

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.



### 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.



# Turning / Twisting Force Testing



- Bottle cap torque tester** P03
- Handheld torque testers** P05
- Torque meter for motor screw drivers and torque drivers** P06
- Sensor interchangeable amplifiers** P07
- Software for graph drawing** P08
- Motorized torque test stands providing high repeatability due to automatic operation** P10
- Torque and angle testing** P11

# Food firmness testing



- Food testing applications** P13
- Food texture analyzer** P14
- Attachments** P17
- Easy way to test food firmness Simple food firmness test measurement unit** P18

## Index

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

C		F		M	
CB series	09	FCA-DSV-50N	18	MT-AD-M10	10
		Force Recorder Light	08	MT-DC-13/MT-DC-6.5/MT-DC-6.5SUS/MT-DC-4	10
		Force Recorder Professional	08	MT-EXT/MT-EXT2	10
D					
DP-1VR	09	Force Recorder Standard	08	MTS series	10
DT-DC-13/DT-DC-6.5/DT-DC-6.5SUS/DT-DC-4	04	FR series (Attachment for food testing)	17	MT-ST	10
DT-ST/DT-ST-01/DT-ST-02	04	FRTS series	14	MT-TB	10
DT-TB/DT-TB-01/DT-TB-02	04				
DTXS/DTXA series	03				
E		H		O	
		HT-AD-M10	06	OW-025/OW-10/OW-20/OW-60	06
		HT-DBH	06		
E				S	
eDPU series	07	HT-DC-13/HT-DC-6.5/HT-DC-6.5SUS/HT-DC-4	06		
eHT series	07	HTGS/HTGA series	05	SHT-5N	06
eLM series	07	HT-ST/HT-ST-01/HT-ST-02	06		
eZT	07	HT-9.5SQ	06	T	
				TAA-MTS series	11
				TB-SP	04
I					
		I-8/I-80	06		

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



IMADA force gauges have been used worldwide for more than 70 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

**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

## 70 Years History of IMADA Force Gauge



# Torque Gauges

## Torque Gauge Measuring Rotating/Twisting Force

“Torque” is the tendency of a force to rotate an object around an axis, fulcrum, or pivot. The Unit of torque is N-m/N-cm, Kgf-m/Kgf-cm, or lbf-in/ozf-in. IMADA torque gauges enable you to measure torque easily and accurately.



## Screw Cap Torque Tester

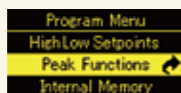
# DTXS/DTXA series

### Accurately / Precisely

- It captures torque values accurately due to its high sampling rate (2000Hz).
- It is designed to reduce weight influence by its bearing mechanism for greater accuracy.

### 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

- High working efficiency due to manual operation
- You can easily capture peak value using peak hold function.
- You can pick out defective products easily using OK/NG judgement function.

### Easy data management on PC

- Easy connection with USB interface
- Data capturing software ZT-Logger is included
  - It sends 10 data/sec
  - It automatically detects maximum and minimum values.
  - It saves data in CSV format.
- Graphing by optional force capturing software  
The software shows torque vs time graphically on PC in real time (at Max. 2000Hz)  
Go to page 08 for further information.



▲ Torque capturing software ZT-Logger(Included)



▲ Torque graphing Software Force Recorder (Separately sold)

### DTXS

#### Standard Type

- Size: Approx. W233×D305×H87mm (without the table and the pins.)
- Weight: Approx. 4.5kg (including Standard table and 4 pc Standard pins.)



### DTXA

High-functional type

DTXA series include all the functions of DTXS series, with a few additional features below.

### Capturing 2 Peaks

- You can capture 1st and 2nd peaks of measurement.

### 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 11

### Saving Data to USB Flash Drive

- You can save continuous data into USB flash drive at 100Hz.  
In other words, you can save data even without PC.



**Check Torque Transition on Graphs**  
Software Force Recorder — To page 08



**Improve Measuring Repeatability**  
Motorized Torque Test Stand — To page 10



**Print the Results**  
Printer DP-1VR — To page 09  
+ Cable CB-308 — To page 09



**Analyze the Relation of Torque and Angle**  
Torque-Angle Analysis Unit TAA series — To page 11

Accuracy	±0.5%F.S. ± 1 digit
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 DTXA), Angle detection at torque peak value(only for DTXA)(※2), Angle zero reset at selected torque(only for DTXA)(※2)
Output	USB, RS232C, Mitutoyo digimatic (※3), 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 DTXA), USB flash drive(only for DTXA), Angle(displacement)(only for DTXA)(※4)
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 DTXA)(※4)

Model	Capacity	Display
DTXS-2N	2 N-m (200N-cm)	2.000N-m (200.0N-cm)
DTXS-5N	5 N-m (500N-cm)	5.000N-m (500.0N-cm)
DTXS-10N	10N-m (1000N-cm)	10.00N-m (1000N-cm)
DTXA-2N	2 N-m (200N-cm)	2.000N-m (200.0N-cm)
DTXA-5N	5 N-m (500N-cm)	5.000N-m (500.0N-cm)
DTXA-10N	10N-m (1000N-cm)	10.00N-m (1000N-cm)

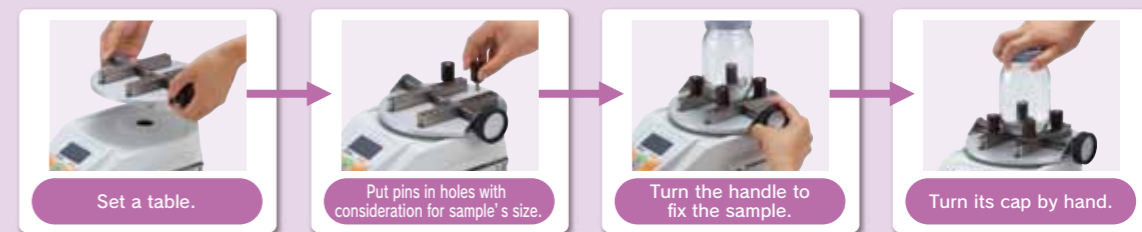
The above-mentioned model comes with a standard table and standard pins. We provide it without the table and the pins, or one with a smaller table. The model without any tables: DTXS-00N-Z or DTXA-00N-A. The model with a smaller table: DTXS-00N-ST or DTXA-00N-ST

※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 Not always available for Mitutoyo digimatic products.  
※4 USB flash drive is not included.

DTXS/DTXA series can handle opening/closing torque tests of various containers' caps.



## How to Measure



## Attachments for Torque Testers

### Attachments for DTXS/DTXA

We provide several kinds of interchangeable tables to fit your test samples.

※You can purchase pins only without tables. Please see our web page for further information.

#### Standard table and Standard pins

(DTXS/DTXA-00N when combining with DTXS/DTXA body.※1)



#### Standard table and Notch pins

(DTXS/DTXA-00N-ST-01 when combining with DTXS/DTXA body.※1)



#### Standard table and Long clamp pins

(DTXS/DTXA-00N-ST-02 when combining with DTXS/DTXA body.※1)



#### Small table and Standard pins

(DTXS/DTXA-00N-ST when combining with DTXS/DTXA body.※1)



#### Small table and Notch pins

(DTXS/DTXA-00N-ST-01 when combining with DTXS/DTXA body.※1)

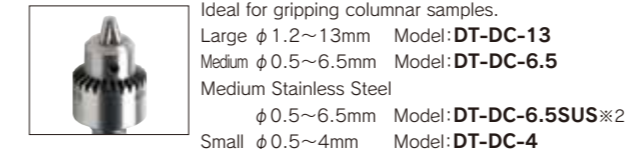


#### Small table and Long clamp pins

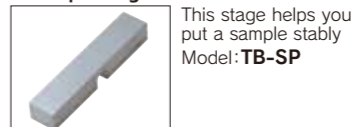
(DTXS/DTXA-00N-ST-02 when combining with DTXS/DTXA body.※1)



#### Pin chuck



#### Sample stage



※1 Please choose 00N from 2N, 5N or 10N and □N from 2N or 5N. ※2 We recommend to use Stainless steel type under easy-to-rust environment.

This product is in accordance with a part of JIS S 0022(2001)

# HTGS/HTGA 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 available  
Setting menu in 8 languages helps easy operation.

## Making efficient

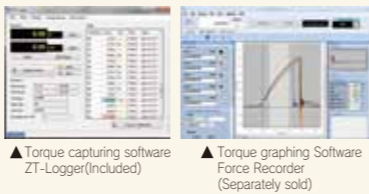
- OK/NG judgement  
You can pick out defective products easily. (+NG or -NG light goes on when the torque is over or under the borderline that you decide.)
- 3 line indicator  
A torque value is indicated in the middle tier, and you can select information as required in the upper and lower tiers.  
\*The 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 06 for further information.

## Easy data management on PC

- Easy connection with USB interface
- Data capturing software ZT-Logger is included
  - It sends 10 data/sec
  - It automatically detects maximum and minimum values.
  - It saves data in CSV format.
- Graphing by optional force capturing software  
The software shows torque vs time graphically on PC in real time (at Max. 2000Hz)  
Go to page 08 for further information.



## HTGS Standard Type



Size (The indicator only) : Approx. W75XD34XH188mm  
 Weight (The indicator only) : Approx. 490g  
 \*This product is NOT including the attachment on the top of the gauge.

## 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 12

## Capturing 2 Peaks

- You can capture 1st and 2nd peaks of measurement.

## Saving Data to USB Flash Drive

- You can save continuous data into USB flash drive at 100Hz. In other words, you can save data even without PC.



## Check Torque Transition on Graphs

Software Force Recorder - To page 08



## Print the Results

Printer DP-1VR - To page 09  
 +Cable CB-308 - To page 09



## Analyze the Relation of Torque and Angle

Torque-Angle Analysis Unit TAA series - To page 12

Accuracy	±0.5%F.S. ± 1 digit
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, Mitutoyo digimatic (*3), 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) (*4)

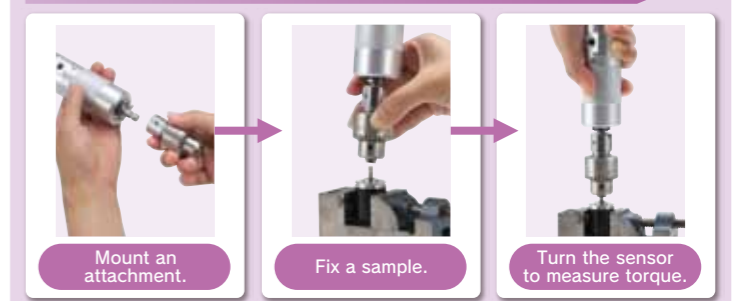
Model	Capacity	Display
HTGS-0.5N	50N-cm	50.00N-cm
HTGS-2N	2N-m (200N-cm)	2.000N-m (200.0N-cm)
HTGS-5N	5N-m (500N-cm)	5.000N-m (500.0N-cm)
HTGS-10N	10N-m (1000N-cm)	10.00N-m (1000N-cm)
HTGA-0.5N	50N-cm	50.00N-cm
HTGA-2N	2N-m (200N-cm)	2.000N-m (200.0N-cm)
HTGA-5N	5N-m (500N-cm)	5.000N-m (500.0N-cm)
HTGA-10N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

\*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 Not always available for Mitutoyo digimatic products.  
 \*4 USB flash drive is not included.  
 \*No attachments are included.

We provide a wide range of interchangeable attachments to handle a huge range of torque testing.



## How to Measure



## Attachments for Torque Testers

### Attachments for HTGS/HTGA

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

<b>Pin chuck</b>  Ideal for gripping columnar samples. Model: <b>HT-DC-13</b> Opening width: φ 1.2~13mm Weight: approx. 600g *Cannot be used for 2N-m or 0.5N-m range *HT-DC-6.5SUS (Stainless model) is recommended under easy-to-rust environment.	<b>Large pin chuck</b> Model: <b>HT-DC-13</b> Opening width: φ 1.2~13mm Weight: approx. 600g *Cannot be used for 2N-m or 0.5N-m range	<b>Standard pin chuck</b> Model: <b>HT-DC-6.5</b> Opening width: φ 0.5~6.5mm Weight: approx. 200g *Cannot be used for 0.5N-m range	<b>Small pin chuck</b> Model: <b>HT-DC-4</b> Opening width: φ 0.5~4mm Weight: approx. 100g
<b>Socket holder</b>  Ideal for torque wrench or screwdriver bit. Model: <b>HT-9.5SQ</b> Socket: 9.5mm square Weight: approx. 100g	<b>Torque driver</b>  Ideal for measuring tightening / loosening torque. Model: <b>HT-DBH</b> Bit: +: No. 1×50 -: No. 2×50 -: No. 3×50 Weight: approx. 100g	<b>M10 adaptor</b>  This adaptor is used to mount M10 attachment. Model: <b>HT-AD-M10</b> Screw: M10×L20 Weight: approx. 50g	<b>Sensor holder</b>  The holder is used to fix sensor. Model: <b>SHT-5N</b> Capacity: 5N-m
<b>Small table and Standard pins</b>  Designed for small samples. Model: <b>HT-ST</b> Capacity: 5N-m Allowable sample diameter: φ 7~50mm *Can not be used for 0.5N-m range	<b>Small table and Notch pins</b>  Ideal for gripping samples such as resin connectors and the like. Model: <b>HT-ST-01</b> Capacity: 5N-m Allowable sample diameter: φ 7~50mm *Can not be used for 0.5N-m range	<b>Small table and Long clamp pins</b>  Ideal for measuring torque of doorknobs, electric bulbs and so on. Model: <b>HT-ST-02</b> Capacity: 5N-m Allowable sample diameter: φ 7~50mm *Can not be used for 0.5N-m range	

## Torque Meter for Motor Screw Drivers and Torque Drivers

# I-8/I-80

You can easily measure torque of a motor screw driver and torque driver. It is ideal for daily torque maintenance.



Model	I-8	I-80
Measuring range*1	0.20~78.60 cN-m	0.020~7.860 N-m
	0.020~8.000 kgf-cm	0.20~80.00 kgf-cm
	0.020~6.970 lbf-in	0.20~69.70 lbf-in
		2.0~786.0 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 caps 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.

	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	φ 28×44	φ 32×51	φ 32×51	φ 32×69

# eZ Connect series

[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.

## Sensor Interchangeable Amplifier eZT

### Precise

○ You can 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 / Torque Transition on Graphs**  
Software Force Recorder ——— To Page 08



**Print The Results**  
Printer DP-1VR ——— To Page 09  
+Cable CB-308 ——— To Page 09



**Connect with External Devices**  
Cable Using Applications ——— To Page 09

## eZ Connect series are...

○ eZ Connect is composed of an amplifier and load cells. You can replace load cells 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).

### eZT Specifications

Model	eZT
Accuracy	+/-0.2%F.S. (※1)
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)
Display	4-digit
Display update	16 / sec
Sampling rate	2000 data / sec at maximum (※2)
Functions	Customized display (header and footer), Peak hold (tension and compression), Internal 1000 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, Displacement detection at force peak value, Displacement zero reset at selected force, setting lock
Output	USB, RS232C, Mitutoyo digimatic (※3), 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
Operating environment	Temperature: 0 to +40 degree Celsius, Humidity: 20 to 80%RH
Battery	8 hours (2 hours charge) (※4)
Accessories	AC adapter, CD driver (including simple software for data logging), USB cable, Operation manual, Carrying case, Adaptor for USB flash drive (※5)

※ Japanese domestic model does not indicate kgf (kgf-m, kgf-cm) and lbf (lbf-in, ozf-in).  
※1 The accuracy of load cell is added when using connected with a load cell.  
※2 You can save up to 100 data/sec. in USB flash drive (selectable among 1, 50, and 100 /sec)  
※3 You cannot use it with Mitutoyo digimatic products in some cases.  
※4 The battery is more consumed when connected to USB flash drive or a linear scale.  
※5 USB flash drive is not included.  
© If you would like to use this amplifier combined with a test stand, please contact us or our sales partner.

### 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

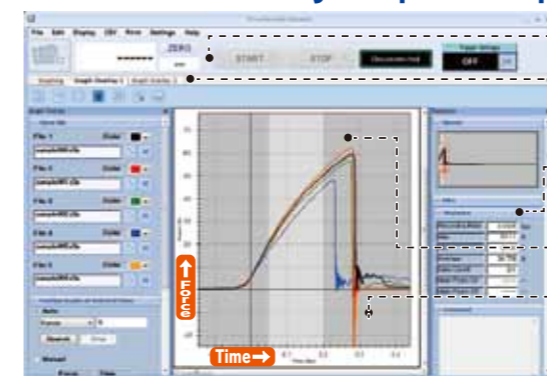
### Load cell for eZ Connect series: eDPU-50N

# Data Analysis Software Force Recorder series

Analyze data easily and accurately, and create report with ease

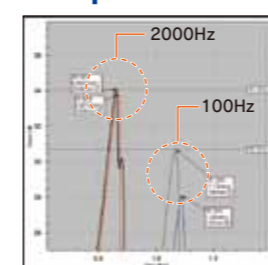
We offer 3 types(Light/Standard/Professional)to fit your needs.

## Make efficient by simple manipulations and useful functions.



- Easy steps for saving. Connect a force gauge and PC with a USB cable, and click START.
- You can compare 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)

## Capture measuring data accurately.

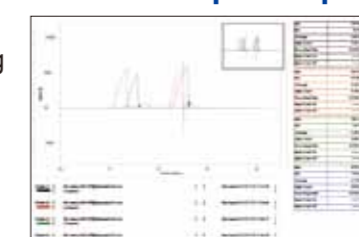


○ It graphs the measurement accurately due to high sampling rate, at Max.2000Hz

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. Please refer to right [Operating environment 1] for the details of operating environments

## Create reports quickly



- You can easily save data in Word, Excel, and PDF format, reducing the time to create reports.
- It automatically inputs graphs, date & time, and statistics. You can also input comments manually if necessary.

## Force Recorder Professional

You can draw torque-angle graphs precisely at Max. 2000Hz with ease.

- For angle data acquisition, you need an angle meter in addition to DTXA/HTGA/eHT(eZT).
- TAA series (Page 13) come with this software.



For Torque(only for eZ connect)

## Torque Load Cell eHT series

It measures turning/twisting force.



It measures torque using optional attachments such as pin chuck, socket holder, torque driver etc.(Page 08)

Capacity	0.5N-m~10N-m
Accuracy	±0.5% F.S. or less
Size	φ 38×138mm
Cable length	Approx.0.5*1m (curl cable)

Model	Capacity
eHT-0.5N	50N-cm(※)
eHT-2N	2N-m(200N-cm)
eHT-5N	5N-m(500N-cm)
eHT-10N	10N-m(1000N-cm)

※Displayed unit is "N-cm" only.

for Compression and Tension(only for eZ connect)

## Standard Type eDPU

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
eDPU-2N	2N	Male Screw MGP1.0
eDPU-5N	5N	
eDPU-10N	10N	
eDPU-20N	20N	
eDPU-50N	50N	
eDPU-100N	100N	
eDPU-200N	200N	
eDPU-500N	500N	

for Compression(only for eZ connect)

## Small Type eLM

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
eLM-10N	10N
eLM-20N	20N
eLM-50N	50N
eLM-100N	100N
eLM-200N	200N
eLM-500N	500N
eLM-1000N	1000N
eLM-2000N	2000N
eLM-5000N	5000N
eLM-10kN	10kN
eLM-20kN	20kN

○ You can combine it with various load cells. Please see "Force Gauges & Associated Equipment catalog" for the details of load cells available.

### [Function Comparison]

Version	Light	Standard	Professional
Feature	Graphing only	With editing functions	Torque-displacement graphing
Graph	Torque-time	Torque-time	Torque-time Torque-angle
Available models	HTGS/HTGA DTXS/DTXA eZT	HTGS/HTGA DTXS/DTXA eZT	HTGA DTXA eZT
Data transferring speed (Max)	2000 data / sec	2000 data / sec	2000 data / sec
Recording data point (Max)	7.2 million	7.2 million	7.2 million
Displacement output	N/A	N/A	○
Graph overlaying function	N/A	○	○
Trigger function	N/A	○	○
Point marking	N/A	○	○
Border line function	N/A	○	○
Capture function	N/A	○	○
Graph scaling	○	○	○
Statistics output	○	○	○
Comment	○	○	○
Print	○	○	○
CSV file converting	○	○	○
Preview saving (PDF/Word/Excel)	○	○	○
Torque gauge setting	○	○	○

### Force Recorder Standard/Light/Professional [Operating Environment]

Operating environment	OS: Windows XP/Vista(32bit) 7/8/8.1(32bit/64bit)
Hardware	CPU: Pentium4 (1GHz more) more recommended Memory: 2GB more recommended Hard disk: 10GB (Data storage area) more
Platform	.NET Framework4 more
Execute environment	Microsoft Internet Explorer6.0 later Windows Installer 3.1 later
Image size	Resolution 1024×768 pixel more
Compatible force gauge	Standard/Light: ZTA/ZTS series, HTGS/HTGA series, DTXA/DTXS series Professional: DTXA series, HTGA series, ZTA series
Connection port	USB1.1, USB2.0 connector

# Cables/Printer

Cables expand the functionality of torque gauges.  
We also provide a printer.

	HTGS/HTGA	DTXS/DTXA	eZT
<b>The cables to connect a torque gauge to an external device</b>			
<b>RS232C cable</b> Connects a PC to a torque gauge, enabling to record the measurement and transmit command signals from the PC to the gauge.	<b>CB-208</b> Length: Approx. 3m	<b>CB-208</b> Length: Approx. 3m	<b>CB-208</b> Length: Approx. 3m
<b>Digimatic cable</b> Connects Mitutoyo Digimatic Mini Processor (a portable printer) to a torque gauge for printing the measurement.	<b>CB-308</b> Length: Approx. 3m	<b>CB-308</b> Length: Approx. 3m	<b>CB-308</b> Length: Approx. 3m
<b>Analog cable</b> Connects analog devices such as a pen recorder to a torque gauge, enabling to record torque transition. CB-118 works for "-AN" option.	<b>CB-108</b> Length: Approx. 3m	<b>CB-108</b> Length: Approx. 3m	<b>CB-108</b> Length: Approx. 3m
<b>Open End cable</b> Connects a torque gauge to a special device.	<b>CB-908</b> Length: Approx. 3m	<b>CB-908</b> Length: Approx. 3m	<b>CB-908</b> Length: Approx. 3m
<b>External Contact Point cable</b> Enables to measure external contact points.	<b>CB-808</b> Length: Approx. 3m	<b>CB-808</b> Length: Approx. 3m	<b>CB-808</b> Length: Approx. 3m

※1 CB-201(25P male) and CN-202(25P female) are also available.  
※2 We offer customization including the length extension, connector's change in shape, and more.

## Printer DP-1VR

(Mitutoyo Digimatic Mini Processor)



- It enables to print measuring Maximum/Minimum/Average standard deviation values.  
To print, a digimatic cable is required.

### Compatible models

HTGS/HTGA/DTXS/DTXA/eZT

## 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]

	HTG2,DTX2 series
Analog cable	CB-104
RS-232C cable	CB-204
Digimatic cable	CB-304

## Test Stands for Torque Testers

Combine this test stand with a DTXS/DTXA for greater accuracy. These test stands provide constant test speed due to automatic operation, and guarantee high repeatable test result.

## MTS series

### Precisely

- High repeatability with constant test speed

### Easily

- Easy digital speed setting
- Auto mode by a set torque

### Efficiently

- Automatic stopping with a set torque value
- Durability test with a set number of test times
- Automated data recording, interlocked with software (You need an optional software to operate it.)



**Check torque transition on graphs**  
Software Force Recorder — To Page 08



**Analyze the Relation of Torque and Angle**  
Torque-Angle Analysis Unit TAA series — To Page 11



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	140mm	240mm	340mm
Speed range	3~90 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 preventing function (*1), Speed adjustment		
Voltage	AC100V ~240V, 50/60Hz, max 3A (*2)		
Accessory	Power cable, Torque gauge connecting cable (*3), 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.

### Option

- RA option (equipping an angle meter)
- Stroke Change

※1 Torque gauge should be connected with the cable (included).  
※2 You may need to change fuse depending on country.  
※3 Standard model comes with CB-518. -RA (angle meter option) model comes with CB-728

## 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 130mm or less. Or, you can also apply this shaft to MTS-10N-2L when the height of your sample is between 130-230mm.

Model: **MT-EXT2** It is for MTS-10N-2L. Please use this shaft when the height of your sample is 130mm or less.



## Attachments for MTS

### Attachments for MTS (Upper Part)

Standard chuck



Model: **MT-TB**  
Max. torque: 10N-m  
Sample diameter:  $\phi$  20~90mm

Small chuck (※1)



Model: **MT-ST** (※1)  
Max. torque: 5N-m  
Sample diameter:  $\phi$  7~50mm

Pin chuck



Max. torque: 10N-m

Model	Diameter
MT-DC-13	Large $\phi$ 1.2~13mm
MT-DC-6.5	Medium $\phi$ 0.5~6.5mm
MT-DC-6.5SUS	Medium (Stain-less) $\phi$ 0.5~6.5mm (※2)

Max. torque: 5N-m

Model	Diameter
MT-DC-4	Small $\phi$ 0.5~4mm

M10 adaptor



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

※1 We provide a few more kinds of pins to fit your test samples. For more details, please refer to Page 04 of "Attachments for DTXS/DTXA"  
※2 MT-DC-6.5sus (stainless model) is recommended under easy-to-rust environment.

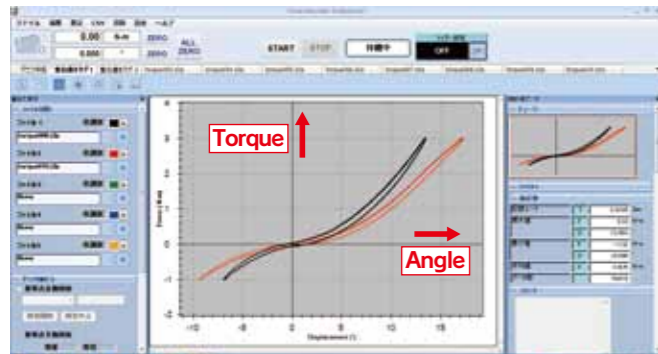
# TAA series Torque-Angle Analysis Unit

With this unit, you can easily analyze the relation between torque and angle.

You 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)



### 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 calculation (maximum/ minimum/ average values)
- Test trigger function (when the torque reaches to the set displacement value)

## Configuration

### A Torque Stand

Upper side rotates at a set speed. You can set up test requirements such as a starting speed, a returning speed, pause at set torque value, and more.

### Included Attachments

It comes with 2 attachments; MT-TB for upper side, and DT-TB for lower side. You can apply other optional attachments instead to fit your test samples.

### A Torque Measurement Instrument

It displays torque and angle. You can easily take it on/off by screws when required.

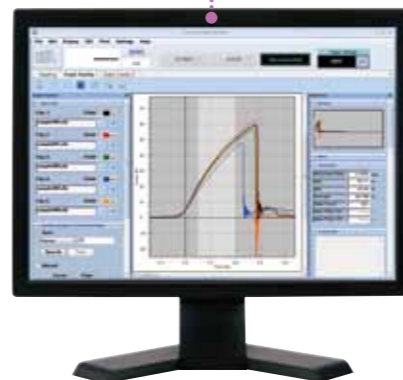


### A Connection Cable

It connect a torque tester with a torque stand for control.

### Software

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



## [Specifications for Torque-Angle Analysis Unit TAA-MTS-TB series]

Model		TAA-MTS-〇〇〇-TB (※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-MTS-5N 0.001N-m[0.1N-cm])
	Angle	0.001° (on Force Recorder Professional) 0.01° (on Torque gauge display)
Accuracy	Torque	±0.5%F.S. +/-1 digit
	Angle	±0.1° +/-1 digit
Model: Allowable sample height		TAA-MTS-〇〇〇-TB:140mm TAA-MTS-〇〇〇-L-TB:240mm TAA-MTS-〇〇〇-2L-TB:340mm ※We can extend the height as custom-made. Please contact us. ※We can handle a wide range of sample's height other than above-mentioned height. ※Please use extension shaft(page 10) as required.
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, Overload prevention
Power supply	Torque gauge	Rechargeable battery (8 hour using /2 hour full charge)
	Test stand	AC100V~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.
Included attachments(※3)		Lower side: DT-TB (refer to 04), Upper side: MT-TB (refer to 10)

※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 You need to connect a torque gauge with the included connecting cable to activate this function.

※3 We provide a model without any attachments (TAA-MTS+〇〇〇-Z). The model is recommended when you use other IMADA optional ones, or your own chuck.

## Other Torque-Angle Measurement Using HTGA

### Measurement by Hand

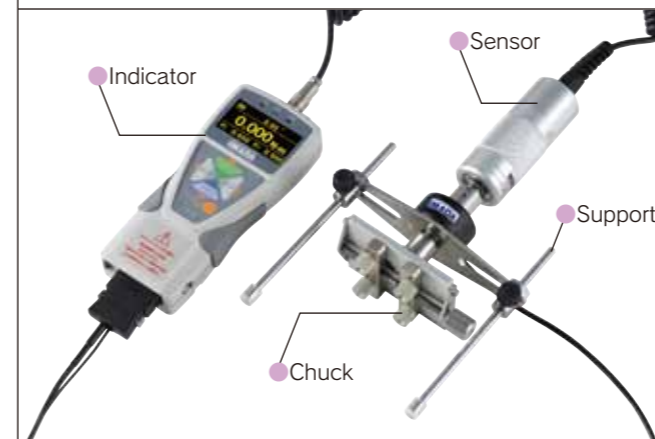
#### How to measure:

1. Fix your sample with a chuck
  2. Turn the sensor by hand
- You can draw torque vs angle graphs as required.

You can utilize this when you measure...

- A rotary switch on car's dashboard
- Motorcycle's accelerator etc.

.....  
Please contact us for further information.  
.....



### Measurement by Handle Operation

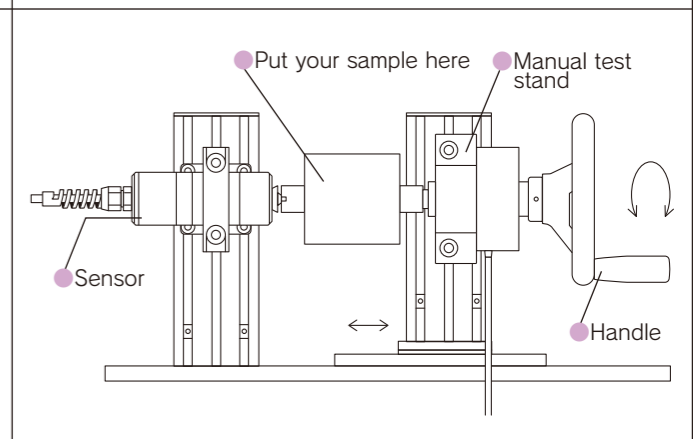
#### How to measure:

1. Set your sample on a fixed sensor
  2. Rotate a handle
- You can draw a torque vs angle graph precisely with ease.

You can utilize this when you measure...

- torsion spring
- A rotary switch etc.

.....  
Please contact us for further information.  
.....



# IMADA's food testers handle texture analysis and package testing for food yumminess and safety.

**Food** Texture analysis

**Packaging** Strength/opening tests

IMADA's testers are widely used in food/beverage industry.

With IMADA testers, you can digitalize food textures such as hardness, stickiness, and more to ensure quality stability.

Besides, you can quantify the strength or operativity of packages to produce safe and stress-free ones.

**at a Preparation Step**  
(Stickiness / toughness / cutting force etc.)

**at a Packaging Step**  
(opening / turning / pressing force etc.)

**at a Cooking Step**  
(Elasticity / Texture)

**We can offer testers complying with standards.**

- Food for person having difficulty in swallowing
- Universal design food

**Texture Analyzer**  
FRTS ——— To page 14

**Simple food texture analyzer**  
FCA ——— To page 18

**Texture Analyzer**  
FRTS ——— To page 14

**Simple food texture analyzer**  
FCA ——— To page 18

**Bottle cap opening testers**  
DTX series ——— To page 04

**Other tension/compression/peel testers**  
For other compression/tension/peel tests including lid opening test for cup container or food canned container, please refer to another catalog "Force Gauges & Associated Equipment."

## Texture Analyzer FRTS series

### Food Texture Analyzer

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



### Ideal for Texture Analysis

Palatability (yumminess) 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.

### Excellent Operability



- You can operate it intuitively due to user friendly touch screen.
- You can set up testing requirement very easily.
- You can add maximum 6 testing conditions to "Favorites" to recall them quickly.

### Great Precision

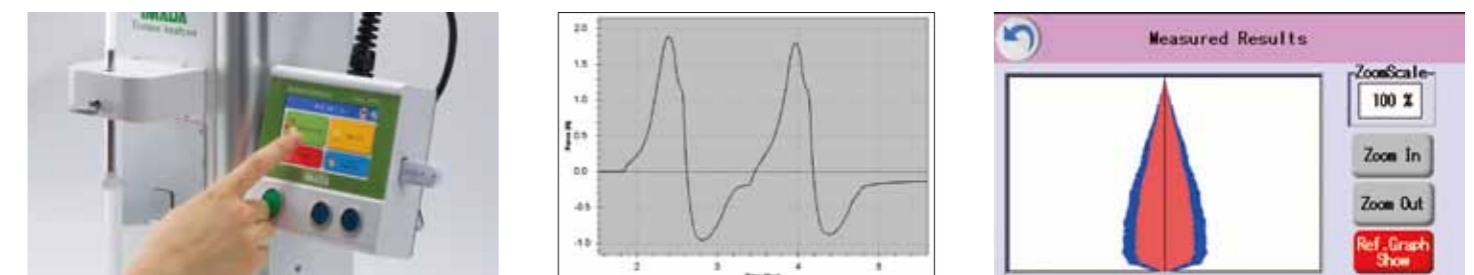
- High accuracy: +/-0.2%F.S. +/-1 digit
- Sampling Speed: 1000Hz (You can capture peak value accurately due to high followability.)
- You can save and recall testing conditions to uniformize testing condition.

### Easy Care



- You can easily clean up the measuring part since it is made of stainless.
- You can readily detach the tray.

### Easy Data Management and Analysis



- You can store data to accessory USB flash drive.
- You can draw graphs on PC using accessory software.
- You can see load distributions, and compare them very easily.



# 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;
  - Use preset testing conditions without any changes.
  - Use preset conditions with some changes.

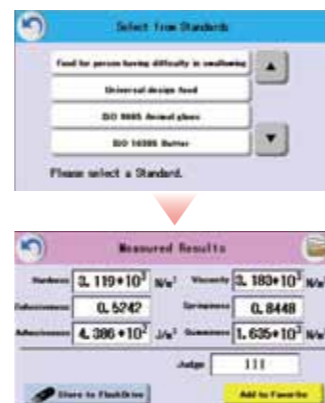


Food	Sweets	Japanese Sweets	Dairy Products	Butter	Noodles	Bread	Rice	Meat
Image								
Examples	Sponge cake Pie Snack Chocolate Candy Jelly Kneaded dough	Steamed bun Rice cracker Monaka skin Dorayaki and the like Dough	Processed cheese Yoghurt Ice cream	Butter	Uncooked noodle (a piece) Boiled noodle (a piece) Dried noodle (a piece) Noodle dough	Bread Donut Kneaded dough	Cooked rice (a piece) Clump of cooked rice Uncooked rice (a piece) Rice dumpling	Hamburg steak (Cooked meat) Hum (Processed meat) Kneaded raw meat Raw meat
Food	Fish and Seafood	Paste	Beans	Nuts	Eggs	Vegetables	Mushrooms	Fruits
Image								
Examples	Grilled Fish (Cooked fish) Raw fish	Fish sausage (Kamaboko) Paste	Cooked bean (a piece) Clump of cooked beans Tofu Uncooked bean (a piece)	Peanut	Egg shell Raw egg Boiled egg Omelet Custard pudding	Cut vegetables Carrot (Root vegetables) Cucumber (Stick-shaped vegetables) Pepper (Hollow vegetables) Lettuce (Leaf vegetables)	Mushroom	Cut fruit Jam Grape (a piece) Apple (Pome fruits)

## 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 adhesibility 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

- You can set measuring conditions such as displacement, test speed, number of tests by yourself.

## [Specifications for FRTS series]

Accuracy	Force	+/-0.2%F.S.+/-1 digit
	Displacement	0.1mm+/-1 digit
Measurement unit	Force	N / Kg / 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 - 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), Fuse, Instruction manual, 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)

- ※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 You need PC for measurement to comply with some standards.
- ※4 You cannot prevent overload in some cases.
- ※5 You cannot use this product under a vibratile environment.

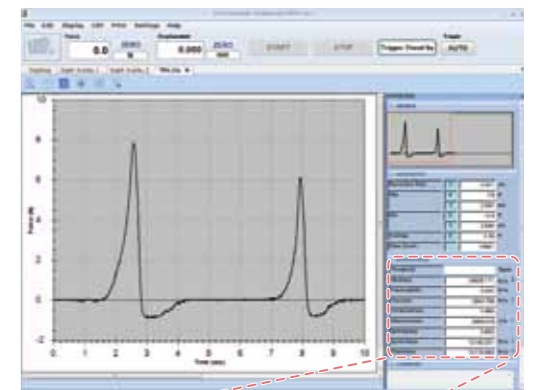
## [Model]

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



## Included Software

- You can connect FRTS 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, adhesibility, elasticity, gumminess. Besides, you can overlay graphs for detailed analysis.



## [Software operating environment]

Operating environment	Windows Vista/7/8/8.1 ※32 bit only for Vista
Hardware	CPU: Pentium4 (more than or equal to 1GHz) recommended Memory: more than or equal to 2GB recommended Hard disk: more than or equal to 10GB (data storage area) needed
Plat form	.NET Framework 4 or later
Execute environment	Microsoft Internet Explorer 6.0 or later Windows installer 3.1 or later
Connection port	USB1.1, USB2.0 connector

## You can change attachments according to your testing needs.

We offer a wide range of attachments to fit your measurement needs.

### Change attachment



Mount shaft to attachment.



Turn the knob and mount attachment.

### Tip



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

# Attachments for Food Tests

## Attachments exclusive for Food testers

We offer a wide range of attachments to fit your testing needs.



### Optional probes and tables can handle various measurement.

Compression	<b>Disk probe</b> Model:FR-HA-[D] ※1 <table border="1"> <tr><th>D</th></tr> <tr><td>20</td></tr> <tr><td>30</td></tr> <tr><td>50</td></tr> </table>	D	20	30	50	<b>Cylindrical probe</b> Model:FR-EC-[D] ※1 <table border="1"> <tr><th>D</th></tr> <tr><td>3</td></tr> <tr><td>5</td></tr> <tr><td>8</td></tr> <tr><td>10</td></tr> <tr><td>12.7</td></tr> <tr><td>15</td></tr> </table>	D	3	5	8	10	12.7	15	<b>Conical probe</b> Model:FR-ES-[θ]-[D] ※1 <table border="1"> <tr><th>θ</th><th>D</th></tr> <tr><td>45</td><td>20</td></tr> <tr><td>60</td><td>30</td></tr> </table>	θ	D	45	20	60	30	<b>Sphere probe</b> Model:FR-SR-[D] ※1 <table border="1"> <tr><th>D</th></tr> <tr><td>5</td></tr> <tr><td>7</td></tr> <tr><td>10</td></tr> <tr><td>20</td></tr> </table>	D	5	7	10	20
	D																									
	20																									
	30																									
50																										
D																										
3																										
5																										
8																										
10																										
12.7																										
15																										
θ	D																									
45	20																									
60	30																									
D																										
5																										
7																										
10																										
20																										
<b>Yogurt cutter</b> Model:FR-YN-29 	<b>Vice pin for sticking</b> Model:FR-CP-3 	<b>3 point bending fixture</b> Model:FR-TP-60 																								
Tension	<b>Special grip for noodle</b> Model:FR-NP-25 	<b>Small grip</b> Model:FR-SC-3 	<b>Film grip (small)</b> Model:FR-FC-21 	<b>Film grip (large)</b> Model:FR-FC-41 																						
	Shearing	<b>Cutter</b> Model:FR-NB-80 	<b>Wire-cutter</b> Model:FR-WK-85 	<b>Wedge probe</b> Model:FR-KS-[θ]-20 30 ※1 <table border="1"> <tr><th>θ</th></tr> <tr><td>45</td></tr> <tr><td>60</td></tr> </table>	θ	45	60																			
		θ																								
		45																								
60																										
Optional table	<b>Wide table</b> Model:FR-LT-120 	<b>Center lined table</b> Model:FR-CT-80 	<b>Table with trench</b> Model:FR-GT-[W] ※1 <table border="1"> <tr><th>W</th></tr> <tr><td>3</td></tr> <tr><td>5</td></tr> <tr><td>10</td></tr> </table>	W	3	5	10	<b>Container holder table</b> Model:FR-BG-60 																		
	W																									
	3																									
	5																									
10																										
<b>Sample holder table</b> Model:FR-UP-[D] ※1 <table border="1"> <tr><th>D</th></tr> <tr><td>5</td></tr> <tr><td>10</td></tr> <tr><td>25</td></tr> <tr><td>50</td></tr> </table>	D	5	10	25	50	<b>Stick guide plate</b> Model:FR-KP-[D] ※1 ※2 <table border="1"> <tr><th>D</th></tr> <tr><td>3</td></tr> <tr><td>5</td></tr> <tr><td>10</td></tr> </table>	D	3	5	10	<b>Stick holder</b> Model:FR-ST-25 	<b>Anti-Scattering sheet</b> Model:FR-DP-80 														
D																										
5																										
10																										
25																										
50																										
D																										
3																										
5																										
10																										

We offer more kinds of probes and tables other than above-mentioned ones. We can custom design and manufacture to meet your particular requirement.  
 ※1 Please choose designated length in □ when you order. ※2 Sample holder table is required when using Stick guide plate.

length:mm angle:degree(°)

## Food Firmness Measurement Unit

# FCA-DSV-50N

You can set a travel distance to move a force gauge, then easily measure firmness or force to crush food. Moreover, you can manage data easily using a supplied software.



Supplied software Force Logger

Easy care due to stainless made



Simple measurement due to lever operation



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 cracker) 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	See details on Dimensions	
Unit	Force gauge DSV-50N-M4 (※3) 	Lever type test stand FCA-50N 
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.