

SECTION

6



Thickness Gauges

- Dial Thickness Gauges (0.01mm, 0.001mm)
- Dial Swift Gauge
- Paper Thickness Gauge
- Dial Thickness Gauges (Large Type) (0.01mm, 0.05mm)
- Dial Thickness Gauge (Roller Type)
- Dial Sheet Gauges (0.01mm, 0.05mm)
- Dial Pipe Gauges
- Dial Lens Gauge
- Dial Upright Gauges
- Constant Pressure Thickness Gauge

Dial Thickness Gauges

0.01mm type

These thickness gauges are especially handy for measuring thickness of small parts, metal, rubber, vinyl, paper, foil and other sheet material.

- The objects to be measured is clamped by simple lever operation. The measured values are read directly on the dial gauge.
- Since the anvil and the contact point are adjusted for parallelism, accurate measured values are obtained.



G
Graduation: 0.01mm
Range: 0~10mm

- ϕ 10mm flat contact point and anvil (Ceramic)



G-0.4N
Graduation: 0.01mm
Range: 0~10mm

- Measuring force initial pressure 0.4N



G-2.4N
Graduation: 0.01mm
Range: 0~10mm

- Measuring force final pressure 2.4N



G-20
Graduation: 0.01mm
Range: 0~10mm

- ϕ 20mm flat contact point and anvil (Metal)



G-30
Graduation: 0.01mm
Range: 0~10mm

- ϕ 30mm flat contact point and anvil (Metal)



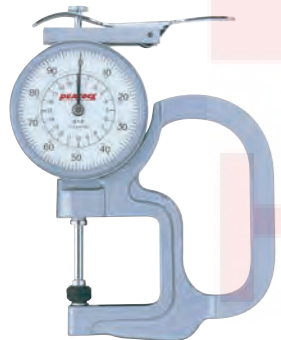
G-1A
Graduation: 0.01mm
Range: 0~10mm

- ϕ 5mm flat contact point and anvil (Metal)



G-1M
Graduation: 0.01mm
Range: 0~10mm

- ϕ 6mm flat contact point and anvil (Ceramic)



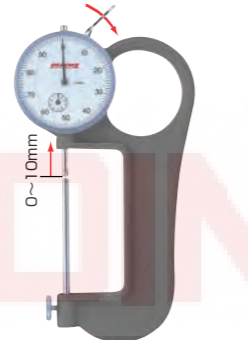
G-2
Graduation: 0.01mm
Range: 0~20mm

- ϕ 10mm flat contact point and anvil (Ceramic)



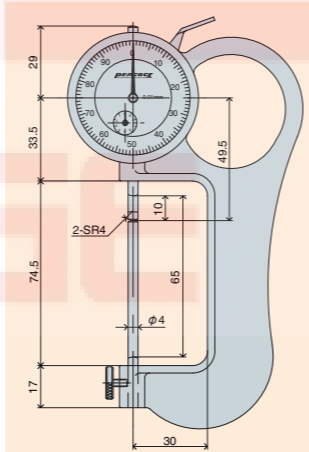
G-3
Graduation: 0.01mm
Range: 30mm

- ϕ 10mm flat contact point and anvil (Ceramic)
- Anvil side is adjustable
- More than 10mm range is comparative measurement.

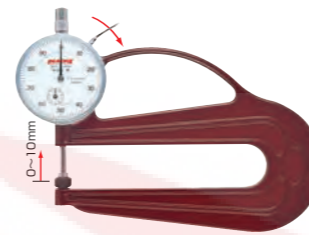


G-4
Graduation: 0.01mm
Range: 65mm

- Spherical contact point
- Anvil side is adjustable
- More than 10mm range is comparative measurement.



● The frame on the anvil side is cut, which to be flush contact point, anvil and frame.



H
Graduation: 0.01mm
Range: 0~10mm

- ϕ 10mm flat contact point and anvil (Ceramic)



H-0.4N
Graduation: 0.01mm
Range: 0~10mm

- Measuring force initial pressure 0.4N



H-2.4N
Graduation: 0.01mm
Range: 0~10mm

- Measuring force final pressure 2.4N



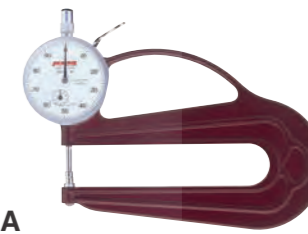
H-20
Graduation: 0.01mm
Range: 0~10mm

- ϕ 20mm flat contact point and anvil (Metal)



H-30
Graduation: 0.01mm
Range: 0~10mm

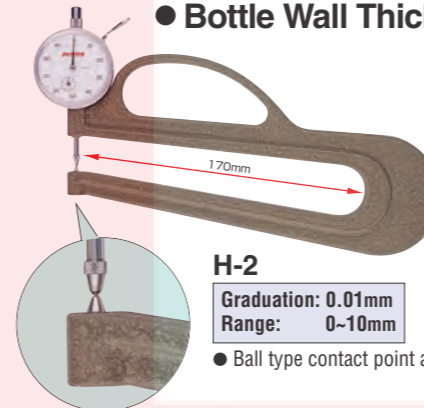
- ϕ 30mm flat contact point and anvil (Metal)



H-1A
Graduation: 0.01mm
Range: 0~10mm

- ϕ 5mm flat contact point and anvil (Metal)

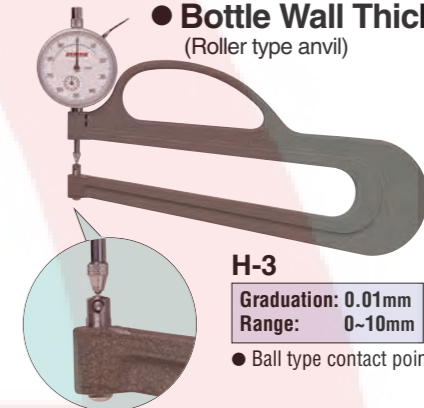
● Bottle Wall Thickness Gauge



H-2
Graduation: 0.01mm
Range: 0~10mm

- Ball type contact point and anvil

● Bottle Wall Thickness Gauge (Roller type anvil)



H-3
Graduation: 0.01mm
Range: 0~10mm

- Ball type contact point and roller type anvil

Specifications

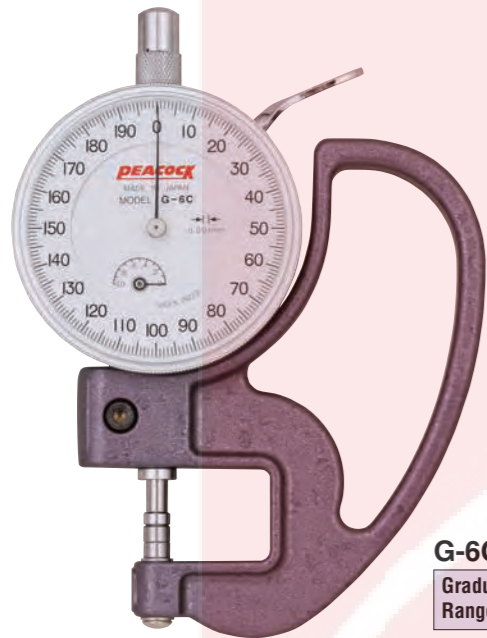
Model	Graduation (mm)	Range (mm)	Throat depth (mm)	Accuracy (μ m)	Contact Point		Measuring force less than(N)
					Dia (mm)	Parallelism (μ m)	
G	0.01	0~10	20	± 20	10	5	1.8
G-0.4N	0.01	0~10	20	± 20	10	5	Initial pressure 0.4N
G-2.4N	0.01	0~10	20	± 20	10	5	Final pressure 2.4N
G-MT	0.01	0~10	20	± 20	10 (Metal)	5	1.8
G-1A	0.01	0~10	20	± 20	5	5	1.8
G-1M	0.01	0~10	20	± 20	6	5	1.8
G-2	0.01	0~20	33	± 22	10	5	2.0
* G-3	0.01	30	20	± 20	10	5	1.8
* G-4	0.01	65	30	± 20	Spherical	—	1.8
G-20	0.01	0~10	20	± 20	20 (Metal)	15	1.8
G-30	0.01	0~10	20	± 20	30 (Metal)	20	1.8
H	0.01	0~10	120	± 20	10	5	1.8
H-0.4N	0.01	0~10	120	± 20	10	5	Initial pressure 0.4N
H-2.4N	0.01	0~10	120	± 20	10	5	Final pressure 2.4N
H-MT	0.01	0~10	120	± 20	10 (Metal)	5	1.8
H-1A	0.01	0~10	120	± 20	5	5	1.8
H-2	0.01	0~10	170	± 20	Ball type	—	1.8
H-3	0.01	0~10	170	± 20	Ball type	—	1.8
H-20	0.01	0~10	120	± 20	20 (Metal)	15	1.8
H-30	0.01	0~10	120	± 20	30 (Metal)	20	1.8

* G-3/G-4 : Measuring range of dial gauge is 10mm.

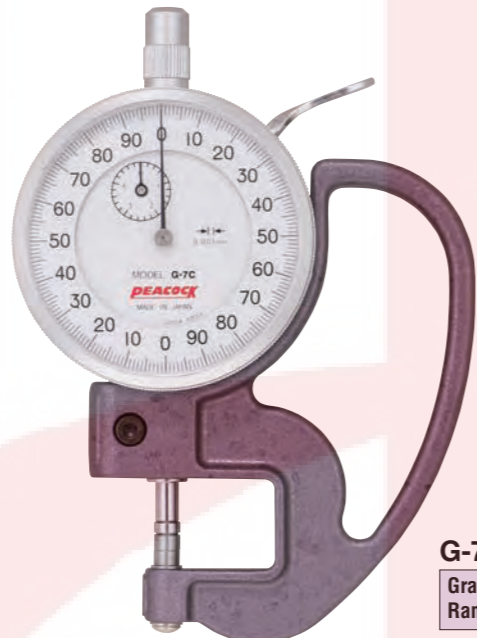
Dial Thickness Gauges

0.001mm type PAT. No. 3052674

- New thickness gauges with 0.001mm graduations.
- Newly developed special frame minimizes inspecting errors resulting from thermal changes. Zero reference point will remain accurate even after many hours of use or extreme swings in temperature.



G-6C
Graduation: 0.001mm
Range: 0~1mm
● φ 5mm flat contact point and anvil (Metal)



G-7C
Graduation: 0.001mm
Range: 0~5mm
● φ 5mm flat contact point and anvil (Metal)

Specifications

Model	Graduation (mm)	Range (mm)	Throat depth (mm)	Accuracy (μm)	Contact Point		Measuring force less than (N)
					Dia (mm)	Parallelism (μm)	
G-6C	0.001	0~1	20	±5	5	3	1.8
G-7C	0.001	0~5	20	±10	5	3	1.8

Dial Swift Gauge

The dial swift gauge is used for the same purpose as an ordinary micrometer to measure outside sizes.

- The spindle is always pulled upward by the force of the spring. The knob at the top of the gauge is pushed down by finger to clamp an object in measurement.
- It will show its power for measurement of thickness, heights and diameters.



Q-1
Graduation: 0.05mm
Range: 0~25mm

Specifications

Model	Graduation (mm)	Range (mm)	Throat depth (mm)	Accuracy (μm)	Contact Point	
					Dia (mm)	Parallelism (μm)
Q-1	0.05	0~25	30	±100	5.5	10

Paper Thickness Gauge

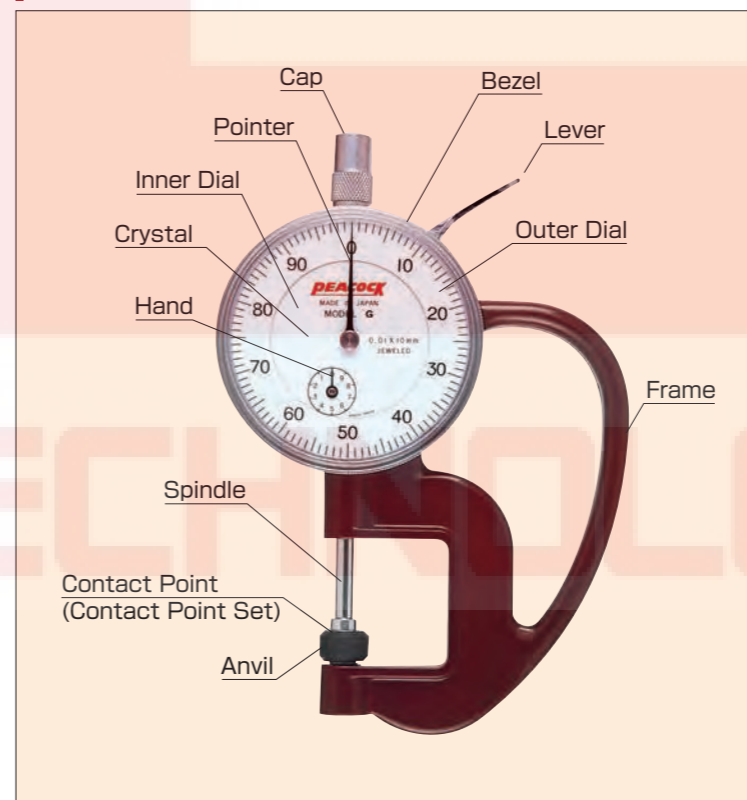
- μm unit on the dial Plate suitable for paper thickness measurement.



PG-10
Graduation: 0.01mm
Range: 0~10mm

- Throat Depth 20mm
- Accuracy ±20μm
- Contact Point dia. 10mm
- Parallelism 5μm
- Measuring force less than 1.8N

Name of each Parts



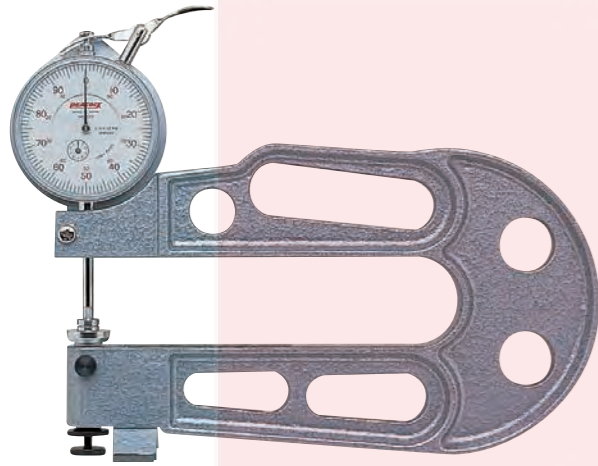
How to adjust setting 0 of Pointer.

- Normally, Pointer and Hand without inserting a work-piece point to 0. There is a possibility the Pointer is not on 0 position due to temperature fluctuation. In this case, set Pointer to 0 by rotating the Bezel.

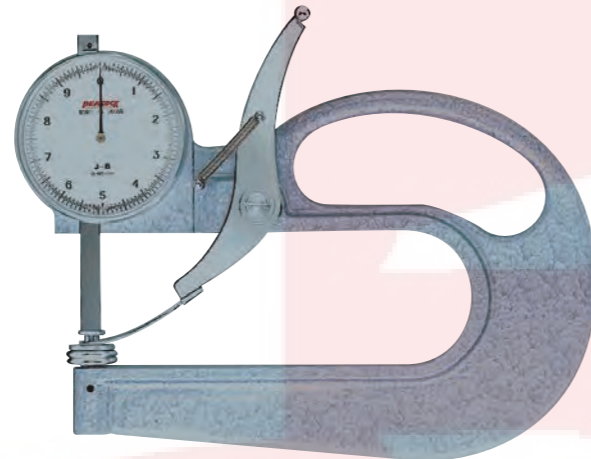


Dial Thickness Gauges (Large type)

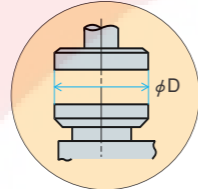
These large thickness gauges having extended throat depth to measure at the center of wide sheets.



J-A
Graduation: 0.01mm
Range: 0~20mm
● The gauge sits by stand
● ϕ 10mm flat contact point and ϕ 20mm anvil (Metal)



J-B
Graduation: 0.05mm
Range: 0~35mm
● ϕ 20mm flat contact point and anvil (Metal)



Custom order available

Optional ϕ 30,40 and 50mm contact points and anvils are available. Please specify material for contact point and anvil, either Metal (SK) material or aluminum (AL).

Specifications

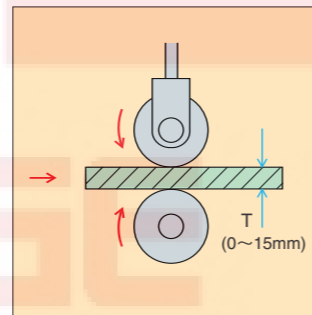
Model	Graduation (mm)	Range (mm)	Throat depth (mm)	Accuracy (μ m)	Contact Point		Measuring force less than (N)
					Dia (mm)	Parallelism (μ m)	
J-A	0.01	0~20	150	\pm 22	10	5	2.0
J-B	0.05	0~35	140	\pm 100	20	25	3.0

Dial Thickness Gauge Roller type

Special gauges for measuring of horizontally sliding a gauge with an object to be in inspected laid since the contact point and anvil are made with the roller. Convenient to continuously measuring thickness of thin objects, paper, rubber and film etc.



HR-1



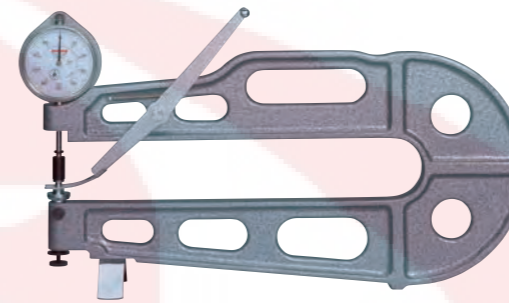
Specifications

Model	Graduation (mm)	Range (mm)	Throat depth (mm)	Accuracy (μ m)	Roller contact points			Measuring force less than (N)
					OD (mm)	Width (mm)	Parallelism (μ m)	
HR-1	0.01	0~15	70	\pm 22	22	7	10	2.0

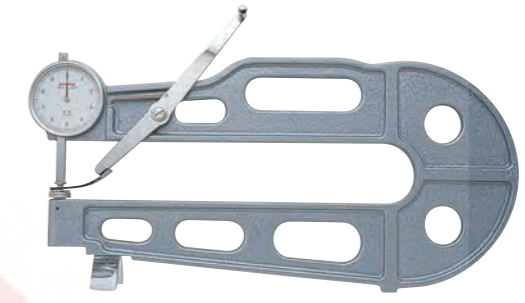
Dial Sheet Gauges

0.01mm and 0.05mm

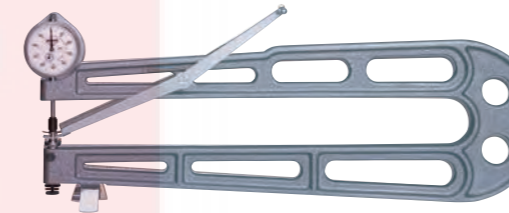
● The sheet gauges can measure wide sheets since the throat depth of this gauges having 300, 500 and 690mm.



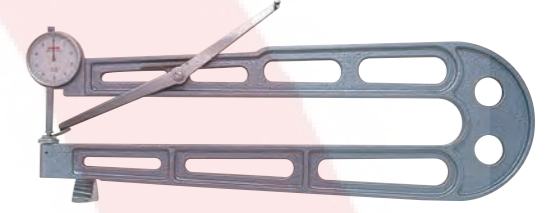
K-1
Graduation: 0.01mm
Range: 0~20mm
● ϕ 10mm flat contact point and ϕ 20mm anvil (Metal)



K-2
Graduation: 0.05mm
Range: 0~35mm
● ϕ 20mm flat contact point and anvil (Metal)



K-3
Graduation: 0.01mm
Range: 0~20mm
● ϕ 10mm flat contact point and ϕ 20mm anvil (Metal)



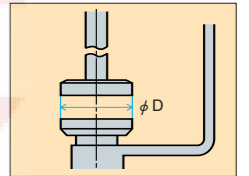
K-4
Graduation: 0.05mm
Range: 0~50mm
● ϕ 25mm flat contact point and anvil (Metal)

Custom order available

Optional ϕ 20, 30, 40 and 50mm Contact Point and Anvils are available. Please specify material for Contact Point and Anvil, Metal (SK) or Aluminum (AL).

Examples

K-1	with ϕ 20mm Flat Contact & Anvil SK or AL.	K-2	with ϕ 20mm Flat Contact & Anvil AL (SK is standard).
	with ϕ 30mm Flat Contact & Anvil SK or AL.		with ϕ 30mm Flat Contact & Anvil SK or AL.
	with ϕ 40mm Flat Contact & Anvil SK or AL.		with ϕ 40mm Flat Contact & Anvil SK or AL.
K-3	with ϕ 50mm Flat Contact & Anvil SK or AL.	K-4	with ϕ 50mm Flat Contact & Anvil SK or AL.
	with ϕ 20mm Flat Contact & Anvil SK or AL.		with ϕ 20mm Flat Contact & Anvil SK or AL.
	with ϕ 30mm Flat Contact & Anvil SK or AL.		with ϕ 30mm Flat Contact & Anvil SK or AL.
	with ϕ 40mm Flat Contact & Anvil SK or AL.		with ϕ 40mm Flat Contact & Anvil SK or AL.
	with ϕ 50mm Flat Contact & Anvil SK or AL.		with ϕ 50mm Flat Contact & Anvil SK or AL.



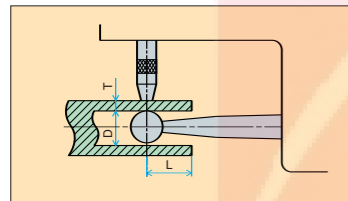
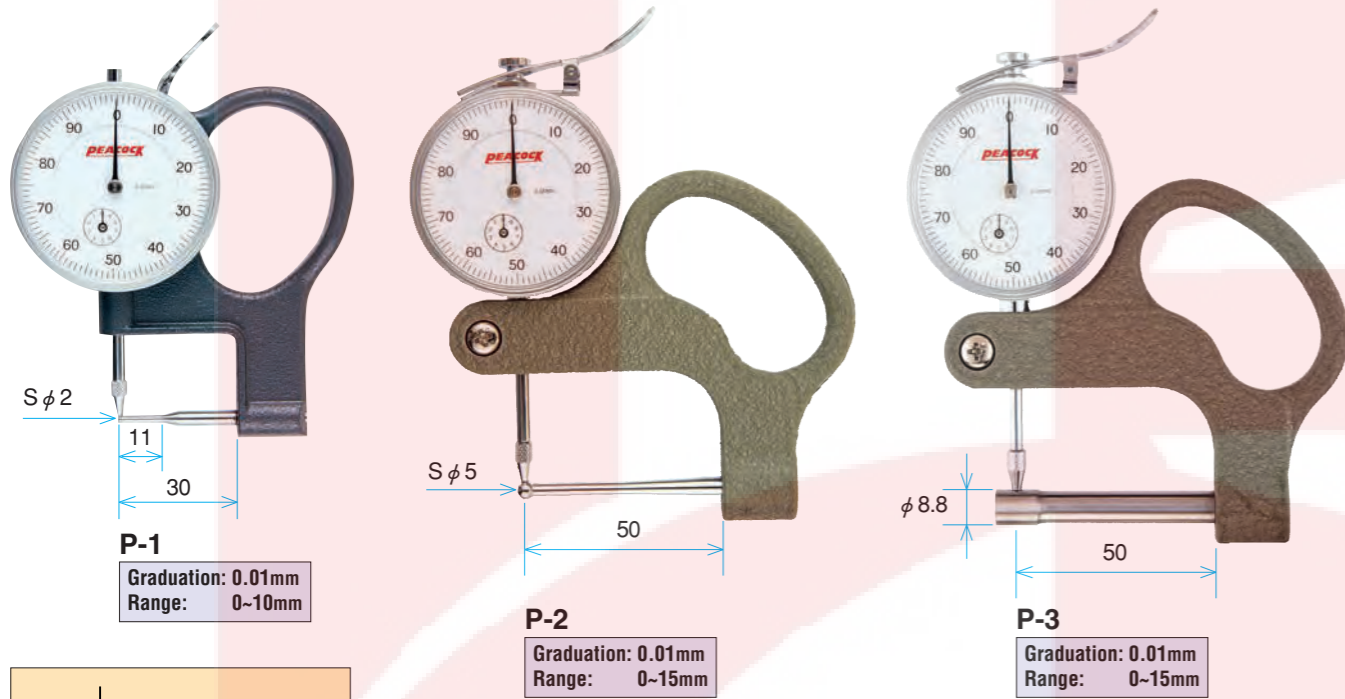
Specifications

Model	Graduation (mm)	Range (mm)	Throat depth (mm)	Accuracy (μ m)	Contact Point		Measuring force less than (N)
					Dia (mm)	Parallelism (μ m)	
K-1	0.01	0~20	300	\pm 22	10	10	2.0
K-2	0.05	0~35	300	\pm 100	20	25	3.0
K-3	0.01	0~20	500	\pm 22	10	10	3.0
K-4	0.05	0~50	500	\pm 100	25	25	3.0



Dial Pipe Gauges

Special gauges for measuring wall thickness of pipes.

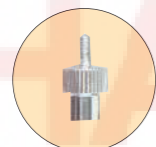


Specifications

Model	Graduation (mm)	Range (mm)	Accuracy (μm)	Pipe size measurable (mm)			Measuring force less than (N)
				Minimum bore D	Maximum wall thickness T	Depth L	
P-1	0.01	0~10	±20	2.5	10	10	1.8
P-2	0.01	0~15	±22	5.1	15	50	1.8
P-3	0.01	0~15	±22	9.0	15	50	1.8

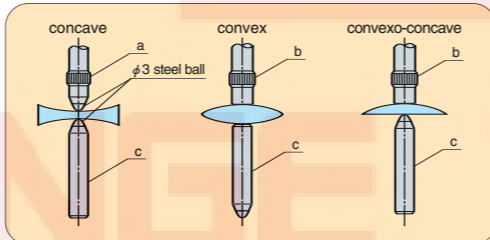
Dial Lens Gauge

The dial lens gauge can measure convex, concave, convexo-concave and any other lenses in the same gauge by replacing the two contact points and the anvil.



Replaceable Flat contact point (Standard accessory)

Applied examples



GL
Graduation: 0.01mm
Range: 10mm

Specifications

Model	Graduation (mm)	Range (mm)	Accuracy (μm)	Throat depth (mm)	maximum lens diameter measurable (mm)	maximum lens thickness measurable (mm)	Measuring force less than (N)
GL	0.01	10	±20	30	φ 59	※ 20	1.8

※ Anvil side is adjustable.

Dial Thickness Gauge (Special Order)

● Snap type (Spindle is manually pushed down)

We manufacture with low or high measuring force according to your needs.

- Maximum Measuring force under 2.4N (240gf)
- Minimum Measuring force over 0.4N (40gf)

Please specify the desired Measuring force.

● Lever type (example of use)

● For measuring thickness of hair

● For measuring thickness of paper

● For different applications, the shape of the contact point and anvil can be special ordered.

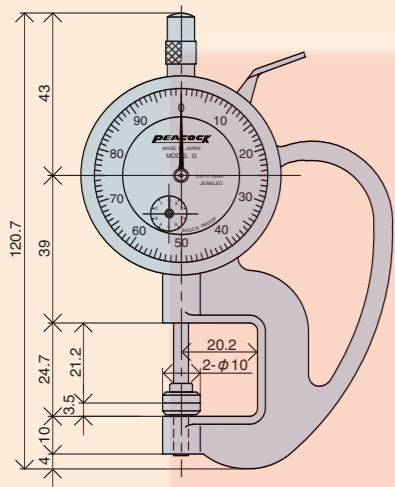
- Dial face with personal logo
- Special order dial faces

Examples of modification for contact point and anvil

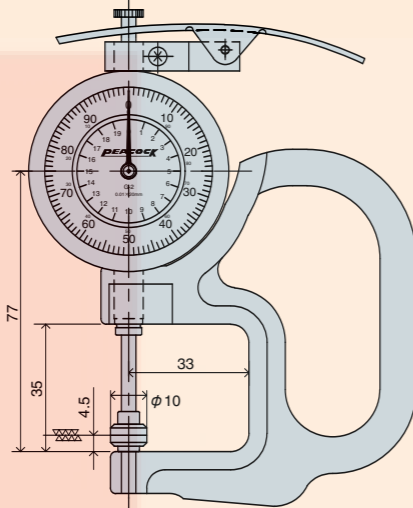
- Both Contact Point and Anvil needle type**
Please specify φ D
- Both Contact Point and Anvil ball type**
S φ 2.4
- Both Contact Point and Anvil are 20mm diameter flat type**
(also available in φ 25 and 30mm)
Please specify D
- Both Contact Point and Anvil are horizontal blade type**
Please specify φ D and thickness.
- Both Contact Point and Anvil are vertical blade type**
Please specify φ D and thickness.
- Needle type Contact Point and Flat type Anvil.**
D = 10mm diameter (also available in φ 20, 25 and 30mm)
- Ball type Contact Point and Flat type Anvil.**
D = 10mm diameter (also available in φ 20, 25 and 30mm)

Dial Thickness Gauges / Dial Lens Gauge / Dial Pipe Gauges

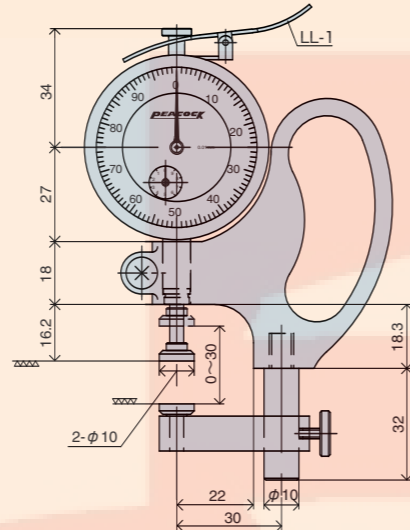
Dial Thickness Gauges / Dial Lens Gauge / Dial Pipe Gauges



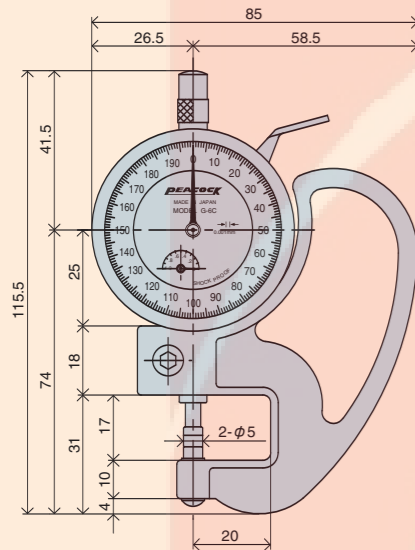
G/G-0.4N/G-2.4N



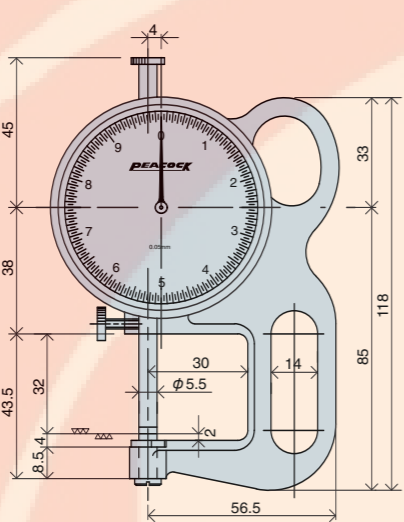
G-2



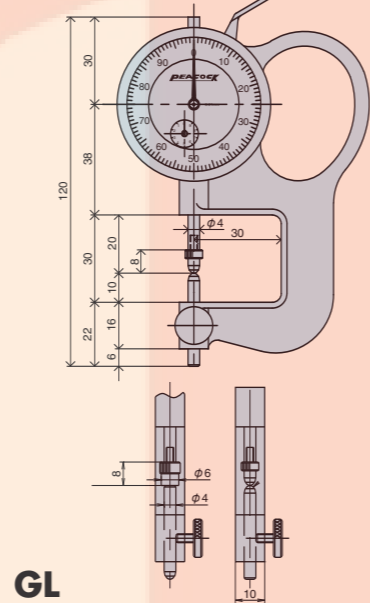
G-3



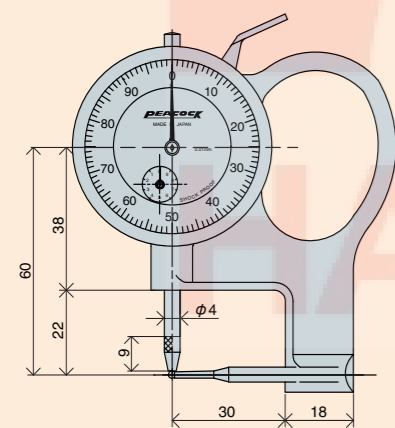
G-6C



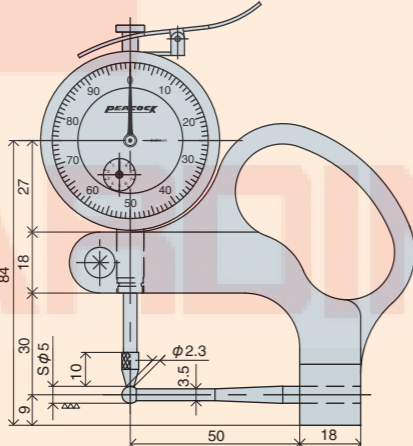
Q-1



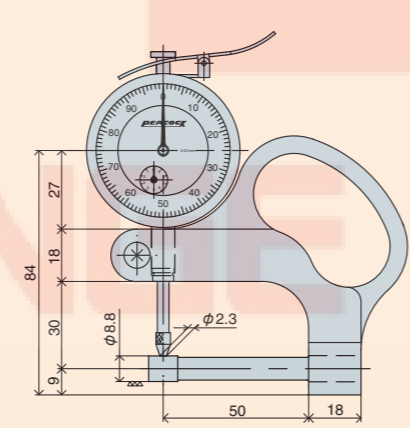
GL



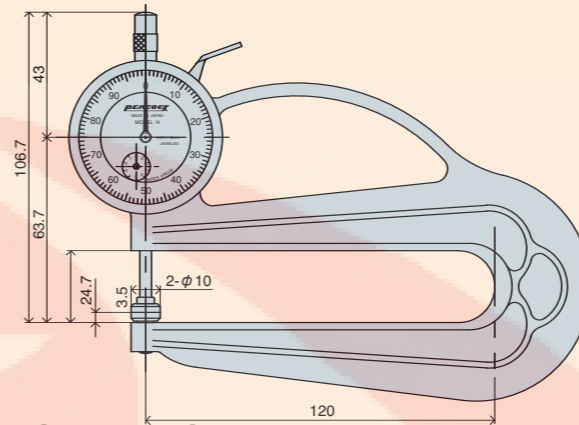
P-1



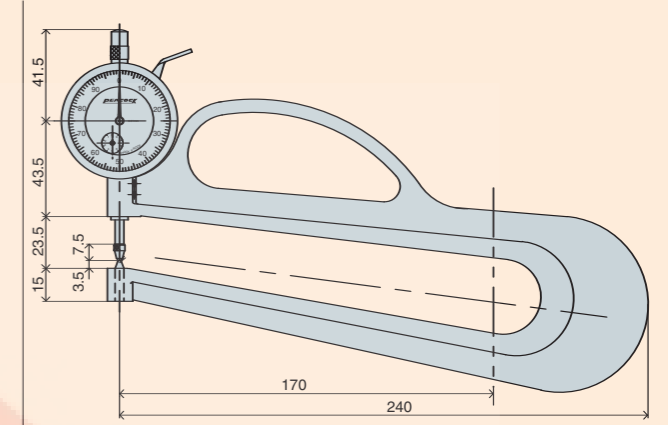
P-2



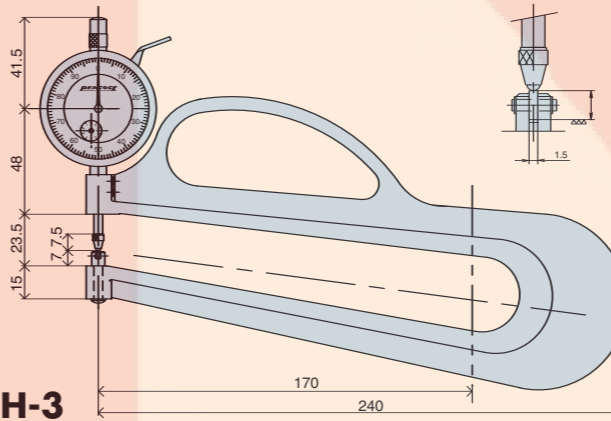
P-3



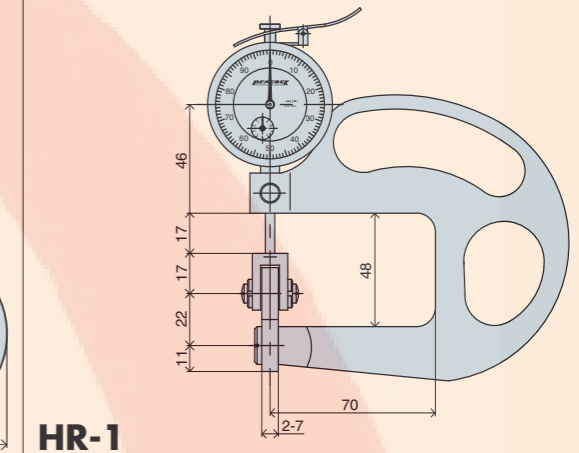
H/H-0.4N/H-2.4N



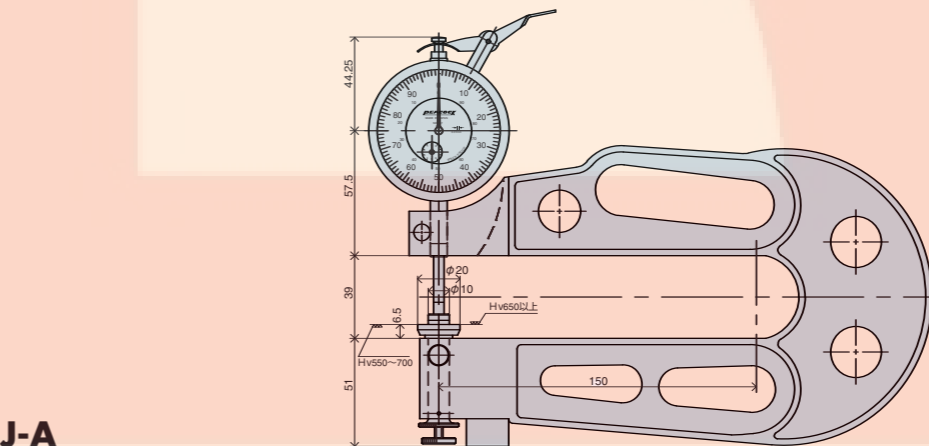
H-2



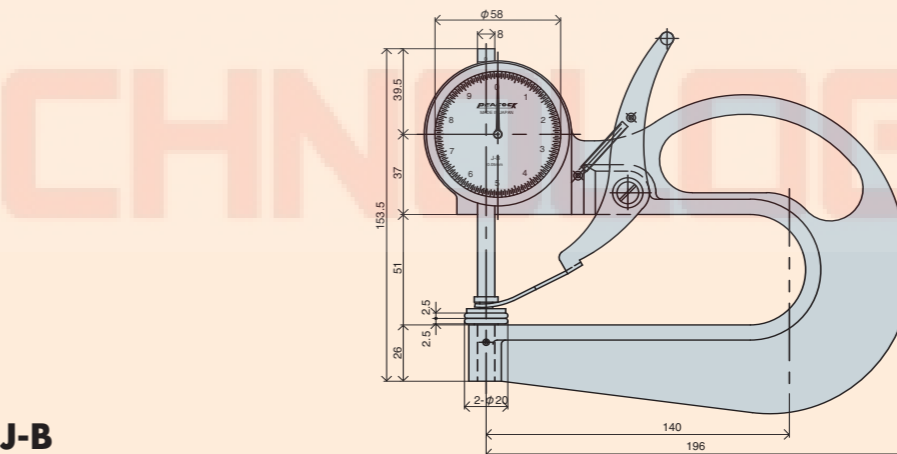
H-3



HR-1



J-A



J-B



TECHNOLOGY

Dial Upright Gauges

R series

Best suited for measuring precision parts and testing materials like rubber, leather, fabric and plastic etc. Rubber, leather, urethane and film can be easily measured by this system.

- The table of R1 series are adjustable up and down by the nut installed side way.
- The dial gauge is affixed to the body.



R1-A
Graduation: 0.001mm
Range: 2mm
Effective measuring range: 10mm



R1-B
Graduation: 0.01mm
Range: 10mm
Effective measuring range: 25mm



R1-C
Graduation: 0.01mm
Range: 20mm
Effective measuring range: 20mm

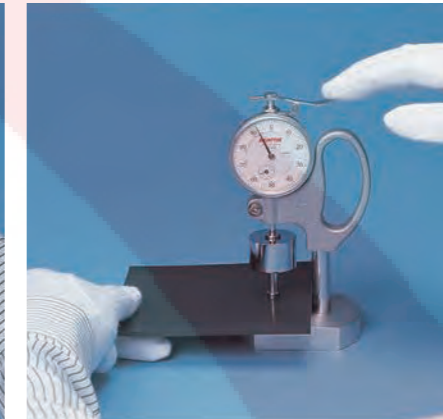
Specifications

Model	Dial Indicator (standard attachments)			Indication error (μm)	Table diameter (mm)	Contact point dia. (mm)	Measuring force less than (N)	Measuring depth (mm)	Effective measuring range (mm)	Total height (mm)
	Gauge installed	Range (mm)	Graduation (mm)							
R1-A	25F-RE	2	0.001	±7	40	5	1.5	55	10	191
R1-B	107F-RE	10	0.01	±15	40	5	1.4	55	25	190
R1-C	207F-PL	20	0.01	±22	40	5	2.0	55	20	210

Constant Pressure Thickness Gauges (Special Order)

- Constant Pressure Thickness Gauges can be made to comply with JIS by attaching exact weights that create the specific pressures needed to measure different materials.
- Three types (FFG. FFA. FFD series) are available to meet your measurement.

Compact Handy type FFG series (PAT.No.3073347)



Measuring material	JIS No.	Applied Model
Shrink package film	Z1709	FFG-1
Polyethylene package film	Z1702	FFG-1
Ethylene film	K6783	FFG-1
Polyvinyl chloride film	K6732	FFG-2
Sheet Rubber	K6328	FFG-4
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)	K6250A	FFG-5
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)	K6250A	FFG-6
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)	K6250A	FFG-7
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)	K6250A	FFG-8
Urethane form	K6402	FFG-9
Common fabric (basic / fuzzy material)	L1096	FFG-11
Adhesive interlined cloth (common weave / common knit / non-woven)	L1086	FFG-11
Stockinet (common knit)	L1018	FFG-11
Unwoven / interlined cloth (old standard)	L1085	FFG-12
Adhesive interlined cloth (non-woven)	L1086	FFG-12

Specifications

Model	Graduation (mm)	Range (mm)	Indication error (μm)	Throat depth (mm)	Contact Point dia (ømm)	Anvil dia (ømm)	Measuring force N(gf)	Parallelism (μm)
FFG-1	0.001	2	±10	24	5	30	1.25±0.15 (125±15)	5
FFG-2	0.001	2	±10	24	5	30	less than 0.8 (less than 80)	5
FFG-4	0.01	10	±22	24	10	30	less than 0.8 (less than 80)	7
FFG-5	0.01	7	±22	24	5 (19.625mm²)	30	0.2±0.04 (20±4)	5
FFG-6	0.01	10	±22	24	8 (50.24mm²)	30	0.51±0.1 (51±10)	7
FFG-7	0.01	10	±22	24	5 (19.625mm²)	30	0.44±0.1 (44±10)	5
FFG-8	0.01	10	±22	24	8 (50.24mm²)	30	1.13±0.26 (113±26)	7
FFG-9	0.01	10	±22	24	35.7 (10cm²)	40	less than 0.37 (less than 37)	25
FFG-11	0.01	10	±22	24	25.2 (5cm²)	30	less than 0.35 (less than 35)	20
FFG-12	0.01	10	±22	24	16 (2cm²)	30	less than 0.4 (less than 40)	15

Constant Pressure Thickness Gauges (Order)

Stand type FFA series



FFA-7

Measuring material	JIS No.	Applied Model
Shrink package film	Z1709	FFA-1
Polyethylene package film	Z1702	FFA-1
Ethylene film	K6783	FFA-1
Polyvinyl chloride film	K6732	FFA-2
Leather	K6550	FFA-3
Artificial leather	K6505	FFA-3
Sheet rubber	K6328	FFA-4
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)	K6250A	FFA-5
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)	K6250A	FFA-6
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)	K6250A	FFA-7
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)	K6250A	FFA-8
Urethane form	K6402	FFA-9
Common fabric (basic / fuzzy material)	L1096	FFA-10
Adhesive interlined cloth (common weave / common knit / non-woven)	L1086	FFA-10
Common fabric (basic / fuzzy material)	L1096	FFA-11
Adhesive interlined cloth (common weave / common knit / non-woven)	L1086	FFA-11
Stockinet (common knit)	L1018	FFA-11
Unwoven / interlined cloth (old standard)	L1085	FFA-12
Adhesive interlined cloth (non-woven)	L1086	FFA-12
Tensile properties of plastics	K7113	FFA-13

Specifications

Model	Graduation (mm)	Range (mm)	Indication error (μm)	Throat depth (mm)	Contact Point dia (ømm)	Anvil dia (ømm)	Spindle lifting	Stand type	Measuring force N(gf)	Parallelism (μm)
FFA-1	0.001	2	±8	55	5	40	Lever	R1 type	1.25±0.15 (125±15)	5
FFA-2	0.001	2	±8	55	5	40	Release	R1 type	less than 0.8 (less than 80)	5
FFA-3	0.01	10	±20	55	10	50	Lever	SIS-6C special	3.93±0.1 (393±10)	10
FFA-4	0.01	10	±20	55	10	50	Release	SIS-6C	less than 0.8 (less than 80)	7
FFA-5	0.01	7	±20	55	5 (19.625mm²)	50	Release	SIS-6C	0.2±0.04 (20±4)	5
FFA-6	0.01	10	±20	55	8 (50.24mm²)	50	Release	SIS-6C	0.51±0.1 (51±10)	7
FFA-7	0.01	10	±20	55	5 (19.625mm²)	50	Release	SIS-6C	0.44±0.1 (44±10)	5
FFA-8	0.01	10	±20	55	8 (50.24mm²)	50	Lever	SIS-6C	1.13±0.26 (113±26)	7
FFA-9	0.01	10	±20	55	35.7 (10cm²)	50	Release	SIS-6C	less than 0.37 (less than 37)	25
FFA-10	0.01	10	±20	55	11.3 (1cm²)	50	Lever	SIS-6C	less than 2.4 (less than 240)	10
FFA-11	0.01	10	±20	55	25.2 (5cm²)	50	Release	SIS-6C	less than 0.35 (less than 35)	20
FFA-12	0.01	10	±20	55	16 (2cm²)	50	Release	SIS-6C	less than 0.4 (less than 40)	15
FFA-13	0.01	10	±20	55	10 (78.5cm²)	50	Lever	SIS-6C	less than 1.57 (less than 157)	7

Digital type FFD series (with data output)



FFD-1

Measuring material	JIS No.	Applied Model
Shrink package film	Z1709	FFD-1
Polyethylene package film	Z1702	FFD-1
Ethylene film	K6783	FFD-1
Polyvinyl chloride film	K6732	FFD-2
Leather	K6550	FFD-3
Artificial leather	K6505	FFD-3
Sheet rubber	K6328	FFD-4
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)	K6250A	FFD-6
Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)	K6250A	FFD-7
Vulcanized rubber / Thermoplastic rubber	K6250A	FFD-8
Common fabric (basic / fuzzy material)	L1096	FFD-10
Adhesive interlined cloth (common weave / common knit / non-woven)	L1086	FFD-10
Tensile properties of plastics	K7113	FFD-13

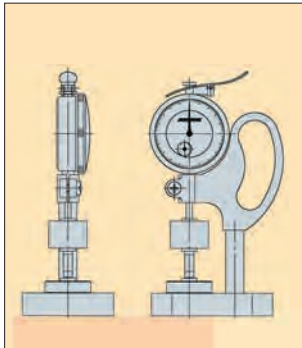
Specifications

Model	Range (mm)	Indication error (μm)	Graduation (mm)	Display	Power supply	Data output	Throat depth (mm)	Contact Point dia (ømm)	Anvil dia (ømm)	Measuring force N(gf)	Parallelism (μm)
FFD-1	20	±4	0.001	5digit	AC Adapter (100V to 240V)	RS-232C	55	5	40	1.25±0.15 (125±15)	5
FFD-2	20	±4	0.001				55	5	40	less than 0.8 (less than 80)	5
FFD-3	20	±20	0.01	4digit			55	10	50	3.93±0.1 (393±10)	10
FFD-4	20	±20	0.01				55	10	50	less than 0.8 (less than 80)	10
FFD-6	20	±20	0.01				55	8 (50.24mm²)	50	0.51±0.1 (51±10)	10
FFD-7	20	±20	0.01				55	5 (19.625mm²)	50	0.44±0.1 (44±10)	10
FFD-8	20	±20	0.01				55	8 (50.24mm²)	50	1.13±0.26 (113±26)	10
FFD-10	20	±20	0.01				55	11.3 (1cm²)	50	less than 2.4 (less than 240)	10
FFD-13	20	±20	0.01				55	10 (78.5mm²)	50	less than 1.57 (less than 157)	10



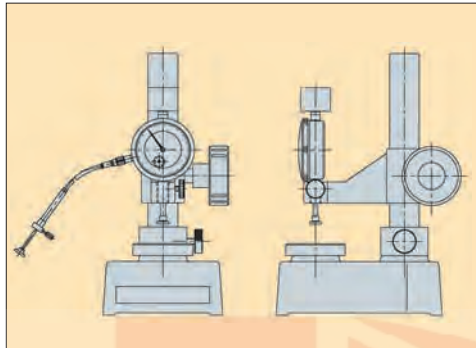
Special Order Available

FFG Series



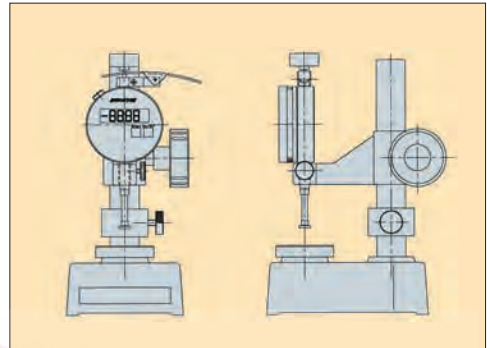
Handy type

FFA Series



Stand type

FFD Series



Digital type

Please specify what you want to measure as following:

1. Material of measurement work-piece:

2. JIS Standard No. or its equivalent standard:

3. Resolution: 0.01mm, 0.001mm

4. Measuring force:

5. Diameter of Contact Point (ex. $\phi 5$, $\phi 10$ mm)

6. Type of Constant Pressure Thickness Gauge

Please check

FFG Handy type

FFA Stand type

FFD Digital type

7. Other requirement:
