

SHIMPO INSTRUMENTS

FORCE MEASUREMENT

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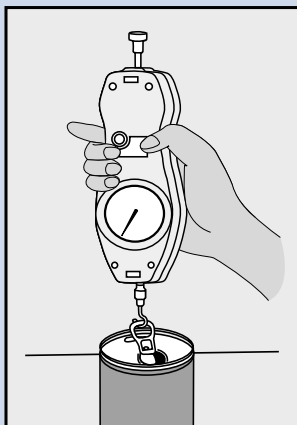
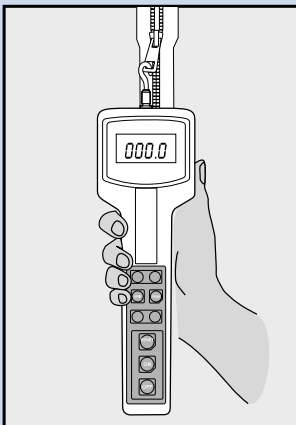
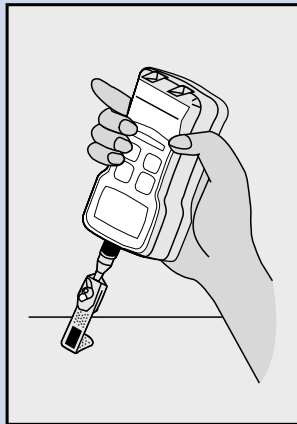
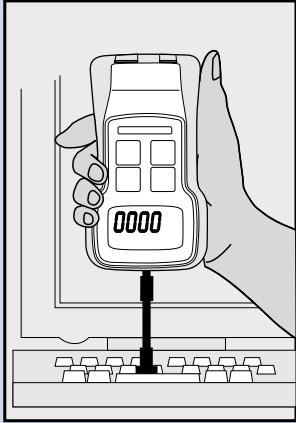


Force Measurement Solutions

Accurate results for limitless applications!

Top quality design has made Shimpo force measurement products indispensable in tension/compression applications throughout many industries. Tests on machines, electronic components, consumer products, sporting goods, medical equipment and composites yield accurate results that you can count on. For sophisticated failure mode analysis, quality control, breakdown tests, switch manufacturing and fatigue tests, look no further than Shimpo for your testing solution!

Shimpo's line of force measurement products are extremely durable and are designed to meet most force testing application requirements. Call your Shimpo distributor today to hear how Shimpo can solve your application needs!



Business Equipment

- Measure force required to perforate cards
- Measure spring and belt tension
- Test adhesion strength of labels and stickers
- Set torque requirements on switches and/or levers

Chemicals & Plastics

- Test film bond strengths
- Tensile test rubber, fibers and filaments
- Test vacuum take-down pressure on process machines

Electronics

- Test strength of solder points on circuit boards
- Pull test external leads bonded to ceramic substrates
- Test spring clip insertion and withdrawal forces
- Test removal force of connector pins in plugs
- Test actuating force of snap action switches

Automotive

- Measure force of seat belt retractors
- Measure weld strength
- Test forces required to move linkages and tension cables
- Test peel strength of vinyl insert bonded to body side moldings
- Evaluate physical efforts (door lock, hood, glove compartment, brake pedal, etc.)

Medical & Health

- Test crush strength of pills, puncture test blister packages and plastic bags
- Test pressure to surgical instruments, needle and scapel sharpness
- Measure surgical tubing, suture, and/or bandage adhesive strength
- Contact lense, bandage and sterile packaging tear strength
- Puncture testing

Other Industries

- Rate testing of springs
- Measure pedal depression force in aircraft flight control systems
- Test hardness of gypsum wallboard
- Measure trigger pulling forces on firearms, handtools, etc.
- Breakaway torque, screws

Digital DFS Series Force Gauges.....4-5

High performance gauges offer the ultimate in accuracy and sophisticated features. Customizable, sampling rates of 1000/second, three mode memory, statistical calculations, high and low set points and three data outputs.



Digital Remote Indicator (DRI) Series Force Gauges....6-7

The all-in-one powerhouse gauge that changes as the tests change! 1000 Hz sampling, interchangeable load cells and torque transducers, many features building off of the high-performance Shimpo DFS series force gauges.



DART Series Force Gauges.....8-9

Superior accuracy of the DFS series and a reversible display enabling handheld or test stand operation. Rugged design enables push/pull measurements up to 100 pounds.



JAVELIN Series Heavy Duty Force Gauges.....10-11

Offer the same user-friendly features of our popular FGX DART series, but in an extremely heavy-duty case, allowing larger capacity handling of up to 500 pounds.



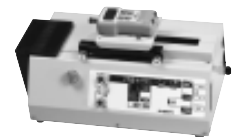
Mechanical MF Series Force Gauges.....12-13

Economical, incredibly durable and user-friendly. Mechanical design allows for immediate response time; can be used anywhere.



Motorized Test Stands.....14-15

Highly intelligent stands feature rugged, all steel construction as well as programming and cycling capabilities; available in vertical and horizontal models.



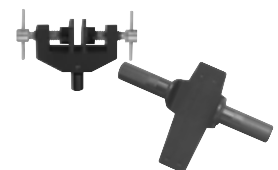
Manual Test Stands.....16-17

Rugged and economical; our lever and hand wheel stands assure precise and consistent testing results for a limitless range of materials.



Attachments, Accessories.....18-19

Various attachments for precise testing of small and hard-to-hold items. Sophisticated accessories aid in measurement, data collection and analysis functions.

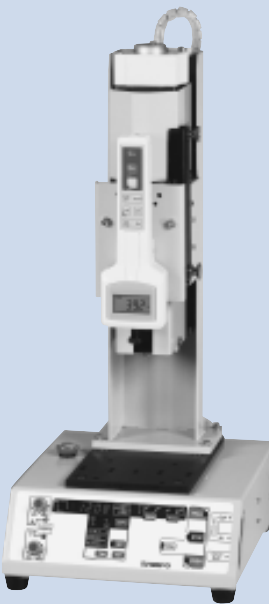


Digital Force Gauges

DFS Series

Value packed - the ultimate in accuracy and sophisticated features!

Microprocessor-controlled, the DFS series represents a unique approach to force testing. Designed to be handheld or stand mounted, the DFS features many advanced functions typically included on gauges costing twice as much. Intelligent and versatile, these high performance gauges are easily user configured for sampling and display update rate, units of measure, baud rate, data output stream, memory type and high and low set points. Large memory capacity (100 samples) and on board statistical processing allows the DFS series to operate with or without computer control. Additionally, each gauge possesses three types of signal outputs for data collection and function analysis.



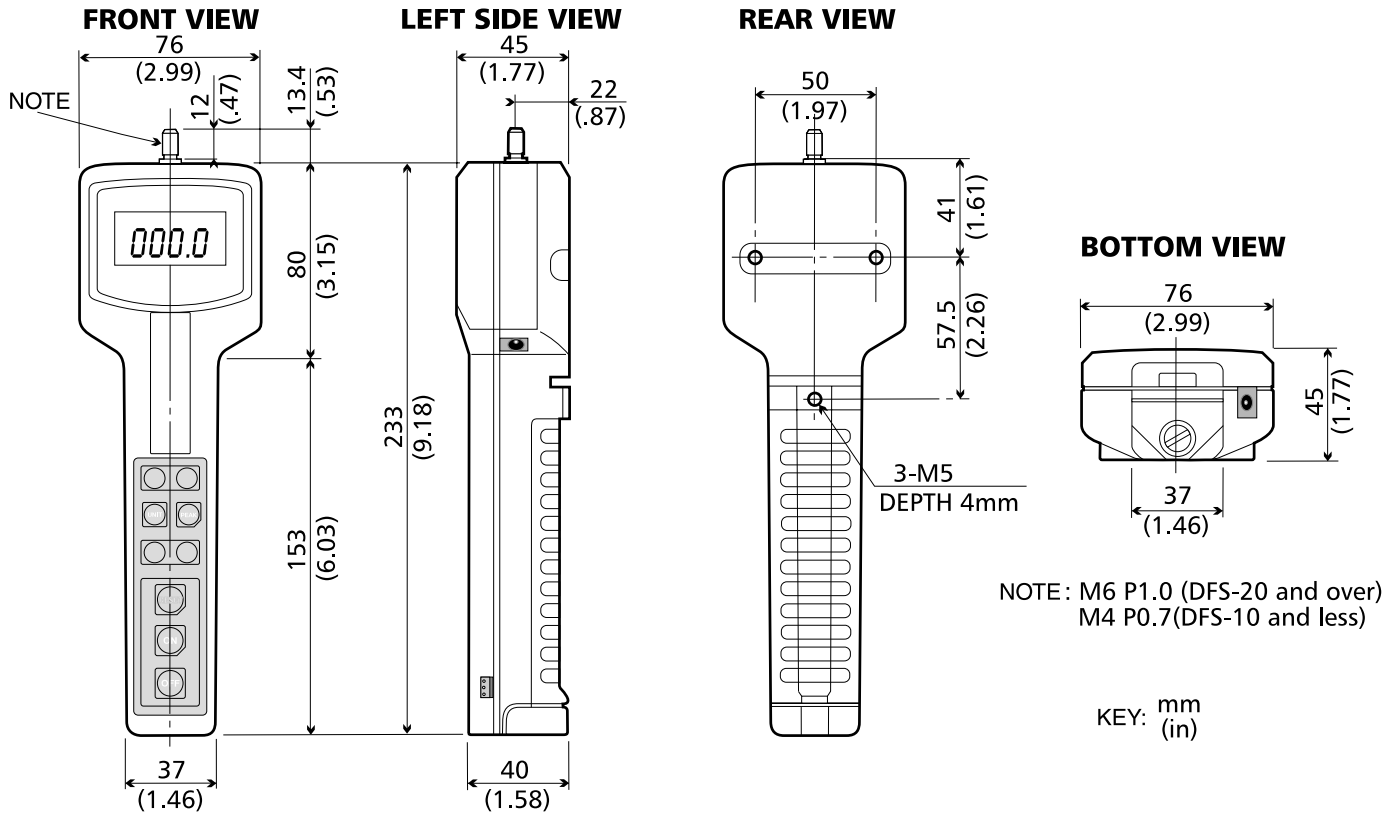
DFS-R with FGS-50PVH motorized test stand (sold separately)

Features

Benefits

Rapid sampling rates as high as 1000 Hz	Captures events in NDT and/or DT set-ups
100 sample memory capacity	Can be downloaded for later use
On board statistical processor	Records min, max, average and standard deviation
Hi and low set points	Ensure test results are within necessary tolerances for GO/NO-GO tests
RS232C, digimatic and analog output	Exceptional flexibility in data collection and function analysis; full duplex communication ideal for downloading to SPC program
Selectable display and sampling rates	Provides flexibility for many testing requirements
Overload output signal	Prevents load cell damage by automatically terminating test stand operation
Overload capacity: 200% F.S. repairs	High overload protection leads to fewer repairs
Heavy-duty load sensor	Designed for over one million operations
Temperature compensated load sensing	Repeatable results in harsh environments
Field calibration through keypad	Easy calibration; eliminates down time
Remote tare	Permits hands-free operation when zeroing the gauge using foot switch or other device
Hold function	Provides for switch opening/closure testing
±0.2% F.S. accuracy	Perfect for even the strictest tolerances
Peak or present reading displayed	Recalled with the push of a button
Measures force in lbs, kgs or N	Converts measurements in the gauge
Rugged die-cast aluminum housing	Withstands harsh conditions
Reverse display models available	For handheld or test stand operation
Measures both push and pull forces	Conveniently determined with the same sensing shaft (push-pull tests)
Selectable Auto power shut-off	Prolongs battery life
Low battery indicator	Provides ample warning to complete testing (2 hours or more)
One year warranty	Provides peace of mind

Digital Force Gauges



DFS SPECIFICATIONS								
Model (*R* denotes reverse display)	DFS-0.5 DFS-0.5R	DFS-1 DFS-1R	DFS-2 DFS-2R	DFS-5 DFS-5R	DFS-10 DFS-10R	DFS-20 DFS-20R	DFS-50 DFS-50R	DFS-100 DFS-100R
Capacity	8 oz 200 g 2 N	16 oz 500 g 5 N	2 lb 1000g 10 N	5 lb 2 kg 20 N	10 lb 5 kg 50 N	20 lb 10 kg 100 N	50 lb 20 kg 200 N	100 lb 50 kg 500 N
Resolution	0.01 oz		0.001 lb		0.01 lb		0.1 lb	
	0.1 g		1 g	0.001 kg		0.01 kg		
	0.001 N		0.01 N		0.1 N			
Accuracy	±0.2% F.S. + 1/2 digit at 73°F (23°C)							
Display	Four digit LCD, .47" high (12 mm) with various indicators including tension, (-) and low battery indication							
Measuring Mode	Average, peak compression, peak tension (selectable)							
Display Update	125 ms, 250 ms, 1 sec, 2 sec (selectable)							
Sampling Rate	Average mode: 125 ms, 250 ms, 1 sec, 2 sec Peak mode: 1 ms, 125 ms, 250 ms, 1 sec, 2 sec							
Temperature Coefficient	Zero: ±0.02% F.S./°C (maximum) Span: ±0.015% of reading/°C (maximum)							
Outputs	1. RS232C 2. Digimatic: (works with Mitutoyo printers) 3. Analog: (±1 VDC with load impedance of 2K or higher and tare function capability)							
Overload Capacity	200% of F.S.							
Comparator Output (Set Points)	Three open collector NPN transistors for HI, GO, and LO (28 VDC, 7 ma maximum)							
Overload Output	Two open collector NPN transistors: one for tension and one for compression (28 VDC, 5 ma maximum)							
Tare & Hold Control	Relay contact (selectable)							
Memory	Holds 100 samples plus statistics (max, min, avg and standard deviation)							
Power	Four AA alkaline batteries (included) last approximately 20 hours in continuous operation AC adapter (included) for continuous use							
Auto Power Shut-Off	Selectable (3 minutes if there is no activity)							
Operating Temperature Range	32° - 113°F (0° - 45°C)							
Dimension / Weight	9.71" L x 3" W x 1.77" H (247 mm x 76 mm x 45 mm) /1.2 lb (550 g)							
Standard Accessories	AC adapter, batteries, carrying case, overload output cable and attachments (flat head, hook, chisel, notched head, cone & extension rod)							
OPTIONAL	NIST certs with data, RS232 cable, digimatic cable, comparator cable							

Digital Force Gauges

DRI (Digital Remote Indicator)

The next generation of force and torque measurement!

The Digital Remote Indicator (DRI) incorporates Shimpo's flagship DFS gauge design and features a high sampling rate of up to 1,000 Hz for precise peak force and torque measurements. The DRI stores up to 100 readings plus statistics that later can be conveniently downloaded for SPC purposes. Used in conjunction with a Shimpo motorized or manual test stand, the DRI lends itself to thousands of applications and permits hands-free testing. Used by hand, the DRI safely allows the accurate measurement of forces and torque in hard-to-reach areas.

Shimpo LC remote load cells are available in capacities up to 500 pounds, enabling force testing of bulky objects. Our TS-SD and TS-J torque transducers precisely measure static torque for capacities up to 100 inch pounds. Available with 3/8" square drive (TS-SD) or Jacobs Chuck (TS-J).



Features

Accepts multiple interchangeable load cells/torque transducers

Large memory capacity (100 samples plus statistics)

High sampling rate (1000 Hz)

3 types of measuring modes: average, peak compression (clockwise) and peak tension (counterclockwise)

Handheld operation and test stand mountable

Hi and low set points

External tare and hold control

Torque transducer may be used as a portable tool calibrator

Load cells and torque transducers are pre-calibrated

One year warranty

Benefits

Operation procedures are streamlined; enables fast set-up when changing applications or force ranges; reduces investment in gauges and/or torque transducers

Enables portable data collection for multi-location use

Allows peak force and torque points to be easily captured

Flexibility in testing procedures for push/pull and opening/closing torque applications

Provides readout flexibility for multiple test set-ups, applications and fixturing; enables hands-free operation

Permit measurement of breakaway torque in applications such as child safety cap testing

Allows hands-free gauge zeroing using keyboard or foot switch

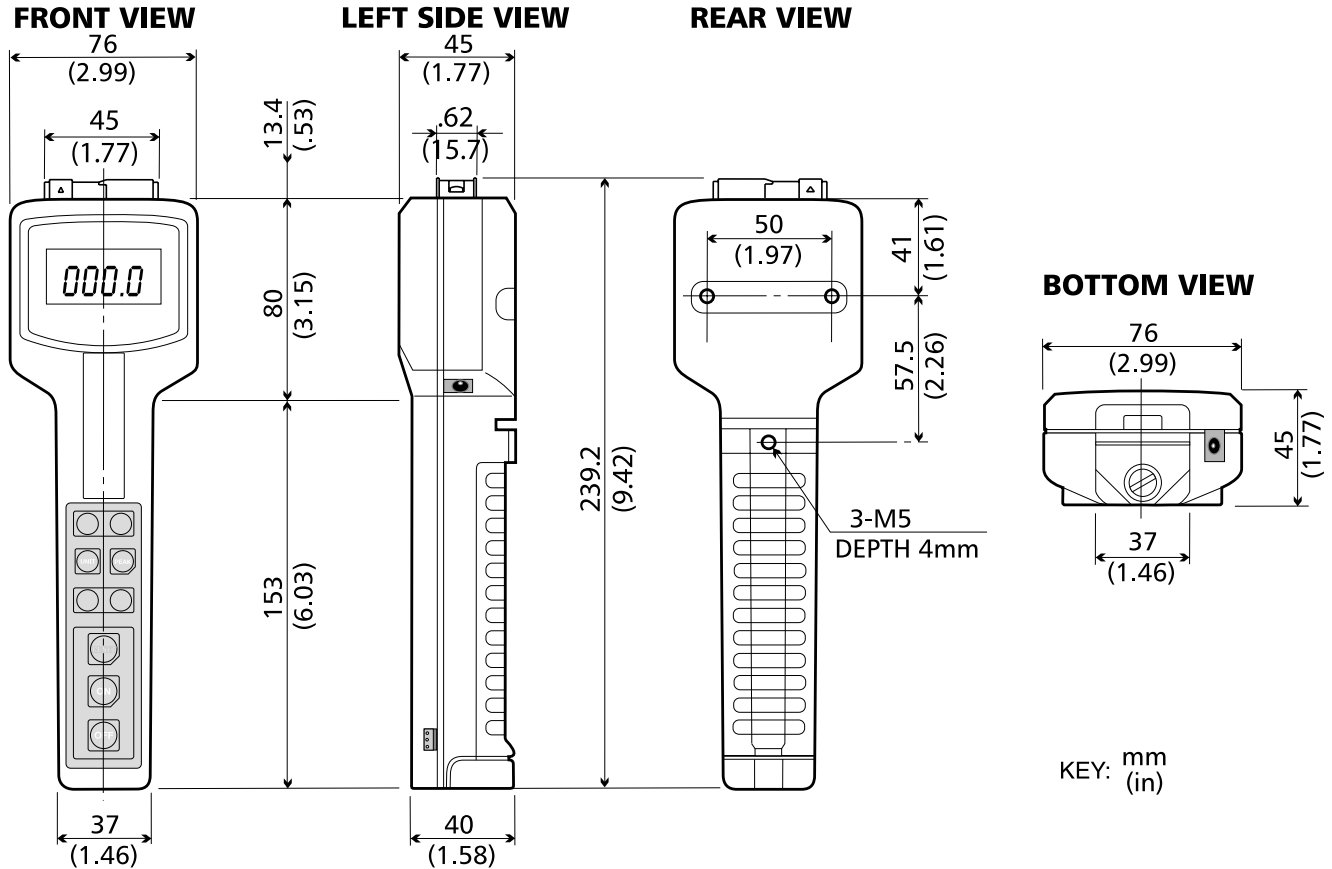
Eliminates need for outside calibration services

Eliminates need for calibration of digital remote indicator

Provides peace of mind



Digital Force Gauges



DRI SPECIFICATIONS

DRI	
Model	DRI
Sensor	Interchangeable w/Shimpo force & torque sensors
Display	5 digit 0.47"(12 mm) high with various indicators including low battery indication and tension (-)
Measuring Mode	Average, peak compression (CW), peak tension (CCW) (selectable)
Display Update	125 msec, 250 msec, 500 msec, 1 sec, 2 sec (selectable)
Sampling Rate	1000 sample/sec
Outputs	1.RS232C 2.Digimatic:(works with Mitutoyo's printer model DP-1HS) 3.Analog:(±1 VDC 1000 times/sec update)
Comparator Output (Set Point)	Three open collector NPN transistors for HI, GO and LO (28 VDC, 7 mA max.)
Overload Output	Two open collector NPN transistors one for tension and one for compression (28 VDC, 5 mA max.)
Tare & Hold Control	Relay contact (tare or hold selectable)
Memory	Hold 100 samples plus statistics (MAX, MIN, AVG, and Standard Deviation)
Power	4-AA alkaline batteries or AC adapter
Auto Power Shut-Off	Selectable (3 minutes if there is no activity)
Operating Temperature Range	32 to 113°F (0 to 45°C)
Dimensions	3" W × 1.77" H × 9.42" L (76 mm × 45 mm × 239.2 mm)
Standard Accessories	AC adapter, (4) AA batteries, DRI output connector, Overload protection cable (DFS-CTRLCABLE), Plastic carrying case
OPTIONAL	NIST certs with data

FORCE SENSOR SPECIFICATIONS

MODEL	LC-50 S	LC-100 S	LC-200 S	LC-500 S
Capacity	50 lb 25 Kg 250 N	100 lb 50 Kg 500 N	200 lb 100 Kg 1000 N	500 lb 250 Kg 2500 N
Resolution (w/ Force Display)	0.01 lb 0.01 Kg 0.1 N	0.01 lb 0.01 Kg 0.1 N	0.1 lb 0.01 Kg 0.1 N	0.1 lb 0.1 Kg 1 N
Accuracy	±0.2% F.S. ±1 digit			
Safety Overload	150% R.O.			
Repeatability	0.01% R.O.			
Temperature Range	-22° - 176°F (-30° - 80°C)			

TORQUE SENSOR SPECIFICATIONS

MODEL	TS-3 SD TS-3 J	TS-10 SD TS-10 J	TS-20 SD TS-20 J	TS-50 SD TS-50 J	TS-100 SD TS-100 J
Capacity	50 oz-in 4 Kg-cm 40 N-cm	10 lb-in 10 Kg-cm 100 N-cm	20 lb-in 20 Kg-cm 200 N-cm	50 lb-in 50 Kg-cm 500 N-cm	100 lb-in 100 Kg-cm 1000 N-cm
Resolution (w/ Force Display)	0.1 oz-in 0.01 Kg-cm 0.1 N-cm	0.01 lb-in 0.01 Kg-cm 0.1 N-cm	0.01 lb-in 0.01 Kg-cm 0.1 N-cm	0.1 lb-in 0.1 Kg-cm 1 N-cm	0.1 lb-in 0.1 Kg-cm 1 N-cm
Accuracy	±1% F.S. ±1 digit				
Safety Overload	150% R.O.				
Repeatability	1% R.O.				
Temperature Range	-32° - 104°F (0° - 40°C)				

Digital Force Gauges



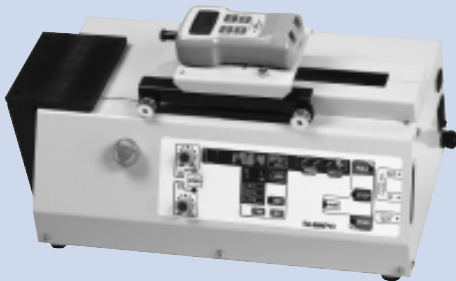
FGE-X & FGV-X 1000Hz Series

Our workhorse gauge just got better! Faster, smarter, easier to use!

The **DART** 1000 series, with its fast 1000 Hz update rate, is able to capture the highest force peaks. With variable display update rate and the same superior accuracy as the DFS series, these new gauges feature unique 180 degree flip displays, permitting the user to read the display right-side up. Additional enhancements are; dual direction keypad, variable baud rate for SPC applications, selectable force direction indication, and selectable power on/off settings.

Designed to ergonomically fit in the palm of your hand, the rugged metal construction of the FGE-X and FGV-X permit accurate measurement and display of compression and tension forces up to 100 pounds.

The FGV-X **DART** 1000 series gauges include RS-232c and analog outputs, as well as an overload output signal for gauge protection.



FGE-X with FGS-50PXH horizontal motorized test stand (sold separately)



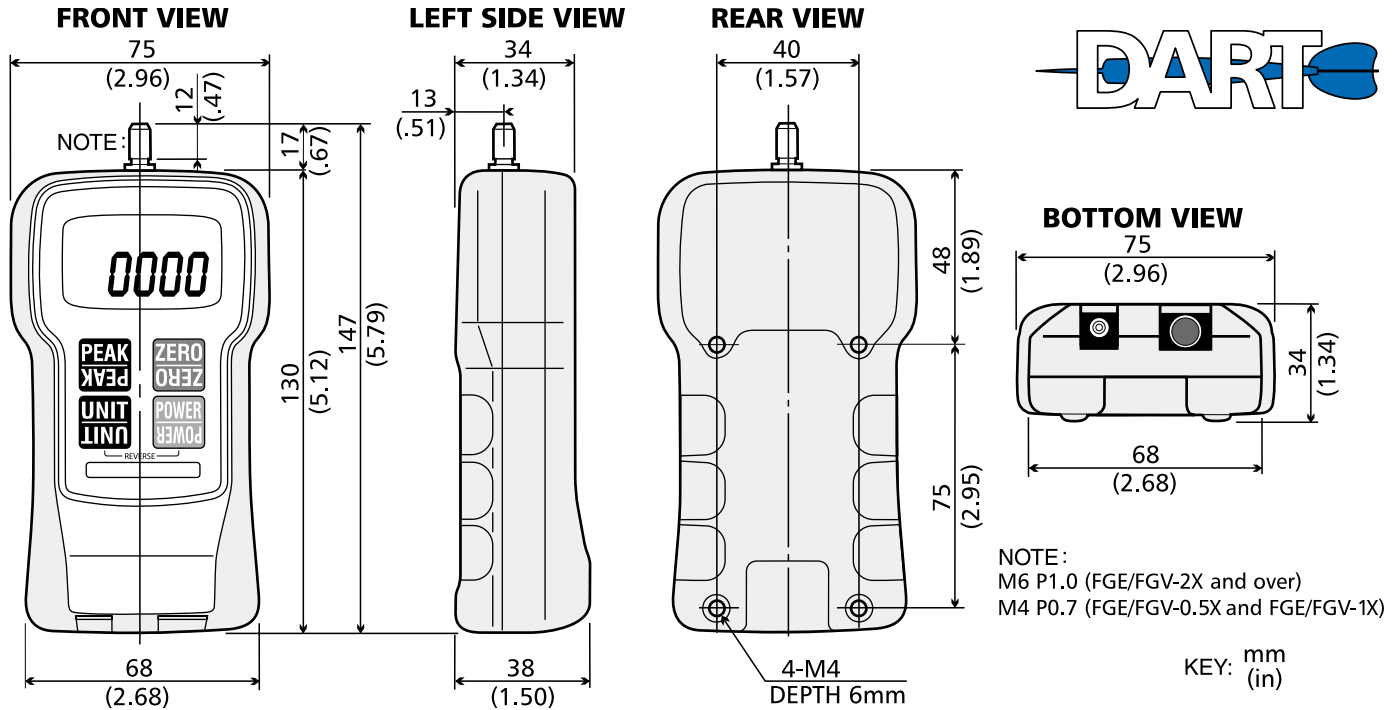
FGE-X with FGS-5S lever operated vertical test stand (sold separately)

Features

Benefits

1000 Hz update rate	Ability to capture the highest compression/tension force
Highly accurate ($\pm 0.2\%$ F.S.)	Ideal for strict tolerances
Peak measurement	Captured with a single push button
Ergonomically designed	Fits in the palm of your hand
Reversible keypad	Easy to read upside down or right side up when stand mounted
Variable display rate	Slow display update rate for operator ease
Overload capacity: 200% F.S.	High overload protection leads to fewer repairs
Heavy duty load sensor	Designed for over 1 million operations
Variable baud rate, RS-232C and analog outputs (FGV-X models)	Ideal for SPC data collection and gauge control
Variable units of measure (oz, lb, Kg, N)	One button selection
Rugged die-cast aluminum construction	Exceptional durability, production floor capable
Measures and records compression and tension tests	True "push-pull" tests are permitted
Dual power capable	Rechargeable battery or AC line voltage
Selectable, automatic on/off ability	Prolongs battery life, provides 24/7 testing with no off time when powered by AC
Low battery indicator	Provides warning to complete tests when battery power is used
One year warranty	Provides peace of mind

Digital Force Gauges



FGE - X and FGV - X DART SERIES SPECIFICATIONS								
FGE-X Model	FGE-0.5X	FGE-1X	FGE-2X	FGE-5X	FGE-10X	FGE-20X	FGE-50X	FGE-100X
FGV-X Model	FGV-0.5X	FGV-1X	FGV-2X	FGV-5X	FGV-10X	FGV-20X	FGV-50X	FGV-100X
Capacity	0.5 lb (8 oz) 200.0 g 2.000 N	1 lb (16 oz) 500.0 g 5.000 N	2 lb (32 oz) 1,000 g 10.00 N	5 lb 2.000 Kg 20.00 N	10 lb 5.000 Kg 50.00 N	20 lb 10.00 Kg 100.0 N	50 lb 20.00 Kg 200.0 N	100 lb 50.00 Kg 500.0 N
Resolution	0.001 lb (0.01 oz) 0.1 g 0.001 N	0.001 lb (0.01 oz) 0.1 g 0.001 N	0.001 lb (0.01 oz) 1 g 0.01 N	0.001 lb 0.001 Kg 0.01 N	0.01 lb 0.001 Kg 0.01 N	0.01 lb 0.01 Kg 0.1 N	0.01 lb 0.01 Kg 0.1 N	0.1 lb 0.01 Kg 0.1 N
Accuracy	±0.2% F.S.							
Display	4-Digit LCD, 12mm high. Reversible by the push of a button. Minus sign for tension.							
Display Update	0.05, 0.1, 0.2, 0.3, 0.5, 1 sec							
Sampling Rate	1000 times per second							
Overload	200% of F.S.							
Power	Rechargeable Ni-Cad battery or AC adapter/charger							
Output (FGV-X model only)	Analog: ±1 VDC (through a 12 bit D/A converter) RS232C: Baud rate (19200, 9600, 4800, 2400 bps selectable), commands control							
Auto Power Shut-Off	Yes (not active if adapter/charge is in use)							
Battery Charge	12 hours (when fully charged)							
Recharge Time	Approximately 18 hours when fully discharged							
Temperature Range	32° - 104°F (0° - 40°C)							
Dimensions	5.1" L x 2.9" W x 1.5" H (130 mm x 75 mm x 38 mm)							
Weight	1 lb (450 g)							
Standard Accessories	AC adapter/charger, carrying case, hook, chisel, flat head, notched head, hanger, cone head, extension rod, inch adapter. FGV-RS232CABLE is included with FGV-X series only)							
Approvals	CE approved							
OPTIONAL	NIST certs with data							

FGV - X OUTPUT SPECIFICATIONS			
RS232C Output Port	Selectable baud rate: 2400, 4800, 9600, 19,200bps	Data length: 8 bits	Stop bit: 1 bit Parity: none Software flow control: none
Analog Output Port	±1 VDC output (through a 12 bit D/A converter)		
Overload Output	One NPN OC transistor for tension, one NPN OC transistor for compression		

Digital Force Gauges

JAVELIN

FGV-HX & FGE-HX 1000 Hz Series

Superior performance for capacities up to 500 pounds!

The digital FGV-HX and FGE-HX series offers the same user-friendly features of (The **DART** 1000 series), but in an extremely heavy-duty case, allowing the gauges to handle larger capacities from 0 to 500 pounds. Two knurled steel handles are provided for hand operation and a hanger is included which enables each gauge to be used as a scale.

The FGV-HX series includes all FGE-HX features plus RS232C and analog outputs and an overload output signal.



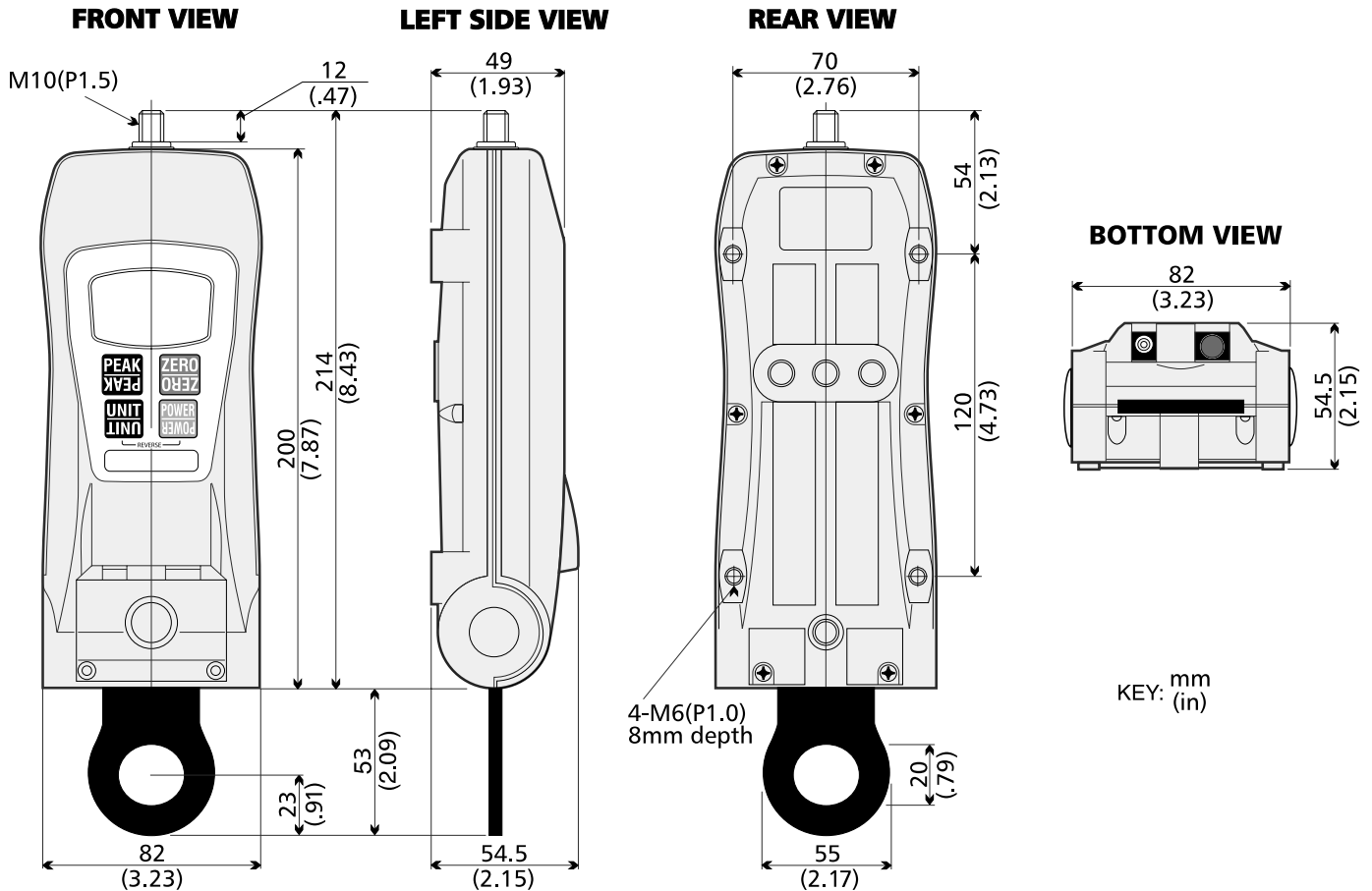
FGV-HX with compression plate, mounted to the FGS-250PVL Flex-Stand (all sold separately)

Features

Benefits

Reversible display	Permits inverting the gauge for test stand or handheld operation without disassembly of case
Outstanding accuracy ($\pm 0.2\%$ F.S.)	Ideal for even the strictest tolerances
Peak measurement	Captured with the push of a button
Rechargeable batteries	Operates continuously for 12 hours when fully charged
Field calibration through keypad	Eliminates down time
Overload capacity: 200% F.S. to	High capacity overload protection leads to fewer repairs
Overload output signal (FGV-HX models)	Prevents load cell damage by automatically terminating test stand operation
RS232C and analog outputs (FGV-HX models)	Allows flexibility in data collection and function analysis
Variable units of measure (lb, Kg or N)	Easily selected with the touch of a button
Heavy-duty load sensor	Designed for over one million operations
Rugged die-cast aluminum housing	Production floor capable, able to withstand hostile work environments
Two heavy-duty knurled steel handles	Enable easy hand operation
Removable hanger	Enables gauge to be used as a scale
Measures both compression and tension forces	Conveniently determined with the same sensing shaft
Auto power shut-off	Prolongs battery life
Low battery indicator	Provides ample warning to complete testing (3 hours or more)
Ergonomically designed	Easy hand held use
One year warranty	Provides peace of mind

Digital Force Gauges



FGV - HX & FGE - HX SPECIFICATIONS				
Model	FGE-200HX	FGE-500HX	FGV-200HX	FGV-500HX
Capacity	200 lb 100 Kg 1000 N	500 lb 250 Kg 2500 N	200 lb 100 Kg 1000 N	500 lb 250 Kg 2500 N
Resolution	0.1 lb/0.1 Kg/1 N			
Accuracy	±0.2% F.S.			
Display	Four digit LCD, .47" high (12 mm) with various indicators including tension and low battery indication (reversible)			
Average/Peak Mode	Selectable			
Display Update	0.05, 0.1, 0.2, 0.3, 0.5, 1 sec			
Sampling Rate	1000 times per second			
Overload Capacity	200% of F.S.	150% of F.S.	200% of F.S.	150% of F.S.
Power	Rechargeable Ni-Cad batteries (included) or AC adapter/charger (included)			
Auto Power Shut-Off	Yes (not active if adapter/charger is in use)			
Temperature Range	32° - 104°F (0° - 40°C)			
Dimension / Weight	8.43" L x 3.23" W x 2.15" H (214 mm x 82 mm x 54.5 mm) / 2 lb (900 g)			
Standard Accessories	AC adapter/charger, carrying case, 2 handles, inch adapter and attachments (flat head, hook, chisel, notched head, cone head, extension rod) FGV-RS232CABLE is included with FGV-HX series only			
Approvals	CE approved			
OPTIONAL	NIST certs with data			

FGV - HX OUTPUT SPECIFICATIONS	
RS232C Output Port	Selectable baud rate: 2400, 4800, 9600, 19,200bps Data length: 8 bits Stop bit: 1 bit Parity: none Software flow control: none
Analog Output Port	±1 VDC output (through a 12 bit D/A converter)
Overload Output	One NPN OC transistor for tension, one NPN OC transistor for compression

Mechanical Force Gauges

MF Series

Highly accurate and rugged - can be used anywhere!

Incredibly durable and user-friendly, our economical MF mechanical gauges are excellent for repetitive testing in assembly line or quality control lab applications. The peak mode features an easy push-button reset; this is especially helpful for doing repetitive testing in an assembly line or quality control lab. The large dial indicator allows you to see force changes as they occur. The MF was ergonomically designed for handheld use, but may also be used with the optional handle (great for loads over 15 pounds). Due to its mechanical design, response time is immediate. A large, easy to read dial indicator was designed to reduce gauge parallax.

MF gauges feature a die-cast aluminum housing which mounts easily to all Shimpo test stands for even greater control of repetitive testing.



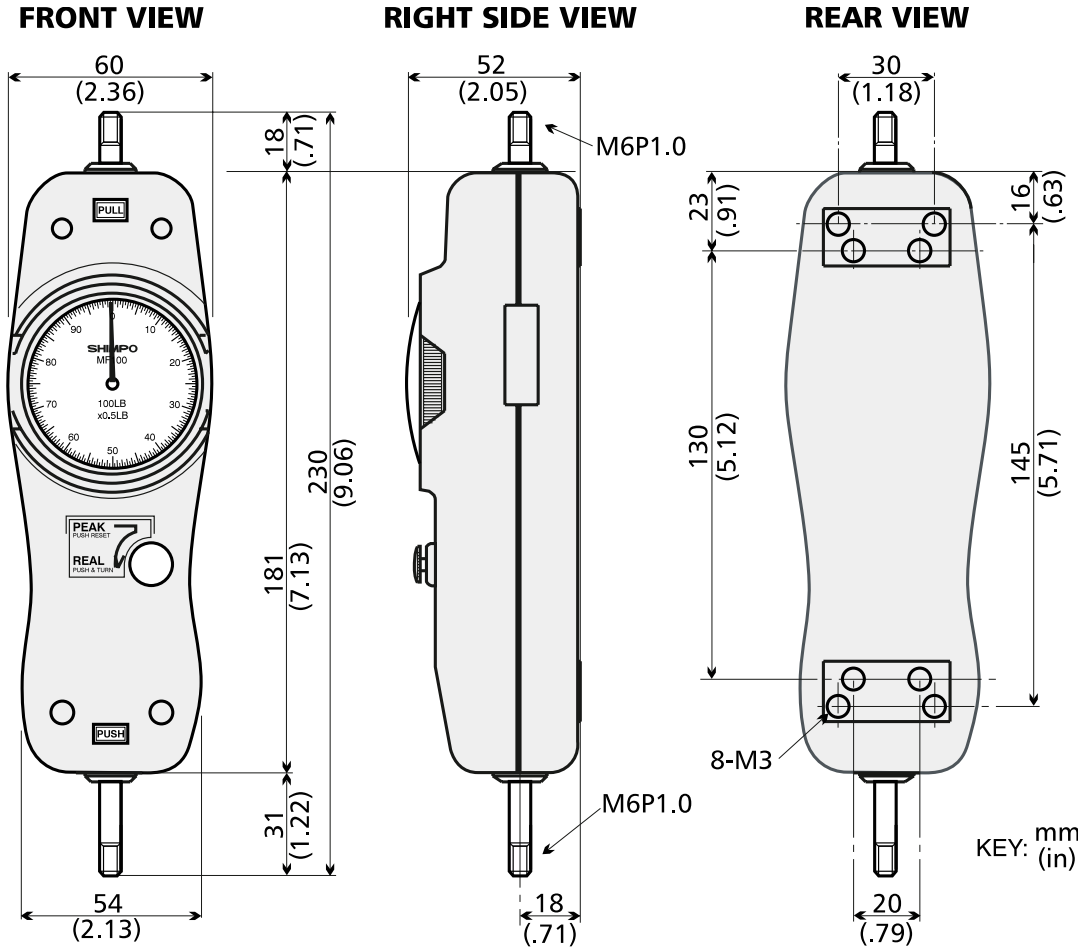
MF with FGS-50H manual test stand (sold separately)

Features

Benefits

Outstanding accuracy ($\pm 0.2\%$ F.S.)	Ideal for even the strictest tolerances
Peak mode	Easy push-button reset; holds peak at maximum readings
Precision gauge movement	Allows user to observe force changes as they occur
Exceptionally rugged and dependable	Can be used in even the harshest conditions
Smooth mechanical operation	Precise action enhances confidence
English and metric models available	Satisfy many testing parameters
Measure both tension and compression forces	Only one gauge needed for insertion/withdrawal tests
Overload protected to 165 pounds	Protects gauge from damage
Ergonomically designed	Perfect for handheld use
Two year warranty	Provides peace of mind

Mechanical Force Gauges



M F S E R I E S								
ENGLISH DIAL								
Model	MF-2	MF-5	MF-10	MF-20	MF-30	MF-50	MF-100	
Capacity	2 lb	5 lb	10 lb	20 lb	30 lb	50 lb	100 lb	
Dial Graduation	0.01 lb	0.025 lb	0.05 lb	0.1 lb	0.2 lb	0.25 lb	0.5 lb	
METRIC DIAL								
Model	MF-1KG	MF-2KG	MF-3KG	MF-5KG	MF-10KG	MF-20KG	MF-30KG	MF-50KG
Capacity	1 kg	2 kg	3 kg	5 kg	10 kg	20 kg	30 kg	50 kg
Dial Graduation	0.005 kg	0.01 kg	0.02 kg	0.025 kg	0.05 kg	0.1 kg	0.2 kg	0.25 kg
Accuracy	±0.2% F.S.							
Display	Analog dial, 2" in diameter (50 mm); Rotatable 360° for taring purposes							
Real/Peak Mode	Selectable							
Display Update	Immediate							
Overload Capacity	165 lb (75 Kg)							
Standard Accessories	Carrying case and attachments (flat head, hook, chisel, notched head, cone head, extension rod, large hook and large V-hook)							
OPTIONAL	Handle, NIST certs with data							

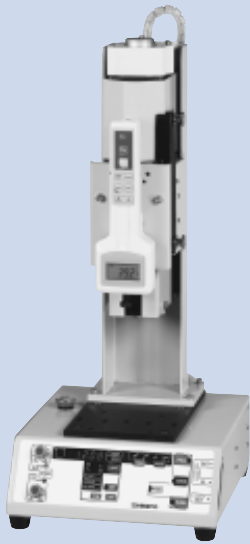
Motorized Test Stands

Cycling capabilities enable precise and consistent results!

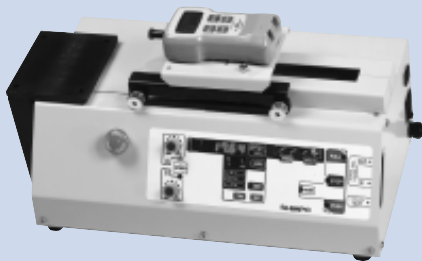
Shimpo's advanced motorized test stands are designed as companion pieces to our top quality force gauges, providing complete force measurement systems for the most precise testing applications. Their all steel construction makes them remarkably rugged, while programming and cycling capabilities enable them to be highly intelligent.

Our motorized test stands are offered in both vertical and horizontal models and are available in a wide range of capacities.

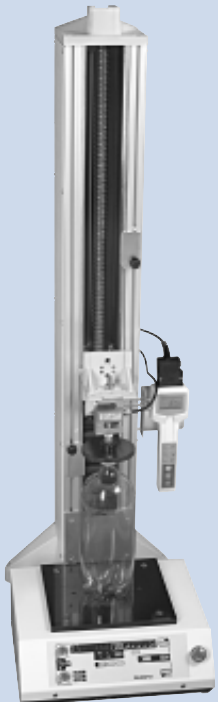
Can be used with all current Shimpo force gauges, as well as some earlier model Shimpo gauges. Various interface cables available; see "Accessories" on page 19.



FGS-50PVH motorized test stand with DFS-R gauge (sold separately)



FGS-50PXH horizontal motorized test stand, shown with FGE-X force gauge (sold separately)



FGS-250PVL Flex-Stand, DRI and Remote Load Cell (sold separately)

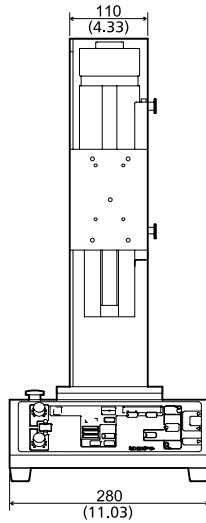
Features

Benefits

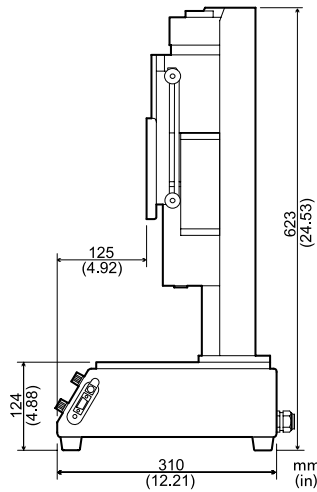
10 user programmable set points: speed, distance, stop time	Permit custom, automated testing
Single cycle and continuous cycling capabilities	Consistent testing parameters
High and low force set points user selectable through RS232C interface or directly through DFS gauge	Allows test stand to stop at force loads while providing digital displacement readout and digital output
Gauge overload protection	Prevents downtime waiting for repair
Compatibility with nearly all manufacturers' gauges	Enables flexibility in testing applications
All gauge functions can be communicated through stand via RS232 interface	Allows easy computer-programmed operation and downloading of data for SPC programs
Analog voltage output for displacement	Allows graphing and analysis of data
Manually adjustable upper and lower limits	Restricts movement, allowing for precise testing
All steel construction	Solid design contributes to precision movement
Modular design	Reduces cost of stand
Compact design	Reduces weight, minimal surface footprint
Vertical and horizontal models (FGS-250PV is vertical only)	Models to suit any application
Standard and low speed models available	For rapid and precise testing applications
One year warranty	Provides peace of mind

Test Stands

FRONT VIEW

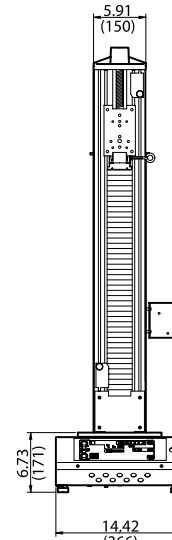


RIGHT SIDE VIEW

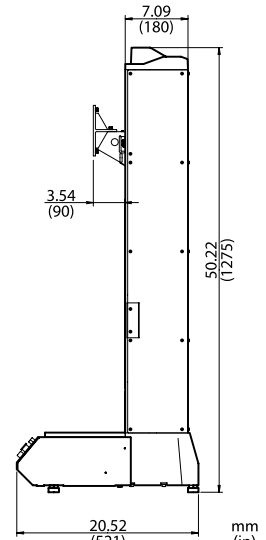


FGS-50PVH/FGS-50PVL

FRONT VIEW

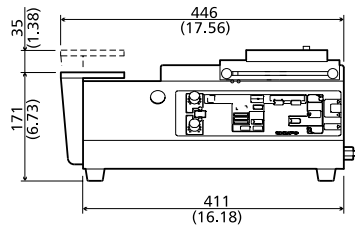


RIGHT SIDE VIEW

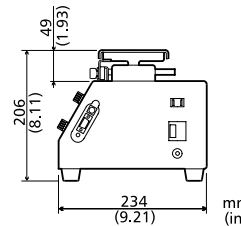


FGS-250PV

FRONT VIEW



RIGHT SIDE VIEW



FGS-50PXH/FGS-50PXL

HORIZONTAL & VERTICAL MOTORIZED TEST STAND SPECIFICATIONS

Model	FGS-50PXH (horizontal - standard)	FGS-50PVH (vertical - standard)	FGS-50PXL (horizontal - low speed)	FGS-50PVL (vertical - low speed)
Capacity	110 lb (50 Kg)			
Stroke	5.5" (140 mm)			
Vertical Clearance	N/A	2.4" - 7.1" (61-181 mm) 5 steps, 1.18"/step (30 mm/step)	N/A	2.4" - 7.1" (61-181 mm) 5 steps, 1.18"/step (30 mm/step)
Travel Speed	Adjustable: 1.57-15.74"/min (40-400 mm/min)		Adjustable: 0.39-3.93"/min (10-100 mm/min)	
Display	Four digit LED, 0.41" high (10.5 mm). Reads in inches (0.01 resolution) or millimeters (0.1 resolution)			
Power	120 VAC, 60 Hz			
Weight	40 lb (18 Kg)	42 lb (19 Kg)	40 lb (18 Kg)	42 lb (19 Kg)

FGS-250PV PROGRAMMABLE MOTORIZED TEST STAND SPECIFICATIONS

Model	FGS-250PVL (low speed)	FGS-250PVM (standard speed)	FGS-250PVH (high speed)
Capacity	500lb (250kg, 2,500N)		
Travel Speed	0.04 - 4.92"/min (12.5 - 125 mm/min)	1.97 - 19.70"/min (50 - 500 mm/min)	5.12 - 49.23"/min (130 - 1250 mm/min)
Stroke	31.10" (790 mm)		
Display	Four digit LED, 0.41" high (10.5 mm), test stand can change english to metric		
Operating Mode	MANU, JOG, SING, CONT, PROG		
Communication	Sensor : FGV, FGV-H, DFS, DRI (Remote Load Cell) To PC : RS-232C (Baud rate: 9600bps, data length: 8bit, stop bit: 1bit, parity: none)		
Limit Switch Repeatability	±0.0006" (0.015 mm) at max. speed	±0.0016" (0.04 mm) at max. speed	±0.0036" (0.092 mm) at max. speed
Zeroing Feature Repeatability	Max. 0.015" (0.383 mm) at max. speed	Max. 0.065" (1.649 mm) at max. speed	Max. 0.172" (4.355 mm) at max. speed
Deflection	0.033" (0.85mm) at max. capacity		
Power	120VAC, 60Hz		
Model	FGS-250PVL	FGS-250PVM	FGS-250PVH
Weight	115.7 lb (52.5 kg)	115.7 lb (52.5 kg)	126.8 lb (57.5 kg)
Dimensions	14.42" (366 mm) x 50.22" (1275 mm) x 20.52" (521 mm)		

Manual Test Stands

Rugged and hand-operated - can be used anywhere!

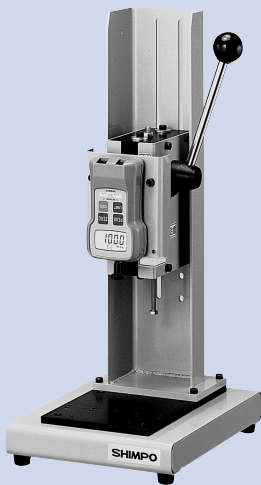
Our manual force gauge stands are designed for precision, balance and durability and are perfectly suited for measuring a limitless range of materials including wire, springs, plastic, paper cord, tubing, glass and composites.

Shimpo offers two types of manual stands: lever and hand wheel. The lever action is ideal for rapid testing applications; the hand wheel stand is excellent when more precise control is needed. Both the lever and hand wheel stands are available in various capacities and assure accurate, precise and consistent testing results when used in conjunction with our digital FGE/V-X, FGE/V-HX, DFS or mechanical MF force gauges.

Can be used with all current Shimpo force gauges, as well as some earlier model Shimpo gauges.



FGS-5S manual test stand with FGE-X and FGS-Length-L digital scale (sold separately)



FGS-50L manual test stand with FGE-X and FGS-Length-H digital scale (sold separately)



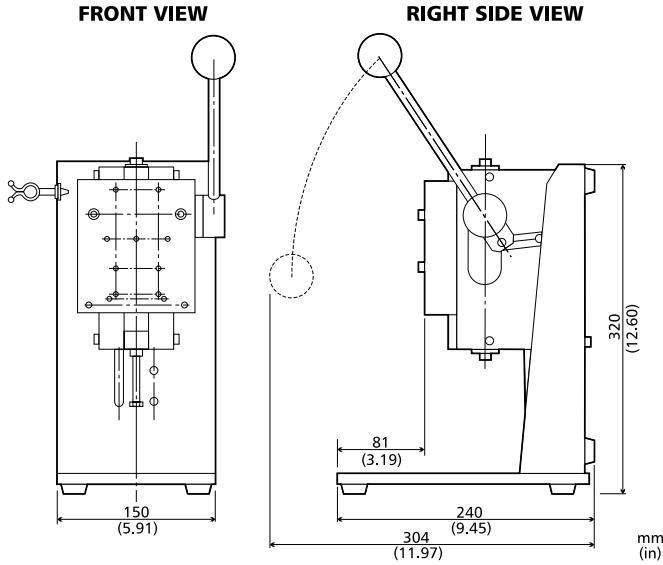
FGS-50H manual test stand with FGE-X, FGS-Length-H digital scale and Adhesive Test Plates (all sold separately)

Features

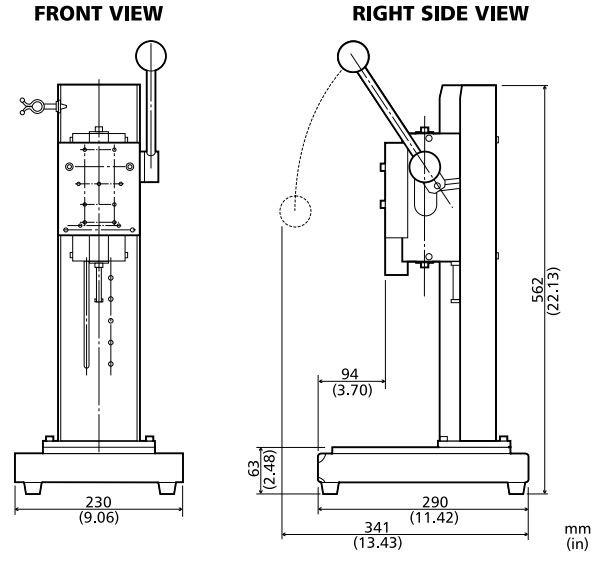
Benefits

Compatibility with nearly all manufacturers' gauges	Enables flexibility in replacement of testing system
Versatile bottom mounting plate	Ability to accept even custom-made attachments
Adjustable clearances	Perfect for any size sample
Consistent linear motion	Reliable and accurate measurements
Precision gear movements	Accurate and repeatable results from test to test
Modular design	Reduces cost
Compact design	Reduces weight and surface area footprint
Optional digital length meter	Provides deflection measurements for spring rate testing
Sturdy, all steel construction	Exceptional durability
One year warranty	Provides peace of mind

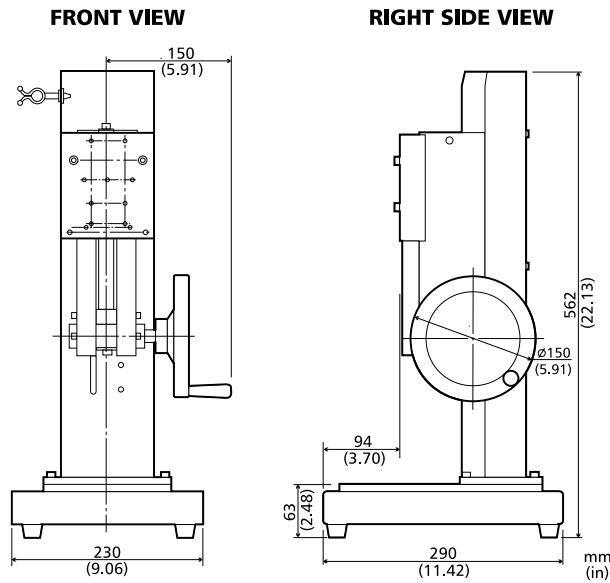
Test Stands



FGS-5S



FGS-50L








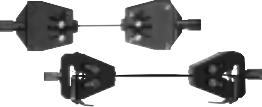






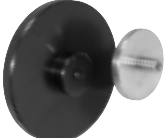


FGS-50H

MANUAL TEST STAND SPECIFICATIONS			
Model	FGS-5S (lever)	FGS-50L (lever)	FGS-50H (handwheel)
Capacity	50 lb (22 Kg)	110 lb (50 Kg). The capacity is 200 lb (100 Kg) when used with a Javelin force gauge (models FGE-200HX and FGV-200HX)	
Stroke	1.97" (50 mm)		5.9" (150 mm) 3 mm/wheel turn (appx.)
Vertical Clearance	1.6", 2.75", 3.94" (40 mm, 70 mm, 100 mm)	3.31" - 11.57" (84 mm -294 mm) 8 steps, 1.18"/step (30 mm/step)	2" - 7.95" (52 mm - 202 mm) 6 steps, 1.18"/step (30 mm/step)
Weight	22 lb (10 Kg)	33 lb (15 Kg)	

Attachments


Shimpo's full line of gauge attachments enables precise and accurate testing results for small and hard-to-hold items. With various width and load capacities available, we offer a wide variety of attachments for all testing requirements. Grips and attachments sold individually (not in pairs).

Attachment	Description	Capacity	
Small Pin Grip FG-M6PIN05 FG-M6PIN1 FG-M6PIN2	Ideal for gripping fine wires and filaments; three ranges for checking samples of .02", .04", .08" (0.5, 1 and 2 mm) thick.	22 lb (11 Kg)	
Fine Point Grip FG-M6FPG3 FG-M6FPG8	Perfect for testing fine and medium gauge wire, ribbon, tape and paper. Two jaw widths and load capacities are available; both can handle material thickness up to .04" (1 mm).	30 lb (15 Kg) .12" (3 mm) 60 lb (30 Kg) .31" (8 mm)	
Film Grip FG-M6FLM20 FG-M6FLM50U	These heavy-duty, spring-loaded grips have serrated jaws for handling samples up to .39" (10 mm) thick and .79" (20 mm) or 1.97" (50 mm) wide.	100 lb (50 Kg)	
Jacob's Chuck Grip FG-M6JAC5U	Designed for testing low gauge wire and rigid rods; accepts material diameters from .02" (.05 mm) to .20" (5 mm).	100 lb (50 Kg)	
Flat Chuck Tensile Grip FG-M6FTG20U	Each serrated gripping face is .79" (20 mm) square and can accept samples up to .79" (20 mm) thick.	100 lb (50 Kg)	
Spool Grip FG-M6SP010U	Ideal for hard-to-hold items like thread, filaments, etc. The sample is wrapped around the spool, anchored by friction.	100 lb (50 Kg)	
Tape Grip FG-M6TAP30U	Self-tightening lever action makes this fixture perfect for testing rubber, tape and paper.	100 lb (50 Kg)	
Wedge Grip FG-M6WDG50U FG-M10WDG500U	Two capacities for lighter and heavier loads; spring-loaded jaws automatically close on the specimen and tighten as tension is applied. Ideal for testing wires, strip material and plastic tape or films.	100 lb (50 Kg) 500 lb (250 Kg)	
Heavy-Duty Tensile Grip FG-M10TEN7U FG-TEN7B	Manually tightened jaw faces can accept samples 1.25" (31.75 mm) wide and .25" (6.35 mm) thick. Contact faces are serrated hardened tool steel.	500 lb (250 Kg)	
Clevis Grip FG-M10CLV10U FG-CLV10B	Odd shaped parts, punched samples or tension springs are easily secured and tested. Concave shape to pins assures centering under load. Throat clearance with pin is .5" (12.7 mm) and can easily accept samples up to .375" (9.65 mm) wide.	500 lb (250 Kg)	
Cord and Twine Grip FG-M10TWN500U FG-TWN500B	A unique figure 8 wrap of specimen assures a center break and non-locking pins permit quick installation and release. Throat and pin clearance is .375" (9.65 mm) wide with the throat width being .5" (12.7 mm).	500 lb (250 Kg)	
Fabric Grip FG-M10FAB80U FG-FAB80B	Eccentrically mounted, serrated roller grip allow for self-tightening of specimens up to 3" (76.20 mm) wide and .25" (6.4 mm) thick.	500 lb (250 Kg)	
Adhesive Test Plates FG-M10ADHE3	Samples up to 3" (76.20 mm) in diameter can be tested with hardened tool steel detachable faceplates. Ball socket mounting screws in both grips assure parallelism and perpendicularity to force when load is applied.	500 lb (250 Kg)	
Wire Terminal Test Fixture FG-M6WTER100	Designed specifically to test the strength of wire/terminal connections. The upper grip consists of a self-aligning wheel with nine equally spaced slots of various terminal shank sizes; an eccentrically mounted, self-tightening bottom grip secures the wire on the other end.	100 lb (50 Kg)	
Compression Plates FG-M6COMP50U FG-M6COMP100U FG-M10COMP50U FG-M10COMP100U	50 and 100MM steel compression plates for top load testing, large sample compression or crush testing, with polished finish. 50mm & 100mm plates available in M6 or M10 threading.	100 lb (50 Kg) 500 lb (25 Kg)	

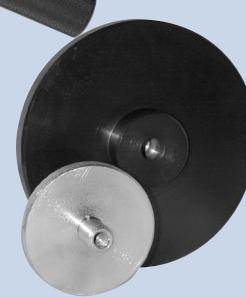
Shimpo offers a variety of sophisticated accessories designed to aid in force gauge measurement and data collection and analysis functions.

Accessory	Description
FG-HANDLE	Fits models FGE-X, FGV-X and DFS; 100 lb (50 Kg) capacity
FG-M6PUNCTURE	FG-M6PUNCTURE threads onto the sensor shaft of 2 lbs. through 100 lbs. capacity "DART" gauges
MFP-HANDLE	Fits MF and the earlier model EM; 100 lb (50 Kg) capacity
FGV-CTRLCABLE	Protects load cell of force gauge when used with a motorized test stand
DFS-CTRL-BASIC	Control FGS-50PV/X test stand with HI-LO limits with DFS/DRI gauge
DFS-CTRL-DELUXE	Control FGS-50PV/X test stand with HI-LO limits with DFS/DRI gauge and allows data output (requires FGV-RS232 or FGV-Analog cables to complete data output)
DRI-FGS250P	Allows interfacing between the DRI/DFS and the FGS-250PV Flex Stand
FGV-FGS250P	Allows communication between the FGV-X and the FGS-250PV Flex Stand
FGS250PV-RS232	Cable that allows interfacing between the FGS-250PV Flex Stand and a PC/DATA
FGV-RS232 DFS-RS232	Permits communication between force gauge and a PC
FGV-Analog FGS-Analog DFS-Analog	Facilitates an analog output for recording purposes (amplitude of signal is $\pm 1VDC$)
DFS-CTRL-BASIC	Controls test stand with Hi-Low limits on DFS
DFS-CTRL-DELUXE	Controls test stand with Hi-Low limits on DFS, with data output (must use with FGV-RS232)
DFS-Comparator	Enables the triggering of an alarm when limits are programmed on the gauge ("Hi, Go and Lo" outputs)
DFS-Digimatic	Allows data transfer to a Mitutoyo data collector
Uni-Plate	Allows non-Shimpo force gauges to be mounted on Shimpo test stands (contact distributor for details)
FGS-Length-L FGS-Length-H	Length digital scale, attaches to test stands to accurately gauge length
Loadmeter FG-L1 v1.0	Designed for use in conjunction with our popular line of FGV-X digital force gauges for compression and tension data recording. Graph data in real time while performing various statistical processes over the sample being taken. Plot in graph, table and/or spreadsheet formats. Microsoft® Windows® 95/98 or NT® compatible.
Model SO-100	Software Wedge™ for Windows® provides a platform for transferring RS232 serial data via keystrokes or DDE to popular programs like Excel®, Lotus®, Access® and FoxPro®. Allows you to add date stamping to data strings.

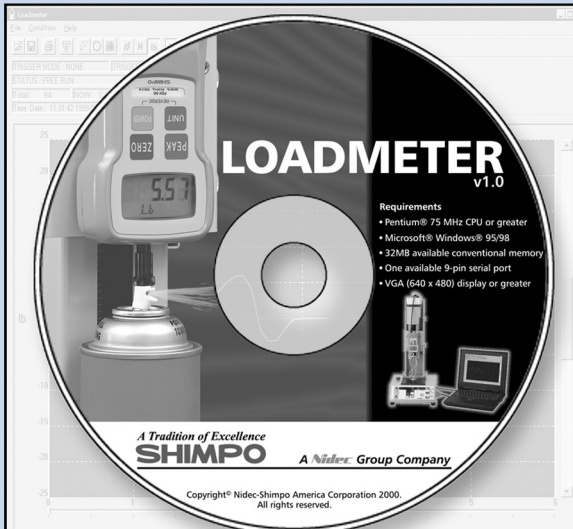
NOTE: Both an RS232 cable and a CTRLCABLE are required to connect a force gauge to a motorized test stand and computer



FG-HANDLE



Compression Plates



Loadmeter Software (for FGV-X series)

ALSO AVAILABLE FROM SHIMPO INSTRUMENTS



Tachometers, Stroboscopes & Counters

Shimpo Instruments also offers a full line of quality tachometers, stroboscopes and counters for all types of testing applications.

Handheld digital microprocessor-controlled contact and non-contact tachometers covering RPM ranges from 0.1 to 99,999 RPM. LCD and LED models, protected by rugged, die cast aluminum housings.

Panel mount tachometers, fully programmable, microprocessor-controlled with measuring ranges up to 99,999 RPM. Accept different types of input/output modules to provide preset, BCD, RS232C, analog voltage or current functions.

Portable digital stroboscopes, AC and battery operated. Microprocessor-controlled for high stability and accuracy with many unique features. Ranges up to 35,000 RPM.

Panel mount counters, fully programmable, microprocessor-controlled with ranges up to $\pm 1,999,999$. Accept modules to provide preset, BCD and RS232C capabilities.

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