



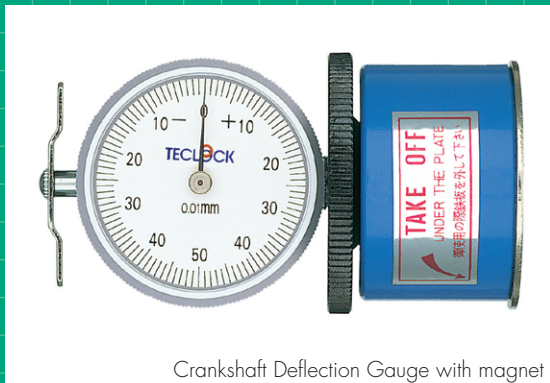
# Other Precision Measuring Instruments



Push Pull Gauge



Crankshaft Deflection Gauge



Crankshaft Deflection Gauge with magnet



Small Bench Center



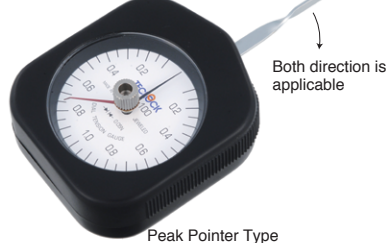
# Dial Tension Gauges

- These are mechanical tension gauges displaying in Newton, which can measure precise and moment force like tensile force or compression force
- Miniature bearing is adopted to contact point bearing. and it can obtain stable indication accuracy.
- It can be used for the wide range of usage for contact force such as micro-switch, relay, valve, and measuring force of dial indicator, and spring force of precise spring, and pressing force of key-board.
- There are 2 types of standard type which sustains momentary highest value, and peak pointer type .



Standard Type  
**DTN-50**

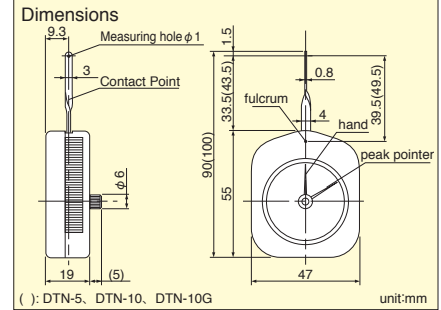
Graduation 0.02N  
Measuring Range 0.06N~0.5N



Peak Pointer Type  
**DTN-100G**

Graduation 0.05N  
Measuring Range 0.1N~1N

Both direction is applicable



Specifications: Newton Force

Type	Model	Graduation	Measuring Range	Dial Reading	Weight
Standard Type	DTN-5	2mN	6mN~50mN	6-50-6	54g
	DTN-10	5mN	10mN~100mN	10-100-10	54g
	DTN-30	10mN	30mN~300mN	30-300-30	54g
	DTN-50	0.02N	0.06N~0.5N	0.06-0.5-0.06	54g
	DTN-100	0.05N	0.1N~1N	0.1-1-0.1	54g
	DTN-150	0.05N	0.15N~1.5N	0.15-1.5-0.15	54g
	DTN-300	0.1N	0.3N~3N	0.3-3-0.3	54g
DTN-500	0.2N	0.6~5N	0.6-5-0.6	54g	
Peak Pointer	DTN-10G	5mN	10mN~100mN	10-100-10	56g
	DTN-30G	10mN	30mN~300mN	30-300-30	56g
	DTN-50G	0.02N	0.06N~0.5N	0.06-0.5-0.06	56g
	DTN-100G	0.05N	0.1N~1N	0.1-1-0.1	56g
	DTN-150G	0.05N	0.15N~1.5N	0.15-1.5-0.15	56g
	DTN-300G	0.1N	0.3N~3N	0.3-3-0.3	56g
DTN-500G	0.2N	0.6N~5N	0.6-5-0.6	56g	

Accuracy = ± 1/2 graduation

Specifications: Gram Force

Type	Model	Graduation	Measuring Range	Dial Reading	Weight
Standard Type	DT-5	0.2gf	0.6gf~5gf	0.6-5-0.6	54g
	DT-10	0.5gf	1gf~10gf	1-10-1	54g
	DT-30	1gf	3gf~30gf	3-30-3	54g
	DT-50	2gf	6gf~50gf	6-50-6	54g
	DT-100	5gf	10gf~100gf	10-100-10	54g
	DT-150	5gf	15gf~150gf	15-150-15	54g
	DT-300	10gf	30gf~300gf	30-300-30	54g
DT-500	20gf	60gf~500gf	60-500-60	54g	
Peak Pointer	DT-10G	0.5gf	1gf~10gf	1-10-1	56g
	DT-30G	1gf	3gf~30gf	3-30-3	56g
	DT-50G	2gf	6gf~50gf	6-50-6	56g
	DT-100G	5gf	10gf~100gf	10-100-10	56g
	DT-150G	5gf	15gf~150gf	15-150-15	56g
	DT-300G	10gf	30gf~300gf	30-300-30	56g
DT-500G	20gf	60gf~500gf	60-500-60	56g	

Accuracy = ± 1/2 graduation

# Push Pull Gauges

- It is a multi-purpose dynamometer to use the Y head or L hooks.



**PPN-705-3**

Graduation 0.05N  
Measuring Range 0.35N~3N

**PPN-705-5**

Graduation 0.05N  
Measuring Range 0.4N~5N

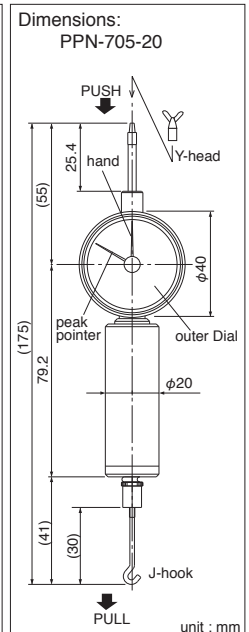
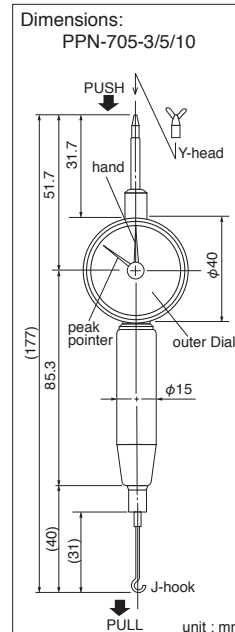
**PPN-705-10**

Graduation 0.1N  
Measuring Range 0.5N~10N

**PPN-705-20**

Graduation 0.2N  
Measuring Range 0.6N~20N

L-hook  
Supplied as  
standard accessory



Specifications: Newton Force

Type	Model	Graduation (N)	Measuring Range	Dial Reading	Weight (g)
Standard Type	PPN-705-3	0.05	0.35N~3N	0.35-1.5-3	85
	PPN-705-5	0.05	0.4N~5N	0.4-2.5-5	85
	PPN-705-10	0.1	0.5N~10N	0.5-5.0-10	85
	PPN-705-20	0.2	0.6N~20N	0.6-10-20	124

Accuracy = ± 1 graduation

Specifications: Gram Force

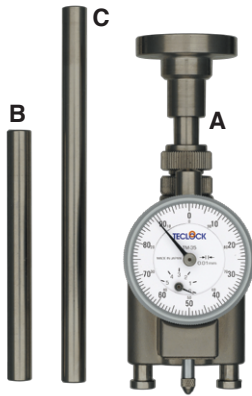
Type	Model	Graduation (gf)	Measuring Range (gf)	Dial Reading	Weight (g)
Standard Type	PP-705-300	5	35~300	35-150-300	85
	PP-705-500	5	40~500	40-250-500	85
	PP-705-1000	10	50~1,000	50-500-1000	85

Accuracy = ± 1 graduation



## Crankshaft Deflection Gauges

- Exclusive instrument to measure deflections of engine crank of automobiles and ships etc.

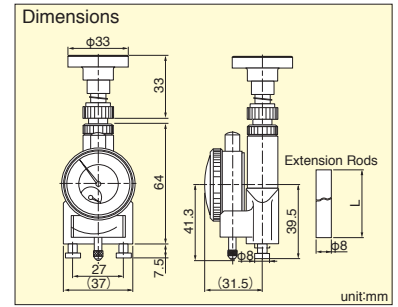


### CSDG-A

Graduation 0.01mm  
Measuring Range 100~230mm

#### Specifications

Model	Graduation (mm)	Measuring Range (mm)	Indicator Error (μm)	Weight (g)
CSDG-A	0.01	100~230	±15	300



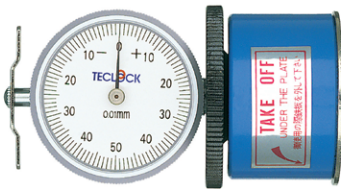
#### Dimensions table (Extension rods)

NO.	L	Measuring Range
A	35	100~145mm
B	80	145~190mm
C	120	185~230mm

unit:mm

## Crankshaft Deflection Gauges with magnet

- Small type which can be fixed to measuring position by magnet.



### TM-104YS

Graduation 0.01mm  
Measuring Range 65~82mm

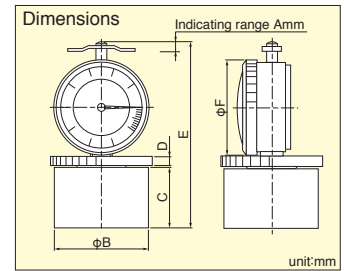


### TM-106YS

Graduation 0.01mm  
Measuring Range 99~113mm

#### Specifications

Model	Graduation (mm)	Measuring Range (mm)	Indicating Range of Dial Indicator (mm)	Dial Gauge error (μm)	holding power (N)	Weight (g)
TM-104YS	0.01	65~82	4	±15	100	230
TM-106YS	0.01	99~113	5	±15	100	330



#### Dimensions table

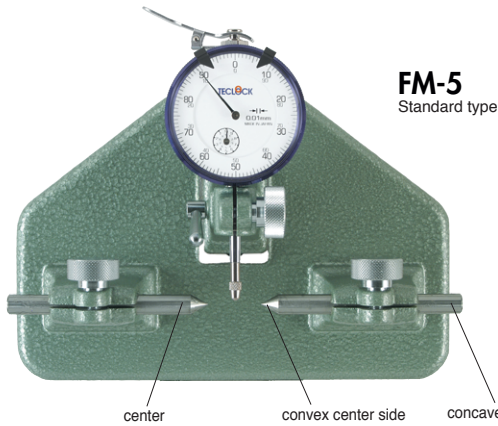
Model	A	B	C	D	E	F
TM-104YS	4	35	22	4.5	68.5	35
TM-106YS	5	32	32	7	102.3	47

unit:mm



## Small Bench Center

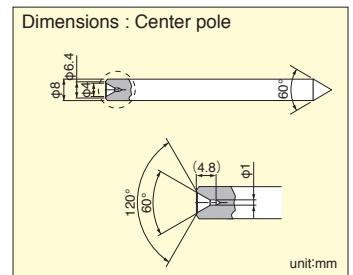
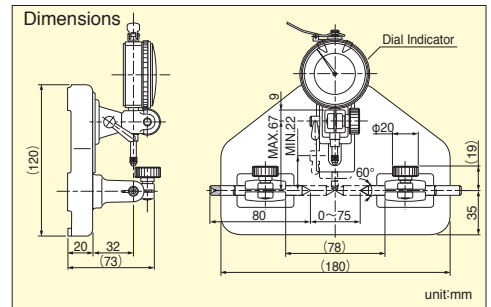
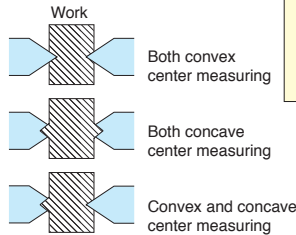
- Suitable to measure eccentricity volume (swing) of various precision shafts, round manufactured work piece, precision gears and pinions.
- Convex and concave of center can be easily changed according to shape of work piece. Center can be shifted.
- Standard type (graduation 0.01mm) and precision type (graduation 0.001mm) are available.



**FM-5**  
Standard type



Measurement example for swing of round bar.



### Specifications

Model	Graduation (mm)	Measuring Range (mm)	Dial indicator error (μm)	Measuring Force (N)	Applicable dimension		Weight (kg)
					Diameter	Width	
FM-5 Standard type	0.01	10	±15	1.4 or less	Up to φ60mm	Up to 60mm	2
FM-5 High Precision type	0.001	1	±5	1.5 or less	Up to φ60mm	Up to 60mm	2

## Flow Meters

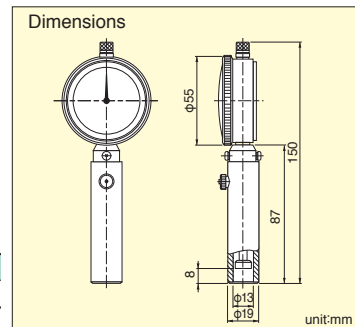
- This is a dial indicator and jig set for the suction (expansion/ contraction) measuring.



**716**  
Graduation 0.1mm  
Measuring Range 25mm

### Specifications

Model	Graduation (mm)	Measuring Range (mm)	Gauge error	Dial Reading	Short Hand	Weight (g)
716	0.1	25	±60μm	0-5-10	non	260g



## Calibration Tester

- FM-10 is a calibration device to check accuracy of dial indicators, test indicators, back plunger type dial indicators and bore gauges. Accuracy of various gauges mentioned in the following list can be measured according to combination of various units. Optional pole (ZY-095) is needed for 400mm-600mm measuring range bore gauges.

### Applicable gauges and industrial standards

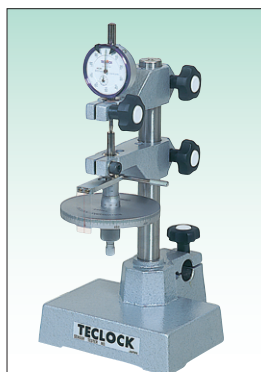
0.01mm Dial Indicators	JIS B 7503
0.01mm Dial Indicators (20mm)	JAMS 2001
0.001mm Dial Indicators	JIS B 7503
Small Dial Indicators	JAMS 2001
Test Indicators	JIS B 7533
Back Plunger Type Dial Indicators	—
Bore Gauges	JIS B 7515
Bore Gauges for small holes	JAMS 2009

### FM-10

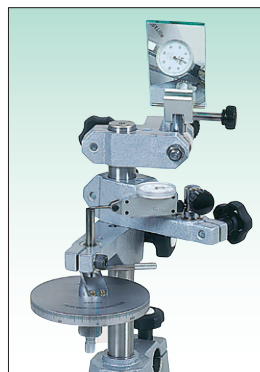
Graduation 0.001mm  
Measuring Range 25mm  
Weight 9kg

Used Micrometer Head  
Pitch 0.5mm  
Range 25mm  
Sleeve graduation 500  
Instrumental error ±1 μm

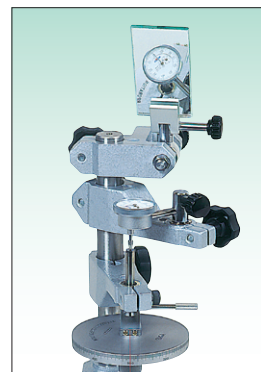
It does not include calibration certificate.



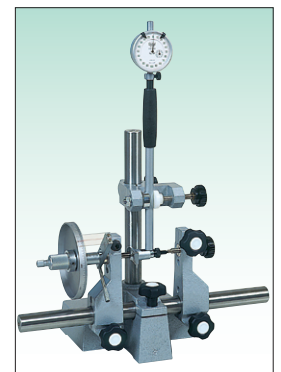
for Dial Indicators



for Dial Test Indicators



for Back Plunger Dial Indicators



for Bore Gauges