.	
Display	4 digits LCD display	
Measuring direction	CW-CCW (Right turn /Left turn)	
Measuring mode	P-P(Peak-hold), T-R(Track), P-D(Peak-down),C(real time data output)	
Real-time output	Output torque at every 1/180 seconds	
Data output	ASCII (baud rate 19200)	
Functions	Upper/ Lower value setting, Pass-fail decision, Internal memory, Auto zero reset function, Auto power-off (in 10 minutes with no operation), Max./ Min./Ave. display, Zero Reset function	
Battery	Ni-Cd 1.2v×5 cell(700mAh) 300 times	
Charging time/Usable time	Approx.3 hours/ Approx. 12 hours continuous use after full charge.	
Socket joint part (Detecting parts shape)	Square 20 mm / Square 9.5 mm	
Included items (1 each)	Driver adapter OW-025/OW-10	Driver adapter OW-20/OW-60
	Attache case, battery charger, inspection certificate, calibration certification, traceability system diagram.	

*This product is NOT suitable for impact tools testing.

【For Driver Adapter OW Series】

Model	OW-025	OW-10	OW-20	OW-60
Range	Max. 0.25N-m	Max. 1.0N-m	Max. 2.0N-m	Max. 6.0N-m
Mechanical life	10,000 times	8,000 times	5,000 times	5,000 times
Bit joint part	M2.6+Pan head screw	M3.0+Pan head screw	M4.0+Pan head screw	M6.0+Panhead screw
Body dimension	φ28×44	φ32×51	φ32×51	φ32×69

eZ-Connect series
Next Series eZ

eZ-Connect series are…

◎**eZ-Connect is composed of an amplifier and load cells. Load cells can be replaced without additional adjustment.**
・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 both low-load torque and high-load torque. | Perform different types of tests such as tension and torque. | Keep a spare load cell to reduce risks in operation. |

Models of load cells for eZ-Connect series

Example Normal load cell: **DPU-50N**

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

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

Sensor Interchangeable Amplifier eZT

Precise
◎Captures 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

CE

Check Force / Torque Transition on Graphs
Graphing software ──────── **To Page 12**

Connect with External Devices
Cable Using Applications ──────── **To Page 14**

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.

CE

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

Transmit Data Wirelessly
Wireless Unit WL01-ADP/WL01-USB
──────── **To Page 14**

For Torque(only for eZ connect)
Torque Load Cell
eHT series

Load cell for twisting torque measurement. The optional jig is attached to the tip of the sensor to match the object to be measured.

Capacity	0.5N-m to 10N-m
Accuracy	±0.5%F.S. or less
Size	Approx. φ38×H183mm
Cable length	Approx. 0.5 to 1m (curl cable)

For Torque(only for eZ connect)
Flange type Torque load Cell
eTFX series

IP64
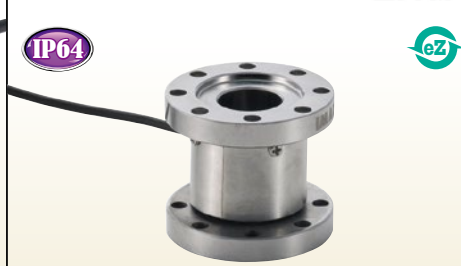
Load cell for measuring the twisting (turning) force. Ideal for integration to equipment or machinery by fixing it with its equipped through holes on both sides.

Capacity	5N-m to 10N-m
Accuracy	±1.0%F.S. or less
Size	Approx. φ35×28mm
Cable length	Approx. 2m

For Torque(only for eZ connect)
Rotating Torque Load Cell
eRT-5N

eZ

Load cell for measuring the rotating force. Ideal for measuring torque during continuous rotation.

Capacity	5N-m
Accuracy	±1.0%F.S. or less
Size	Approx. W85×D32×H62mm
Cable length	Approx. 3m

◎eZ-Connect series can be combined with various load cells.
Please see "Force Gauges & Associated Equipment catalog" for the details of load cells available.

11

Downloadable Graphing Software
Force Recorder Next series

Supports precise graphing and comprehensive data analysis.

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

■Efficient Measurement Data Analysis

●Offers a wide range of graph viewing functions, such as overlaying up to 10 graphs, to support analysis.

●With the preset function, measurement conditions and graph viewing features do not need to be set each time, enabling efficient measurement and analysis.

●By registering operators, enabling access restrictions to some functions or logins for individual users is possible

■Downloadable Additional Functions

●Various additional functions can be downloaded from IMADA Connected (some functions are paid).

Force Recorder Next   Additional functions list

●**Refer to [Comparison Table] on the next page for the compatible models**

Downloadable Data Acquisition Software
Force Logger Next

Easily data management on PC.

■Efficient management of measurement data.
●Import measurement data onto PC and display pass/fail judgements and statistic.

■Available for free download
●By signing up on IMADA Connected and registering compatible models in the Next Series, Force Logger Next can be downloaded for free.
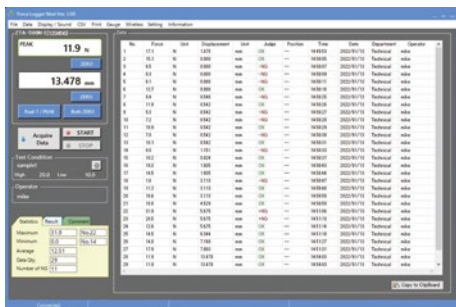
●**Refer to [Comparison Table] on the next page for the compatible models**

Steps to Download the Software

| **User Registration for IMADA Connected** | **Register compatible models in the Next Series.** | **Enter the redemption code to download.**2 |

IMADA Download Card
Force Recorder Next
Professional
XXXX - XXXX - XXXX - XXXX
XXXXXX

12

Data Acquisition and Graphing Software (CD version)

Data Analysis Software Force Recorder series

Analyze data easily and accurately, and create report with ease
We offer 3 types(Light/Standard/Professional)to fit your needs.

■Make efficient by simple manipulations and useful functions.

◎Easy steps for saving. Connect a torque gauge and PC with a USB cable, and click START.
◎Compares data easily due to plural tabs.
◎Auto-calculation of Maximum value/Minimum value/ Average value.
◎Comment insertions are possible.
◎Maximum 5 graphs are displayed on same display. Easy comparison and Accurate analysis are possible. (Standard/Professional version only)
◎Graphs the measurement accurately with high sampling rate up to 2000 Hz

Force Recorder Professional

Force Recorder Standard/Light

Force Recorder Plus

■Force Recorder Professional

Torque-angle graphs can be drawn precisely at Max. 2000Hz with ease.

●For angle data acquisition, you need an angle meter in addition to DTXA/HTGA/HTGA-TFX/eHT (eZT).
●TAA series (Page 17) come with this software.

■Force Recorder Plus

Graphs the data acquired from up to 4 force gauge/torque gauge at the same time

●Acquire continuous data (up to 1000 times/sec)
●Display different unit such as force and torque in 1 screen

Multiple Gauges Managing Software Force Logger Plus

Manages data up 4 force/torque gauges

■Comparison Table

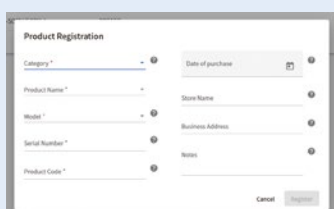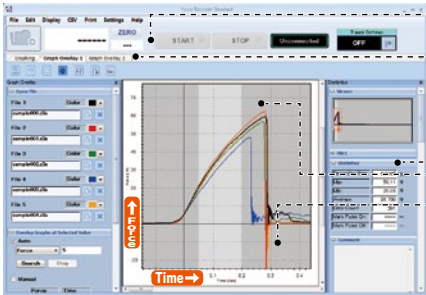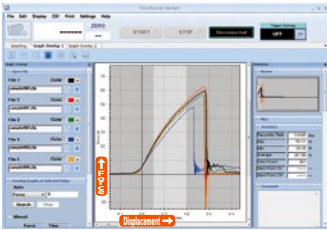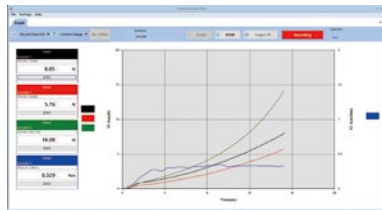| Software	Force Recorder Next Standard	Force Recorder Next Professional	Force Logger Next	Force Recorder Light	Force Recorder Standard	Force Recorder Professional	Force Recorder Plus	Force Logger Plus
Graphing	Torque-Time	Torque-Time Torque-Angle *1	N/A	Torque-Time	Torque-Time	Torque-Time Torque-Angle *1	Torque-Time	—
Compatible models	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2	DTXS/DTXA HTGS/HTGA HTGS/HTGA-TFX HTGS/HTGA-RT eZT eFA Plus2
Max data transfer speed	2000 data/sec	2000 data/sec	10 data/sec	2000 data/sec	2000 data/sec	2000 data/sec	1000 data/sec	10 data/sec
Max recording data point	7.2 million	7.2 million	65 thousand	7.2 million	7.2 million	7.2 million	300 thousand	65 thousand
Angle output	N/A	✓	✓(Data acquisition only)	N/A	N/A	✓	N/A	✓(Data acquisition only)
Preset function	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A
Graph overlay function	✓(Max. 10 graphs)	✓(Max. 10 graphs)	N/A	N/A	✓(Max. 5 graphs)	✓(Max. 5 graphs)	✓(Max. 10 graphs)	N/A
Reference graph	✓	✓	N/A	N/A	✓	N/A	✓	N/A
Trigger function	✓	✓	N/A	N/A	✓	✓	✓	N/A
Guideline function	✓	✓	N/A	N/A	✓	✓	N/A	N/A
Graph scaling	✓	✓	N/A	✓	✓	✓	✓	N/A
Statistical calculation	✓	✓	✓	✓	✓	✓	✓	✓
Selection data setting	✓	✓	N/A	N/A	✓	✓	✓	N/A
Image and Comment	✓	✓	✓(Comment only)	✓(Comment only)	✓(Comment only)	✓(Comment only)	N/A	N/A
Save file/Print	✓	✓	✓	✓	✓	✓	✓	✓
CSV file converting	✓	✓	✓	✓	✓	✓	✓	✓
Export function (PDF/Word/Excel)	✓	✓	N/A	✓	✓	✓	✓	N/A
Torque gauge setting	✓	✓	✓	✓	✓	✓	✓	✓
Managing torque gauge	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓
Operator management	✓	✓	N/A	N/A	N/A	N/A	✓	✓
Additional function downloads	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A

* An internet connection is required to download additional functions. Available additional functions differ depending on the software. Please refer to our website or contact us for details.
* For information on the operating environment of each software, please refer to the specifications on our website or contact us.
*1 Torque-Angle graphs are not available with DTXS series, HTGS series, HTGS-TFX series, or HTGS-RT series.
2 Please see "Force Gauges & Associated Equipment catalog" for compatible force gauges.

Cables
Cables expand the functionality of torque gauges.

The cables to connect a torque gauge to an external device

HTGS/HTGA	HTGS/HTGA-TFX	HTGS/HTGA-RT	DTXS/DTXA	eZT	eFA Plus2

RS232C cable	Analog cable	Open End cable
Connect to external devices such as PLC, enabling the recording of measurement values and the setting and operation of measuring instruments from external devices.	Connect to analog devices to enable voltage output. (CB-118 cable is designed to meet -AN specifications.)*1	This cable is equipped with connectors compatible with various models and includes all input/output functions necessary for connecting to external devices, such as PLC.
CB-208 Length: Approx. 3m	**CB-108** Length: Approx. 3m	**CB-908** Length: Approx. 3m

Cable with Terminal Block	External Contact Point cable
This Cable has all the input/output functions of the compatible model connectors. It has a terminal block for a simple connection.	Enables to measure external contact points.
CTB-A Length: Approx. 1m	**CB-808** Length: Approx. 3

*1 HTGS/A series torque gauges output raw sensor data as fast analog voltage without conversion with -AN option.
* Custom options are available for changing the cable length, connector type (e.g., changing analog output to BNC connector), and upgrading to high-flexibility cables.
* For connecting the Mitutoyo Digimatic Printer with DTXS/DTXA/HTGS/HTGA series (only for firmware versions older than 5), please use the CB-308.
* If you need cables for discontinued measuring instruments, please contact us.

Wireless Data Transmit System WL01-ADP/ WL01-USB

Transmits acquired measurement data to the device such as PCs wirelessly.

◎Accurate data transmission/reception: "Group Name" settings and reception detection function which detects transmission errors
◎High security data protection: Protect data leak with AES data encryption
◎Various types of data management: By publishing communication formats, this single USB Wireless Receiver (WL01-USB) can receive up to 26 data of force gauge, and can use with your own software *1

WL01-USB

WL01-ADP

Wireless Data TransmissionSystem Unit   When connected to PC

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/RT
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, Wireless Transmit BOX (WL01-BOX) is available.
*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 Maximum connected number of IMADA software Force Logger: 1 unit / Force Logger Plus: 4 unit
  In the case of using Wireless Data Transmission System Unit with IMADA software, some restrictions are on software function. 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.

RS232C Printer BL2-58 series

RS232C printer for printing measurement data by connecting to a digital torque gauge.

Model *1	BL2-58SNWJQ	BL2-58SNWGQ
Printing method	Direct line thermal	
Compatible models	ZTS/ZTA/eZT/FA Plus2/eFA Plus2/ HTGS/HTGA/DTXS/DTXA/DSV/DST series/ACT-1000N	

BL2-58 series

RS232C Printer Package with a Dedicated Cable

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

Standard Type Motorized Torque Stand

Motorized Torque Stand for DTXS/DTXA series.
By automatically rotating at the digital speed-setting, high repeatability in torque measurement is achieved.
Depending on the height of the measurement sample, three models are available for selection.

MTS series

Precisely
◎High repeatability with constant test speed

Easily
◎Easy and digital speed-setting
◎Operation control by the torque value and continuous rotating period

Efficiently
◎Automatic stop at a set torque value
◎Durability test with a set repeat count
◎Operation control by continuous rotating period
◎Automated data recording, interlocked with software
(An optional software is required to operate it.

Varieties of Torque Can Be Measured
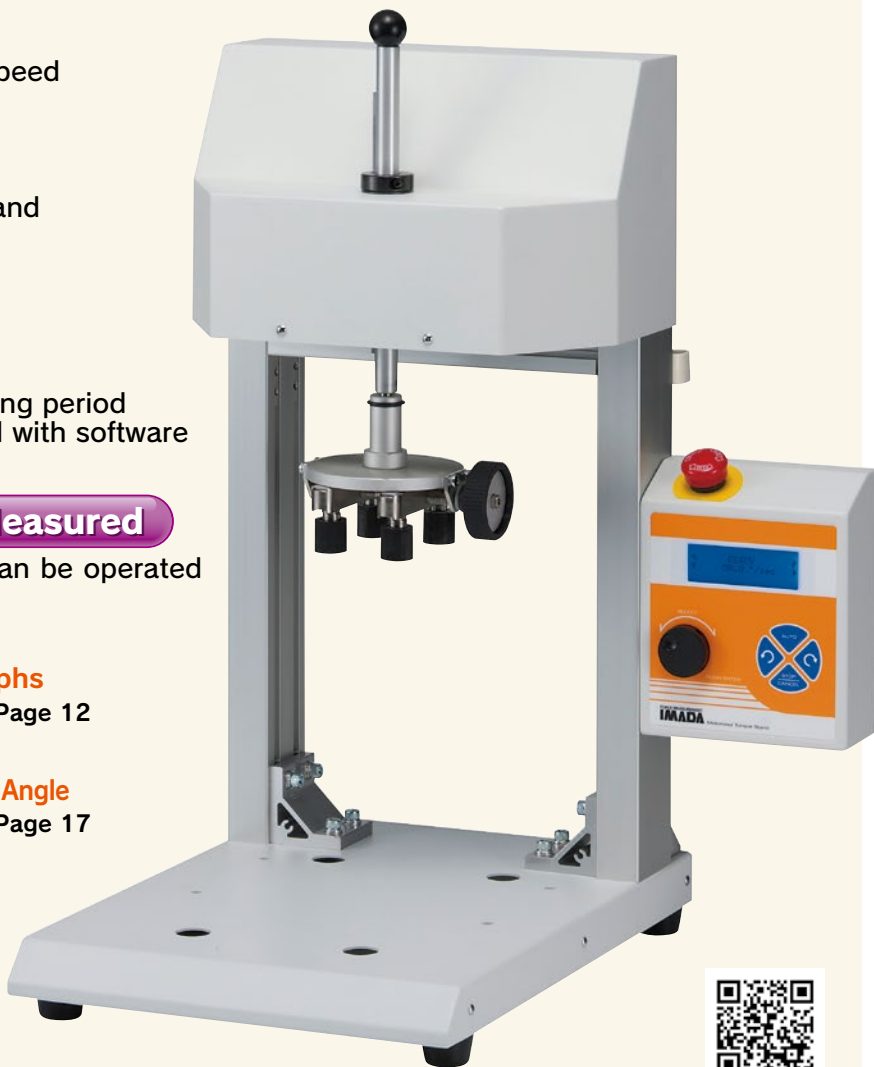◎Various samples and measurements can be operated by changing the attachments.

Check torque transition on graphs
Graphing software —————— **To Page 12**

Analyze the Relation of Torque and Angle
Torque-Angle Analysis Unit TAA series — **To Page 17**

CE

MTS-10N
(The standard chuck is not included.)

Model	MTS-10N	MTS-10N-L	MTS-10N-2L
Capacity	10N-m		
Maximum height of a sample	50mm to 140mm	150mm to 240mm	250mm to 340mm
Speed range	3 to 90 degree/sec		
Weight	Approx.14kg		
Size	W432×D400×H575mm	W432×D400×H675mm	W432×D400×H775mm
Function	Manual mode, JOG mode, Automatic mode(CONTINUOUS, ONE WAY) (*1) Overload stop function (*1),Speed adjustment		
Accessory	Power cable , Torque gauge connecting cable (CB-528), Centering stick, Spare fuse, Instruction manual, tools, Packing cardboard		

* DTX series and attachments are sold separately. Please select one for each to complete testing system.
*1 The included dedicated cable connected to the DTXS/DTXA series is required. Overload stop function does not guarantee the entire prevention of the overload failures of the measuring devices.

Accessory for MTS series

Extension shaft (For -L,-2L)

Model：**MT-EXT** It is for MTS-10N-L. Please use this shaft when the height of your sample is 50-150mm. Or, you can also apply this shaft to MTS-10N-2L when the height of your sample is between 150-250mm.

Model：**MT-EXT2** It is for MTS-10N-2L. Please use this shaft when the height of your sample is 50-150mm.

* For measurements of samples with a height of less than 50 mm, please contact us.

Advanced Type Motorized Torque Stand

Motorized Torque Stand for DTXS/DTXA series.
By automatically rotating at the digital speed-setting, high repeatability in torque measurement is achieved.
The operation is controlled by the torque value and the angle.

ACMTS series

Torque-Angle Measurement
◎Performs torque-angle measurement by combining with DTXA series.
◎Creating torque-angle graphs using optional software.

Capable of Various Measurements
◎Featuring a wide testing speed range from 0.6˚ to 240˚/sec.
◎Operation control by the torque value and continuous rotating angle
◎Durability test with a set repeat count

Varieties of Torque Can Be Measured
◎Various samples and measurements can be operated by changing the attachments.

Check torque transition on graphs
Graphing software —————— **To Page 12**

Analyze the Relation of Torque and Angle
Torque-Angle Analysis Unit TAA series — **To Page 17**

CE

ACMTS-10N

Model	ACMTS-10N	ACMTS-10N-2L
Capacity	10N-m	
Maximum height of a sample	58 to 120mm	158 to 320mm
Speed range	0.6˚ to 240˚/sec	
Weight	Approx. 16.2kg	Approx. 16.7kg
Size	W432×D400×H577mm	W432×D400×H777mm
Function	Manual mode, JOG mode, Automatic mode(CONTINUOUS, ONE WAY)(*1), Overload stop function (*1),Speed adjustment	
Accessory	Power cable , Torque gauge connecting cable (CB-728), Centering stick, Spare fuse, Instruction manual, tools, Packing cardboard	

*1 The included dedicated cable connected to the DTXS/DTXA series is required for the torque value operation control. Overload stop function does not guarantee the entire prevention of the overload failures of the measuring devices.
* DTX series and attachments are sold separately.
* Customized torque stand according to the sample height is available. The measurement sample height can be adjusted with a customized extension shaft for a low-height sample with the ACMTS-10N-2L model. Please contact us for details.

Attachments for MTS/ACMTS

Attachments for MTS/ACMTS (Upper Part)

Standard chuck (*1)

Model：**MT-TB**
Max. torque：10N-m
Sample diameter：φ 20 to 90mm

Small chuck (*2)
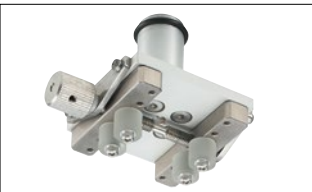
Model：**MT-ST**(*1)
Max. torque：5N-m
Sample diameter：φ 7 to 50mm

Pin chuck

Max. torque：10N-m
Model	Diameter
MT-DC-13	Large φ 1.2 to 13mm
MT-DC-6.5	Medium φ 0.5 to 6.5mm
MT-DC-6.5SUS	Medium(Stain less) φ 0.5 to 6.5mm(*3)

Max. torque：5N-m
Model	Diameter
MT-DC-4	Small φ 0.5 to 4mm

M10 adaptor

Model：**MT-AD-M10**
It helps you to mount attachment with a M10 female screw.

*1 Long shaft pins are available for replacement. Please contact us for details.
*2 We provide a few more kinds of pins to fit your test samples.
     For more details, please refer to Page 05 of "Attachments for DTXS/DTXA"
*3 MT-DC-6.5SUS (stainless model) is recommended under easy-to-rust environment.

TAA series
Torque-Angle Analysis Unit

> This unit enables you to easily analyze the relation between torque and angle.

TAA series can measure angle according to rotation, drawing a torque-angle graph.
This system is ideal for functionality assessment according to constant angle of rotation.

It shows torque vs angle graphically at real time (Max. 2000Hz)
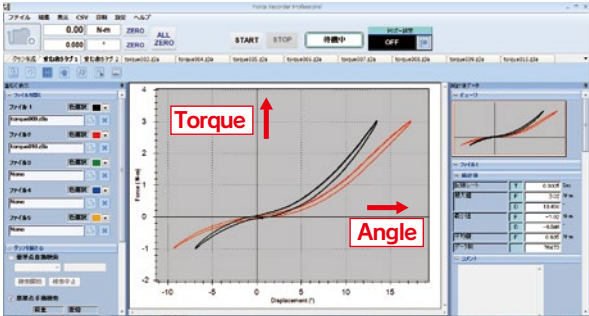
Torque
Angle

Basic Performance for Torque-Angle Measurement

- ■ Easy connection to PC by USB
- ■ Smooth graphing performance at 2000Hz
- ■ Graph zooming function
- ■ Possible to insert 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 calcuration (maximum/ minimum/ average values)
- ■ Test trigger function (when the torque reaches to the the set angle value)

Configuration

TAA-ACMTS-TB Series

This is a desktop type offering automatic rotation at set speed.

Torque Stand
Upper side rotates at a set speed.
Test requirements such as a starting speed, a returning speed, and operation control by torque value and rotation angle can be set up.

Included Attachments
It comes with 2 attachments; MT-TB for upper side, and DT-TB for lower side. Other optional attachments can be replaced instead to fit your test samples.

Torque Measurement Instrument
It displays torque and angle.
It can be taken on/off by screws when required.

Cable
It connects a torque tester with a torque stand for control.

Software
It shows torque vs angle graphically.
Torque and angle data can be taken into your PC at real time (Max.2000Hz), drawing a smooth graph.
Trigger function enables automatic graph drawing.

TAA-HTG Series

This is handheld type, comprising a torque gauge, an angle meter, and software.

Torque Gauge
It displays torque and angle.

Angle Meter Unit
It measures the angle and output to torque gauge.

Torque attachment   Stay (Custom made)

* An optional torque attachment and an optional stay(custom-made)are required to complete the testing system but they are not included. Contact us for further infomation of the chuck and the stay.

【Specifications for Torque-Angle Analysis Unit ACMTS series】

Model		TAA-ACMTS-○○N-TB (*1)	TAA-HTG-○○N (*1)
Unit	Torque	N-m/N-cm, kgf-m/kgf-cm, lbf-in/ozf-in(switchable)*	
	Angle	* (degree)	
Range		2N-m(200N-cm),5N-m(500N-cm),10N-m(1000N-cm)	
Resolution	Torque	4 digit (Ex:The resolution of TAA-ACMTS-5N 0.001N-m[0.1N-cm])	
	Angle	0.001° (on Force Recorder Professional)	0.1° (on Force Recorder Professional)
		0.01° (on Torque gauge display)	0.1°(on Torque gauge display)
Accuracy	Torque	±0.5%F.S. +/-1 digit	
	Angle	±0.1° +/-1 digit	
Model: Allowable sample height		TAA-ACMTS-□□N-TB: 58mm to 120mm TAA-ACMTS-□□N-2L-TB: 158mm to 320mm * Please contact us for measuring samples with heights other than those listed above.	—
Torque data sampling rate		2000 data /sec	
Torque display upgrade		16 data/sec	
Output		USB, Serial(RS232C), Analogue (Approx.±2V), Comparator, Overload, Sub comparator, USB flash drive *USB flash drive is not included.	
Function	Torque gauge	Customized display(header and footer)/ Peak Hold mode(CW/CWW)/ Internal memory (1000 data)/ Comparator(OK/NG judgment)/ Reversible display/ Sign inversion/ Zero clear timer/ +NG alarm/Off timer(Auto power off)/Damping/ Time display/ 1st 2nd peak/ Setting lock	
	Test Stand	Manual mode, JOG mode, Speed adjustment	—
	Link function(*2)	Angle detection at torque peak / Angle zero reset at the selected torque / Automatic mode (CONTINUOUS,ONE WAY) / Torque control / Angle Control / Overload stop	—
Power supply	Torque gauge	Rechargeable battery (approx. 6.5 hours for using, approx. 2 hours for re-charging)	
	Test stand	AC100V to 240V	—
Operating environment		Temperature:0 – 40 degree Celsius Humidity: 20 -80%RH	
Accessory		Graphing software Force-Recorder Professional, Driver CD-ROM (with data logger simple software), Power cable, AC adapter, Torque gauge connecting cable(CB-728), USB cable, Spare fuse, Instruction manual, Inspection certificate, tool, packing cardboard box.	Handle (only for 10N-m range)
Included attachments(*3)		Lower side: DT-TB (refer to P04), Upper side: MT-TB (refer to P16)	—

* Japanese domestic model does not indicate kgf (kgf-m, kgf-cm) and lbf (lbf-in, ozf-in).
*1 Please select one from 2N, 5N, or 10N.
*2 A torque gauge is needed to connect with the included connecting cable to activate this function.
*3 We provide a model without any attachments (TAA-ACMTS+□N-Z). The model is recommended when you use other IMADA optional ones, or your own chuck.

Examples of TAA-HTG Series Application

This is a handheld and manual-twist type, which allows torque-angle analysis even in environments where a large device cannot be brought in.

Turning the door-knobs
Turning test which analyze the relationship between the Max. force value and the angle.

Turing dials of the air conditioner and audio systems
Operability test which analyze the relationship between the resistance of click feeling and the angle of turning.

Other Examples
- ● Ease of key turning
- ● Operability of a motorcycle's accelerator
- ● Operatabilities of a dial and a switch

Examples of TAA-ACMTS-TB Series Application

This is a desk top type, offering highly repeatable measurement by automatic rotation at constant speed.

Sliding Resistance Test of Camera Lens
Sliding resistance test to graph and analyze the relationship between resistance and angle.

Twisting durability tests for the PCB
Durability test for twisting the stick container for a set number of repetitions at a constant torque value and angle.
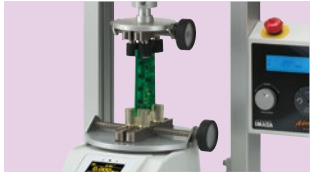
Other Examples
- ● Tactile of rotary switch
- ● Twist characteristics of underwear and a sanitary pads
- ● Twisting durability tests for stick containers and nonwoven fabrics

Downloadable Graphing Software Option

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

Option code: -NEXT
(Add the code to the end of model.)
Example: TAA-ACMTS-10N-NEXT

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

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

Food Texture Analyzer & Related

IMADA texture analyzers realize stable product quality management by quantifying food characters such as hardness or stickiness which used to be defined by artisans.
These devices are also suitable for measurement of packaging materials to design safe and easy-to-use food packages.

Texture Analyzer FRTS series

FRTS series can digitalize textures such as stiffness, viscosity, elasticity, and more, allowing for data management.

Palatability (deliciousness) is the most important factor of food. "Palatability" is composed of taste, flavor, and texture. Texture represents chewability, firmness (sensation against the teeth), feeling on the tongue, feeling to the throat, and so on. The texture is expressed with food material characteristic and human sensation characteristic. The food material characteristic is categorized into mechanical characteristic, geometry characteristic, and others. FRTS series can measure the mechanical characteristic such as stiffness, elasticity, stickiness, and more.

FRTS series

Excellent Operability

◎User friendly touch screen enables you to operate intuitively.
◎Testing requirement can be setup very easily.
◎Maximum 6 testing conditions can be added to "Favorites" to recall them quickly.

Great Precision

◎High accuracy: +/-0.2%F.S.+/-1digit
◎Capture peak value accurately due to high sampling rate (1000Hz).
◎Testing conditions can be saved and recalled to uniformize testing condition.

Varieties of Textures Can Be Measured

◎A wide range of attachments is available.

◀A recommended attachment is indicated when you choose preset measuring method.

Easy Care
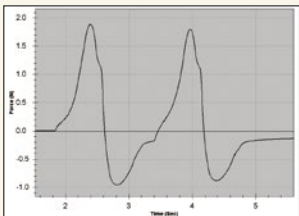
◎The measuring part can be easily cleaned up since it is made of stainless.
◎The tray can be readily detached.

Easy Data Management and Analysis

◎The data can be stored to include USB flash drive.
◎A graph can be drawn on PC with using included software.
◎Load distributions can be confirmed, and compared very easily.

▲USB flash drive (Included)　　▲Graphing software (Included)

【Specifications for FRTS series】

| Accuracy | Force | ±0.2%F.S. ±1digit |
	Displacement	0.1mm ±1digit
Measurement unit	Force	N / Kgf / lbf(*1)
	Displacement	mm / inch(*1)
Indication	Force	4-digit
	Displacement	0.001mm (as the minimum resolution)
Sampling speed		1000Hz
Sample's maximum height		70mm(*2)
Table travel distance		Max. 100mm
Speed		0.1 to 10.0mm/sec
Functions		3 types of measuring method (Food/Standard(*3), Program, Manual), Add-a-favorites for measuring conditions (Max.6 conditions), Start-trigger function, Overload preventing function (*4)
Output		USB, USB flash drive
Accessory		Graphing software, Power cable, USB cable, USB flash drive, Attachment (4 kinds), FR-HN (screw for mounting lower tension attachments), FR-JS-50/100 (2 type shafts for mounting upper attachments), Fuse, Inspection certificate
Operating environment(*5)		Temperature: 0 to 40 degree Celsius　Humidity: 20 to 80 %RH
Weight		Body: 7.7kg　Control Panel: 0.8kg
Size		185 x 300 x 400 mm (except its control panel)

【Model】

Model	Capacity	Resolution
FRTS-5N	5N	5.000N
FRTS-50N	50N	50.00N
FRTS-100N	100N	100.0N

*1　The units are switchable.
　　The units differs from Japanese domestic model.
*2　It is the maximum distance from its table surface to the part where an attachment is mounted.
*3　PC is required for measurement to comply with some standards.
*4　Not able to prevent overload in some cases.
*5　Not able to use this product under a vibratile environment.

How to Start Measurement

### Choose a food to confirm a measuring method

◎There are 2 ways to decide a measuring method according to types of food;
　1. Use preset testing conditions without any changes.　2. Use preset conditions with some changes.
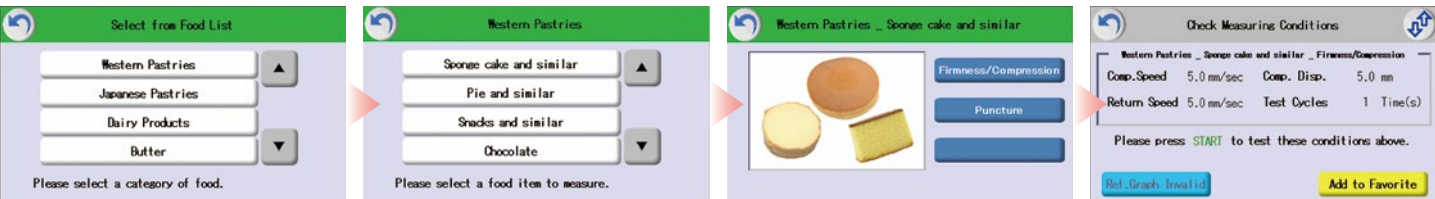
Choose a test standard to confirm a measuring method

◎Measuring conditions complying with standards are preset.

Standard	Outline	Measured Result
Food for person having difficulty in swallowing	Complying with required measuring method, it measures softness, cohesive property, and adherability using included software.	3-step judgement method (Permission Criteria I / II / III)
Universal design food	It measures firmness according to required measuring method.	4-steps judgement (Able to chew easily / able to smash with gum / able to smash with tongue / able to swallow without chew)
JIS K6503 Animal glues and gelatins	It measures firmness according to required measuring method.	Force value (N)
ISO 16035 Butter	It measures firmness according to required measuring method.	Force value (N)
ISO 9665 Animal glues	It measures firmness according to required measuring method.	Force value (N)
Former JAS Special packaging for Kamaboko and the like	It measures firmness according to required measuring method.	Force value (N)
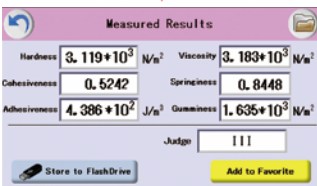
Set measuring conditions by yourself

◎Measuring conditions such as displacement, test speed, number of tests can be set by yourself.

Included Software

◎FRTS can be connected to PC via USB cable easily.
◎It automatically starts graphing when measurement starts. It can draw force-time or force-displacement graph, calculating characteristics such as firmness, adhesion, cohesive property, adherability, elasticity, gumminess. Besides, graphs can be overlayed for detailed analysis.
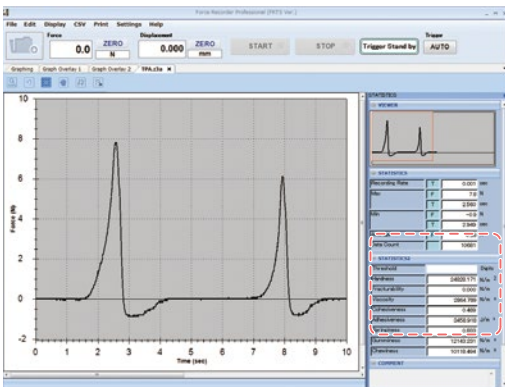
We offer a wide range of attachments to fit your testing needs.

Please select the specified dimensions for □, and J or S for ▣ to order.   J: Resin, S: Stainless

Compression

Disk probe
Model:**FR-HA-**□▣
*1

D	▣
20	J,S
30	J
50	J

Cylindrical probe
Model:**FR-EC-**□▣
*1

D	▣
3	J,S
5	J,S
8	J
10	J
12.7	J
15	J

Conical probe
Model:**FR-ES -**θ-□▣
*1

θ	D	▣
45	20	J
	30	J
60	20	S
	30	J

Sphere probe
Model:**FR-SR-**□
*1

D
5
7
10
20

Stainless

Yogurt cutter
Model:**FR-YN-29**

Stainless

Vice pin for sticking
Model:**FR-CP-3**

Pin: Stainless
Pin Vise: Steel *3

3 point bending fixture
Model:**FR-TP-60**

Aluminium *3

Tension

Special grip for noodle
Model:**FR-NP-25**

Stainless *3

Small grip
Model:**FR-SC-3**

Aluminium *3

Film grip（small）
Model:**FR-FC-21**

20

Aluminium *3

Film grip（large）
Model:**FR-FC-41**

40

Aluminium *3

Shearing

Cutter
Model:**FR-NB-80**

Stainless *3

Wire-cutter
Model:**FR-WK-85**

Piano wire: Stainless

Wedge probe
Model:**FR-KS-**θ-20 30▣
*1

20

θ	▣
45	J,S
60	J,S

30

Optional table

Wide table
Model:**FR-LT-120**

120

Stainless

Center lined table
Model:**FR-CT-80**

Stainless

Table with trench
Model:**FR-GT-**□
*1

W
3
5
10

W

Stainless

Sample holder table
Model:**FR-UP-**□
*1

D
5
10
25
50

Aluminium *3

Stick guide plate
Model:**FR-KP-**□
*1 *2

D
3
5
10

Polycarbonate *3

Stick holder
Model:**FR-ST-25**

25

Aluminium *3

Container holder table
Model:**FR-BG-60**

Stainless *3

Others

Anti-Scattering sheet
Model:**FR-DP-80**

Polycarbonate *3

Container for Nursing Care Food Measurement
Model:**FR-CUP-4020**

Resin

length:mm angle:degree(°)

We offer more kinds of probes and tables other than above-mentioned ones. We can custom design and manufacture to meet your particular rcquirement.
*1   Only FR-ES60-20S is stainless steel conical probe.   *2   Attachments for tension test is available only for Manual mode of FRTS series.   *3   The material of main part. Screw part probably has different material.

Food Firmness Measurement Unit

FCA-DSV-50N

Travel distance can be adjusted to move a force gauge and easily measure firmness or force to crush food. Moreover, data can be easily managed using a supplied software.

◀Supplied software Force Logger

Simple measurement due to lever operation

Easy care due to stainless made

Easy set for travel distance by knob

Type	Crush / Compress	Cut / Break
Features	It compresses food with disk probe to measure elasticity, firmness, softness etc.	Crispiness can be measured in a similar way to biting with teeth using a wedge probe.
Sample examples	Grain processed food (boiled bean, bread, tofu, rice cake) Dough (bread, noodle) Others (pudding, jam, cream cheese)	Meat processed food (Sausage) Sweets (cookie, chocolate, gum, rice crucker) Others (processed cheese, pasta)

Model	FCA-DSV-50N-1	FCA-DSV-50N-2
Capacity	50N	
Display	50.00	
Accuracy	+/- 0.2% F.S. +/- 1 digit	
Unit	N,kgf,lbf *1	
Stroke	0 to 45 mm (Adjustable with the limit knob)	
Maximum Space	50 to 80 mm *2	
Overload	Approx. 200% F.S.	
Power	Nickel-Metal Hydride battery (NiMH battery), USB charge(AC adapter)	
Operating Environment	Temperature: 0 to +40 degree Celsius / Humidity: 20 to 80% RH	
Functions	Peak hold(Tensile or compression)/Comparator(OK Judgement)/Sensitivity(3 steps)/Sign inversion/Setting lock/Date & Time/ Off timer (Auto power-off)/Reminder for calibration schedule/Overload alarm/Tilt-sensing alarm/Continuity peak mode/Internal memory (1000 point)	
Output	USB/RS232C	
Overload alarm	Previous warning: It alarms if the force exceeding up to 90% of capacity is applied. Overloading alarm: It alarms and the overload sign is indicated if the force exceeding 110% of capacity is applied.	
Weight	Approx. 3kg	
Dimensions	Approx. W175×D178×H296mm	
Unit	Force gauge DSV-50N-M4 (*3) Lever type test stand FCA-50N	Others (Manual, mounting screws, tool, inspection certificate)
Supplied attachment	Disk probe	Wedge probe
Accessories	Force Logger(Data logging Software)/USB cable/AC adaptor/Carrying case/Instruction manual/Inspection certificate	

*1   Japanese domestic model does not indicate kgf and lbf (ozf).
*2   It is the distance between the table and top point of an attachment. The distance may become short depending on the force gauge's position and a kind of attachment.
*3   This force gauge differs from DSV series. It carries M4 measuring thread for FCA.