imada.com ®

FORCE & TORQUE
MEASUREMENT

INMADA

IMADA

INCLUDING LED STROBOSCOPES, HARDNESS TESTERS, DIGITAL TACHOMETER AND MORE

CUSTOMER SERVICE

Our knowledgeable sales/engineering staff is ready to help with stock instruments or custom applications.
9am-5pm Monday-Thursday, 9am-4pm Friday, Central US time.

TRADE-IN

Get a discount on a new gauge when you trade-in your old one.

SAME DAY SHIPPING

Most items ship the same day from our stock, so you can have it tomorrow, if your order is received by 3pm Central US time.

CALIBRATION & REPAIRS

We're committed to quality control and our own facility is no exception. Imada, Inc. is ISO 9001 certified and all calibration and repairs are done in our ISO/IEC 17025 Accredited Lab.

LIMITED WARRANTY

TWO-YEAR LIMITED WARRANTY AND LIMITATION OF LIABILITY: Imada, Inc., for itself and its related companies (hereinafter described collectively as "Imada") warrants that all Imada products sold, except for those specific products identified below, will be free of defects in materials and workmanship for a period of two (2) years from date of delivery to end-user. The foregoing two (2) year warranty shall not be extended or changed by Imada furnishing any replacements, additions, attachments, accessories or repairs to the products subsequent to the date of delivery or acceptance. The foregoing warranty is the sole and exclusive warranty of Imada regarding the products.

ONE-YEAR LIMITED WARRANTY FOR SPECIFIC PRODUCTS: The foregoing limited warranty shall be likewise apply to Cedar Torque Testers, KTC Torque Products, batteries, cables, attachments, and adapters sold by Imada, but the limited-warranty period is one (1) year from date of delivery to end-user.

DISCLAIMER OF OTHER WARRANTIES: Other than the foregoing warranties, there are no express or implied warranties or any affirmations of fact or promises by Imada with respect to the products. Imada disclaims any warranties, express, implied or statutory, not specifically set forth above, including any implied warranties of merchantability and fitness for any particular purpose..

LIMITATION OF LIABILITY AND REMEDIES: Imada's sole responsibility and liability incurred as a result of the sale and/or use of the products, and the purchaser's exclusive remedy against Imada under any warranty shall be limited to the repair or replacement, at Imada's option, of product components not conforming to the warranty.

PURCHASER'S DAMAGES AND LIMITATIONS: In no event shall Imada be liable to purchaser, its assigns or agents, for economic loss, incidental or consequential damages, in contract or in tort, including but not limited to, any damages for lost profits, down-time, lost production, failure to meet purchaser's sales contracts, or defects in purchaser's material or workmanship. Imada's limited warranty is terminated in the event of product overload, shock load, misuse, negligence, accident, or if repairs are attempted by the customer or third-parties without notice to and authorization by Imada.

INSTRUCTIONS FOR OBTAINING WARRANTY REPAIR OR REPLACEMENT: Please contact our customer service department for a return authorization number. After you have obtained the authorization number, please return the subject product to Imada with all freight, duty and brokerage costs prepaid.
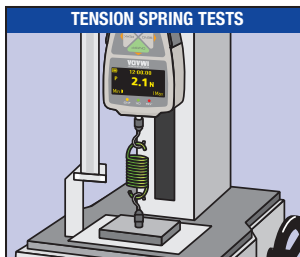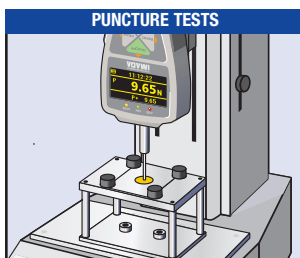

PULL FORCE TESTS
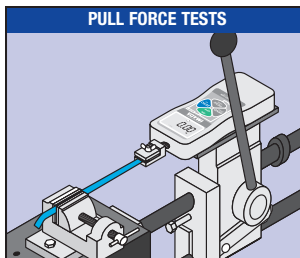
PUSH FORCE TESTS
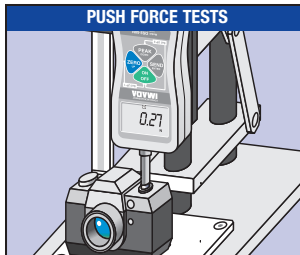
TENSION SPRING TESTS

PUNCTURE TESTS

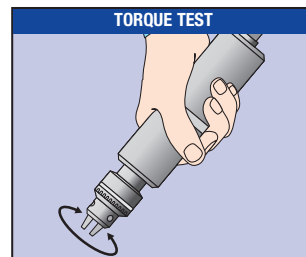45°, 90°, 180° PEEL FORCE TESTS
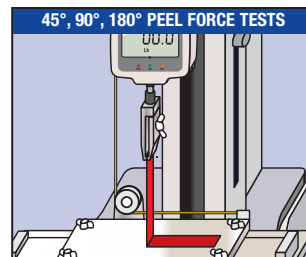
HANDHELD FORCE TESTS

TORQUE TEST

CAP TORQUE TEST

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DIGITAL TORQUE SCREWDRIVERS

DIGITAL TORQUE WRENCHES

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TORQUE
BREAKAWAY POINT
ANGLE

DUROMETER/HARDNESS TESTERS

DIGITAL TACHOMETER

LED STROBOSCOPE

DATA ACQUISITION

MECHANICAL FORCE GAUGES

Note: Mechanical force gauges are not recommended for destructive testing.

Series FB/PS/MF
Mechanical Push/Pull Force Gauges

BEST VALUE

Features:
- Both push and pull
- Retains a high degree of accuracy for extended periods
- Ergonomic, heavy-duty metal case
- 165 lbf overload capacity
- Real time and peak mode
- Tare ring
- No batteries needed
- Mountable to test fixtures
- Intrinsically safe
- Carrying case, standard attachments (see page 7), and Certificate of Calibration traceable to NIST included

FB Kit

OH-1 Optional Handle

Shaft size: 10-32, M6 available

FB Ranges (Resolution) Accuracy: ±0.3% F.S.

Pounds		Kilograms		Newtons	
Model	Capacity (Resolution)	Model	Capacity (Resolution)	Model	Capacity (Resolution)
FB-32oz	32ozf (0.25 ozf)	FB-1 kg	1 kgf (5 gf)	FB-10 N	10 N (0.05 N)
FB-80oz	80ozf (1 ozf)				
FB-2	2 lbf (0.02 lbf)	FB-2 kg	2 kgf (10 gf)	FB-20 N	20 N (0.1 N)
FB-5	5 lbf (0.05 lbf)	FB-3 kg	3 kgf (20 gf)	FB-30 N	30 N (0.2 N)
FB-10	10 lbf (0.1 lbf)	FB-5 kg	5 kgf (25 gf)	FB-50 N	50 N (0.25 N)
FB-20	20 lbf (0.2 lbf)	FB-10 kg	10 kgf (50 gf)	FB-100 N	100 N (0.5 N)
FB-30	30 lbf (0.25 lbf)	FB-20 kg	20 kgf (100 gf)	FB-200 N	200 N (1 N)
FB-50	50 lbf (0.5 lbf)	FB-30 kg	30 kgf (200 gf)	FB-300 N	300 N (2 N)
FB-100	100 lbf (1 lbf)	FB-50 kg	50 kgf (250 gf)	FB 500 N	500 N (2.5 N)

FB-150	150 lbf (1 lbf) Accuracy: ±0.5% F.S.

PS/MF Ranges (Resolution) Accuracy: PS ±0.2% F.S.; MF ±0.3% F.S.

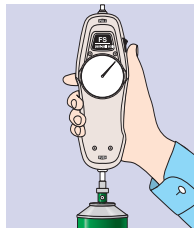| Pounds		Kilograms		Newtons	
Model	Capacity (Resolution)	Model	Capacity (Resolution)	Model	Capacity (Resolution)
PS-32oz	32ozf (0.25 ozf)	PS-0.5 kg	500 gf (2.5 gf)		
PS-80oz	80ozf (1 ozf)	PS-1 kg	1 kgf (5 gf)	PS-10 N	10 N (0.05 N)
PS-2	2 lbf (0.01 lbf)	PS-2 kg	2 kgf (10 gf)	PS-20 N	20 N (0.1 N)
PS-5	5 lbf (0.025 lbf)	PS-3 kg	3 kgf (20 gf)	PS-30 N	30 N (0.2 N)
PS-10	10 lbf (0.05 lbf)	PS-5 kg	5 kgf (25 gf)	PS-50 N	50 N (0.25 N)
PS-20	20 lbf (0.1 lbf)	PS-10 kg	10 kgf (50 gf)	PS-100 N	100 N (0.5 N)
PS-30	30 lbf (0.2 lbf)	PS-20 kg	20 kgf (100 gf)	PS-200 N	200 N (1 N)
PS-50	50 lbf (0.25 lbf)	PS-30 kg	30 kgf (200 gf)	PS-300 N	300 N (2 N)
PS-100	100 lbf (0.5 lbf)	PS-50 kg	50 kgf (250 gf)	PS 500 N	500 N (2.5 N)

Series ESH/PSH
High Capacity Push/Pull Mechanical Force Gauges

Up to 500 lbf

Features:
- Both push and pull
- Capacity up to 500 lbf
- Designed for heavy usage
- Heavy-duty metal case
- 135% overload capacity
- Real time and peak mode
- Tare ring
- Intrinsically safe
- Mountable to test stands
- Carrying case and Certificate of Calibration traceable to NIST included.

ESH Kit

ESH includes small hook and flat head.

PSH includes flat head, conical, chisel, notched, small hook, and extension shaft.

Shaft size: M10, 5/16-18 adapter available

PSH Ranges (Resolution) Accuracy: PSH ±0.3% F.S.; ESH ±0.5% F.S.

Pounds		Kilograms		Newtons	
Model	Capacity (Resolution)	Model	Capacity (Resolution)	Model	Capacity (Resolution)
PSH-200	200 lbf (1 lbf)				
PSH-300	300 lbf (2 lbf)	PSH-100 kg	100 kgf (0.5 kgf)	PSH-1000 N	1000 N (5 N)
PSH-400	400 lbf (2 lbf)	PSH-200 kg	200 kgf (1 kgf)	PSH-2000 N	2000 N (10 N)
PSH-500	500 lbf (2.5 lbf)	PSH-300 kg	300 kgf (2 kgf)	PSH 3000 N	3000 N (20 N)

Specify ESH models using ESH prefix, i.e. ESH-200. For less than 200 lbf, see FB/PS Series.

Series UK
Compact Mechanical Force Gauge

Features:
- Dimensions: 4½"L x 2½"W x 2"D
- Ideal for OEM or permanent installation in tight spaces
- Specially designed dial will retain peak values
- Intrinsically safe, no batteries needed
- Dedicated tension (UKT) and compression (UKK) models

Shaft size: M6, 10-32 adapter available

UK Ranges (Resolution) Accuracy: ±0.3% F.S

Pounds		Kilograms		Newtons	
Model	Capacity (Resolution)	Model	Capacity (Resolution)	Model	Capacity (Resolution)
UK-80oz	80 ozf (1 ozf)	UK-2 kg	2 kg (20 gf)	UK-20 N	20 N (0.2 N)
UK-5	5 lbf (0.025 lbf)	UK-3 kg	3 kgf (25 gf)	UK-30 N	30 N (0.25 N)
UK-10	10 lbf (0.1 lbf)	UK-5 kg	5 kgf (50 gf)	UK-50 N	50 N (0.5 N)
UK-20	20 lbf (0.2 lbf)	UK-10 kg	10 kgf (100 gf)	UK-100 N	100 N (1 N)
UK-30	30 lbf (0.25 lbf)	UK-20 kg	20 kgf (200 gf)	UK-200 N	200 N (2 N)
UK-50	50 lbf (0.5 lbf)	UK-30 kg	30 kgf (250 gf)	UK-300 N	300 N (2.5 N)

Use "T" suffix for dedicated tension models and "K" suffix for dedicated compression models

Easy-to-Use Basic Model

Series DS2

Digital Push/Pull Force Gauge with Output

Features:

- Simple operation, easy-to-use, accurate
- Large easy-to-read LCD display
- Ergonomic, durable, heavy-duty metal construction
- Push-button selectable lbf, kgf, and Newton units
- RS-232C, Digimatic and analog outputs
- Programmable High/Low setpoints with LCD indicators
- Push-button tare function
- Overload alarm, display flashes at overload limit
- Overload capacity 200% F.S.
- Low battery icon
- Runs on internal NI-MH batteries or AC adapter
- Selectable real time or peak mode operation
- Reversible display for test stand mounting
- Carrying case, standard attachments (see page 7), AC charger/adapter and Certificate of Calibration traceable to NIST included

C€

Shaft size: 10-32 up to 110 lbf, M6 for 220 lbf
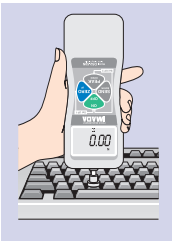
OH-1 Optional Handle

DS2 Series Kit

Data Acquisition

SW-1X Data Acquisition Software (optional)

You can acquire and analyze real-time data from any Imada gauge with an RS-232 port directly into any Windows program. Log and chart measurements as well as statistical information and control the gauge from your computer.

DB-1X Data Input Button (optional)

DB-1X is a simple, compact, one channel interface that enables the user to send measurement data to a PC running SW-1X, Imada data acquisition software or other software. The data input button simplifies peak measuring tests because it 'zeros' the gauge after sending the data to the computer eliminating the need to reset manually for each test.

See the back page for more information.

PC with SW-1X or other data acquisition software

Serial cable

CB-203 Cable

DB-1X Data button
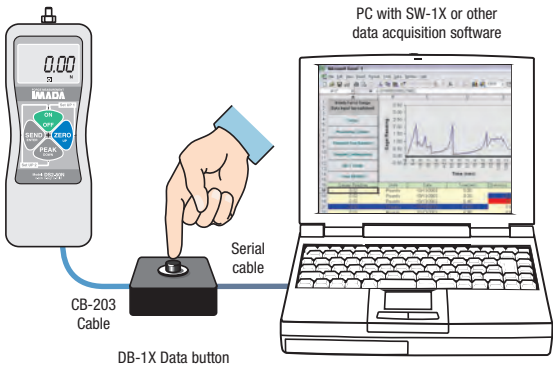
DS2 Ranges (Resolution) Accuracy: ±0.2% F.S. ±1 LSD

Model	Capacity (Resolution)			
	Ounces (ozf)	Pounds (lbf)	Kilograms (kgf)	Newtons
DS2-0.4	7.00 (0.01 ozf)	————	200.0 (0.1 gf)	2.000 (0.001 N)
DS2-1	18.00 (0.01 ozf)	————	500.0 (0.1 gf)	5.000 (0.001 N)
DS2-4	————	4.400 (0.001 lbf)	2.000 (0.001 kgf)	20.00 (0.01 N)
DS2-11	————	11.00 (0.01 lbf)	5.000 (0.001 kgf)	50.00 (0.01 N)
DS2-44	————	44.00 (0.01 lbf)	20.00 (0.01 kgf)	200.0 (0.1 N)
DS2-110	————	110.0 (0.1 lbf)	50.00 (0.01 kgf)	500.0 (0.1 N)
DS2-220	————	220.0 (0.1 lbf)	100.0 (0.1 kgf)	1000 (1 N)

For capacities greater than 220 lbf, see Z Series.

DS2 Specifications	
Accuracy	± 0.2% F.S., ± 1 LSD
Selectable Units	lbf(ozf), kgf(gf) or Newtons
Overload Capacity	200% of F.S. (Overload indicator flashes beyond 110% of F.S.)
Data processing speed	1,000 data/second
Display Update	10 times/second
Power	Rechargeable NiMH battery pack or AC adapter
Battery Indicator	Display flashes battery icon when battery is low
Setpoints	Programmable high/low setpoints with LCD indicators
Outputs	RS-232C, Digimatic and ±1 VDC analog output
Operating Temp.	32° to 100°F (0° to 40°C)

Series ZTS/ZTA Digital Force Gauge with Luminescent EL Display and Multi-Language Menus

2,000 Data/Second True USB Output

Shaft size: M10
Shaft adapters available for 10-32 and 5/16-18

Shaft size: 10-32 up to 110 lbf
M6 up to 220 lbf

Detachable handles included with 550 and 1,100 lbf models

ZTS/ZTA Standard Features

- EL electro luminescent display is highly visible in light or dark locations
- Multi-language program menus: English, Spanish, French, Chinese, German, Italian, Korean, Japanese
- Processes and transmits 2,000 data/sec.
- Color-coded LED indicators and output signal for Go/No Go testing
- Ergonomic design with non-slip grips, heavy duty metal construction
- Capacity up to 1,100 lbs (push/pull)
- Overload capacity 200% of F.S.
- USB (virtual COM port), RS-232C, Digimatic and Analog outputs
- lbf, kgf, and N units are selectable
- 1,000 data memory for recall or download
- External switch display hold and clear
- Internal Ni-MH batteries or AC adapter
- Real time and peak mode (selectable)
- Overload alarm and output signal
- Kit includes, standard attachments (see page 7), ZT Logger data acquisition software, USB cable, AC adapter/charger, calibration cert traceable to NIST and carrying case.

ZTA Additional features

- Display force and displacement data with Imada FA test stand
- Export gauge memory or save continuous data to USB flash drives
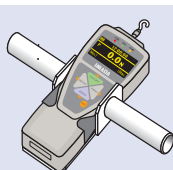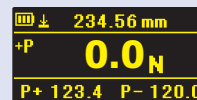
Optional Handle OH-1

ZTS/ZTA Kit

ZTA gauges save data to USB flash drives.

EL Display *(electro luminescent)*

Highly visible in dark locations. Selectable formats: Single-Line with basic data or Multi-Line with user selectable data such as high/low setpoints, memory data, etc. Multi-Line is shown

Multi-Language Program Menus

Program the gauge in one of eight languages with user friendly menus: English, Spanish, French, Chinese, German, Italian, Korean, or Japanese .

Setup Menu
Date Format
Language
Units
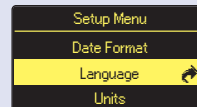
ZT Logger Data Acquisition Software

- USB (virtual COM port)
- Capture single or continuous data
- Reset the gauge
- Statistics: Min, Max, Avg, Std. Dev.
- Count values over high setpoint (+NG)
- Save or add data to CSV files
- Program and save all gauge functions
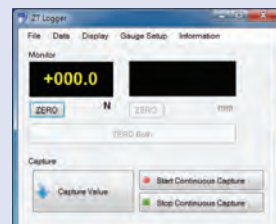
Optional Force Recorder Data Acquisition Software

- Capture 2,000 data/second
- Control gauge operation
- Program and save gauge functions
- Force vs. displacement (Pro version only)
- Zoom in to examine graph details
- Overlay multiple graphs
- Statistics: Min, Max, Avg, Std. Dev.
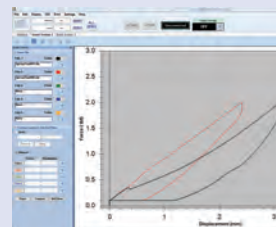
ZTS/ZTA Ranges (Resolution) Accuracy: ±0.2% F.S. ±1 LSD

Model	Capacity (Resolution)		
	Pounds/Ounces	**Kilograms**	**Newtons**
ZTS-0.4 or ZTA-0.4	7.00 (0.01 ozf)	200.0 (0.1 gf)	2.000 (0.001 N)
ZTS-1 or ZTA-1	18.00 (0.01 ozf)	500.0 (0.1 gf)	5.000 (0.001 N)
ZTS-4 or ZTA-4	4.400 (0.001 lbf)	2.000 (0.001 kgf)	20.00 (0.01 N)
ZTS-11 or ZTA-11	11.00 (0.01 lbf)	5.000 (0.001 kgf)	50.00 (0.01 N)
ZTS-44 or ZTA-44	44.00 (0.01 lbf)	20.00 (0.01 kgf)	200.0 (0.1 N)
ZTS-110 or ZTA-110	110.0 (0.1 lbf)	50.00 (0.01 kgf)	500.0 (0.1 N)
ZTS-220 or ZTA-220	220.0 (0.1 lbf)	100.0 (0.1 kgf)	1000 (1 N)
ZTS-550 or ZTA-550	550.0 (0.1 lbf)	250.0 (0.1 kgf)	2500 (1 N)
ZTS-1100 or ZTA-1100	1100 (1 lbf)	500.0 (0.1 kgf)	5000 (1 N)

ZTS/ZTA Force Gauges with Remote Sensors

ZTS-DPU or ZTA-DPU
Capacities up to 4400 lbf
Compression and Tension

ZTS-LM or ZTA-LM
Capacities up to 4400 lbf
Compression Only

ZTS and ZTA gauges can be configured with separate sensors that are ideal for measurements in confined or difficult to reach locations.

The ZTS-DPU and ZTA-DPU gauges offer the same features as the ZTS/ZTA series (page 6). All standard DPU sensors come with a six foot cable and measure both compression and tension with an accuracy of ±0.2% F.S.

Less than 1.5" in diameter, LM button sensors measure the same ranges as DPU sensors but for compression only, with an accuracy of ±0.5% F.S.

Pen Sensor/Special Remote Sensors
ZTS-PN-50N, ZTA-PN-50N
Capacity: 11 lbf
Designed for handheld compression or tension testing of small components.
Six foot cable included.
Dimensions: 89.5 mm x 20 mm dia.
Measurement shaft M6 P1.0, Weight: 50g

Many other types of remote sensor are available, please inquire.

ZTS-DPU/ZTA-DPU Ranges (Resolution) Accuracy: ±0.2% F.S. ±1 LSD

Model	Capacity (Resolution)		
	Pounds/Ounces	Kilograms	Newtons
ZTS-DPU-0.4 or ZTA-DPU-0.4	7.00 (0.01 ozf)	200.0 (0.1 gf)	2.000 (0.001 N)
ZTS-DPU-1 or ZTA-DPU-1	18.00 (0.01 ozf)	500.0 (0.1 gf)	5.000 (0.001 N)
ZTS-DPU-4 or ZTA-DPU-4	4.400 (0.001 lbf)	2.000 (0.001kgf)	20.00 (0.01 N)
ZTS-DPU-11 or ZTA-DPU-11	11.00 (0.01 lbf)	5.000 (0.001kgf)	50.00 (0.01 N)
ZTS-DPU-44 or ZTA-DPU-44	44.00 (0.01 lbf)	20.00 (0.01kgf)	200.0 (0.1 N)
ZTS-DPU-110 or ZTA-DPU-110	110.0 (0.1 lbf)	50.00 (0.01kgf)	500.0 (0.1 N)
ZTS-DPU-220 or ZTA-DPU-220	220.0 (0.1 lbf)	100.0 (0.1 kgf)	1000 (1 N)
ZTS-DPU-550 or ZTA-DPU-550	550.0 (0.1 lbf)	250.0 (0.1kgf)	2500 (1 N)
ZTS-DPU-1100 or ZTA-DPU-1100	1100 (1 lbf)	500.0 (0.1kgf)	5000 (1 N)
ZTS-DPU-2200 or ZTA-DPU-2200	2200 (1 lbf)	1000 (1kgf)	10.00 (0.01 KN)
ZTS-DPU-4400 or ZTA-DPU-4400	4400 (1 lbf)	2000 (1kgf)	20.00 (0.01 KN)

ZT-DPU-2200 and ZT-DPU-4400 Accuracy: ±0.5% F.S. ±1 LSD
Mini-DPU (smaller size) remote sensors and other special sensors are available — Please inquire.

ZTS-LM/ZTA-LM Ranges (Resolution) Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity (Resolution)		
	Pounds	Kilograms	Newtons
ZTS-LM-2 or ZTA-LM-2	2.200 (0.001 lbf)	1.000 (0.001kgf)	10.00 (0.01 N)
ZTS-LM-4 or ZTA-LM-4	4.400 (0.001 lbf)	2.000 (0.001kgf)	20.00 (0.01 N)
ZTS-LM-11 or ZTA-LM-11	11.00 (0.01 lbf)	5.000 (0.001kgf)	50.00 (0.01 N)
ZTS-LM-44 or ZTA-LM-44	44.00 (0.01 lbf)	20.00 (0.01kgf)	200.0 (0.1 N)
ZTS-LM-110 or ZTA-LM-110	110.0 (0.1 lbf)	50.00 (0.01kgf)	500.0 (0.1 N)
ZTS-LM-220 or ZTA-LM-220	220.0 (0.1 lbf)	100.0 (0.1kgf)	1000 (1 N)
ZTS-LM-550 or ZTA-LM-550	550.0 (0.1 lbf)	250.0 (0.1kgf)	2500 (1 N)
ZTS-LM-1100 or ZTA-LM-1100	1100 (1 lbf)	500.0 (0.1kgf)	5000 (1 N)
ZTS-LM-2200 or ZTA-LM-2200	2200 (1 lbf)	1000 (1kgf)	10.00 (0.01 KN)
ZTS-LM-4400 or ZTA-LM-4400	4400 (1 lbf)	2000 (1kgf)	20.00 (0.01 KN)

ZTS-PN Range (Resolution) Accuracy: ±2% F.S. ±1 LSD

Model	Capacity (Resolution)		
	Pounds	Kilograms	Newtons
ZTS-PN-50N or ZTA-PN-50N	11.00 (0.01 lbf)	5.000 (0.001kgf)	50.00 (0.01 N)

Specifications subject to change without notice.

Standard Attachments included in force gauge kits

A Series up to 20 lbf
S Series up to 110 lbf
SH Series up to 220 lbf
FB and DS2 kits include all except large and Y-hooks.
PS and ZT kits (up to 220 lbf) include all attachments.

	Small hook	Flat tip	Conical tip	Chisel tip	Notch tip	Ext. shaft	Large hook	Y-hook
A Series 20 lbf	A1	A2	A3	A4	A5	A6	A7	A8
S Series 110 lbf	S1	S2	S3	S4	S5	S6	S7	S8
SH Series 220 lbf	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8

M6 thread; Add E suffix for 10-32 thread, i.e. A1E

B Series up to 1100 lbf
ESH kits include hook, flathead, handles and mounting screws.
PSH and ZT kits (550 & 1100) include all attachments.

	Small hook	Flat tip	Conical tip	Chisel tip	Notch tip	Ext. shaft	Handles	Mounting hardware
B Series 1100 lbf	B1	B2	B3	B4	B5	B6		

M10 thread

SMALL GRIPS

Pin Grip
Grip small diameter wires, pins, filaments. 0-3.2mm dia.
CP-150N (22 lbf capacity)

Fine Point Chucks
Grip for small wire, components in narrow spaces, 0.5mm open
FP-50 (22 lbf capacity)

Small Chucks
Test wire, components, other pull tests.
SC-3 (3mm wide, 22 lbf capacity)
SC-8 (8mm wide, 35 lbf capacity)

FILM & TAPE

Thin Film Grips
Check the tensile strength of thin films up to 2mm thick. (110 lbf capacity)
FC-20 (20mm wide)
FC-21U (w/urethane teeth)
FC-40 (40mm wide)

Flat Chucks
Square serrated face, heavy-duty flat chuck.
GC-1100 (10mm open, 220 lbf capacity)
GC-1200 (20mm open, 220 lbf capacity)
GC-5000 (30mm open,1100 lbf capacity)

Tape Grips
Self-tightening "buckle" mechanism ensures slip-free operation.
TG-30 (30mm wide, 110 lbf capacity)
TG-50 (50mm wide, 110 lbf capacity)

Cam Grips
GR-30 (up to 30mm wide and 2 mm thick, 110 lbf capacity)
GR-2000 (up to 50mm wide and 4mm thick, 440 lbf capacity)

Roller Cam Grip
Mounted to the gauge, cam action grips wire and elastomers
GP-15 (up to 4.5mm, 50 lbf capacity)

Slant Film Grips
Test the opening of zipper bags.
CH-50U (up to1mm, 22 lbf capacity

WIRE TERMINAL GRIPS

Wire Terminal Grips
Spring loaded 20mm jaws open to 5mm. Secures wire terminal without gripping the wire jacket.
WG-1 (220 lbf capacity)
WG-2 (serrated jaws, 220 lbf capacity)

Wire Terminal Grips
For wire terminal testing, opens to 6mm
CH-500N (110 lbf capacity)

Multi Terminal Grips
WG-3 grips have 12 wire gauge apertures (up to 8mm) on the turret. Locate and lock the appropriate size.
WG-3 (8-30 AWG, 220 lbf capacity)
WG-3XL (3-14 AWG, 500 lbf capacity)

Wire Wrapping Grips
Test strength of wires, filaments, fibers, etc.
WC-30 (110 lbf capacity)
WC-2000 (440 lbf capacity)

Jacob's Chucks
Grip shafts and rods.
GC-5 (5mm, 110 lbf capacity)
GC-15 (13mm, 220 lbf capacity)

Wire Wedge Grips
Easy-to-clamp wedge grip
CW-500N (110 lbf capacity)
Opening width: 5mm

Vise Wire Grip
(220 lbf capacity)
WG-100 (38mm wide jaw opens to 39mm)

Wire Crimp Test Fixtures
Check crimped on wire terminals.
CH-5000N Wire crimp terminal grip (6-12mm dia., 1,100 lbf capacity)
CW-5000N Wire fixture table (30mm dia., 1,100 lbf capacity)

WEDGE GRIPS

Wedge Grips
Spring-loaded wedge grip, ideal for tensile measurements
KC-100 (220 lbf capacity),
KC-1001 (220 lbf capacity)
KC-5000 (1100 lbf capacity)

Pincer Wedge Grips
All purpose jaw grips.
Jaw face width: 10mm
Opening width: 0-15mm
PGC-0510 (110 lbf capacity)

HOLDING DEVICES

Vise Chucks
(220 lbf capacity)
Screw tightened vise for slip-free attachment to base of test stand.
GT-30 (38mm wide jaw opens to 39mm)
GT-500 (500 lbf capacity)

Center-Open Vise Grip
Holds test samples at the center, jaw face width: 50mm
GTW-50W Dial (110 lbf capacity)
GTW-50L Lever (220 lbf capacity)
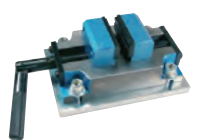
T-Slot Table
For easy exchanging and positioning of grips
TS-5000N (1100 lbf capacity)
Travel on X: 150mm
Travel on Y: ±15mm

Wire Cam Grips
Cam action grips quickly and easily up to 6mm.
WG-300 (220 lbf capacity)

Thin X-Y Table
Lower height for maximum clearance on vertical test stands.
Travel on X, Y: ±30mm
XY-500N
(110 lbf capacity for tension)
(220 lbf capacity for compression)

SPECIAL ATTACHMENTS

PEEL TESTING

Peeling Attachments
(110 lbf capacity)
Test bonding strength, peel force
of laminated materials, etc.
PF-1 (for pull),
PF-2 (for push)

Rotary Peeler
Aluminum wheel for testing tape
adhesion
1.125" Wide, 6" dia
RP-1

90° Peel Table (standard)
Bearing mounted table slides
to maintain 90° angle in peel
tests.
Capacity: 44 lbf
P90-200N Sample length
155mm width, 80mm
P90-200N-EZ

90° Peel Table (economical)
For low force 90° peel
adhesion test
GT-30-1 (economical)
Capacity: 44 lbf
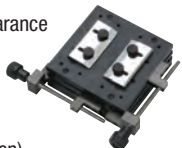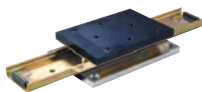Sample length: 155mm
Sample width: 80mm
GT-30-1-LF (low force)

45° peel fixture
Suitable for cup film peeling
P45-50N
Capacity: 11 lbf
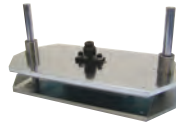Sample height: 12-90mm
Sample diameter: 30-120mm

COMPRESSION TESTING

Large Flat Heads
Suitable for general push/crush
testing.
AA-40 (40mm),
AA-60 (60mm),
AA-100 (100mm)
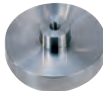
Urethane Finger
(capacity up to 11 lbf)
Simulates a finger. Not suitable for
touch screens. 16mm dia.
UR-8

Large Compression Fixture
For testing burst strength of
packages
PR-500N (110 lbf capacity)
PR-2500N (550 lbf capacity)

Swivel Compression Plates
(1100 lbf capacity)
Disks
PC-5040 40mm dia.
PC-5060 60mm dia.
PC-5100 100mm dia.
Rectangles
SQ-5030 30x20mm
SQ-5075 75x50mm
SQ-5150 150x100mm
Spheres
SP-5010 10mm
SP-5020 20mm
SP-5030 30mm

PUNCTURE TESTING

Penetrating Pin
(44 lbf capacity)
Check the hardness of clay-like materials,
burst strength of plastic coverings, etc.
PG-2 (2mm dia.)
PG-3 (3mm dia.)
PG-4 (4mm dia.)
PG-5 (5mm dia.)

Puncture Fixtures for Films
Check the strength of liquid
crystal film, auto battery
covers, thin aluminum, PET
bottles, retort pouches, etc.
TKS-20N (4.4 lbf capacity)
TKS-250N (55 lbf capacity)

SPECIAL APPLICATIONS

Universal Joints
Flexible coupling connects measuring shaft
and attachment.
UJ-6 (M6 thd. 220 lbf capacity),
UJ-10 (M10 thd. 440 lbf capacity)

Hook for cardboard boxes
Test seal strength of cardboard boxes
DF-60 (width, 60mm, 44 lbf capacity)

Button Pullers
Unique puller adjusts to grip
buttons, etc.
BP-6 (6–25mm, 30 lbf capacity)
BP-440 (440 lbf capacity)

Button Puller
(66 lbf capacity)
Opens to 35mm
PGC-BC

Button Holding Fixture
Check the tensile strength
of sewn buttons etc.
Up to 15mm dia.,
height 3.5mm
BC-15 (6.7 lbf capacity)

Bend Stands
Tests the bend strength of rods,
strips, etc.
GA-10N (60mm wide, 220 lbf)
GA-5000N (70mm wide,
1100 lbf)
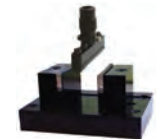
Coefficient of Friction Tester
Suitable for coefficient of
friction test
COF-2N Stroke: 150mm
(.4 lbf capacity)
COF-2N-V vertical model
COF-10N Stroke: 150mm
(2.2 lbf capacity)
COF-10N-V vertical model

QFP series
For IC lead pull test
QFP-100N
Capacity: 22 lbf
Stroke: ±12.5mm
Hole span on table: 180x140mm
Hook and table

TIP series
For TIP shear test
TIP-100N
Capacity: 22 lbf
Stroke: ±12.5mm
Hole span on table: 180x140mm
Compression jig and table

Specifications subject to change without notice.

Vertical Lever Stands

Lever action allows for rapid testing.

SVL-220 *220 lbf capacity*

SVL-220-S *with standard digital distance meter*
- Stroke: 2.3" (60mm) per 170° lever movement
- Maximum clearance 10.4"
  Optional long column model (SVL-220-L) 18.3" clearance
- Optional extender adds 5" clearance
- Easy to change from tension to compression mode

SVL-220-S with optional digital distance meter

NLV-220 *220 lbf capacity*

NLV-220-S *with standard digital distance meter*
- Stroke 2"
- Maximum clearance 9"
- Optional extender adds 5" clearance
Select either Compression (-C) or Tension (-T) Models.

ECONOMICAL

NLV-220-S with optional digital distance meter

Horizontal Lever Stand

Lever action allows for rapid testing.

NLH-220 *220 lbf capacity*

NLH-220-S *with standard digital distance meter*
- Stroke 2"
- Large work platform
- Horizontal positioning is easy to control

NLH-220-S with optional digital distance meter

Horizontal Wire Crimp Pull Tester

LH-110 *110 lbf capacity*
- Stroke 3.34" (85mm)
- Force gauge and attachments included

Other Wire Crimp Testers are Available.

LH-110

Specifications subject to change without notice.

Vertical Wheel Stands

Optional digital distance meter, add -S to the model number.
- Hand wheel facilitates a high degree of precise control
- One stand for both compression (push) and tension (pull)
- Gauge remains in place when hand wheel is released.

SVH-220-S with optional digital distance meter

HV-110-S with optional digital distance meter

HV-220-S with optional digital distance meter

Vertical Wheel Stand Specifications

Model	Capacity	Stroke	Travel/Rotation
SVH-220 or SVH-220-S	220 lbf	2.36" (60mm)*	13mm
HV-110 or HV-110-S	110 lbf	10.8" (275mm)	2mm
HV-110L or HV-110L-S	110 lbf	18.7" (475mm)	2mm
HV-220 or HV-220-S	220 lbf	10.8" (275mm)	2mm
HV-220L or HV-220L-S	220 lbf	18.7" (475mm)	2mm
HV-300 or HV-300-S	300 lbf	14.9" (379mm)	2mm
HV-500 or HV-500-S	500 lbf	14.9" (379mm)	2mm
HV-750 or HV-750-S	750 lbf	14.9" (379mm)	2mm

Appearance varies by model. Optional digital distance meter, add -S to the model number.
*SVH-220 clearance 10.4"; SVH-220-L (long column) clearance 18.3"

Micro Movement Stand

KV-11S *11 lbf capacity with standard digital distance meter*
- Stroke 2.75" (travel distance per knob rotation 1mm)
- Reduced backlash and fine movement for highly precise measurements

Horizontal Wheel Stand

SH-110 *110 lbf capacity*

SH-220 *220 lbf capacity*

SH-220-S *with standard digital distance meter*
- Hand wheel control
- Continuous stroke up to 14.5"
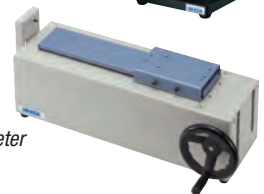
Horizontal Wheel Stand Specifications

Model	Capacity	Stroke	Travel/Rotation
SH-110 or SH-110-S	110 lbf		
SH-220 or SH-220-S	220 lbf	11.8" (300mm)	1.2mm
SH-750 or SH-750-S	750 lbf	14.5" (370mm)	0.6mm

MX Force Control Test Stands

Also see page 12 for MX2 High Performance Test Stands

VERTICAL MODELS

MX-110 or MX-110-S   *Capacity 110 lbf*
MX-275 or MX-275-S   *Capacity 275 lbf*
MX-1100 or MX-1100-S *Capacity 1100 lbf*

HORIZONTAL MODELS

MH-275 or MH-275-S   *Capacity 275 lbf*
MH-750* or MH-750-S* *Capacity 750 lbf*

FORCE CONTROL
with Z Series Gauges

Features:

- Manual, Single Cycle, Continuous Cycle (72 hour max.), Force Control
- Screw drive system and high performance brushless motor
- Force Controlled operation with Imada Z Series force gauges
- Conditional Overload Prevention
- Long column model available (MX-110-L)
- Optional digital distance meter available

CE
MX-110-S with optional
digital distance meter

CE
MX-275-S with optional
digital distance meter

CE
MX-1100-S with optional
digital distance meter

CE
MH-275-S with optional
digital distance meter

Speed Configurations		
Model	Speed	in/min (mm/min)
MX-110	Standard	0.4~12 (10~305)
	High	0.8~23 (20~600)
	Very high	1.6~47 (40~1200)
	Slow	0.08~2.3 (2~60)
MX-275	Standard	0.4~9.4 (8~240)
	High	0.6~15.5 (15~400)
	Slow	0.2~4.7 (4~120)
MX-1100	Standard	0.4~12 (10~305)
	Slow	0.2~5.9 (5~150)
MH-275	Standard	0.3~7.0 (6~180)
	High	0.4~9.4 (8~240)
	Very high	0.8~23 (20~600)

Custom Speeds Available

Stroke Specifications		
Model	Stroke	Throat
MX-110	10.6" (270mm)	2.7" (70mm)
MX-110-L	17.1" (435mm)	2.7" (70mm)
MX-275	15.7" (400mm)	2.7" (70mm)
MX-1100	13.7" (350mm)	2.7" (70mm)
MH-275	11.8" (300mm)	—
MH-750	9.8" (250mm)	—

Optional extender plate adds 5" of clearance

CE
MH-750-S with optional
digital distance meter
**Basic model, no force control or
conditional overload prevention*

Force Control

All Imada test stands become a force control system when connected with IMADA Z Series gauges. The gauge sensor controls test stand movement using pre-programmed setpoints. Ideal for demanding applications, such as creep or non-destructive testing.

Maintain Force Between High/Low Setpoints
Force control activates when applied force exceeds the low setpoint (and below the high setpoint) on the gauge. Applied force is then maintained between high and low for the specified interval.

Increase Force to High Setpoint and Stop
When applied force reaches the low set point on the force gauge, the test stand engages measuring speed and stops when applied force reaches the high set point on the gauge. Ideal for creep or non-destructive testing.

Test Stand Accessories

Optional Digital Distance Meter
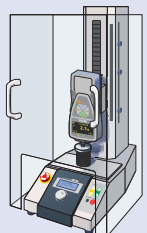*Add -S to any model*
- Mounts to all test stands
- Data output capability

Optional Extender Plate
- Adds 5" of clearance

Lexan Safety Shield LP-99
- 1/4" unbreakable lexan
- Protects personnel by containing testing debris
- Allows access to the control panel

MX2 Force Control Test Stands

with Digital Speed Set, Timer and Cycle Counter
Also see page 11 for MX Standard Test Stands

VERTICAL MODELS

MX2-110 *Capacity 110 lbf*
MX2-275 *Capacity 275 lbf*
MX2-550 *Capacity 550 lbf*

HORIZONTAL MODEL

MH2-110 *Capacity 110 lbf*

Features:

- Manual, Increment, Single Cycle, Continuous Cycle and Force Controlled operation (with Z Series gauges) selectable
- Unique jog movement control, for precise increment testing.
- Easy-to-use program dial and menu screens control mode, speed, timer and cycles
- Programmable timer up to 99' 59.9 sec in 0.1 sec increments
- Conditional Overload Prevention
- Long column model available (MX2-XXX-L)
- Optional digital distance meter available, see page 13

High Performance Test Stands

MX2-110-S with optional digital distance meter

MX2-275-S with optional digital distance meter

MX2-550-S with optional digital distance meter

Force Control

All MX2, MH2 and EMX test stands become a force control system when connected with Imada Z Series gauges. The gauge sensor controls test stand movement using pre-programmed setpoints. Ideal for demanding applications, such as creep or non-destructive testing.

```
MANUAL MODE
   4.40 in/min

↓   JOG MOVE
```

Easy-to-use program dial and menu screens

Maintain Force Between High/Low Setpoints
Force control activates when applied force exceeds the low setpoint (and below the high setpoint) on the gauge. Applied force is then maintained between high and low for the specified interval.

Increase Force to High Setpoint and Stop
When applied force reaches the low set point on the force gauge, the test stand engages measuring speed and stops when applied force reaches the high set point on the gauge. Ideal for creep or non-destructive testing.

MH2-110

See page 13 for Force & Displacement

Specifications

Model	VERTICAL				HORIZONTAL
	MX2-110	MX2-275	MX2-550	EMX-275 (see p13)	MH2-110
Max Load	110 lbf	275 lbf	550 lbf	275 lbf	110 lbf
Standard Speed in/min (mm/min)	.4~12 (10~305)	.4~12 (10~305)	.4~12 (10~305)	.01 – 23.5 (.5 – 600)	.4~12 (10~305)
Optional High Speed in/min (mm/min)	.8~23.5 (20~600)	.9~23.5 (20~600)	—	—	8~23.5 (20~600)
Optional Low Speed in/min (mm/min)	.1~3.5 (3~90)	.1~2.9 (2~75)	.1~3.5 (3~75)	—	.1~3.5 (3~90)
Stroke	9.44" (240 mm)	12.2" (310 mm)	12.2" (310 mm)	12.4" (315 mm)	9" (230 mm)
Optional Long Column Model Stroke	17.32" (440 mm)	24.01" (610 mm)	24.01" (610 mm)	24.21" (615 mm)	—
Throat	2.7" (70mm)	2.7" (70mm)	2.7" (70mm)	3.1" (80mm)	—
Dial click (standard speed, no load)	.015 mm	.01 mm	.05 mm	.01 mm	.015 mm
Deflection (at maximum load)	.5 mm	.5 mm	.5 mm	.25 mm	.5 mm

Other speeds available, please inquire. Optional extender plate adds 5" clearance

EMX Force Control Test Stand

ULTRA PRECISION

EMX-275 *Capacity 275 lbf*

- Ultra rigid, 0.25 mm deflection at max. load
- Wide speed range: .01 – 23.5 in/min (.5 – 600 mm/min)
- Selectable Manual, Increment, Single Cycle, Continuous Cycle and Force Control
- Easy-to-program menus control speed, cycles, pause duration, high/low setpoints, time, auto start displacement, etc.
- Save up to five test configurations
- Measures both force and displacement
- Auto start displacement at pre-programmed force
- Programmable travel distance
- Programmable timer up to 99' 59.9, in 0.1 sec increments
- Stroke: 12.4" (315mm), Max clearance: 9" (with extender 14")

CE

Program

Digital speed set for test and return speeds, Test force values (high/low setpoints), Force holding duration, Auto displacement start at certain force, Number of cycles

Operation

1) **Manual** Push button or precise dial control

2) **Jog Movement** Each click of the program dial moves the sensor approx. .05mm

3) **Cycle**

Single Cycle: Stop at travel limit or set force value and return to start position

Continuous Cycle: Stop at travel limit or set force value, return and repeat cycle.

4) **Force Control**

Stop Force Control: Stop at set force, hold for set duration, capture both force and displacement values and return to start position

Maintain Force Control: Maintain force between high/low setpoints, hold for set duration, capture force and displacement values, return and repeat cycle.

EMX-275-S with optional digital distance meter
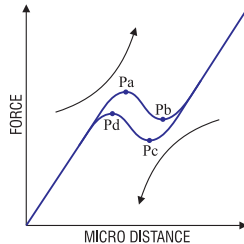
Note: Requires standard or high speed distance meter and data acquisition software.
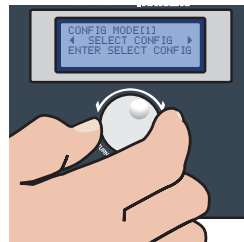
Easy-to-use program dial and menu screens

Measure Force & Displacement

Standard Digital Distance Meter

-S Option *(Add -S to any model number)*

- Mounts to all test stands, manual or motorized
- Data output capability (requires DB-2X data button and SW-2X data acquisition software)

Distance Meter Specifications	
Display	Push button for inch/mm, zero set and on/off
Resolution	0.0005"/0.01mm
Accuracy	0.1% of reading or 0.005"/0.1mm, whichever is greater

PC with SW-2X data acquisition software

DB-2X data button

EMX-275-S
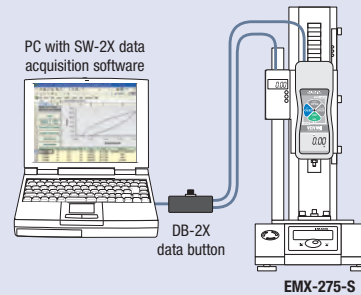
High Speed Digital Distance Meter

-FA Option *(Selectable inch or millimeter)*

- Displacement shown on the force gauge display in mm or inches (requires ZTA force gauge)
- Automatically reset displacement to zero at a pre-programmed force
- Optional Force Recorder software available for force vs. displacement graphing

FA Specifications		
Resolution	0.01mm	0.0001"
Accuracy	0.1mm	0.004"
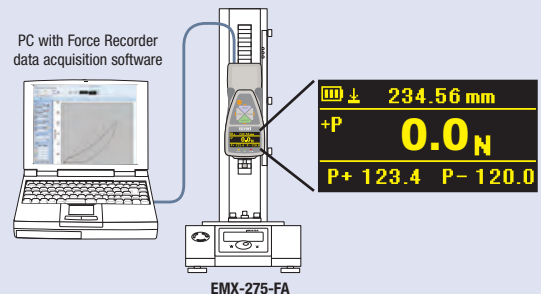
PC with Force Recorder data acquisition software

234.56 mm
+P 0.0 N
P+ 123.4 P- 120.0

EMX-275-FA

Portable Force/Displacement Tester

FSA-MSL is portable and saves both force and displacement data to USB memory sticks in CSV format.
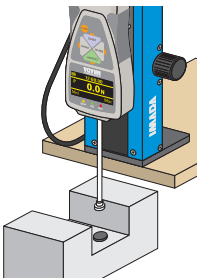
FSA-MSL *Capacity 11 lbf*

- Measures both force and displacement
- Auto start displacement at pre-programmed force
- Portable weighs under 3 lbs
- Save data to USB memory sticks
- Mounting plate may be reversed or removed to allow testing of oversize objects and extend into recesses.

Model		FSA-MSL-xx
Capacity		11 lbf
Stroke		3.14" 80mm
Ranges (select one)	18 ozf	FSA-MSL-1
	4.4 lbf	FSA-MSL-4
	11 lbf	FSA-MSL-11

Specifications subject to change without notice.

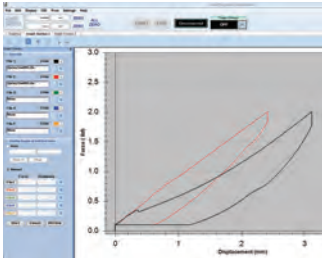Force Recorder data acquisition software is included with FSA testers. See page 30.

High Performance Force/Displacement Testers

FSA-0.5K2

FSA-1K2/FSA-2.5K2

FSA-0.5K2 *Capacity 110 lbf*
FSA-1K2 *Capacity 275 lbf*
FSA-2.5K2 *Capacity 550 lbf*

- Measures both force and displacement
- Auto start displacement at pre-programmed force
- Save data to USB memory sticks
- Very rigid 0.5mm deflection at maximum load

Model		FSA-0.5K2-xx	FSA-1K2-xx	FSA-2.5K2-xx
Capacity		110 lbf	275 lbf	550 lbf
Stroke		9.4" (240mm)	11.6" (295mm)	12.2" (310mm)
Ranges (select one)	18 ozf	FSA-0.5K2-1	FSA-1K2-1	FSA-2.5K2-1
	4.4 lbf	FSA-0.5K2-4	FSA-1K2-4	FSA-2.5K2-4
	11 lbf	FSA-0.5K2-11	FSA-1K2-11	FSA-2.5K2-11
	44 lbf	FSA-0.5K2-44	FSA-1K2-44	FSA-2.5K2-44
	110 lbf	FSA-0.5K2-110	FSA-1K2-110	FSA-2.5K2-110
	220 lbf	–	FSA-1K2-220	FSA-2.5K2-220
	550 lbf	–	–	FSA-2.5K2-550

FSA motorized testers combine the capabilities of MX2 and EMX test stands with FA option (p. 12), ZTA Force gauges (p. 6) and Force Recorder data acquisition software (p. 30) into an integrated force and displacement measuring system.

Program
Digital speed set for test and return speeds, Test force values (high/low setpoints), Force holding duration, Auto displacement start at certain force, Number of cycles

Operation
1) Manual Push button or precise dial control
2) Jog Movement Each program dial click moves the sensor approx. .05mm

3) Cycle
Single Cycle: Stop at travel limit or set force value and return to start.
Continuous Cycle: Stop at travel limit or set force value, return and repeats.

4) Force Control
Stop Force Control: Stop at set force, hold for set duration, capture both force and displacement values and return to start position
Maintain Force Control: Maintain force between high/low setpoints, hold for set duration, capture force and displacement values, return and repeats.
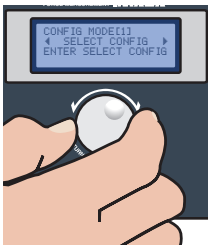**Auto Start Displacement:** Automatically zero displacement at a pre-programmed force
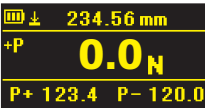
Ultra Performance Force/Displacement Tester

FSA-1KE *Capacity 275 lbf*

- Ultra rigid, 0.25 mm deflection at max. load
- Selectable Manual, Increment, Single Cycle, Continuous Cycle and Force Control
- Easy-to-program menus control speed, cycles, pause duration, high/low setpoints, time, auto start displacement, etc.
- Save up to five test configurations
- Measures both force and displacement
- Auto start displacement at pre-programmed force
- Programmable travel distance
- Programmable timer up to 99' 59.9, in 0.1 sec increments
- Wide speed range: .01 – 23.5 in/min (.5 – 600 mm/min)
- Stroke: 12.4" (315mm), Max clearance: 9" (with extender 14")
- Highly visible electro luminescent display
- Color-coded LED indicators and output signal for Go/No Go testing
- Processes and transmits 2,000 data/sec.
- USB, RS-232C, Digimatic, Analog outputs
- Save data to USB memory sticks
- Force Units: lbf, kgf, N (selectable) Displacement Units: FA models inch, mm (selectable)
- 1,000 data memory for recall or download
- Tester includes Force-Recorder Pro software, cable, full set of standard attachments, AC adapter/charger, and calibration cert traceable to NIST.

CE

Model		FSA-1KE-xx
Capacity		275 lbf
Stroke		12.4" (315mm)
Ranges (select one)	18 ozf	FSA-1KE-1
	4.4 lbf	FSA-1KE-4
	11 lbf	FSA-1KE-11
	44 lbf	FSA-1KE-44
	110 lbf	FSA-1KE-110
	220 lbf	FSA-1KE-220

CONFIG MODE[1]
◄ SELECT CONFIG ►
ENTER SELECT CONFIG

Easy-to-use program dial and menu screens

234.56 mm
+P
0.0 N
P+ 123.4   P- 120.0

ZTA gauges show both force and displacement

Force Recorder Data Acquisition Software
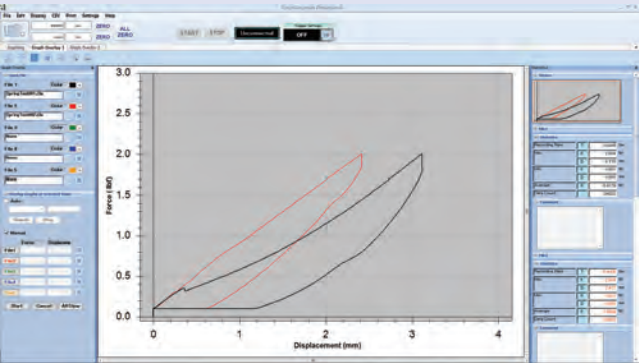
Pro: ZT-RP

Force Recorder force analysis software interfaces with Imada ZT Series (USB) force gauges and is included with FSA testers. Program, save or import saved gauge programming from the software.

Force Recorder captures and processes 2,000 data per second (not just the peak) and generates force vs. time profile graphs with statistics. In addition to force vs. time, Force Recorder Pro captures force vs. displacement data using a ZTA gauge.

Zoom into any part of the graph to see individual data points at intervals of 0.5 mS. Mouse over data points to display their force value.

Further analysis can be done on the entire range or by selecting part of the graph to detect the first peak or generate statistics within that time interval. Compare and align multiple graphs. Save graphs or export data to CSV format.

Force Recorder offers a new toolbox to analyze force data.

Hardware/Software Requirements

OS: Windows XP / Vista / 7 (32bit/64bit)
CPU: Pentium 4 (1GHz or higher) or later
RAM: 2GB or greater
Hard Disk: 10GB minimum (dependent on test variables and duration)
Supported Platform: .NET Framework 4.0 Client Profile or later*
Display Resolution: 1024 x 768 or greater
Force Gauge: Digital Force Gauge ZT series
Port: USB 1.1 / 2.0 (Not compatible with USB 3.0)
Cable: Standard USB A to Mini-B cable (comes with ZT gauge)
* Windows 7 includes .NET Framework 4.0

Specifications subject to change without notice.

HTGS Digital Torque Gauge

High Performance Model

HTGS Standard Features:

- Programmable high/low setpoints with color-coded LED indicators and output signal for quick Go/No Go testing
- Highly visible EL electro luminescent display
- Multi-language program menus: English, Spanish, French, Chinese, German, Italian, Korean, Japanese
- Ergonomic design, non-slip grips, heavy duty metal construction
- USB (virtual COM port), RS-232C, Digimatic and Analog outputs
- Processes and transmits 2,000 data/sec.
- Selectable lbf-in, kgf-m, and N-m units
- Overload capacity 200% of F.S.
- 1,000 data memory for recall/download
- External switch display hold and clear
- Internal Ni-MH batteries or AC adapter
- Real time and peak mode (selectable)
- Overload alarm and output signal
- Kit includes, 6.5mm chuck (4mm for HTGS-4), ZT Logger data acquisition software, USB cable, Allen wrench, AC adapter/charger, calibration cert traceable to NIST and carrying case (handles for 10N-m range only). Optional 13mm Jacobs chuck available
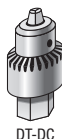
Optional Adapters

Optional adapters offer enable torque testing of bolts, screws, etc.

Optional Jacobs Chucks Available	
13 mm Jacobs chuck	DT-DC-13
6.5 mm Jacobs chuck	DT-DC-6.5
6.5 mm Stainless Steel Jacobs chuck	DT-DC-6.5SUS
4 mm Jacobs chuck	DT-DC-4

DT-DC

Other Adapters Available	
3/8" Socket adapter	HT-9.5SQ
1/4" Hex adapter	HT-DBH

HT-9.5SQ   HT-DBH

HTGS Ranges (Resolution) Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity (Resolution)			
	ozf-in	lbf-in	kgf-cm	N-cm
HTGS-4	70.00 (0.01)	4.000 (0.001)	5.000 (0.001)	50.00 (0.01)
HTGS-15	—	15.00 (0.01)	20.00 (0.01)	200.0 (0.1)
HTGS-40	—	40.00 (0.01)	50.00 (0.01)	500.0 (0.1)
HTGS-85	—	85.0 (0.1)	100.0 (0.1)	1000 (1)

## HTGS Hand Cap Torque Tester

HTGS Standard Features:

- Small table with 3/8" stainless steel pegs enables hand testing of bottle caps without lifting large containers; accomodates 2" diameter caps
- Programmable high/low setpoints with color-coded LED indicators and output signal for quick Go/No Go testing
- Highly visible EL electro luminescent display
- Multi-language program menus: English, Spanish, French, Chinese, German, Italian, Korean, Japanese
- 1,000 data memory for recall/download
- Internal Ni-MH batteries or AC adapter
- Kit includes table with stainless steel pegs, ZT Logger data acquisition software, USB cable, Allen wrench, AC adapter/charger, calibration cert traceable to NIST and carrying case (handles for 10N-m range only).

Measure torque on caps up to 2" in diameter.
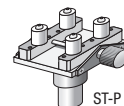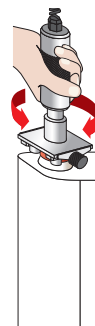
ST-P
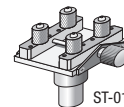
ST-01P
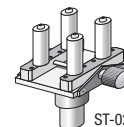
ST-02P

Optional Small Tables Available	
Clamp diameters from 7mm~50mm	
Small Table w 3/8" pegs	ST-P
Small Table w 1-1/4" pegs	ST-02P
Small Table w 3/8" stainless steel pegs	ST-01P

HTGS Ranges (Resolution) Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity (Resolution)		
	lbf-in	kgf-cm	N-cm
HTGS-15-ST-01P	15.00 (0.01)	20.00 (0.01)	200.0 (0.1)
HTGS-40-ST-01P	40.00 (0.01)	50.00 (0.01)	500.0 (0.1)
HTGS-85-ST-01P	85.0 (0.1)	100.0 (0.1)	1000 (1)

DIGITAL CAP TORQUE TESTERS

DTXS Cap Torque Tester

Features

- Heavy duty all-metal construction for exceptional durability
- Programmable high/low setpoints with color-coded LED indicators and output signal for quick go/no go testing
- Tare function
- 1,000 Data memory for computer download
- Clamps containers from 1/2"~ 7" in diameter
- lbf-in, Kgf-cm, and N-cm units are selectable
- RS-232C, Digimatic and Analog outputs
- Both CW and CCW operation
- Overload capacity 200% of F.S.
- Real time and peak mode (selectable)
- Overload alarm and output signal
- Can be operated with internal rechargeable battery or AC adapter

CE

Turn knob to clamp container, then twist cap by hand to measure torque.

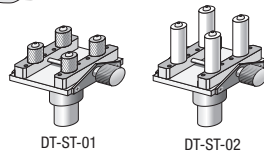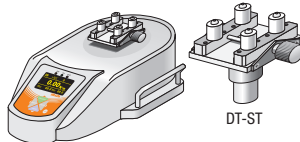| Optional Pegs Available	
Std. 1" pegs	TB-P
2-3/4" pegs	TB-02P
1" Stainless steel pegs	TB-01P

Optional Small Tables Available Clamp diameters from 7mm~50mm	
Small Table w 3/8" pegs	DT-ST
Small Table w 1-1/4" pegs	DT-ST-02
Small Table w 3/8" stainless steel pegs	DT-ST-01

DT-ST

DT-ST-01   DT-ST-02

Optional Jacobs Chucks Available	
13 mm Jacobs chuck	DT-DC-13
6.5 mm Jacobs chuck	DT-DC-6.5
6.5 mm Stainless Steel Jacobs chuck	DT-DC-6.5SUS
4 mm Jacobs chuck	DT-DC-4

DT-DC
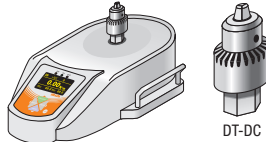
DTXS Ranges (Resolution) Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity (Resolution)		
	lbf-in	kgf-cm	N-cm
DTXS-15	15.00 (0.01 lbf-in)	20.00 (0.01 gf-cm)	200.0 (0.1 N-cm)
DTXS-40	40.00 (0.01 lbf-in)	50.00 (0.01 kgf-cm)	500.0 (0.1 N-cm)
DTXS-85	85.0 (0.1 lbf-in)	100.0 (0.1 kgf-cm)	1000 (1 N-cm)

MTG Motorized Cap Torque Tester

Features

- Heavy duty all-metal construction for exceptional durability
- Programmable high/low setpoints with color-coded LED indicators and output signal for quick go/no go testing
- Tare function
- 1,000 Data memory for computer download
- lbf-in, Kgf-cm, and N-cm units are selectable
- RS-232C, Digimatic and Analog outputs
- Both CW and CCW operation
- Real time and peak mode (selectable)
- Overload alarm and output signal
- Can be operated with internal rechargeable battery or AC adapter

CE

Plus these additional features

- Automatic cap torque testing for both tightening and untightening
  Tighten caps with a pre-programmed torque value
  Untighten caps using color-coded LED indicators for Go/No Go tests
- Sample diameters from .8"~7"; cap diameters .8"~3.5"; container height 3.2"~9.4"
- Capping speed 3~90° per second
- Overload capacity 150% of F.S. with alarm at 110% F.S.
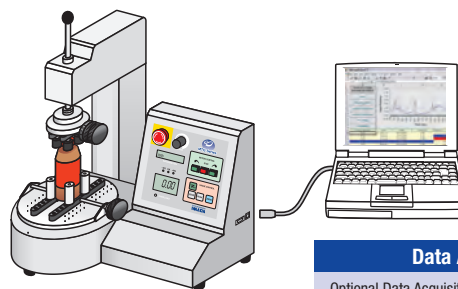
Data Acquisition
Optional Data Acquisition software SW-1X collects data for analysis from any Imada gauge or torque tester with an RS-232 port. See the back page.

MTG Ranges (Resolution) Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity (Resolution)		
	lbf-in	kgf-cm	N-cm
MTG-15	15.00 (0.01 lbf-in)	20.00 (0.01 gf-cm)	200.0 (0.1 N-cm)
MTG-40	40.00 (0.01 lbf-in)	50.00 (0.01 kgf-cm)	500.0 (0.1 N-cm)
MTG-85	85.0 (0.1 lbf-in)	100.0 (0.1 kgf-cm)	1000 (1 N-cm)

KTC TORQUE TOOLS

Digital Torque Screwdrivers
GLK Series

- The best known, rugged, high quality tools in Japan for over 60 years!
- High accuracy ±1.5% F.S. both CW and CCW directions
- Peak, peak with auto zero reset and Real Time modes
- Five programmable torque presets ideal for frequent operations.
- Pass/Fail mode counts fasteners tightened within programmed High/Low limits, using LED and audible alerts
- Selectable units, ozf-in, lbf-in, cN-m
- ISO-6789 Compliant
- No.1 Phillips tip, 1/4" square drive to 1/4" hex magnetic adapter, calibration certificate traceable to NIST and carrying case included
- Optional ratchet with 1/4" square drive, CW, CCW and fixed operation

GLK Kit

LED & Audible Alerts at 90% of Target Torque

GLK250E
GLK500E
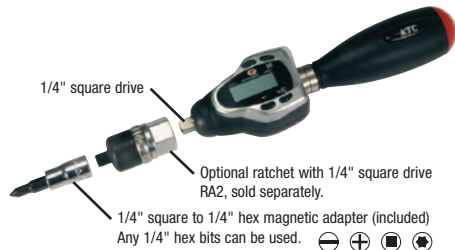
GLK060E

Highly visible LED Indicator.

GLK Digital Torque Screwdrivers are compact, lightweight, and feature, LED and audible alarms, ergonomic handle, push button controls, and are battery powered.

Measure torque in peak or real time modes. Auto zero mode resets peak measurements automatically (1~10 seconds). Selectable units of ozf-in, lbf-in, and cN-m.

Five programmable torque presets stored in memory enable the user to check frequently used values. The presets alert the user with an intermittent signal at 90% and a continuous signal at 100% of the preset torque value using LED and audible indicators which enable users to tighten to within 10% of a preset torque value.

Pass/Fail mode counts the number of fasteners tightened within programmed high and low torque limits.

1/4" square drive

Optional ratchet with 1/4" square drive
RA2, sold separately.

1/4" square to 1/4" hex magnetic adapter (included)
Any 1/4" hex bits can be used.

Digital Torque Screwdriver Specifications	
Accuracy	±1.5% F.S.
Measuring direction	CW and CCW
Measuring unit	Selectable ozf-in, lbf-in, cN-m
Data Memory	5 (storable Target torque values), 1 (Pass/Fail Mode)
Auto Shut OFF	Auto shut off after selectable interval of non-use (~10 min.)
Battery	Lithium coin battery Panasonic CR2354
Battery Life	Approx. 2 months (100 usages per day)

Digital Torque Screwdriver Ranges Accuracy ±1.5% F.S., ±1 LSD

Digital Torque Screwdriver	Ranges		
Model No.	ozf-in	lbf-in	cN-m
GLK060E	0.9~85.0	0.05~5.31	0.60~60.00
GLK250E	3.5~354.0	0.22~22.13	2.5~250.0
GLK500E	7.1~708.0	0.44~44.25	5.0~500.0

Selection Guideline: The actual working torque value should fall within 70% of the torque measuring range. Note: cN-m is equivalent to N-cm

179 (7.05")
41 (1.61")
20 (.79")
33 (1.30")
19 (.75")

179 (7.05")
41 (1.61")
32 (1.26")
33 (1.30")
31 (1.22")
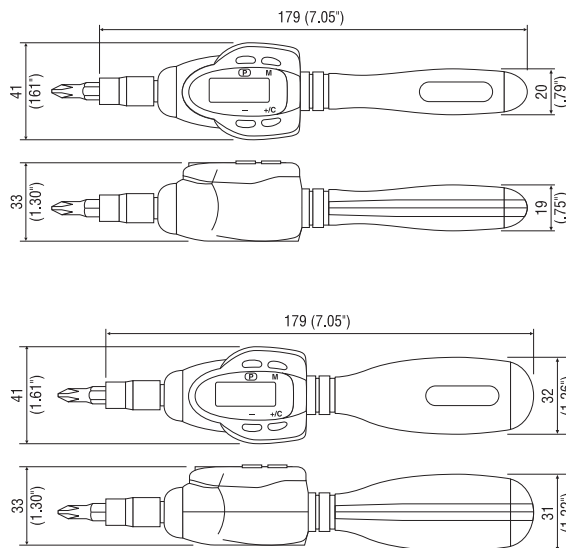
Specifications subject to change without notice.

Digital Ratchet Torque Wrench

GEK Series

- High accuracy ±1.5% F.S. both CW and CCW directions
- The best known, rugged, high quality tools in Japan for over 60 years!
- Peak, peak with auto zero reset and Real Time modes
- Five programmable torque presets ideal for frequent operations.
- Pass/Fail mode counts fasteners tightened within programmed High/Low limits, using LED and audible alerts
- Selectable units, lbf-in, lbf-ft, kgf-cm, N-m
- ISO-6789 Compliant
- Calibration certificate traceable to NIST and carrying case included

Digital Ratchet Torque Wrenches features a unique power sensor in the ergonomic handle which accurately detects and analyzes load applied to the grip to enable more precise torque measurement regardless of hand position, unlike other loading point sensitive wrenches.

Digital ratchet torque wrenches measure in peak mode, peak with auto zero reset, and real time. Five programmable torque presets stored in memory enable the user to check frequently used values. The presets alert the user with an intermittent signal at 90% and a continuous signal at 100% of the preset torque value using LED and audible indicators that enable users to tighten to within 10% of a preset torque value. Pass/Fail mode counts the number of fasteners tig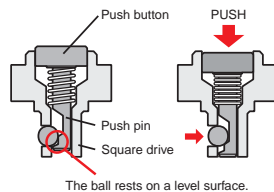htened within programmed high and low torque limits. Selectable units of lbf-in, lbf-ft, kgf-m, and N-m. Uses a lithium coin battery, CR2354.

The forged steel ratchet head has positive lock which keeps sockets on the drive. The ball in the square drive rests on the small platform on the pushpin and cannot be pushed in without pressing the pushpin, resulting in no accidental detachments.

Push button   PUSH

Push pin
Square drive

The ball rests on a level surface.

Rigid Ergonomic Grip keeps the torque point in the center of your hand.
Unique Power Sensor accurately detects and analyzes load applied to enable more precise torque measurement regardless of hand position and skill level of the operator.

Forged Steel Ratchet Head
with positive-lock keeps sockets on the drive and the 36 tooth gear with double claw ratchet allows smaller movement between clicks.

Large LED Lamp
The large LED lamp is easily visible even from the side.

Digital Ratchet Torque Wrench kit

Optional Quick Spinners and Adapters

Quick Spinners and Spinner/Converters allow users to quickly rundown the bolt or nut using their fingers before applying torque.

A BE2-Q 1/4" to 1/4" Quick Spinner
    BE3-Q 3/8" to 3/8" Quick Spinner
    BE4-Q 1/2" to 1/2" Quick Spinner
B BAE23 converts 1/4" to 3/8" drive
C BAE34 converts 3/8" to 1/2" drive

A   B   C

Insert   Rundown   Measure torque
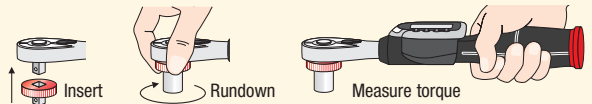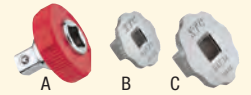
Spinner/Converters have a lower profile than conventional adapters

Conventional socket adapter

Digital Ratchet Wrench Specifications

Accuracy	±1.5% F.S.
Measuring direction	CW and CCW
Measuring unit	Selectable lbf-in, lbf-ft, kgf-m, N-m
Data Memory	5 (storable Target torque values), 1 (Pass/Fail Mode)
Auto Shut OFF	Power automatically turns off after 2 minutes of non-use
Battery	Lithium coin battery Panasonic CR2354
Battery Life	Approx. 2 months (100 usages per day)

Digital Ratchet Ranges Accuracy ±1.5% F.S., ±1 LSD

Digital Ratchet Wrench	Ranges				Dimensions (mm)				
Model No.	lbf-in	lbf-ft	kgf-m	N-m	B	L	T1	T2	Drive
GEK030-R2E	13.4~265.4	1.12~22.12	0.160~3.060	1.5~30.00	22	211	10	36	1/4"
GEK030-C3E	13.4~265.4	1.12~22.12	0.160~3.060	1.5~30.00	22	211	10	36	3/8"
GEK060-R3E	13.5~531.0	1.15~44.25	0.160~6.120	1.5~60.00	33	217	13.5	36	3/8"
GEK085-R3E	19.0~752.0	1.60~62.70	0.21~8.66	2.0~85.0	33	271	13.5	36	3/8"
GEK135-R4E	28~1195	2.3~99.5	0.32~13.76	3.1~135.0	39.5	380	18	36	1/2"
GEK200-R4E	46~1770	3.8~147.4	0.55~20.40	5.2~200.0	39.5	580	18	36	1/2"

Selection Guideline: The actual working torque value should fall within 70% of the torque measuring range.

Loading Point

B

L

T1

Drive

T2

Digital Adjustable Torque Wrench
GEK Series

- High accuracy ±1.5% F.S. both CW and CCW directions
- The best known, rugged, high quality tools in Japan for over 60 years!
- Peak, peak with auto zero reset and Real Time modes
- Five programmable torque presets ideal for frequent operations.
- Pass/Fail mode counts fasteners tightened within programmed High/Low limits, using LED and audible alerts
- Selectable units, lbf-in, lbf-ft, kgf-cm, N-m
- ISO-6789 Compliant
- Calibration certificate traceable to NIST and carrying case included

1st DIGITAL ADJUSTABLE

GEK200-W36E

GEK135-W36E

Digital Adjustable Torque Wrench kit

Digital Adjustable Torque Wrenches expand torque applications to places where a socket wrench cannot work. They feature forged steel jaws and a unique power sensor in the handle which accurately detects and analyzes load applied to the grip, regardless of hand position and specially designed jaws that maintain a constant working length whether open or closed, to enable more precise torque measurement.

These torque wrenches measure in peak mode, peak with auto zero reset, and real time. Five programmable torque presets stored in memory enable the user to check frequently used values. The presets alert the user with an intermittent signal at 90% and a continuous signal at 100% of the preset torque value using LED and audible indicators that enable users to tighten to within 10% of a preset torque value. Pass/Fail mode counts the number of fasteners tightened within programmed high and low torque limits. Selectable units of lbf-in, lbf-ft, kgf-m, and N-m. Uses a lithium coin battery, CR2354.

Plumbing is just one of the applications for the digital adjustable torque wrench

Unique Power Sensor in Rigid Ergonomic Grip

The unique built-in sensor accurately detects and analyzes torque applied to the grip to enable more precise torque measurement regardless of hand position and skill level of the operator. The ergonomic grip helps keep the torque point in the center of your hand.

WORKING LENGTH

Digital Adjustable Wrench
Constant working length, whether the jaws are open or closed, assures greater accuracy in measurement (measured from the bolt's rotational axis to the point where load is applied).

Ordinary Wrench

Digital Adjustable Wrench Specifications

Accuracy	±1.5% F.S.
Measuring direction	CW with display facing you, CCW with display facing away from you
Measuring unit	Selectable lbf-in, lbf-ft, kgf-m, N-m
Data Memory	5 (storable Target torque values), 1 (Pass/Fail Mode)
Auto Shut OFF	Power automatically turns off after 2 minutes of non-use
Battery	Lithium coin battery Panasonic CR2354
Battery Life	Approx. 2 months (100 usages per day)

Digital Adjustable Ranges Accuracy ±1.5% F.S., ±1 LSD

Digital Adjustable Wrench	Ranges				Dimensions (mm)					
Model No.	lbf-in	lbf-ft	kgf-m	N-m	Jaw Size	B	L	T1	T2	Weight
GEK085-W36E	19.0~752.0	1.60~62.70	0.21~8.66	2.0~85.0	10~36mm	69	275.2	14.5	36	560g
GEK135-W36E	28~1195	2.3~99.5	0.32~13.76	3.1~135.0	10~36mm	69	381.2	14.5	36	680g
GEK200-W36E	46~1770	3.8~147.4	0.55~20.40	5.2~200.0	10~36mm	69	581.2	14.5	36	990g

Apply load at the torque point in clockwise direction only

Selection Guideline: The actual working torque value should fall within 70% of the torque measuring range.
Accuracy is assured only under the following conditions: Hexagonal objects only. Apply torque toward the movable jaw only.
Precautions: Firmly fit jaw to the width of the bolts and nuts. Do not apply impact by hitting it with a hammer, etc.
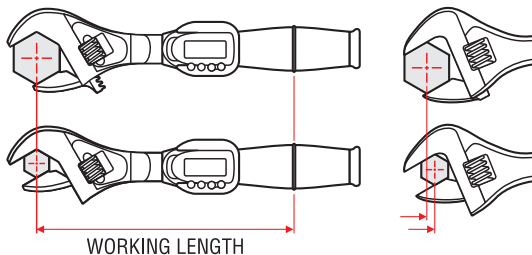
Rechargeable Digital Screwdriver/ Torque Tester

Models: DID-05 & DID-4

Features:

- Programmable High/Low setpoints with both audible beep and Green/Red LED indicator for uniform torque tightening or GO/NO GO testing
- Peak, Real Time, Peak Down and Continuous Output modes (selectable)
- Selectable units ozf-in, lbf-in, kgf-cm, N-cm, N-m
- USB data output (virtual RS232 serial output)
- 800 data memory for recall with statistics (number of data, Max, Min, Avg) or for SPC download
- Programmable screw tightening counter
- Programmable Auto Zero function resets unit to zero for easy operation
- Ergonomic, light weight, metal construction
- Runs on internal NiCad batteries (8 hour use) Auto shut-off after 10 min. of non-use
- DID-05 includes 4mm stepless CW one-way clutch Phillips tip, 4mm Phillips tip, AC charger and carrying case
- DID-4 with ratchet (CW, CCW and fixed operation) includes 2- 1/4" Phillips tips, AC charger and carrying case

DID-4
Any other 1/4"
hex bits can be used.

DID-05

DID-4 Kit

PC with SW-1SV-USB or other data acquisition software

USB cable

Data Acquisition

Optional Data Acquisition software SW-1SV-USB collects data for analysis from any Cedar torque tester with an USB port. See the back page.
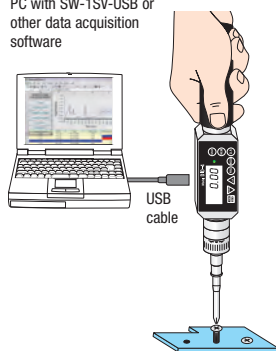
Rechargeable Digital Screwdriver/ Torque Tester with Remote Driver

Model: DIS-RL

Features

- Ergonomic, light weight, rugged metal construction
- Selectable units lbf-in, Kgf-cm, N-cm and N-m
- Peak, Real Time, Peak Down and Continuous Output measuring modes (selectable)
- Accuracy: ±0.5% F.S. ±1 LSD
- 800 data memory for recall or for SPC download
- Programmable High/Low setpoints with audible beep for uniform torque tightening or GO/NO GO testing
- Zero reset button on the driver for easy operation
- CW, CCW ratchet and fixed operation
- Statistics: number of data, Max, Min, Avg
- USB data output (virtual RS232 serial output)
- Runs on internal NiCad batteries (8 hour use)
- DIS-RL05 includes 4mm stepless CW one-way clutch Phillips tip, 4mm Phillips tip, AC charger and carrying case
- DIS-RL2/10 with ratchet (CW, CCW and fixed operation) includes 2-1/4" Phillips tips, AC charger and carrying case

DIS-RL
1/4" Female hex
Any other 1/4" hex bits
can be used.

PC with SW-1SV-USB or other data acquisition software
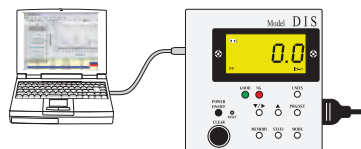
DIS-RL Kit
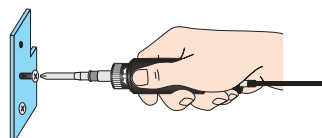
DID-4 Ranges Accuracy ±0.5% F.S., ±1 LSD

Model	Capacity				
	ozf-in	lbf-in	kgf-cm	N-cm	N-m
DID-05	0.20~69.50	0.020~4.500	0.020~5.000	0.20~50.00	—
DID-4	2.0~560.0	0.20~35.00	0.20~40.00	2.0~400.0	0.020~4.00

DIS-RL Ranges Accuracy: ±0.5% F.S., ±1 LSD

Model	Capacity			
	lbf-in	kgf-cm	N-cm	N-m
DIS-RL05	0.020~4.500	0.020~5.000	0.20~50.00	—
DIS-RL2	0.10~17.40	0.10~20.00	1.0~200.0	—
DIS-RL10	1.0~90.0	1.0~100.0	10~1000	0.10~10.00

Rechargeable Digital Torque Wrench/Testers
Models: DIW-15/20/75/120

**Features:**

- Ergonomic, light weight, rugged metal construction
- Selectable units lbf-in, kgf-cm, N-cm and N-m
- Peak, Real Time, Peak Down and Continuous Output measuring modes (selectable)
- 800 data memory for recall or for SPC download
- Programmable High/Low setpoints with both audible and Green/Red LED alerts for GO/NO GO testing
- Statistics: number of data, Max, Min, Avg
- Programmable screw tightening counter
- Programmable Auto Zero function resets unit to zero
- Both CW and CCW operation
- USB data output (virtual RS232 serial output)
- Runs on internal NiCad batteries
- Kit includes carrying case, AC adapter/ charger and Certificate of Calibration traceable to NIST. DIW-15/20/75 include CW stepless one-way clutch.
  CW one-way clutch is available as a separate item for DIW-120.

Wrench head rotates 300°

Drive Centered Torque Sensor

DIW-75 Kit

Conventional Digital Torque Wrenches must be gripped and torque applied at the load point on the handle for accurate torque measurement.

Drive centered Digital Torque Wrenches deliver consistent readings no matter where the wrench is gripped because the torque sensor is centered on the drive instead of the handle. Extend the wrench any length for easier torquing. F2 and F3 examples require less force to apply the same torque and get consistent readings

Fixed position load point

F

F1
Grip middle

F2
Grip end

F3
Grip with extension for easier torquing
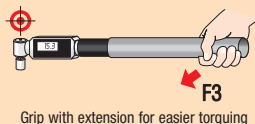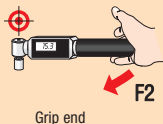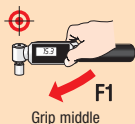
DIW-15/20/75/120 Ranges Accuracy ± 0.5% F.S., ±1 LSD

Model	Capacity				
	lbf-in	lbf-ft	kgf-cm	N-cm	N-m
DIW-15	2.0~130.0	—	2.0~150.0	20~1500	0.20~15.00
DIW-20	2.0~174.0	—	2.0~200.0	20~2000	0.20~20.00
DIW-75	2.0 ~ 651.0	—	2.0~750.0	20~7500	0.20~75.00
DIW-120	20 ~ 1040	2.0~87.0	20~1200	—	2.0~120.0

Specifications subject to change without notice.

Torque Calibrator for Manual Torque Wrenches
Model: DWT-200

Features:

- Verify manual torque wrench values
- Heavy duty metal construction
- lbf-in, kgf-cm, N-m selectable
- Peak Down, Peak, and Real Time measuring modes (selectable)
- Accuracy: ±0.5% F.S. ±1 LSD
- Clockwise operation
- 1/2" square drive and 3/8" square drive adapter
- Auto power off (after 10 minutes of non use)
- Runs on four AA batteries (about 20 hours continuous use)

Ideal for Breakaway Torque Test
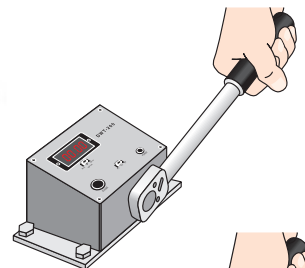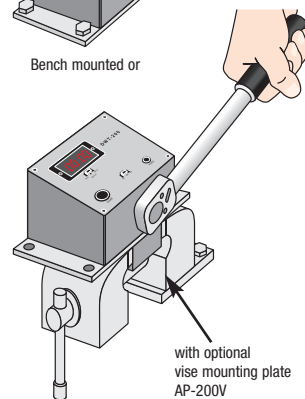
Designed to automatically capture the peak down torque, when the torque wrench clicks, and not any additional torque applied by the operator.

Additional torque applied

Actual click point

Torque

Angle of Rotation

Bench mounted or

with optional vise mounting plate AP-200V
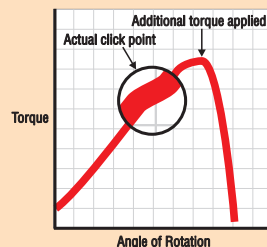
DWT-200 Ranges Accuracy ± 0.5% F.S., ±1 LSD

Model	Capacity		
	lbf-in	kgf-cm	N-m
DWT-200	70~1740	70~2000	7.0~200.0

Note: Not for use with impact wrenches, see Model DI-1M

Digital Torque Calibrator with Remote Sensor for Manual Torque Wrenches

Model: DIS-IP

Features:

- Ideal for manual torque wrench calibration
- Programmable High/Low setpoints with GO/NO GO LED indicators and audible beep
- lbf-in/lbf-ft, Kgf-cm/Kgf-m, N-cm/N-m (selectable)
- Heavy duty metal construction
- Peak, Real Time and Peak Down measuring modes
- Both CW and CCW operation
- Accuracy: ±0.5% F.S. ±1 LSD
- 800 data memory for recall or for SPC download
- Statistics: number of data, Max, Min, Avg
- USB data output (virtual RS232 serial output)
- Runs on internal NiCad batteries (8 hour use)
- AC adapter/charger and Certificate of Calibration traceable to NIST included
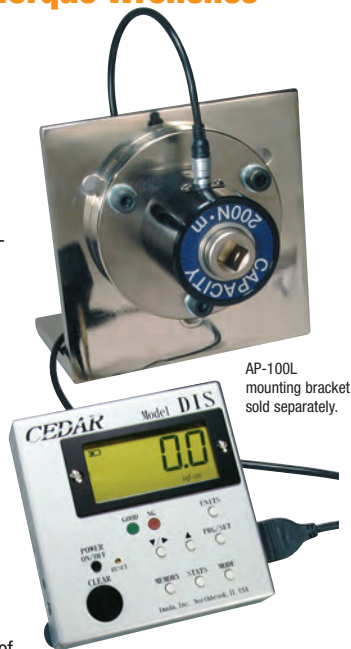
AP-100L mounting bracket sold separately.

Verify settings on manual torque wrenches.

Torque Calibrator for Electric Drivers & Manual Torque Wrenches

Models: Series i, CD-150M & DI-11

Features:

- Ideal for calibrating torque settings on electric drivers
- Capacities up to 174 lbf-in
- lbf-in, Kgf-cm and N-cm (selectable)
- Peak, Real Time and Peak Down measuring modes (selectable)
- Both CW and CCW
- Programmable High/Low setpoints with LED indicator and audible beep.
- USB data output (virtual RS232 serial output)
- Statistics: number of data, Max, Min, Avg
- Heavy-duty metal construction
- Programmable auto display reset
- Heavy-duty metal construction
- Runs on internal NiCad batteries or AC adapter
- 3/8" drive for manual torque wrenches
- Kit includes carrying case, AC adapter/charger, Certificate of Calibration traceable to NIST, and 2 - driver adapters
  i-8 & i-80 include Smart Adapters, CD-150M & DI-11 include spring adapters

Series i & CD-150M

DI-11

Verify settings on torque controlled drivers.

Smart Adapters

"Smart Adapters" absorb torque internally so there is no need to back out the test screw. Only for i-8 and i-80.

Series i Ranges Accuracy: ±0.5% F.S., ±1 LSD

Model	Capacity (Resolution)			
	lbf-in	**kgf-cm**	**N-cm**	**N-m**
i-8	0.020~6.970 (0.001)	0.020~8.000 (0.001)	0.20~78.60 (0.01)	—
i-80	0.20~69.70 (0.01)	0.20~80.00 (0.01)	2.0~786.0 (0.1)	0.020~7.860 (1)
CD-150M	1.0~130.0 (0.1)	1.0~150.0 (0.1)	1.0~1500 (1)	0.10~15.00 (.01)
DI-11	1.0~174.0 (0.1)	1.0~200.0 (0.1)	—	0.10~20.00 (.01)

Note: Not for use with impact wrenches, see Model DI-1M

Specifications — Driver Adapters (2 included)

Model	i-8		i-80		CD-150 & DI-11	
Adapter	**Smart Adapters**				**Spring Adapters**	
Model	OW-025E	OW-10E	OW-20E	OW-60E	SJ-50	SJ-100
Range lb-in	2	9	18	53	8~50	50~130
Screw on top	6-32	6-32	8-32	1/4-20	5/16-18	3/8-16
Operational life	10,000 hrs	8,000 hrs	5,000 hrs	5,000 hrs	2500 times	
Plug to socket	3/4" square x 5/32" (20 mm square x 4 mm)					

Metric adapters available

DIS-IP Ranges Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity			
	lbf-in	**kgf-cm**	**N-cm**	**N-m**
DIS-IP5 (1/4")	0.20~44.00	0.20~50.00	2.0~500.0	0.020~5.000
DIS-IP50 (3/8")	2.0~440.0	2.0~500.0	20~5000	0.20~50.00
	lbf-in	**lbf-ft**	**kgf-m**	**N-m**
DIS-IP200 (1/2")	20~1740	2.0~145.0	0.20~20.00	2.0~200.0
DIS-IP500 (3/4")	20~4400	2.0~362.0	0.20~50.00	2.0~500.0

Specifications subject to change without notice.

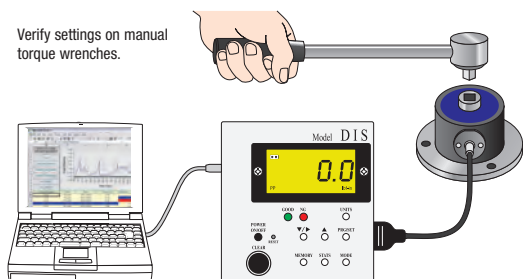## Integral Torque Calibrator for Air Tools & Impact Wrenches

Model: DI-4B-25

Features:

- Ideal for pneumatic and impact tool calibration
- Heavy duty metal construction
- Displays torque value as lbf-in, kgf-cm, N-cm; AND impacts for selected period (0.1 - 9.9 sec)
- Peak, Real Time and Peak Down Measuring modes
- Accuracy: ±0.5% F.S. ±1 LSD
- Both CW and CCW operation
- USB data output (virtual RS232 serial output)
- Runs on internal NiCad batteries (8 hour use)
- Soft joint, hard joint, AC adapter/charger and Certificate of Calibration traceable to NIST included
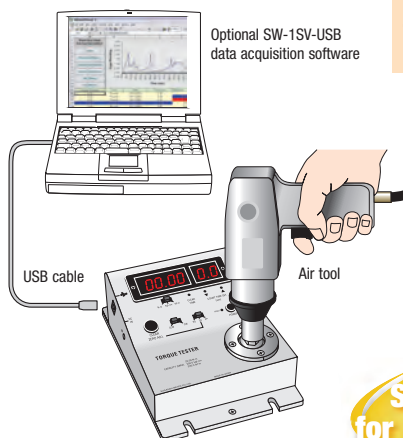
Joint Simulators

4B-001 Soft joint

4B-201 Hard joint

DI-4B-25 Joint simulator thread size 5/16-18 included (10-24, 3/8-16, M5, M6 and M10 threads sold separately).

Optional SW-1SV-USB data acquisition software

USB cable

Air tool

DI-4B-25 Kit

See back page for Data Acquisition

DI-4B-25 Ranges Accuracy: ±0.5% F.S. ±1 LSD

Model	Capacity		
	lbf-in	kgf-cm	N-cm
DI-4B-25	3.0~220.0	3.0~250.0	30~2500

Specifications subject to change without notice.

Torque Calibrator with Remote Sensor for Air Tools & Impact Wrenches

Model: DI-1M

Features:

- Ideal for pneumatic and impact tool calibration
- Heavy duty metal construction
- Displays torque value as lbf-in, kgf-cm, N-cm OR lbf-ft, kgf-m, N-m; AND impacts for selected period (0.1 - 9.9 sec)
- Peak, Real Time and Peak Down measuring modes
- Both CW and CCW
- RS-232 output (peak data only)
- Runs on internal NiCad batteries (8 hour use)
- Certificate of Calibration traceable to NIST included (DI-1M Mounting bracket AP-100L sold separately.)

DI-1M Mounting bracket sold separately.

For Air Tools & Impact Wrenches

SUPER HEAVY DUTY

DI-1M-HP250

DI-1M Ranges Accuracy: ±0.5% F.S. ±1 LSD

Model (Female Drive)		Capacity		
		lbf-in	kgf-cm	N-m
DI-1M-50	(3/8")	3.0~440.0	3.0~500.0	30~5000 (N-cm)
DI-1M-200A	(1/2")	30~1740	30~2000	3.0~200.0
		lbf-ft	kgf-m	N-m
DI-1M-200	(1/2")	3.0~145.0	0.30~20.00	3.0~200.0
DI-1M-500	(3/4")	3.0~362.0	0.30~50.00	3.0~500.0
DI-1M-HP250	(3/8" & 1/2")	3.0~180.0	3.0~25.0	30~250

SJ Spring Adapter Specifications

Model	Capacity	Drive	Screw	for Model
SJ-200	200 lbf-in	3/8"	3/8-16	DI-1M-50
SJ-300	300 lbf-in	3/8"	1/2-13	DI-1M-50
SJ-500	500 lbf-in	1/2"	1/2-13	DI-1M-200
SJ-1500	1500 lbf-in	1/2"	3/4-10	DI-1M-200
SJ-2000	2000 lbf-in	3/4"	3/4-10	DI-1M-500

SJ Spring adapters

Automatic Breakaway Torque Tester
Model: DI-12

DI-12 Motorized Torque Tester drives the sample at consistent speed and:

1. Detects breakaway torque without overtorquing
2. Detects screw joint yield torque to determine optimum tightening torque
3. Tightens fasteners to preprogrammed torque values
4. Displays real time torque values and captures peak torque

Features:

- Selectable units: lbf-in, kgf-cm, N-m units available
- Breakaway, Peak and Real Time measuring modes (selectable)
- USB virtual COM port sends 80 data/second or peak data
- Both CW and CCW operation

DI-12 outputs torque data continuously to data acquisition software via USB virtual COM port, to display breakaway torque profiles.

Torque controlled power tools are set to apply consistent torque, but fasteners are not necessarily tightened to that value.

Breakaway torque tests measure the actual tightening torque of the fastener but require an skilled, experienced operator. DI-12 automates this complex operation.

Automatically Detect Breakaway Torque!
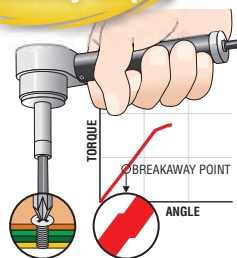
Breakaway Tightening Torque
In a Breakaway test, torque is applied to a fastener that is already tightened. When enough torque is applied, the fastener begins to turn or breakaway and the test stops automatically.

DI-12 Specifications

Display	4 digit LCD display
Operation	Both CW and CCW motorized rotation
Measurement modes	PP: Displays PEAK Torque value that will not change until a higher value is measured. TR: Displays TRANSIENT torque values. PD: Determines breakaway and yield torque (CW only) If a breakaway torque value is detected, the green indicator will light, and tester rotation will stop automatically.
Output	Virtual RS-232 (9600 bps): PP 1 peak data, PD 80 data/sec.
Auto-power-off	After 5 minutes of non-use.
Dimensions	Indicator: 87mm W × 108mm D × 33mm H

DI-12 Ranges Accuracy ±1% F.S., ±1 LSD

Model	Capacity			
	lbf-in	**kgf-cm**	**N-m**	**approx.rpm**
DI-12-SL4	0.30~35.00 lbf-in	0.30~40.00	0.030~4.000 N-m	0.7
DI-12-SL15	3.0~130.0 lbf-in	3.0~150.0	0.30~15.00 N-m	0.7

Specifications subject to change without notice.

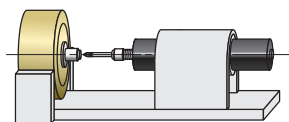## Rotating Friction Torque Tester
Model: NTS-6

Features:

- Available in: lbf-in, ozf-in, Kgf-cm, N-cm and N-m (specify units when ordering)
- Peak, Real Time and Continuous Output measuring modes (selectable)
- Both CW and CCW operation
- RS-232C output
- Programmable high/low setpoints for Go/No go testing

NTS-6 motorized friction torque tester tests the rotation smoothness of bearings, tightness of oil seals, etc. while turning the sample. Torque data can be continuously output via RS-232 enabling you to display a torque profile using data acquisition software.

Detect slight amounts of torque in bearing resistance at a fixed speed. Fixture not included

NTS Specifications

Model	S1/1oz	S2/2oz	S5/5oz	S10	S20
Max. Speed (no-load)	85rpm	25rpm	13rpm	18rpm	18rpm
Display	4 digit LCD display				
Operation	Both CW and CCW motorized rotation				
Measuring modes	PP: Peak Mode displays PEAK torque value that will not change until a higher value is measured. GO: Real Time Mode displays TRANSIENT torque values. RG: Output Torque Data every 1/100 seconds.				
Measurement start time	Can be set up to 1 second in 0.1 second increments.				
Measuring time	Time can be programmed between 1 and 20 seconds.				
Go/No Go testing	Programmable High and Low values; Green lamp (OK solid, NG blinking).				
External input/output	Signal output (open collector): Go and No Go Data output: Virtual RS-232C (19200 baud) Peak data: 1 at a time; Continuous data: 12 per second External start switch input				
Bit size	4mm			HEX 6.35mm	

NTS Ranges Accuracy: ±1% F.S.; ±1LSD

Model	Capacity				
	ozf-in	**lbf-in**	**Kgf-cm**	**mN-m**	**N-m**
NTS-6-S1oz	0.30~14.00	—	—	—	—
NTS-6-S2oz	0.30~28.00	—	—	—	—
NTS-6-S5oz	3.0~70.0	—	—	—	—
NTS-6-S1	—	0.030~0.900	0.030~1.000	3.0~100.0	—
NTS-6-S2	—	0.030~1.740	0.030~2.000	3.0~200.0	—
NTS-6-S5	—	0.30~4.50	0.30~5.00	—	0.030~0.500
NTS-6-S10	—	0.30~9.00	0.30~10.00	—	0.030~1.000
NTS-6-S20	—	0.30~17.40	0.30~20.00	—	0.030~2.000

Durometer/Hardness Tester
Super EX Series

EX-A*   Type Shore A   Normal rubber
EX-D*   Type Shore D   Hard rubber & plastics
EX-C*   Type Asker C   Soft rubber

Asker is one of the leading manufacturers of durometers in the world. Asker design and precision manufacturing produce a reliable, highly accurate durometer. Super EX durometers feature portability, ease of operation, non-destructive measurement and optional peak indicators. They are heavy-duty with high repeatability.

Hardness is an essential characteristic of rubber, elastomers and plastic products. The first step in using a hardness tester is to select the optimum type based upon material hardness.

*Add 'P' to the model number to specify optional peak indicator, for example EXP-A.

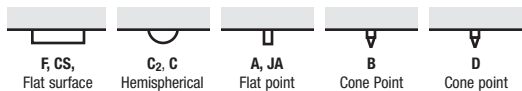Super EX with optional peak indicator
Accuracy ±1 point

Durometer Standards

Type	Standards	Measuring Force
Asker C	JIS K-7312	1 kgf
Shore A	ASTM D-2240	1 kgf
Shore D	ASTM D-2240	5 kgf

Hardness Tester Selection

Soft	F	C₂, E, C, CS	A, JA	B	D	Hard
	Urethane foam	Soft rubber & sponge	Normal rubber & soft plastics	Semi-rigid rubber	Hard rubber & plastics	

Indentor Type and Scale

F, CS, Flat surface	C₂, C Hemispherical	A, JA Flat point	B Cone Point	D Cone point

High Performance Durometer
X Series

Asker High Performance X Series features the same portable design, ease of operation, and non-destructive measurement as Super EX series. Accuracy is ±.75 point

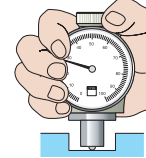They are available in variety of models and scales. Standard, or long presser foot and optional peak indicator.

Add 'P' to a model number to specify peak indicator, i.e. XP-A; 'L' for long presser foot.
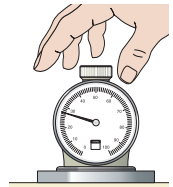
Model X with optional peak indicator
Accuracy ±.75 point

Standard Models
with or without peak indicator

L Models
have a long presser foot for small or recessed areas

X-F Model
uses its own weight to test hardness

Asker X Series Durometers (Most common scales)

Std.	'L' Model	Scale	Application	Standard
X-A	X-AL	Shore A	Normal rubber & softer plastics	ASTM D 2240
X-C	X-C1L	Asker C	Soft rubber, sponge, textile windings	JIS K 7312/Asker C
X-D	X-DL	Shore D	Hard rubber & plastics	ASTM D 2240
X-F	—	Asker F	Urethane foam, non-woven fabric	Asker F
Asker X Series Durometer (Special scales)				
X-JA	X-JAL	Asker JA	Normal rubber & softer plastics	JIS K 6301
X-B	X-BL	Asker B	Semi rigid rubber & plastics	ASTM D 2240
X-C2	X-C2L	Asker C2	Soft rubber & sponge	Asker C2
X-CS	—	Asker CS	Polystyrene foam	Asker CS
X-E	X-EL	Asker E	Soft & cellular rubber	JIS K 6253

Specifications subject to change without notice.

Durometer Accessories
for Durometer Models Super EX and X

Constant Load Stands
See page 26

Reference Specimens
These test blocks are convenient references to the durometer's operating condition. Available for type D (80 points) and type A (70 and 50 points).

A & D Reference specimens

Indentor Height Gauge
Use these gauges to check the height of the indentor point. Available for models A, D and Asker C. Two gauges measure 2, 50 and 100 points.

2 DEG

Indentor height gauges
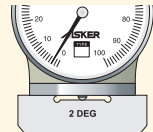
Durometer Constant Load Stand with Rigid Coupling

e Series

e-1000 for Type A & Asker C Durometers
e-5000 for Type D Durometer

e-Series constant load stands eliminate the different load variables which occur when hand-testing samples with a durometer. Simply pull the handle forward and let the standard weight apply a constant load to the durometer and test sample. The constant load stand features all metal construction and a safety shield to protect your hands.

Ruggedly built Economical

Specifications

Model	Durometer	Weight
e-1000	for Type A and Asker C	1000g
e-5000	for Type D	5000g

e-1000 Constant Load Stand
Durometer sold separately

Durometer Constant Load Stand with Flexible Coupling and Speed Control

CL-150 Series

CL-150L for Type A & Asker C Durometers
CL-150H for Type D Durometer
CL-150M for Type A, D & Asker C Durometers

CL-150 constant load stand eliminates speed and load variables which occur when hand-testing with a durometer. The test speed and load are kept constant with pneumatic damper control and a standard weight. The unique flexible coupling enables the durometer presser foot to make perfect contact even on samples with inclined surfaces.

Specifications

Model	Durometer	Weight
CL-150L	Type A, Asker C	1000g
CL-150H	Type D	5000g
CL-150M	Type A, D, Asker C	1000g/5000g

CL-150 Constant Load Stand
Durometer and attachments sold separately

CL-150 Constant Load Stand shown with durometer and print roller fixture.
Durometer and attachments sold separately

Motorized Constant Load Stand with Flexible Coupling

CLE-150 Series

CLE-150L for Type A & Asker C Durometers
CLE-150H for Type D Durometer
CLE-150M for Type A, D & Asker C Durometers

CLE-150 motorized constant speed/load stand eliminates speed and load variables which occur when hand-testing with a durometer. Control speed from 0.1~19.9 mm/sec in .1 mm increments. Choose a model with the appropriate hardness scale for the material you are testing. In addition, the unique flexible coupling enables the durometer presser foot to make perfect contact even on samples with inclined surfaces.

Specifications

Model	Durometer	Weight
CLE-150L	Type A, Asker C	1000g
CLE-150H	Type D	5000g
CLE-150M	Type A, D, Asker C	1000g/5000g

CLE-150 Motorized Constant Load Stand
Durometer and attachments sold separately

Specifications subject to change without notice.

Flexible coupling aligns to any angle surface
For CL-150 and CLE-150 Series, not for e Series

Step 1	Step 2	Step 3	Fixed joint tester incompletely contacts the inclined test sample, yielding uneven pressure
Lowering at constant speed	Contacting the surface of the test sample	Aligning completely, even to an inclined test sample	

Flexible coupling
Presser foot
Sample
Even pressure
Uneven pressure
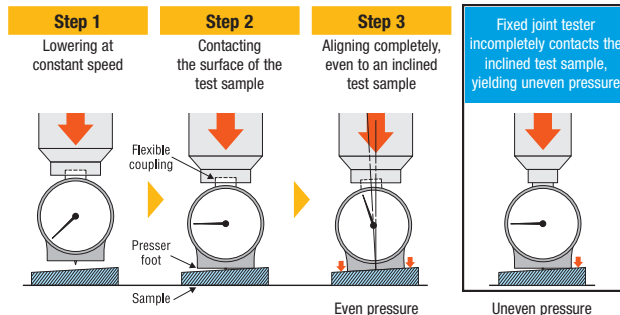
Auto Loading Durometer with Flexible Coupling

P2 Series

Touch Screen Operation

P2-A Shore A scale, Normal rubber
P2-D Shore D scale, Hard rubber and plastics
P2-D0 Shore D0 Scale
P2-C Asker C scale, Soft rubber
P2-E Asker E scale, Soft rubber and sponge

- Dual Timer Peaks, Peak and Real time Modes
- Unique flexible coupling system automatically aligns to surface of sample
- Digital speed control
- Precision stepping motor
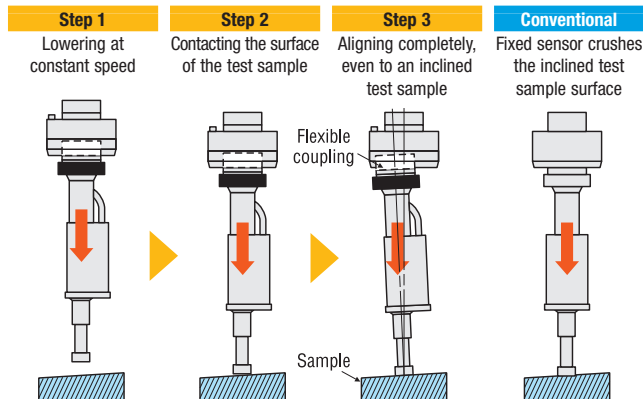- Optional printer available

Optional SW-1 Data Acquisition Software

Touch screen LCD display
Digital speed control
Dual timers
Auto or manual control
Remote operation

P2 Auto Durometers maximize the repeatability of hardness tests. They feature digital speed control to ensure constant speed and a unique, proprietary flexible coupling to ensure perfect contact with test samples. All operation and program functions are controlled using the touch screen LCD panel or remotely using an Ethernet connection. Both automated or manual tests can be performed. Dual timers enable recording of the "creep phenomenon" or tendency of the reading to move back as time elapses from the moment the sensor makes full contact with the sample.

Flexible coupling aligns to any angle surface

Step 1	Step 2	Step 3	Conventional
Lowering at constant speed	Contacting the surface of the test sample	Aligning completely, even to an inclined test sample	Fixed sensor crushes the inclined test sample surface

Flexible coupling

Sample

Specifications subject to change without notice.

Foam Hardness Tester

Model: AF-400

Model AF-400 is designed and constructed to meet hardness test quality control standards for foam rubbers, urethane foams and various other plastic foams used as cushion materials for car seats, furniture and bedding.

A series of thumbwheel switches is used to quickly setup test conditions without complicated programming. The perforated sample bed allows air to escape, the ball joint on the pressure foot adjusts to angled surfaces and onboard dot matrix printer prints the test results for quick, simple operation.

The completely automated testing process compresses up to three preset percentages of sample thickness and measures force or compresses up to two preset force settings and measures thickness and records the measurement data in one procedure.

- Auto zero thickness setting
- Tares the weight of test fixture
- Measures the initial thickness of the sample
- Preliminary compression (percentage adjustable by thumbwheel)
- Compresses and measures force up to three thickness percentages (adjustable by thumbwheel)
- Compresses and measures thickness up to two preset force values
- Maintains pressure for preset interval
- Prints out the measurement data (can also be downloaded via RS-232)

Thumbwheel switch control panel (with cover)

Dot matrix result printer

AF-400 Specifications	
Standards	ISO 3386, ISO 2439, JIS K 6400
Pressure Foot	200 mm dia. (ball joint)
Speed	50 ~ 600mm/min.
Holding Duration Timer	0 ~ 999 sec.
Printer	Dot matrix
Thickness	550mm(max.), Resolution: 0.1mm
Force	2,000N (4,000N overload capacity), Resolution: 1N
Output	RS232
Dimensions (mm)	1092W x 700D x 2040H
Sample Size (mm)	1000W x 700D x 500H
Weight	Net: 300 kg, Gross: 425 kg (in wood crate)

Specifications subject to change without notice.

Handheld LED Stroboscopes
Model: ESL-200
Model: ESL-200T

ESL-200 and ESL-200T are super bright, battery operated, LED stroboscopes designed to measure and observe rotating, reciprocating and linear motion in a variety of production, quality control and academic applications. They generate extremely bright light relative to their compact size.

ESL-200 fits in a pocket

- Solid-state Power LEDs generate intense bright light
- Extended battery life of 6 hours continuous use at 6,000 fpm/rpm, ESL-200T: 1.5 hours Power save mode 12 hours continuous use at 6,000 fpm/rpm, ESL-200T: 3 hours
- Adjustable flash duration for sharper images
- Auto wide measuring range – up to 150,000 fpm/rpm
- Push button operation with x2 and ÷2 buttons for quick adjustment
- Store 9 flash rates in memory for both FPM and Hz for quick retests
- Highly stable drift free operation
- Rugged aluminum housing, compact size, ergonomic design
- Tripod mountable
- Easy-to-read 5 digit 0.47" (12 mm) high LCD
- External Trigger

ESL-200 has a 6 LED array

ESL-200T incorporates three 6 LED arrays.

### Brightness Comparison (6,000 FPM, flash duration F0)

Distance	NS-600*	ESL-200	ESL-200T/M200-R
8 (inches)	1200 lux	4300 lux	—
60 (inches)	80 lux	350 lux	900 lux

Actual brightness depends on conditions.
*See page 29.

Adjustable Flash Duration

For most applications standard flash duration works without adjustment. For ultra high speed applications, objects may move during the brief period of a single flash, resulting in a blurred image. By decreasing flash duration, objects have less time to move and the image appears sharper. ESL-200 features adjustable flash duration.
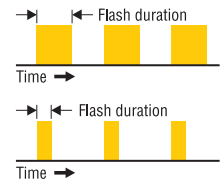
Optional ET-1 External Trigger Kit

The external trigger immediately synchronizes the strobe with a rotating object. The sensor is aimed at a ferrous target mounted on the drive shaft and triggers the strobe to flash each time the target passes the sensor. ET-1 is complete with sensor, cables and AC adapter. Ferrous target not-included.

Auto Synchronize w/Optional ET-1
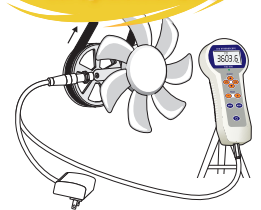
ESL-200, ESL-200T, M200-R Specifications

Range, Resolution	12.0 – 9999.9 fpm/rpm, ±0.1 fpm/rpm 10000 – 150000 fpm/rpm, ±1 fpm/rpm Display flashes over 100000 rpm
Selectable Units	FPM or Hz
Accuracy	±0.01%, ±1 LSD
Power	NiMH rechargeable battery
Display	12mm, 5 digit LCD
Phase Shift	with external trigger: 0 - 359° in 1° increments without external trigger: Image positioning only
Tripod Thread	¼ - 20 UNC
Operating Temp.	0° – 45°C
Storage Temp.	-10° – 50°C
Dimensions	ESL-200: 190mm (L) x 74mm (W) x 33mm (D) ESL-200T: 190mm (L) x 235mm (W) x 99mm (D) M200-R: 85mm (L) x 235mm (W) x 36mm (D)

Specifications subject to change without notice.


Permanently Mounted LED Stroboscope
Model: ESL-200R

ESL-200R is a permanently mounted system that can be expanded with additional M200-R modules as needed. ESL-200R includes the control unit and one M200-R module. Power is supplied by AC adapters.

Dimensions: 85mm (L) x 235mm (W) x 36mm (D)

ESL-200R Base unit plus four M200-R modules

ESL-200R: Control unit and one M200-R module

Additional M200-R modules

More modules
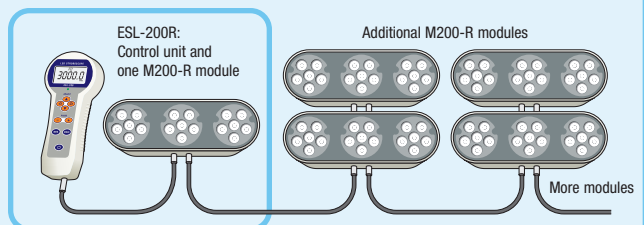
LED Stroboscope
Model NS-600

Brightest, Compact LED Stroboscopes

The NS-600 LED stroboscope is designed to measure the speed of rotating or cycling linear motion objects without contact or reflective tape, as well as freeze motion visually. Aluminum housing, the latest technology, compact size and LED light make it a perfect choice for use anywhere on the factory floor. Selectable flash rate for sharp images at high speed. The NS-600 is ideal for speed, motion and vibration analysis, such as rotating shafts, fans, cams, etc.

- High efficiency LED solid-state light source
- Extended battery life of 8 hours continuous use at 6,000 fpm/rpm
- Highly stable drift free operation
- Auto wide measuring range – up to 120,000 fpm/rpm
- Push button operation with x2 and ÷2 buttons for quick adjustment
- Store up to 9 flash rates in memory for records or quick retests
- Rugged aluminum housing – compact size
- Easy-to-read 5 digit 0.47" (12 mm) high LCD
- NS-600 kit includes stroboscope, two AA batteries and carrying case

CE
NS-600
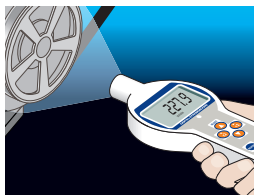
Brightness Comparison (6,000 FPM, flash duration F0)			
Distance	NS-600	ESL-200*	ESL-200T/M200-R*
8 (inches)	1200 lux	4300 lux	—
60 (inches)	80 lux	350 lux	900 lux

Actual brightness depends on conditions.
*See page 28.

NS-600 Kit

NS-600 LED Stroboscope Specifications	
Range, Resolution	6.0 to 9999.9 fpm/rpm, ±0.1 fpm/rpm 10,000 to 120,000 fpm/rpm, ±1 fpm/rpm (over 100,000 display flashes)
Accuracy:	±0.01%, ±1 LSD
Display:	12mm high, 5 digit LCD
Memory:	10 flash rates
Power:	2- AA batteries
Battery Life:	5 hours
Operating Temp:	0 to 45° C
Weight:	.5 lb/225 g
Standard Accessories	2-AA Batteries, NIST traceable Certificate

Specifications subject to change without notice.

Digital Tachometer/Length Meter
Model EHT-600

The EHT-600 tachometer features exceptional resolution at low speeds, statistics and is the smallest tachometer of this type. It also features four measuring modes: Real time displays the current value, Maximum displays the highest value, Minimum displays the lowest value and Mean displays the average value taken during the test. It's built with a durable metal housing and operates on standard AA batteries.

Rugged Metal Housing

- Rugged metal housing
- Four measuring modes: Real time, maximum, minimum and mean
- Auto measuring range of 0 to 25,000 rpm with up to 0.01 rpm resolution up to 2,000 fpm using the optional 12" wheel
- 12 different measuring units: rpm, fpm, ipm, mpm, ypm, cpm, inch, yard, feet, meter, centimeter and total revolutions
- Last reading recall and 99 data memory
- Auto statistics: Max, Min and Mean
- Easy-to-read 5 digit 0.47" (12 mm) high LCD
- Low battery indicator
- Includes cone and funnel adapters, two AA batteries and carrying case
- Optional 12" wheel available to measure surface speed and distance

CE
EHT-600

EHT-600 Kit

EHT-600 Tachometer Specifications	
Measuring Range	0.40 - 25000 RPM (floating decimal point) 0.40 - 2000.0 ft/min (w/12" dia. Wheel)
Accuracy	0.01% of reading ± 1 digit
Display	5 digit LCD 12mm Character Height
Measuring Unit*	Speed Mode: RPM, rev/sec, ft/min, in/min, yd/min, in/sec, m/min, cm/min, cm/sec Counter Mode: revolutions, ft, in, yd, m, cm
Measuring Mode	MEAN, MAX, MIN (speed measure mode)
Memory	Short Term Auto Memory: MAX, MIN, AVE, and last 9 data Long Term On-Demand memory: 99 data
Display Update	0.5 sec (typical)
Power	2 - AA Battery, Approx. 60 hrs continuous operation
Indicators	LOW BATT, Units, MAX, MIN, MEAN and memory location
Operating Temp.	0 - 45°C (32 - 113°F)
Construction	Die-cast aluminum housing
Standard Accessories	Cone adapter, funnel adapter, 2-AA Batteries, NIST traceable Certificate
Optional Accessories	12" dia. wheel, 3-1/2" Extention Shaft *Optional 12" dia. wheel is necessary to measure linear speed.

Specifications subject to change without notice.

Force Recorder Data Acquisition Software

Light: ZT-RL
Standard: ZT-RS
Pro: ZT-RP

- Capture force and displacement data using ZTA force gauges
- Capture 2,000 data/sec not just the peak from a high data processing rate
- Zoom in to examine important details
- Select and analyze a critical part of the graph
- Generate statistics for all or part of the graph
- Detect first peak
- Compare and align multiple graphs (5 max.)
- Export data as CSV

*Process 2,000 Data/Second not just the peak!*
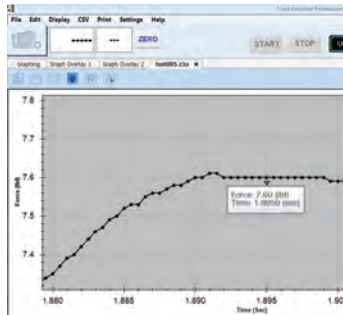
Zoom in to individual data points..

Force Recorder force analysis software interfaces with Imada ZT force gauges. Program, save, or import saved gauge settings from the software.

Force Recorder captures and processes 2,000 data per second not just the peak from a high data processing rate and generates force vs. time profile graphs with statistics. In addition, Force Recorder Pro captures force vs. displacement data using ZTA gauges and Imada FA test stands.

Zoom into any part of the graph to see individual data points at intervals of 0.5 mS. Mouse over data points to display their force value.

Further analysis can be done on the entire range or by selecting part of the graph to detect the first peak or generate statistics within that time interval. Compare and align multiple graphs. Save graphs or export data to CSV format.
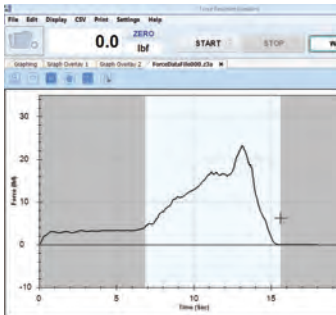
Select and analyze part of the graph
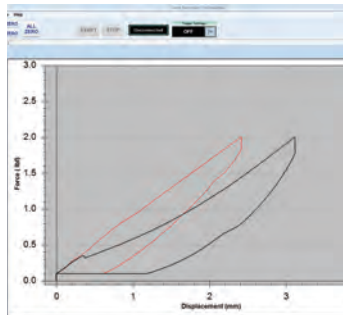
Align multiple graphs.

Hardware/Software Requirements

OS: Windows XP / Vista / 7 (32bit/64bit)
CPU: Pentium 4 (1GHz or higher) or later
RAM: 2GB or greater
Hard Disk: 10GB minimum (dependent on test variables and duration)
Supported Platform: .NET Framework 4.0 Client Profile or later*
Display Resolution: 1024 x 768 or greater
Force Gauge: Digital Force Gauge ZT series
Port: USB 1.1 / 2.0 (Not compatible with USB 3.0)
Cable: Standard USB A to Mini-B cable (comes with ZT gauge)
* Windows 7 includes .NET Framework 4.0

Force Recorder Features			
Version	**Light**	**Standard**	**Professional**
Graph Type	Force vs. Time	Force vs. Time	Force vs. Time, Force vs. Displacement (with ZTA gauge & acc.)
Data transfer rate	2000 data/sec	2000 data/sec	2000 data/sec
Maximum Data Points	7.2 million	7.2 million	7.2 million
Graph Overlay Function (5 max.)	—	●	●
Trigger Function	—	●	●
Point Marking	—	●	●
Border Line Function	—	●	●
Graph Editing	—	●	●
Graph Navigation	●	●	●
Statistics Output	●	●	●
Comment Function	●	●	●
Note Function	—	●	●
Print	●	●	●
Program Gauge Functions	●	●	●

Data Acquisition Software

Series SW

- For Force, Displacement and Torque
- Full SPC and graphing capabilities
- Calculates statistical data

SW software is a highly customized Excel spreadsheet designed to capture and analyze real-time data from force or torque gauges with a RS-232 port.

SW software inputs gauge readings in real time and provides a running log of all force measurements along with a chart of the data as well as statistical information including Min, Max, Mean, Median, Standard Deviation, Average Deviation and Variance.

Complete control of the gauge is provided through a set of "virtual buttons" on the spreadsheet that enable easy editing of the sampling rate, force measurement units, peak/real time, tare and power off.

Other features include a memory download option for Imada Z Series gauges. If desired, the entire stack can be saved to disk, analyzed or cleared. Because all data is entered directly into a standard Excel spreadsheet, you are virtually unlimited in your ability to analyze your force gauge data using all of the powerful tools available in Excel.

Requirements: Force or torque gauge with RS-232 port, data cable, Pentium or equivalent computer with 32MB RAM or better, a mouse and approximately 1 MB hard disk space. Excel 97 or later.

SW-1X for Imada gauges

SW-1S for Cedar gauges

SW-2X for force and displacement
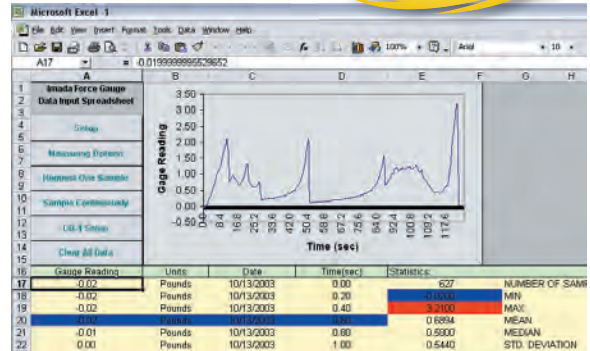
Generate a running log of all force measurements along with a chart of the data and statistics.

Imada Gauges	Cable
DS2	CB-101 (Analog)
	CB-203 (RS232)
	CB-301 (Digimatic)
ZTS, ZTA, HTGS	CB-108 (Analog)
	CB-208 (RS232)
	CB-308 (Digimatic)
DTX2	CB-104 (Analog)
	CB-304 (Digimatic)
	CB-204 (RS232)
Distance Meter	905691

Cedar Gauges	Cable
DID-4, DID-05, DIW-15, DIW-20, DIW-75, DIW-120	SS-209
DIS-RL, SERIES i, DIS-IP, DI-1M, DI-4B-25, DI-12-SL, NTS-6	SS-208

DB Data Buttons

DB data buttons work with SW software to automate data collection from Imada force or torque gauges. Enter peak measurements into the spreadsheet and 'zero' the gauge with a touch of the button. Minimize computer time and mouse usage.

Single data mode simplifies peak measuring tests by 'zeroing' the gauge after sending the data to the computer..

Automatic acquisition mode allows users to select different acquisition rates from 20 data/second to 1 data/999.9 seconds.

The LED lamp lights as a visual confirmation for both single data and automatic acquisition modes when data is being sent to the computer.

No external power supply is needed as power is supplied through the PC.

DB-1X One channel model collects force or torque data

DB-2X Two channel model collects both force and displacement data (use with test stands equipped with digital distance meters).

DB-4 One channel Digimatic data button

PC with SW-1X data acquisition software

Digital force gauge with RS-232 output

DB-1X data button

PC with SW-2X data acquisition software

Test stand with digital distance meter

Digital force gauge with RS-232 output

DB-2X data button

Capture force and displacement data using DB-2X.

ISO 9001 Registered & ISO/IEC 17025 Accredited

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