







Comparative Table of Force Gauges

Digital force gauges VS Mechanical force gauges

Digital Force Gauge		Mechanical Force Gauge	
Strong Points	<ul style="list-style-type: none"> ○Digital indication avoids misreading ○Connectable with PC, easy to analyze force data ○Various convenient functions ○Fit for impact/breaking test 	Strong Points	<ul style="list-style-type: none"> ○Not need power supply ○Highly durable and reliable ○Easier to read force transition
Weak Points	<ul style="list-style-type: none"> ○Not easy to read force transition ○Need hours to be charged 	Weak Points	<ul style="list-style-type: none"> ○Not fit for impact/breaking test ○Misreading is more likely to happen

Digital force gauges

Model		DS2 series	ZTS series	ZTA series
The external appearance				
Feature		Simple / Economy	High performance	High functionality / Performance
Index of selection		<ul style="list-style-type: none"> - Ideal to measure peak value simply 	<ul style="list-style-type: none"> - Ideal for impact test, breaking test. - Ideal for measurement in dim places. - Ideal for data management and graphing on PC 	<ul style="list-style-type: none"> - Ideal for impact test, breaking test. - Ideal for measurement in dim places. - Ideal for force-displacement test and graphing - Data saving into USB flash drive
Basic Spec.	Accuracy	±0.2%F.S.±1digit		
	Measurement unit	N/kgf/lbf	N, kgf, lbf [*1]	
	Capacity	From 2N to 1000N		
	Sampling speed	Max. 1000 times/sec	Max. 2000 times/sec [*2]	
	Overload warning	Approx. 110%F.S. Indications flash.	Approx. 110%F.S. Message shows up and alarm goes on.	
Display	Display	4-digit LCD	4-digit OEL display	
	Display update	10 times / sec		
	Indications	Load value only	Load value, date, time, peak value in the past, set point, bar graph etc	Displacement [*3], 1 st /2 nd peak, Max/Min/Ave value in memory
	Menu indication	Commando	English/Spanish/French/Germany/Italian/Chinese/Korean/Japanese	

Model		DS2 series	ZTS series	ZTA series
The external appearance				
Function	Peak hold	✓	✓	✓
	OK/NG judgment	✓	✓	✓
	Reverse display	✓	✓	✓
	Sensitivity	2 steps	4 steps	4 steps
	Multi display	N/A	✓	✓
	Internal memory	N/A	1000 data	1000 data
	+/- Force	N/A	✓	✓
	Auto zero timer	N/A	✓	✓
	+NG alarm	N/A	✓	✓
	Auto shut off	N/A	✓	✓
	Calendar	N/A	✓	✓
	1 st /2 nd peak drop	N/A	N/A	✓
	Displacement detection at force peak	N/A	N/A	✓
	Displacement Reset	N/A	N/A	✓
Output	Serial (RS232C)	✓	✓	✓
	Mitutoyo digimatic [*4]	✓	✓	✓
	Analog	+/- 1V F.S. approx.	+/- 2V F.S. approx.	+/- 2V F.S. approx.
	USB	N/A	✓	✓
	High/low set points	N/A	✓	✓
	Overload warning	N/A	✓	✓
	High/low output	N/A	N/A	✓
	Memory in USB flash drive [*5]	N/A	N/A	✓
	Displacement	N/A	N/A	✓

* These are the specifications for International model. Please note that this unit is different from Japanese domestic model and international one.

*1 [N indication] The indication of 2N and 5N models is mN or N. The indication of 1000N,2500N and 5000N model is N or kN.

[kgf indication] The indication of 2N and 5N models is gf.

[lbf indication] The indication of 2N and 5N models is ozf.



*2 When you save data in USB memory stick, the sampling rate is 100 data/sec.

*3 A test stand with a linear scale is needed to indicate displacement.

*4 Not always available for Mitutoyo digimatic products.





*5 USB flash drive is not included.

High capacity / separate sensor model Digital force gauges

Model	High capacity ZTS/ZTA series	Separate sensor ZTS/ZTA series
The external appearance		
Capacity	2500N/5000N	It depends on sensors.
Feature	High capacity	Fit for measurement at limited or dangerous area. Load cell is selectable according to measurement conditions.
Index of selection	Specilized for higher range of 1000N (100kgf).	Ideal for measurement at limited or dangerous area. Ideal for measurement in unique environment.






*Specifications except capacity and sensors are the same as standard ZTA/ZTS specifications.

Load cells (Connectable with Separate sensor with ZTA/ZTS series)

Tensile/Compression (DPU series)	Waterproof Tensile/Compression (WP series)	Extremely small Tensile/Compression (LMU series)	Small Compression (LM series)
			
Able to measure tensile/compression force from 2N to 20KN	Able to measure at watery place	Extremely small size, $\phi 18 \times H 25 \text{mm}$	Small coin shaped for compression

* More load cells are available for ZTA/ZTS separate sensor model.

Mechanical Force Gauges

Model	Popular FB/FS series	Standard PS/PSS series	Precise PSM series	High capacity PSH series	Unique UKK/UKT series
The external appearance					
Features	Good price	Highly precise	The most precise	High capacity	Small
Accuracy level	High		✓		
	Mid	✓		✓	
	Low	✓			✓
Accuracy	+/-0.3%F.S.	+/-0.1%F.S.			+/-0.3%F.S.
Unit	N/kgf/lbf	N/kgf/lbf	N/kgf	N/kgf/lbf	N/kgf/lbf
Gradations *1	100		200	100	
Capacity	From 10N to 500N	From 5N to 500N	From 20N to 500N	From 500N to 3000N	From 20N to 300N
Direction	Tensile and Compression	Tensile and Compression	Tensile and Compression	Tensile and Compression	Tensile OR Compression
Peak hold	✓	✓	✓	✓	✓
Zero reset *2	✓	✓	✓	✓	✓

*1 Graduation is not always 100 lines according to capacity, so please refer to each specifications to make sure.

*2 Dial plate is movable to change zero point, taking the weight of such as an attachment into consideration.

[Cautions]

*These products are designed for measurement purpose only.

*This is only a guide. This content does not fall under some environment or conditions.

*The contents may be changed without notice in advance.

*Do not copy the contents without permission.