



Dial Gauges

- One Revolution Dial Gauges
- Standard Dial Gauges
(0.01mm, 0.005mm, 0.001mm)
- Long Travel Dial Gauges
(0.01mm, 0.05mm, 0.1mm)
- Miniature Dial Gauges
(0.001mm, 0.005mm, 0.01mm)
- Back Plunger Type Dial Gauges
- Accessories
- Technical Data
- Marking Service


HARDINGE TECHNOLOGY

One Revolution Dial Gauges JIS B 7503 : 2017

0.001mm and 0.01mm Z series


- These are high-accuracy dial gauges with the pointer giving less than a full turn that can resist rigorous continuous measurement. The long stem is made of stainless steel, is high in strength and is malfunction-free due to fastening. The dial faces except No. 18 and 17B are easy to read with green and orange (dead zone)
- Jeweled bearing is installed to our general Dial Gauges.

0.001mm Type




15Z
Graduation: 0.001mm
Range: 0.16mm

- Contact point (XB-1)
- Flat back



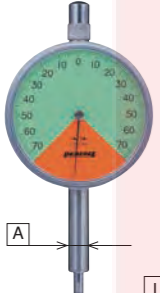
15Z-SWF
Graduation: 0.001mm
Range: 0.16mm

- Contact point (XB-2A)
- Oil-proof type
- Flat back



5Z-XB
Graduation: 0.001mm
Range: 0.14mm


- Contact point (XB-1)
- Flat back



5Z
Graduation: 0.001mm
Range: 0.14mm


- Long stem
- Flat back

⊥ 0.005 | A
φ 4.0 Flat carbide contact point (XB-406)



18
Graduation: 0.001mm
Range: 0.16mm


- Long stem
- Contact point (XB-1)
- Oil-proof type
- Flat crystal
- Flat back



15DZ
Graduation: 0.001mm
Range: 0.16mm


- Large dial face (φ 66.5)
- Contact point (XB-1)
- Flat back

0.01mm Type




17Z
Graduation: 0.01mm
Range: 0.8mm

- Contact point (XB-1)
- Flat back




17Z-SWA
Graduation: 0.01mm
Range: 0.8mm

- Oil-proof type
- Contact point (XB-2)
- Flat back



107Z-XB
Graduation: 0.01mm
Range: 0.8mm


- Long stem
- Contact point (XB-1)
- Flat back



107Z
Graduation: 0.01mm
Range: 0.8mm


- Long stem
- Flat back

⊥ 0.005 | A
φ 4.0 Flat carbide contact point (XB-406)



17B
Graduation: 0.01mm
Range: 0.8mm

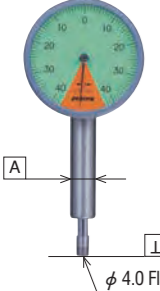
- Contact point (X-1)
- Lug back



117Z
Graduation: 0.01mm
Range: 1.0mm

- Contact point (XB-1)
- Flat back


Miniature Type



47Z
Graduation: 0.01mm
Range: 0.8mm


- Long stem
- Flat back

⊥ 0.005 | A
φ 4.0 Flat carbide contact point (XB-406)



47Z-XB
Graduation: 0.01mm
Range: 0.8mm

- Contact point (XB-1)
- Flat back



47SZ
Graduation: 0.01mm
Range: 0.8mm

- Contact point (XB-1)
- Flat back



New

- 147Z**
Graduation: 0.01mm
Range: 1.0mm
- Small dial face (φ 36)
 - Contact point (XB-1)
 - Flat back



New

- 36Z**
Graduation: 0.005mm
Range: 0.4mm
- Contact point (XB-1)
 - Flat back



- 196Z**
Graduation: 0.01mm
Range: 0.8mm
- Stem φ 8mm
 - Pointer giving less than one revolution
 - Contact point (X-112)

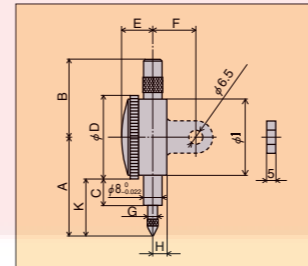
Specifications

Model	Graduation (mm)	Range (mm) (Free stroke)	Reading	Indication error (MPE)				Hysteresis error	Repeatability	Measuring force less than (N)
				1/10 revolution	1/2 revolution	One revolution	Whole measuring range			
15Z	0.001	0.16 (3.0)	80 - 0 - 80	2	—	—	5	2	0.5	1.5
15Z-SWF	0.001	0.16 (3.0)	80 - 0 - 80	2	—	—	5	2	0.5	1.5
5Z-XB	0.001	0.14 (3.0)	70 - 0 - 70	2	—	—	5	2	0.5	1.5
5Z	0.001	0.14 (3.0)	70 - 0 - 70	2	—	—	5	2	0.5	1.5
18	0.001	0.16 (3.0)	80 - 0 - 80	2	—	—	5	2	0.5	1.5
17Z	0.01	0.8 (7.0)	40 - 0 - 40	5	—	—	8	3	3	1.4
17Z-SWA	0.01	0.8 (7.0)	40 - 0 - 40	5	—	—	8	3	3	1.4
107Z-XB	0.01	0.8 (7.0)	40 - 0 - 40	5	—	—	8	3	3	1.4
107Z	0.01	0.8 (7.0)	40 - 0 - 40	5	—	—	8	3	3	1.4
17B	0.01	0.8 (7.0)	40 - 0 - 40	5	—	—	8	3	3	1.4
15DZ	0.001	0.16 (3.0)	80 - 0 - 80	2	—	—	5	2	0.5	1.5
117Z	0.01	1.0 (7.0)	50 - 0 - 50	5	—	—	8	3	3	1.4
47Z	0.01	0.8 (4.0)	40 - 0 - 40	8	—	—	15	4	3	1.4
47Z-XB	0.01	0.8 (4.0)	40 - 0 - 40	8	—	—	15	4	3	1.4
47SZ	0.01	0.8 (4.0)	40 - 0 - 40	8	—	—	15	4	3	1.4
196Z	0.01	0.8 (4.0)	40 - 0 - 40	8	—	—	15	4	3	1.4
147Z	0.01	1.0 (4.0)	50 - 0 - 50	8	—	—	15	4	3	1.4
36Z	0.005	0.4 (3.0)	20 - 0 - 20	5	—	—	12	3	3	1.4

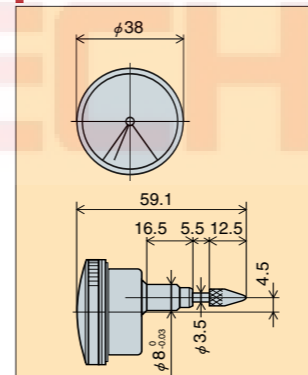
Note- All Dial Indicators (except for 196Z) listed above have flat back as standard.

Note- Lug back Model No. : 47ZL, 47Z-XBL, 47SZL, 147ZL, 36ZL.

Dimensions



Dimensions 196Z



Sizes

Model		A	B	C	D	E	F	G	H	I	K
Flat back type	Lug back type										
15Z	15ZL	60	41.5	18.5	53	14.5	(20)	4	6.5	49	33.5
15Z-SWF	15Z-SWFL	62.5									36
5Z-XB	5Z-XBL	69.4									42.9
5Z	5ZL	66.4									39.9
18	18L	69.4									41.9
17Z	17ZL	65									38.5
17Z-SWA	17Z-SWAL	65									38.5
107Z-XB	107Z-XBL	69.4									42.9
107Z	107ZL	66.4									39.9
17BF	17B	65	40.5	18.5			20(-)				38.5
117Z	117ZL	65	41.5	18.5			(20)				38.5
15DZ	15DZL	69.4	41.5	23.7	66.5	15.5		7.6			36
47Z	47ZL	58.9		30				4	5.8		40.9
47Z-XB	47Z-XBL	61.9								32	43.9
47SZ	47SZL	41.1			36	13	(15)				23.1
147Z	147ZL	41.1		9.7				3.5	6.5		23.1
36Z	36ZL	60	41.5	18.5	53	14.5	(20)	4		49	33.5

Note- () indicates the model number of lug back and its size. Both lug back and flat back share the same size except for the items listed under column F.

Standard Dial Gauges JIS B 7503 : 2017

0.001mm and 0.005mm

Dial Gauges are widely used manufacturing plants.

- The shock-proof mechanism prevents gears from damage due to shocks arisen by abruptly pushing up the spindle.
- The turning section of the outer frame sealed by the O-ring and the back inside sealed by the packing are water-proof and dust-proof in construction.
- The back is increased in strength by four screws, and the lug can be turned 90 degrees in the installation way.
- Jeweled bearing is installed to our general Dial Gauges.

<HG>

High Precision Type



5B-HG
Graduation: 0.001mm
Range: 1mm
● Indication error $\pm 3\mu\text{m}$
● Retrace error 2 μm
● Includes accuracy certification
● Lug back



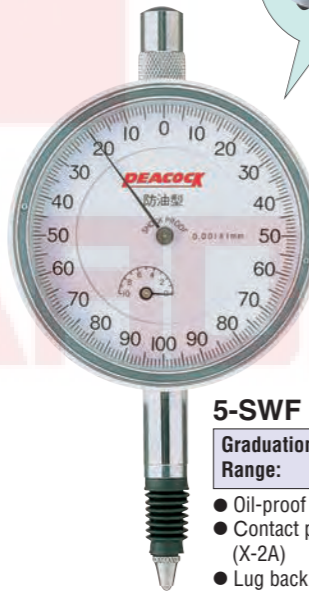
5B
Graduation: 0.001mm
Range: 1mm
● Lug back



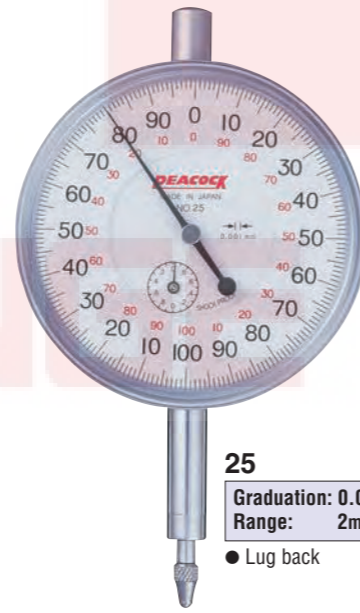
5F
Graduation: 0.001mm
Range: 1mm
● Flat back



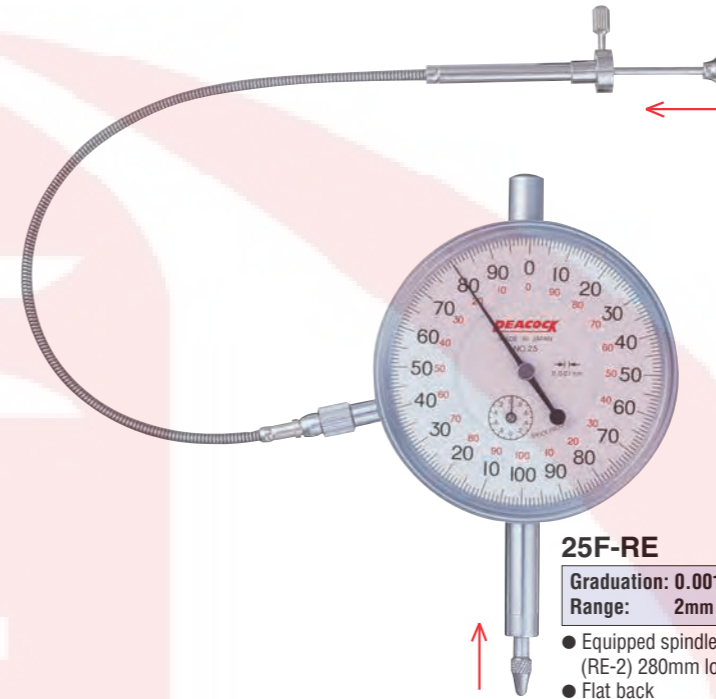
5-DX
Graduation: 0.001mm
Range: 1mm
● Durable type (Spindle $\phi 5\text{mm}$)
● Lug back



5-SWF
Graduation: 0.001mm
Range: 1mm
● Oil-proof type
● Contact point (X-2A)
● Lug back



25
Graduation: 0.001mm
Range: 2mm
● Lug back



25F-RE
Graduation: 0.001mm
Range: 2mm
● Equipped spindle pull-up release (RE-2) 280mm long
● Flat back



25S
Graduation: 0.001mm
Range: 2mm
● Small dial face type ($\phi 55.7\text{mm}$)
● Lug back



55
Graduation: 0.001mm
Range: 5mm
● Lug back



55-DX
Graduation: 0.001mm
Range: 5mm
● Small dial face type ($\phi 57\text{mm}$)
● Lug back



56
Graduation: 0.005mm
Range: 5mm
● Lug back

Specifications

Model	Graduation (mm)	Range (mm)	Reading	Indication error (MPE)				Hysteresis error	Repeatability	Measuring force less than (N)
				1/10 revolution	1/2 revolution	One revolution	Whole measuring range			
5B-HG	0.001	1	0 - 100 - 0	1.6	2.8	3.2	4	1.6	0.5	1.5
5-DX	0.001	1	0 - 100 - 0	2.5	3	4	5	3	0.5	1.5
5B	0.001	1	0 - 100 - 0	2	3.5	4	5	2	0.5	1.5
5F	0.001	1	0 - 100 - 0	2	3.5	4	5	2	0.5	1.5
5-SWF	0.001	1	0 - 100 - 0	2	3.5	4	5	2	0.5	1.5
25	0.001	2	$\pm 0 - 100 - 100$	2	4	5	7	2	0.5	1.5
25F-RE	0.001	2	$\pm 0 - 100 - 100$	2	4	5	7	2	0.5	1.5
25S	0.001	2	0 - 100 - 0	2	4	5	7	2	0.5	1.5
55	0.001	5	0 - 100 - 0	3.5	5	6	10	3	1	1.5
55-DX	0.001	5	0 - 100 - 0	3.5	5	6	10	3	1	1.5
56	0.005	5	0 - 25 - 50	5	9	10	12	3	3	1.5

(unit: μm)

Standard Dial Gauges

1

Standard Dial Gauges

1

Standard Dial Gauges JIS B 7503 : 2017

0.01mm

Dial Gauges are widely used manufacturing plants.

- The stem, made of SK quench hardened with strength, is malfunction-free due to fastening.
- The shock-proof mechanism prevents gears from damage due to shocks arisen by abruptly pushing up the spindle.
- The turning section of the outer frame sealed by the O-ring and the back inside sealed by the packing are waterproof and dust-proof in construction.
- The back is increased in strength by four screws, and the lug can be turned 90 degrees in the installation way.
- Jeweled bearing is installed to our general Dial Gauges.

<HG>

High Precision Type



107-HG
Graduation: 0.01mm
Range: 10mm
● Indication error $\pm 10\mu\text{m}$
● Retrace error $4\mu\text{m}$
● Includes accuracy certification
● Lug back



107-DX
Graduation: 0.01mm
Range: 10mm
● Durable type (Spindle $\phi 5\text{mm}$)
● Lug back



107
Graduation: 0.01mm
Range: 10mm
● Lug back



107F
Graduation: 0.01mm
Range: 10mm
● Flat back



107-SWA
Graduation: 0.01mm
Range: 10mm
● Oil-proof type
● Flat crystal
● Contact point (X-2A)
● Lug back



107-BL
Graduation: 0.01mm
Range: 10mm
● Spindle pull-up back lever
● Lug back



107F-RE
Graduation: 0.01mm
Range: 10mm
● Spindle pull-up release (RE-1) 280 mm long
● Flat back



107-LL
Graduation: 0.01mm
Range: 10mm
● Spindle lifting lever (LL-1)
● Lug back



107W
Graduation: 0.01mm
Range: 10mm
● Two center pointers (The hand is long enough to facilitate easy reading of measured values.)
● Lug back



107F-T
Graduation: 0.01mm
Range: 10mm
● Reversed dial
● Flat back



107-E
Graduation: 0.01mm
Range: 10mm
● Low-measuring force (initial pressure 0.4N)
● Lug back



17
Graduation: 0.01mm
Range: 1mm
● Balanced dial
● Lug back



57-SWA
Graduation: 0.01mm
Range: 5mm
● Oil-proof type
● Flat crystal
● Contact point (X-2)
● Lug back



57
Graduation: 0.01mm
Range: 5mm
● Lug back



57F
Graduation: 0.01mm
Range: 5mm
● Flat back



57B
Graduation: 0.01mm
Range: 5mm
● Balanced dial
● Flat back

Specifications

Model	Graduation (mm)	Range (mm)	Reading	Indication error (MPE)				Hysteresis error	Repeatability	Measuring force less than (N)
				1/10 revolution	1/2 revolution	One revolution	Whole measuring range			
107-HG	0.01	10	$\pm 0 - 50 - 100$	4	7	8	12	2.5	3	1.4
107-DX	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107F	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107-SWA	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107-BL	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107F-RE	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107-LL	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107W	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	1.4
107F-T	0.01	10	$\pm 100 - 50 - 0$	5	9	10	15	3	3	1.4
107-E	0.01	10	$\pm 0 - 50 - 100$	5	9	10	15	3	3	initial pressure 0.4
17	0.01	1	0 - 50 - 0	5	8	8	8	3	4	1.4
57-SWA	0.01	5	$\pm 0 - 50 - 100$	5	9	10	12	3	3	1.4
57	0.01	5	$\pm 0 - 50 - 100$	5	9	10	12	3	3	1.4
57F	0.01	5	$\pm 0 - 50 - 100$	5	9	10	12	3	3	1.4
57B	0.01	5	0 - 50 - 0	5	9	10	12	3	3	1.4

(unit: μm)

Standard Dial Gauges

Standard Dial Gauges

HARDENGE TECHNOLOGY

Long Travel Dial Gauges JIS B 7503 : 2017

0.01mm, 0.05mm and 0.1mm

Dial Gauges are widely used manufacturing plants.

- The stem, made of SK quench hardened with strength, is malfunction-free due to fastening.
- The shock-proof mechanism prevents gears from damage due to shocks arisen by abruptly pushing up the spindle.
- The turning section of the outer frame sealed by the O-ring and the back inside sealed by the packing are water-proof and dust-proof in construction.
- The back is increased in strength by four screws, and the lug can be turned 90 degrees in the installation way.
- Jeweled bearing is installed to our general Dial Gauges.

The position of the lever can be installed either right or left.



207
Graduation: 0.01mm
Range: 20mm
● Lug back



207F-PL
Graduation: 0.01mm
Range: 20mm
● Pump type spindle lifting lever
● Flat back



207F-T
Graduation: 0.01mm
Range: 20mm
● Reversed dial
● Flat back



207S-LL
Graduation: 0.01mm
Range: 20mm
● Spindle lifting lever (LL-1)
● Small dial face type (φ 53mm)
● Lug back



207S
Graduation: 0.01mm
Range: 20mm
● Small dial face type (φ 53mm)
● Lug back



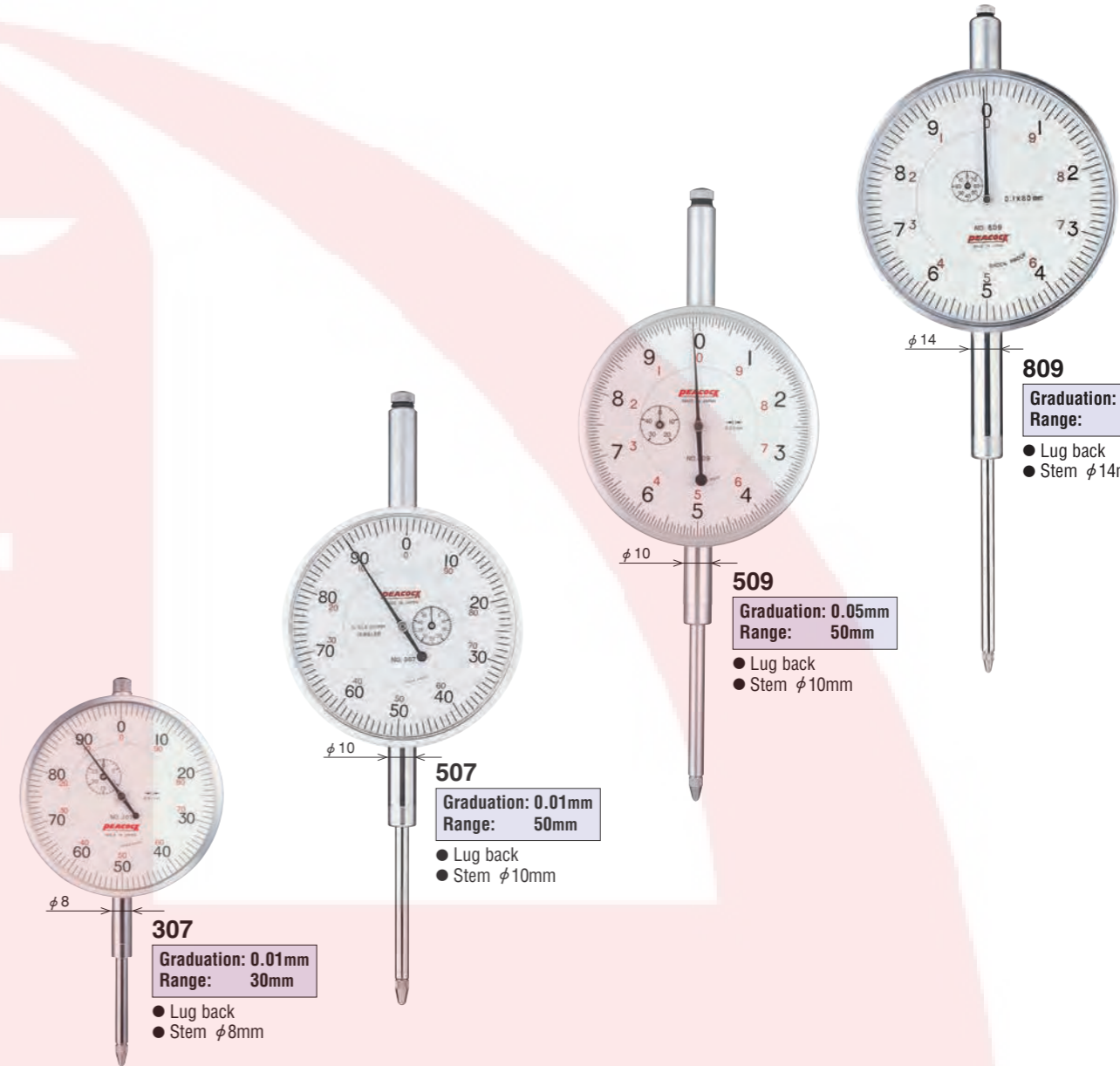
207W
Graduation: 0.01mm
Range: 20mm
● Two center pointers (The hand is long enough to facilitate easy reading of measured values)
● Lug back



207WF-T
Graduation: 0.01mm
Range: 20mm
● Two center pointers (The hand is long enough to facilitate easy reading of measured values)
● Reversed dial
● Flat back



307S
Graduation: 0.01mm
Range: 30mm
● Small dial face type (φ 57mm)
● Contact point (X-2)
● Lug back



Specifications

Model	Graduation (mm)	Range (mm)	Reading	Indication error (MPE)				Hysteresis error	Repeatability	Measuring force less than (N)
				1/10 revolution	1/2 revolution	One revolution	Whole measuring range			
207	0.01	20	±0 - 50 - 100	8	10	15	25	5	4	2.0
207F-PL	0.01	20	±0 - 50 - 100	8	10	15	25	5	4	2.0
207F-T	0.01	20	±100 - 50 - 0	8	10	15	25	5	4	2.0
207S-LL	0.01	20	±0 - 50 - 100	8	10	15	25	5	4	2.0
207S	0.01	20	±0 - 50 - 100	8	10	15	25	5	4	2.0
207W	0.01	20	±0 - 50 - 100	8	10	15	25	5	4	2.0
207WF-T	0.01	20	±100 - 50 - 0	8	10	15	25	5	4	2.0
307S	0.01	30	±0 - 50 - 100	10	12	15	30	7	5	2.2
307	0.01	30	±0 - 50 - 100	10	12	15	30	7	5	2.2
507	0.01	50	±0 - 50 - 100	10	12	15	40	8	5	2.5
509	0.05	50	±0 - 5 - 10	30	60	100	100	10	20	2.5
809	0.1	80	±0 - 5 - 10	50	—	—	100	—	35	2.5

(unit: μm)

Miniature Dial Gauges JIS B 7503 : 2017

0.001mm, 0.005mm and 0.01mm

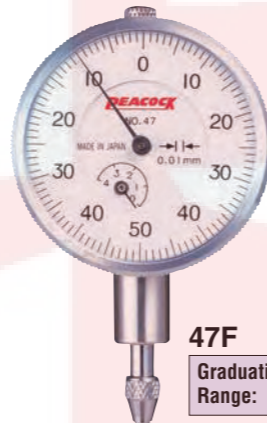
- These compact size dial gauges are equipped with small dial faces. They are especially useful for measuring jigs, in restricted areas.
- Jeweled bearing is installed to our general Dial Gauges.



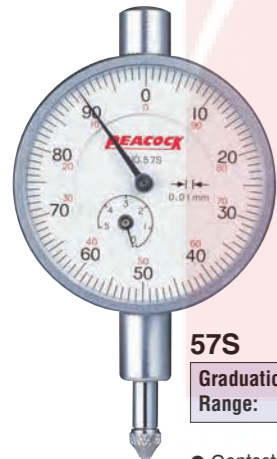
5S
Graduation: 0.001mm
Range: 1mm
● Contact point (X-107)
● Flat back
● Dial dia. ϕ 40.8mm



47
Graduation: 0.01mm
Range: 4mm
● Contact point (X-107)
● Lug back
● Dial dia. ϕ 36mm



47F
Graduation: 0.01mm
Range: 4mm
● Contact point (X-107)
● Flat back
● Dial dia. ϕ 36mm



57S
Graduation: 0.01mm
Range: 5mm
● Contact point (X-105)
● Lug back
● Dial dia. ϕ 39mm



36A
Graduation: 0.005mm
Range: 3mm
● Contact point (X-107)
● Lug back
● Dial dia. ϕ 40.8mm



36B
Graduation: 0.01mm
Range: 3mm
● Contact point (X-107)
● Lug back
● Dial dia. ϕ 40.8mm

Specifications

Model	Graduation (mm)	Range (mm)	Reading	Indication error (MPE)				Hysteresis error	Repeatability	Measuring force less than (N)
				1/10 revolution	1/2 revolution	One revolution	Whole measuring range			
5S	0.001	1	$\pm 0 - 100 - 100$	5	6	7	10	4	2	1.5
47	0.01	4	0 - 50 - 0	8	12	14	18	4	3	1.4
47F	0.01	4	0 - 50 - 0	8	12	14	18	4	3	1.4
57S	0.01	5	$\pm 0 - 50 - 100$	8	12	14	18	4	3	1.4
36A	0.005	3	$\pm 0 - 25 - 50$	6	9	10	12	3.5	3	1.4
36B	0.01	3	$\pm 0 - 25 - 50$	8	11	12	16	4	3	1.4

(unit: μ m)

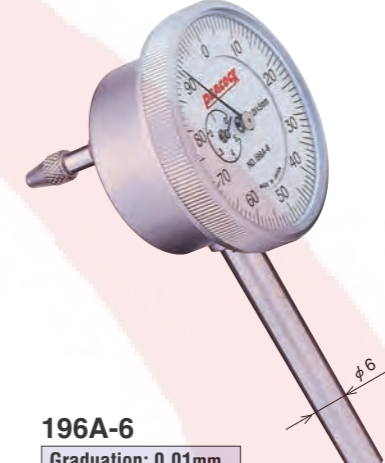
Back Plunger Type Dial Gauges JIS B 7503 : 2017

0.01mm

- The back plunger dial gauge is characterized with easy handling since the spindle having the contact point moves in the direction perpendicular to the dial face and the gauge is more compact.
- The dial gauge of this type is convenient for use in achieving a parallelism of the table of the machine tool, with measuring jigs, in restricted areas and on locations where scale reading is difficult.
- Jeweled bearing is installed to our general Dial Gauges.



196A
Graduation: 0.01mm
Range: 5mm
● Stem ϕ 6.35mm
● Contact point (X-1)



196A-6
Graduation: 0.01mm
Range: 5mm
● Stem ϕ 6mm
● Contact point (X-1)



196Z
Graduation: 0.01mm
Range: 0.8mm
● Stem ϕ 8mm
● Pointer giving less than one revolution
● Contact point (X-112)

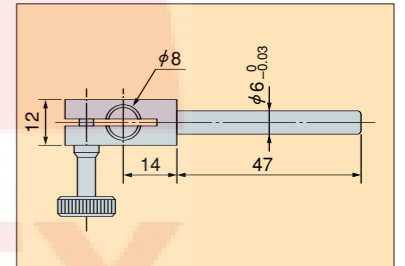


196B
Graduation: 0.01mm
Range: 5mm
● Stem ϕ 8mm
● Contact point (X-112)



196B-T
Graduation: 0.01mm
Range: 5mm
● Stem ϕ 8mm
● Reversed dial
● Contact point (X-112)

Dimensions (Holder for 196B)



Specifications

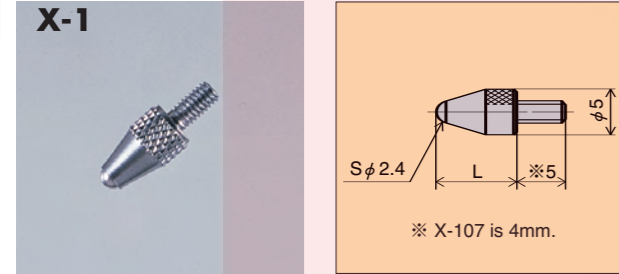
Model	Graduation (mm)	Range (mm)	Reading	Indication error (MPE)				Hysteresis error	Repeatability	Measuring force less than (N)
				1/10 revolution	1/2 revolution	One revolution	Whole measuring range			
196A	0.01	5	0 - 50 - 100	8	12	14	18	4	3	1.4
196A-6	0.01	5	0 - 50 - 100	8	12	14	18	4	3	1.4
196Z	0.01	0.8	40 - 0 - 40	8	—	—	15	4	3	1.4
196B	0.01	5	0 - 50 - 100	8	12	14	18	4	3	1.4
196B-T	0.01	5	100 - 50 - 0	8	12	14	18	4	3	1.4

※ Dial dia. ϕ 38mm (All Back Plunger type Dial Gauges)

Replaceable Contact Point (Screw pitch M2.5 × 0.45mm)

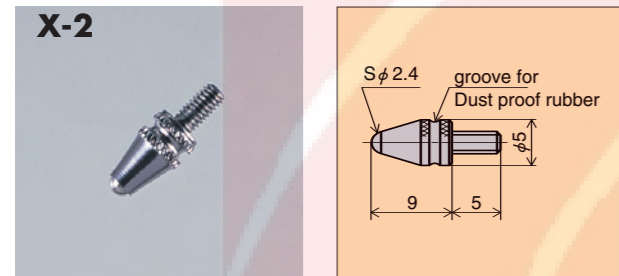
for Dial Indicators and Linear Gauges

● Ball Contact Point



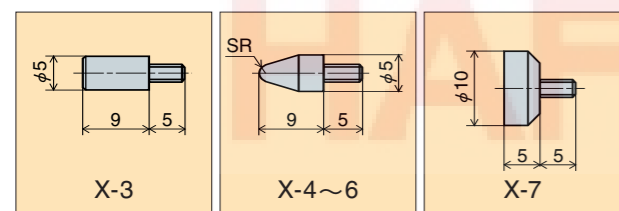
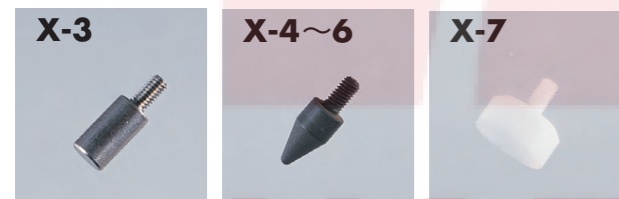
Part No.	L (mm)	Material
X-1	9	Steel
X-103	3.5	Steel
X-105	5	Steel
X-107	7.5	Steel
X-112	12.5	Steel
X-125	25	Steel
XB-1	9	Carbide
XB-115	15	Carbide
XB-125	25	Carbide
XB-130	30	Carbide
XC-1	9	Ruby
XC-125	25	Ruby

● Ball Contact Point for Oil Proof type



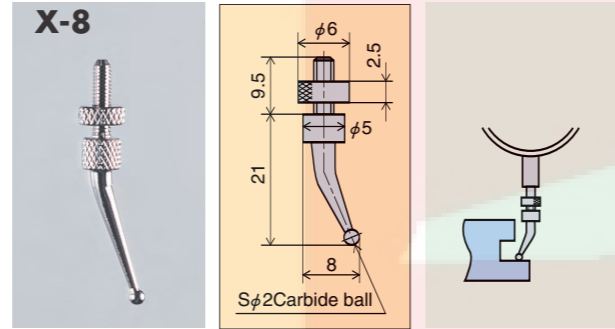
Part No.	L (mm)	Material
X-2	9	Steel
XB-2	9	Carbide
XC-2	9	Ruby
X-2A	12	Steel
XB-2A	12	Carbide

● Special Contact Point



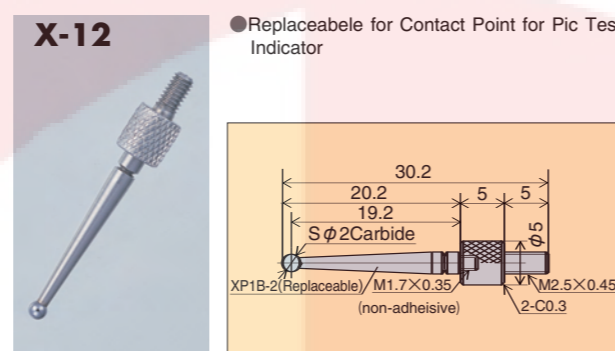
Part No.	Material
X-3	NSB
X-4	Copper
X-5	Bakelite
X-6	Teflon
X-7	Teflon

● Offset Contact Point



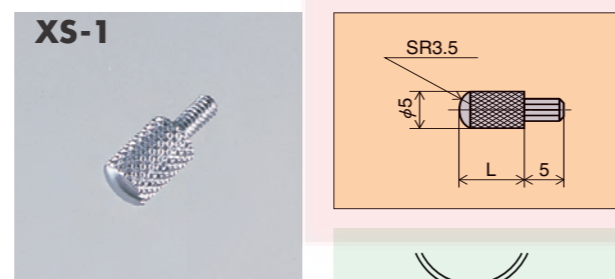
Part No.	Material
X-8	Carbide

● Special Contact Point



Part No.	Material
X-12	Carbide

● Spherical Contact Point



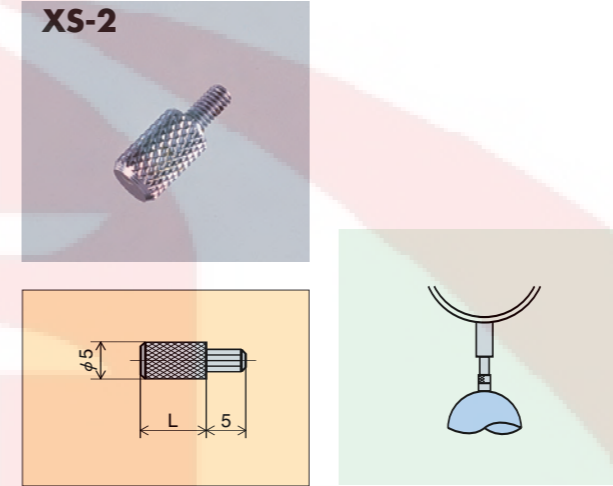
XS-1 series

Part No.	L (mm)	Material
XS-1	8	SKS3
XS-105	5	SKS3
XS-110	10	SKS3
XS-115	15	SKS3
XS-120	20	SKS3
XS-125	25	SKS3
XS-130	30	SKS3

Replaceable Contact Point (Screw pitch M2.5 × 0.45mm)

for Dial Indicators and Linear Gauges

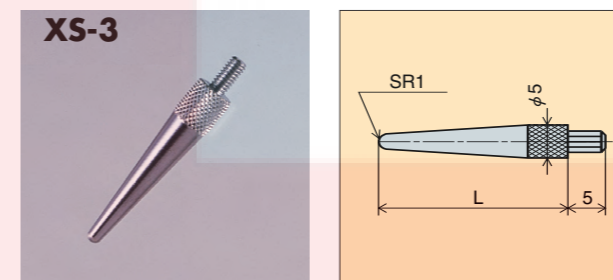
● Flat Contact Point



XS-2series

Part No.	L (mm)	Material
XS-2	8	SKS3
XS-205	5	SKS3
XS-210	10	SKS3
XS-215	15	SKS3
XS-220	20	SKS3
XS-225	25	SKS3
XS-230	30	SKS3

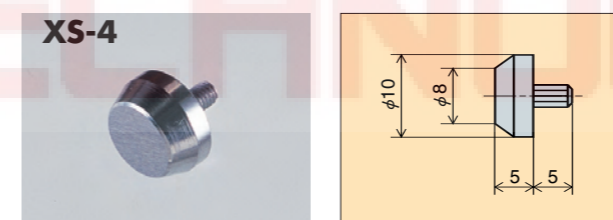
● Taper Contact Point



XS-3series

Part No.	L (mm)	Material
XS-3	25	SKS3
XS-310	10	SKS3
XS-315	15	SKS3
XS-320	20	SKS3
XS-330	30	SKS3

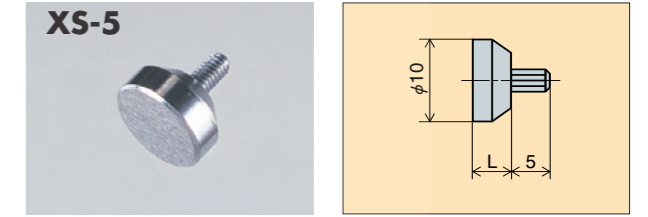
● Plain Contact Point



XS-4series

Part No.	Material
XS-4	SKS3

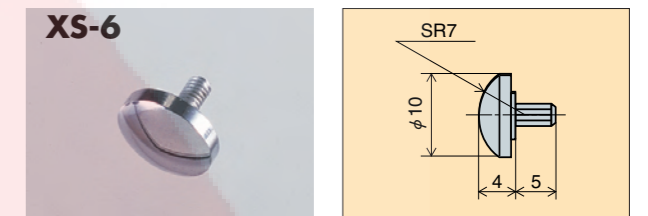
● Flat Contact Point



XS-5series

Part No.	L (mm)	Material
XS-5	5	SKS3
XS-510	10	SKS3

● Button type Contact Point



XS-6series

Part No.	Material
XS-6	SKS3

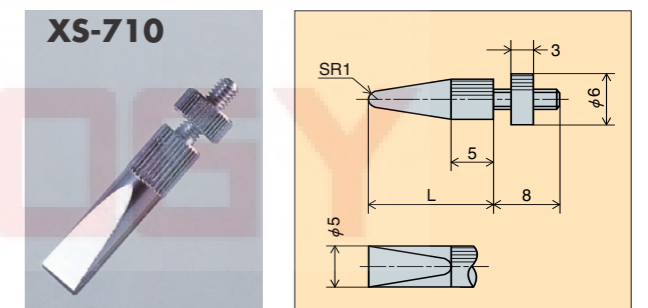
● Contact Point set XS



※XS is provided with setting table for XS-1 to XS-6 contact points, and a case. Each type sold separately.

Part No.	Material
XS	SKS3

● Knife-edge Contact Point

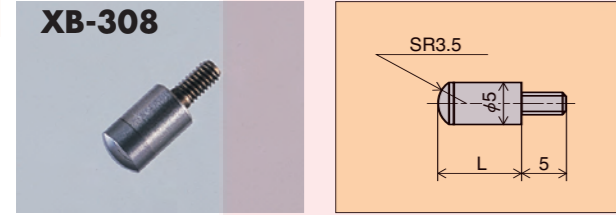


Part No.	L (mm)	Material
XS-710	10	SKS3
XS-715	15	SKS3
XS-720	20	SKS3
XS-725	25	SKS3
XS-730	30	SKS3

Replaceable Contact Point (Screw pitch M2.5 × 0.45mm)

for Dial Indicators and Linear Gauges

● Carbide Spherical Contact Point



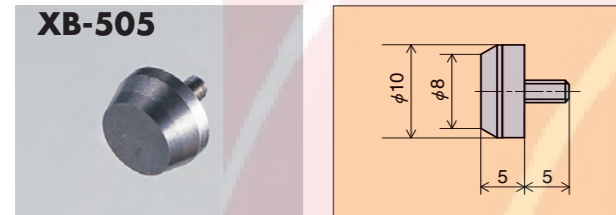
Part No.	L (mm)	Material
XB-305	5	Carbide
XB-308	8	Carbide

● Carbide Flat Contact Point



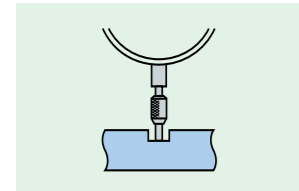
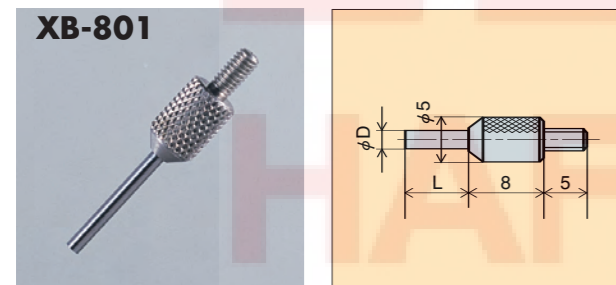
Part No.	φ D (mm)	L (mm)	Material
XB-405	5	5	Carbide
XB-406	4	6	Carbide
XB-408	5	8	Carbide

● Carbide Plain Contact Point



Part No.	Material
XB-505	Carbide

● Needle Type Contact Point

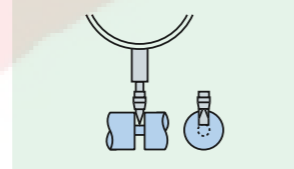
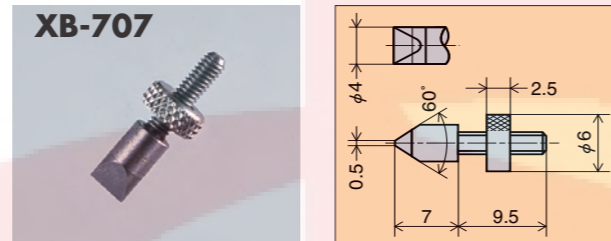


● Carbide Flat Contact Point



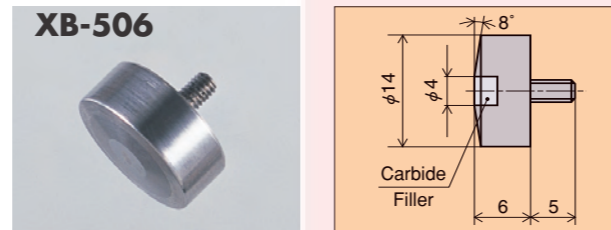
Part No.	Material
XB-605	Carbide

● Carbide Knife-edge Contact Point



Part No.	Material
XB-707	Carbide

● Carbide Plain Contact Point



Part No.	Material
XB-506	Carbide

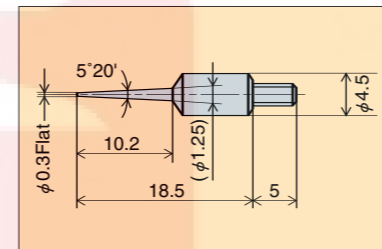
Part No.	φ D (mm)	L (mm)	Material
XB-800	1	2	Carbide
XB-801	1.5	12	Carbide
XB-802	2	7	Carbide
XB-803	2	12	Carbide
XB-804	1	20	Carbide
XB-805	1.5	20	Carbide
XB-806	2	20	Carbide
XB-807	1	40	Carbide
XB-808	1.5	40	Carbide
XB-809	2	40	Carbide

Part No.	φ D (mm)	L (mm)	Material
XS-800	1	2	SKS3
XS-801	1.5	12	SKS3
XS-802	2	7	SKS3
XS-803	2	12	SKS3
XS-804	1	20	SKH
XS-805	1.5	20	SKH
XS-806	2	20	SKH
XS-807	1	40	SKH
XS-808	1.5	40	SKH
XS-809	2	40	SKH

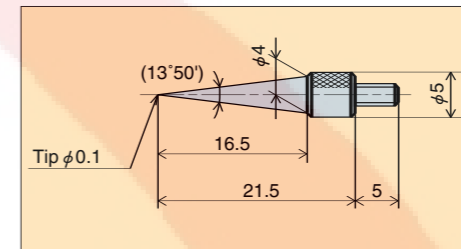
Replaceable Contact Point (Screw pitch M2.5 × 0.45mm)

for Dial Indicators and Linear Gauges

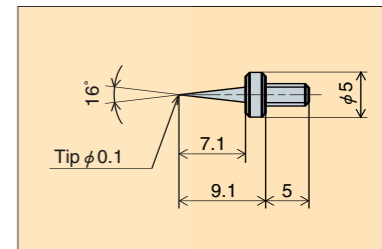
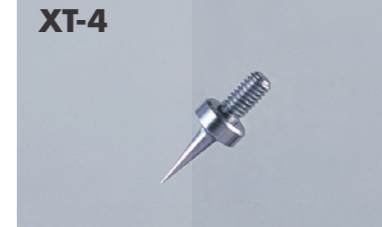
● Needle Contact Point



Part No.	Material
XT-2C	SK 3

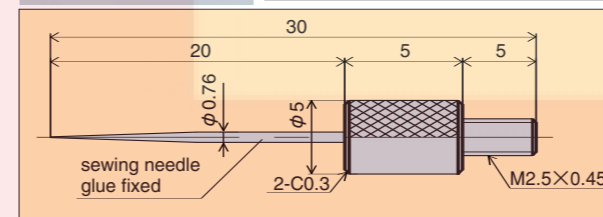


Part No.	Material
XT-3	SK 3



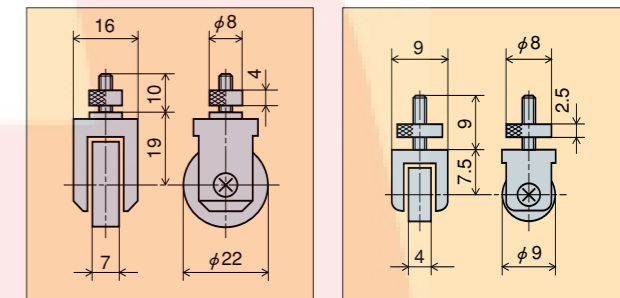
Part No.	Material
XT-4	SK 3

● Needle Contact Point



Part No.	Material
XT-5	sewing needle

● Roller Contact Point



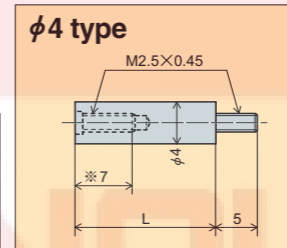
Part No.	Material
SH-1	SUJ2

Part No.	Material
SH-2	SUJ2

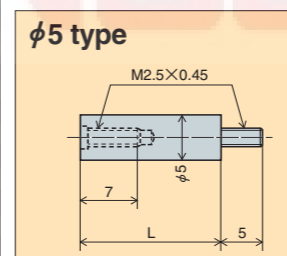
● Contact Point Joint

To extend the contact point, simply add the contact point joint.

L (mm)	φ 4 type	φ 5 type
6	XJ-406	
10	XJ-410	XJ-510
15	XJ-415	
20	XJ-420	XJ-520
25	XJ-425	
30	XJ-430	XJ-530
35	XJ-435	
40	XJ-440	XJ-540
45	XJ-445	
50	XJ-450	XJ-550
55	XJ-455	
60	XJ-460	XJ-560
65	XJ-465	
70	XJ-470	
75	XJ-475	
80	XJ-480	
90	XJ-490	
100	XJ-400	

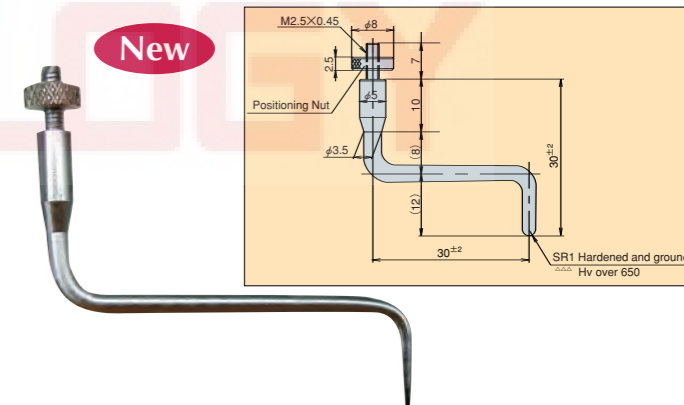


※Length of the thread screw of XJ-406 is 5mm.



Offset Contact Point No. X-13

● Unique Contact Point not existing before! It is possible to make a measurement of an object that used to be impossible to measure.

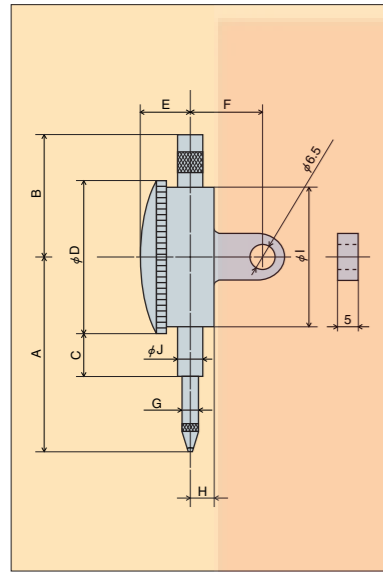


New

Replaceable Contact Point

Replaceable Contact Point

Dimensions of Dial Gauges



Standard 0.001mm 0.005mm (mm)

Model	A	B	C	D	E	F	G	H	I	J
5B-HG	60	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.022}
5-DX	60	42.6	17	55.7	14.5	20	5	7	52	8.0 ⁰ _{-0.03}
5B	60	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.022}
5F	60	41.5	18.5	53	14.5	—	4	6.5	49	8.0 ⁰ _{-0.022}
5-SWF	63	41.5	17.5	55	15	20	4	6.5	49	8.0 ⁰ _{-0.022}
25	72	42	25	66.5	14.5	20	4	7.5	62.5	8.0 ⁰ _{-0.03}
25F-RE	72	41	25	66.5	14.5	—	4	7.5	62.5	8.0 ⁰ _{-0.03}
25S	60	42.6	17	55.7	14.5	20	5	7	52	8.0 ⁰ _{-0.03}
55	73	52	25	66	17	20	4.5	7	62.5	8.0 ⁰ _{-0.03}
55-DX	62	44.5	17	57	17	19.5	4.5	6.5	52	8.0 ⁰ _{-0.03}
56	62	44.5	17	57	17	19.5	4.5	6.5	52	8.0 ⁰ _{-0.03}

Standard 0.01mm (mm)

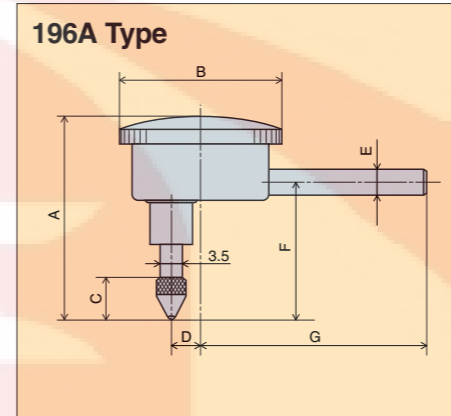
Model	A	B	C	D	E	F	G	H	I	J
107-HG	65	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
107-DX	65	50.7	17	55.7	14.5	20	5	7	52	8.0 ⁰ _{-0.03}
107	65	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
107F	65	41.5	18.5	53	14.5	—	4	6.5	49	8.0 ⁰ _{-0.03}
107-SWA	68	41.5	17.5	55	15	20	4	6.5	49	8.0 ⁰ _{-0.03}
107-BL	65	41.5	18.5	53	14.5	—	4	6.5	49	8.0 ⁰ _{-0.03}
107F-RE	65	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
107-LL	65	—	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
107W	65	41.5	17.5	55	17	20	4	6.5	49	8.0 ⁰ _{-0.03}
107F-T	65	41.5	18.5	53	14.5	—	4	6.5	49	8.0 ⁰ _{-0.03}
107-E	65	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
17	65	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
57-SWA	65	41.5	18.5	55	15	20	4	6.5	49	8.0 ⁰ _{-0.03}
57	65	41.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
57F	65	41.5	18.5	53	14.5	—	4	6.5	49	8.0 ⁰ _{-0.03}
57B	65	41.5	18.5	53	14.5	—	4	6.5	49	8.0 ⁰ _{-0.03}

Long Travel 0.01mm 0.005mm 0.1mm (mm)

Model	A	B	C	D	E	F	G	H	I	J
207	90	41	25	66.5	14.5	20	5	7.5	62.5	8.0 ⁰ _{-0.03}
207F-PL	90	41	25	66.5	14.5	—	5	7.5	62.5	8.0 ⁰ _{-0.03}
207F-T	90	41	25	66.5	14.5	—	5	7.5	62.5	8.0 ⁰ _{-0.03}
207S-LL	75	50.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
207S	75	50.5	18.5	53	14.5	20	4	6.5	49	8.0 ⁰ _{-0.03}
207W	75	50.5	17.5	55	17	20	4	6.5	49	8.0 ⁰ _{-0.03}
207WF-T	75	50.5	17.5	55	17	—	4	6.5	49	8.0 ⁰ _{-0.03}
307S	107	89	22	57	17.5	20	5	7	52	8.0 ⁰ _{-0.03}
307	102	46	22.8	75.5	17.5	21	5	8	72.5	8.0 ⁰ _{-0.03}
507	128	81.5	26.7	81.5	17.5	21.5	5.5	8.5	78.5	10.0 ⁰ _{-0.03}
509	128	81.5	26.7	81.5	17.5	21.5	5.5	8.5	78.5	10.0 ⁰ _{-0.03}
809	201.5	86.5	54	112	24	22.5	6	10	108	14.0 ⁰ _{-0.03}

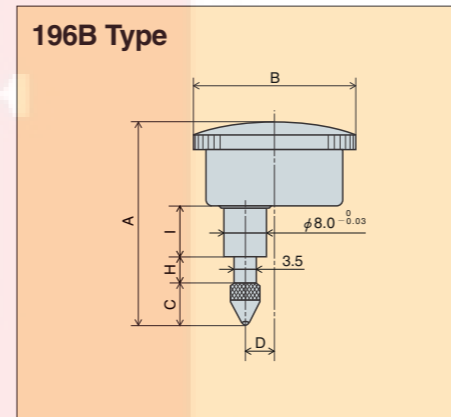
Miniature 0.01mm 0.005mm (mm)

Model	A	B	C	D	E	F	G	H	I	J
5S	43.2	30.5	12.9	40.8	12.5	—	4	5.1	37	8.0 ⁰ _{-0.03}
47	39.6	20	9.7	36	13	15	3.5	5.8	32	8.0 ⁰ _{-0.03}
47F	39.6	20	9.7	36	13	—	3.5	5.8	32	8.0 ⁰ _{-0.03}
57S	41.3	27.4	10	39	14	19	4	5.1	36.5	8.0 ⁰ _{-0.03}
36A	46.2	30.5	12.9	40.8	12.5	19	4	5.1	37	8.0 ⁰ _{-0.03}
36B	46.2	30.5	12.9	40.8	12.5	19	4	5.1	37	8.0 ⁰ _{-0.03}



Back Plunger 0.01mm (mm)

Model	A	B	C	D	E	F	G
196A	44	38	9	4.5	6.35	28.1	57
196A-6	44	38	9	4.5	6	28.1	57



Back Plunger 0.01mm (mm)

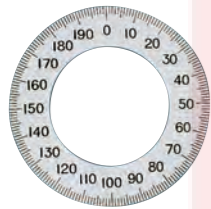
Model	A	B	C	D	E	F	G	H	I
196B	58.5	38	12.5	4.5	—	—	—	5.5	16.5
196B-T	58.5	38	12.5	4.5	—	—	—	5.5	16.5
196Z	58.5	38	12.5	4.5	—	—	—	5.5	16.5

HARDWARE TECHNOLOGY

Accessories for Dial Gauges

Outer dial plates

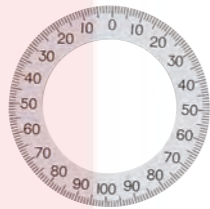
0.001mm type



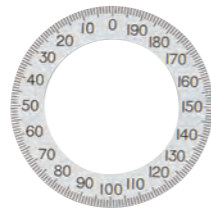
Continuous Dial A
(0-100-200)



Continuous Dial B
(0-100-100)

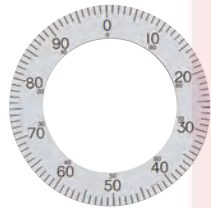


Balanced dial
(0-100-0)

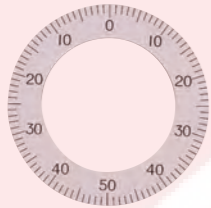


Reversed dial A
(±200-100-0)

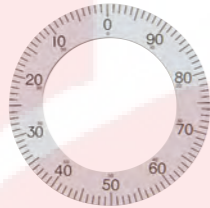
0.01mm type



Continuous Dial A
(0-50-100)



Balanced dial
(0-50-0)



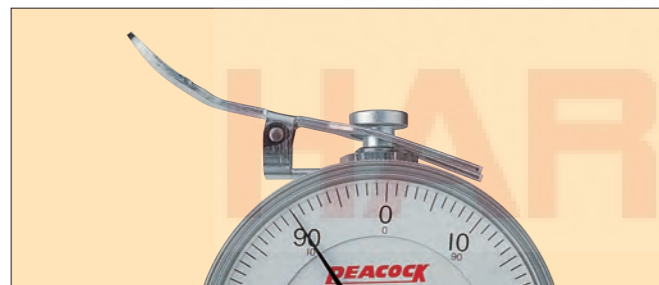
Reversed dial A
(±100-50-0)

Color Caps



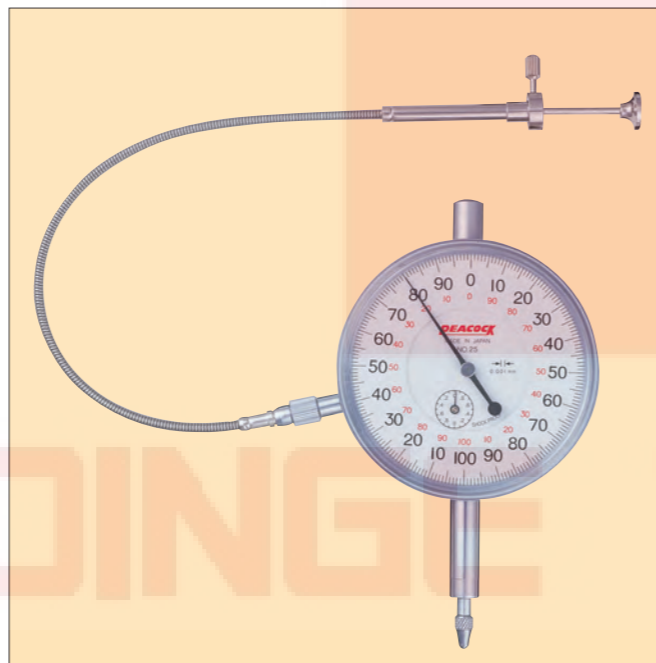
To manage the measurement by dial gauges, caps with five different colors are available. They are attachable to standard dial gauges. (No. 5, 107, 15, 17, 18, 55, 56 and 25S)

Spindle Lifting Lever (LL-1)



Part No.	Dial Gauge installable
LL-1	107, 107F, 57, 57B, 57F, 17, 17B, 207S, 5B, 5F, 55, 55DX, 25S, 56, 17Z, 15Z, 107W

Spindle pull-up Release



Part No.	Dial Gauge installable
RE-1 (Total length:275mm)	107F-RE, R1-B.
RE-2 (Total length:287mm)	25F-RE, R1-A.

(Applicable Models) 5B-HG, 5B, 5F, 5-SWF

- We can manufacture outer dials for other 0.001mm dial indicators. (examples: 25, 55, 55-DX)
- We can manufacture outer dials with counter clock wise numbering.

(Applicable Models) 107-HG, 107, 107F, 107-SWA, 107-BL, 107F-RE, 107-LL, 17, 57-SWA, 57, 57F.

- We can manufacture outer dials for other 0.01mm dial indicators. (examples: 47, 57S, 36B)

Various accessories

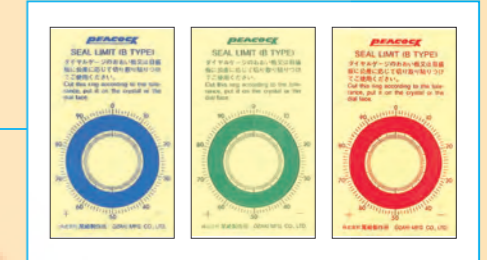
Easily attachable adhesive limits A type



Examples of adhesive limits stickers



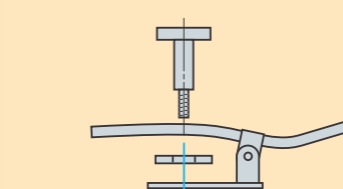
Easily attachable adhesive limits B type



Color caps



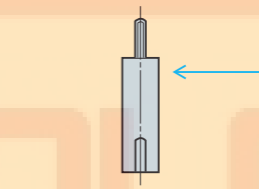
Spindle Lifting Lever (LL-1)



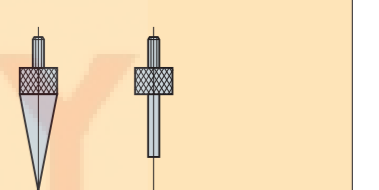
Backs



Contact point joint



Replaceable contact points



Outer dial plates



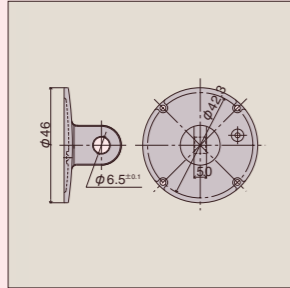
● **Backs**

The method of holding the dial gauge comes in two types; holding the stem and holding the lug of the back. However, the back may be replaced for convenience of holding.

1 Center lug back



GB-1A

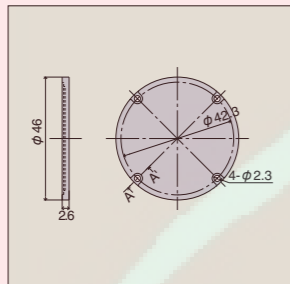


Part No.	Outer dia.	Dial Gauge installable
GB-1A	46.0	107. 107Z. 17Z. 57. 17. 17B. 5Z. 15Z. 207S. 207W. 18. 5B
GB-125	59.5	25. 55. 207
GB-1307	69.8	307
GB-1507	76.7	507. 509
GB-1809	105.0	809
GB-147	30.7	47. 47Z. 47SZ
GB-136	35.8	5S. 36A. 36B
GB-157S	35.3	57S
GB-1DX	50.2	55DX. 56. 107DX. 307S. 25S

2 Flat back



GB-3A

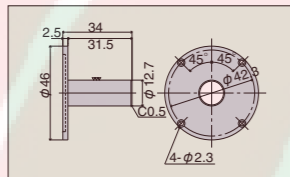


GB-3A	46.0	107. 107Z. 17Z. 57. 17. 17B. 5Z. 15Z. 207S. 207W. 18. 5B
GB-325	59.5	25. 207. 55
GB-3307	69.8	307
GB-3507	76.7	507. 509
GB-3809	105.0	809
GB-347	30.7	47. 47SZ. 47Z
GB-336	35.8	5S. 36A. 36B
GB-357S	35.3	57S
GB-3DX	50.2	55DX. 56. 107DX. 307S. 25S

3 Post back

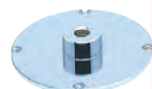


GB-4A

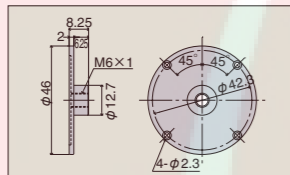


GB-4A	46.0	107. 107Z. 17Z. 57. 17. 17B. 5Z. 15Z. 207S. 207W. 18. 5B
GB-447	30.7	47. 47Z. 47SZ

4 Screw back



GB-5A

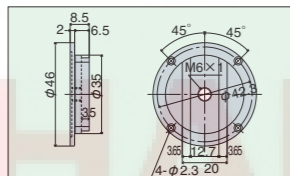


GB-5A	46.0	107. 107Z. 57. 17. 5B. 5Z. 17B. 15Z. 207S. 207W. 18
GB-547	30.7	47. 47Z. 47SZ
GB-536	35.8	5S. 36A. 36B
GB-557S	35.3	57S

5 Adjustable back



GB-6A

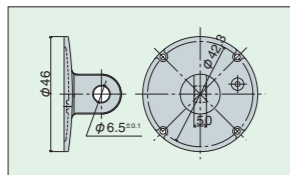


GB-6A	46.0	107. 107Z. 57. 17. 5B. 5Z.
GB-625	59.5	25. 55. 207
GB-647	30.7	47. 47Z. 47SZ
GB-636	35.8	5S. 36A. 36B
GB-657S	35.3	57S

6 Lug back with lever



GB-7A



GB-7A	46.0	107. 107Z. 57. 17. 5B. 5Z. 17B. 15Z. 17Z. 18. 207S
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Repair Tools

● The tools in the table below are available either in a set or individually.

1 Set in Case



2 Pointer drawer



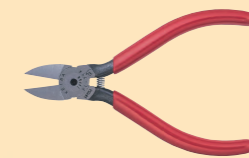
This is used to draw out a pointer. Insert the tip of this tool under the pointer, and push the spindle center with thread. The pointer can be drawn out easily.

In this case, the center of pointer drawer should match with the spindle center.

example



3 Hand drawer



This is used to draw out a hand of gauge. Extend a piece of thin paper between the hand and the dial face. Insert the tip of the tool under the hand, and draw it out in accordance with the principles of the lever.

4 Plus and minus driver set (six in a set)



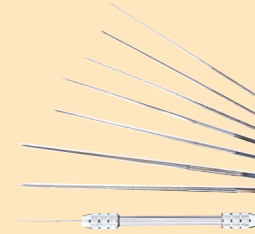
⊖ No.2 (1.4mmW) ⊖ No.5 (2.9mmW)
⊖ No.3 (2mmW) ⊕ No.0 (4mmW)
⊖ No.4 (2.4mmW) ⊕ No.1 (5mmW)
Select a driver which is suitable for the width of thread head and that of the slot. In particular, please avoid fastening or loosening a large thread using a small driver.

5 Driver with handle



This is used to fasten a thread which may be, at first, fastened with small driver, but finally requires to be fastened sufficiently. (For example, fastening of attaching screw of bottom board.)

6 Reamer and reamer holder



This is used to enlarge holes for pointer, hand, or spindle center. Stand the reamer in a right angle with the plane, and bore the hole lightly, relaxing your finger as possible as you can.

7 Clock oil



This is an oil to be lubricated in the course of assembly.

8 Tweezers



This is used to handle small parts such as hair spring, pointer or small thread.

9 Pliers



This is used to fasten or loosen a pin or knock.

10 Washing brush



This is used to remove sticks such as old oil cake and dusts with washing.

11 Blower



This is used, in the course of assembly, to remove dusts stuck to the dial face and so on. When the brush at the tip is removed, this can be used as a pump to blow off dusts. Do not breathe upon the apparatus to blow off dusts.

12 Lubrication brush



This is used, in the course of assembly, to lubricate into the spindle center. Use care to lubricate only a small amount of oil.

13 Crystal press fitter



This is to replace crystals. Set a crystal on the pad. Then press the fitter from the above to reduce the outer diameter, and fit the crystal into the outer frame.

- Cover plate installer is for pressing the cover plate into either the outer frame of a plunger-type dial indicator or a lever-type dial indicator.
- Includes 11 types of changeable frames.
- Changeable frame examples:
① and ⑥ : for lever-type dial indicators PC and PCN
④ and ⑨ : for small dial indicators
⑦ and ⑩ : for standard type 0.001mm and 0.01mm dial indicators
⑧ and ⑪ : for long stroke dial indicators

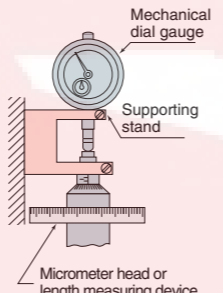
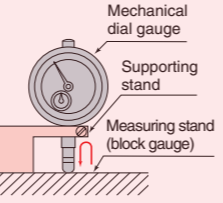
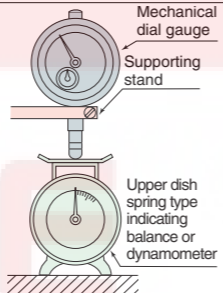
● Changeable frame sizes (mm):

- ① φ 19 ② φ 21 ③ φ 23 ④ φ 25 ⑤ φ 27.5 ⑥ φ 29 ⑦ φ 31 ⑧ φ 33 ⑨ φ 35 ⑩ φ 38.5 ⑪ φ 45

Technical Data

Dial Indicators JIS B 7503 : 2017 (Japan Industrial Standards)

Methods of measuring of performance

Measurement item	Applicable type	Measuring method (Fixed zero method)	Evaluation method (Transferring zero method)	Example of measurement
Error of indication	Dial gauge with multiple revolutions and dial gauge with partial revolution	Fix the dial gauge rigidly in a supporting stand, move the contact element successively in the forward direction, and read the errors of indication ^{a)} at the following measuring points.	Obtain the difference between the maximum and minimum errors of indication at all measuring points in both forward and retrace directions.	
		<ul style="list-style-type: none"> From the starting point to 2nd revolution, at every 1/10 revolution of the pointer^{b)} From 2nd to 5th revolution, at every 1/2 revolution of the pointer 	Obtain the maximum value of difference in errors of indication between any two adjacent measuring points at every 1/10 rotation from the starting point to 2nd revolution in both forward and retrace directions ^{c)} .	
	Dial gauge with multiple revolutions	<ul style="list-style-type: none"> From 5th to 10th revolution, at every one revolution of the pointer From 10th to 50th revolution, at every 5 revolutions From 50th revolution and onward, at every 10 revolutions 	Obtain the maximum value of difference between the largest and smallest errors of indication read at every 1/2 revolution within the measuring range from the starting point to 5th revolution, in both forward and retrace directions.	
		After pressing in the contact element so that the pointer shifts by three or more scale divisions from the end point of the measuring range, move the contact element in the retrace direction successively and read the errors of indication at the same points as measured in the forward direction.	Obtain the maximum value of difference between the largest and smallest errors of indication read at every one revolution within the measuring range from the starting point to 10th revolution, in both forward and retrace directions.	
	Dial gauge with multiple revolutions and dial gauge with partial revolution	Obtain the maximum value of difference between errors of indication taken in the forward direction and those taken at the corresponding measuring points in the retrace direction.		
Repeatability	Dial gauge with multiple revolutions and dial gauge with partial revolution	Fix the dial gauge in a supporting stand, and after pressing in the contact element to a desired position within the measuring range, allow it to retract quickly or slowly five times and take a reading at each point.	Determine the maximum difference between the five indications obtained.	
Measuring force	Dial gauge with multiple revolutions and dial gauge with partial revolution	Fix the dial gauge in a supporting stand, and move the contact element in the forward and retrace directions continuously and gradually and take measurements of the measuring force at the starting point and end point.	Determine the maximum value of the readings (maximum measuring force) and minimum value of the readings (minimum measuring force) and also determine the differences in the readings between corresponding measuring points in forward and retrace directions.	

Notes a) For reading of errors, either read the input quantity of the measuring device with the pointer of the dial gauge adjusted at a scale graduation, or read the indication of the dial gauge according to the displacement of the measuring device.
 b) For dial gauge with partial revolution, read errors at every 10 scale divisions.
 c) For dial gauge with partial revolution, obtain the maximum value of difference in errors of indication between any two adjacent measuring points at every 10 scale divisions.

Dial Indicators JIS B 7503 : 2017 (Japan Industrial Standards)

Performance of vertical (standard type) dial gauges with bezel diameters not less than 50mm [maximum permissible error (MPE)]

Performance		Scale interval (mm)											
		0.01						0.005	0.001				
		Measuring range (mm)											
		1 or under	Over 1 up to and incl. 3	Over 3 up to and incl. 5	Over 5 up to and incl. 10	Over 10 up to and incl. 20	Over 20 up to and incl. 30	Over 30 up to and incl. 50	Over 50 up to and incl. 100	5 or under	1 or under	Over 1 up to and incl. 2	Over 2 up to and incl. 5
Error of indication (MPE) (μm)	1/10 revolution	5	5	5	5	8	10	10	12	5	2	2	3.5
	1/2 revolution	8	8	9	9	10	12	12	17	9	3.5	4	5
	one revolution	8	9	10	10	15	15	15	20	10	4	5	6
Hysteresis error (MPE _H) (μm)	Whole measuring range	8	10	12	15	25	30	40	50	12	5	7	10
	(MPE _H) (μm)	3	3	3	3	5	7	8	9	3	2	2	3
Repeatability (MPE _R) (μm)		3	3	3	3	4	5	5	5	3	0.5	0.5	1

For the MPE of dial gauge with partial revolution, the error of indication over 1/2 revolution or one revolution is not specified.

Performance of dial gauges with bezel diameters less than 50mm and horizontal (back plunger type) dial gauges [maximum permissible error (MPE)]

Performance		Scale interval (mm)						
		0.01			0.005	0.002	0.001	
		Measuring range (mm)						
		1 or under	Over 1 up to and incl. 3	Over 3 up to and incl. 5	Over 5 up to and incl. 10	5 or under	1 or under	1 or under
Error of indication (MPE) (μm)	1/10 revolution	8	8	8	9	6	2.5	2.5
	1/2 revolution	11	11	12	12	9	4.5	4
	one revolution	12	12	14	14	10	5	4.5
Hysteresis error (MPE _H) (μm)	Whole measuring range	15	16	18	20	12	6	5
	(MPE _H) (μm)	4	4	4	5	3.5	2.5	2
Repeatability (MPE _R) (μm)		3	3	3	3	3	1	1

For the MPE of dial gauge with partial revolution, the error of indication over 1/2 revolution or one revolution is not specified.

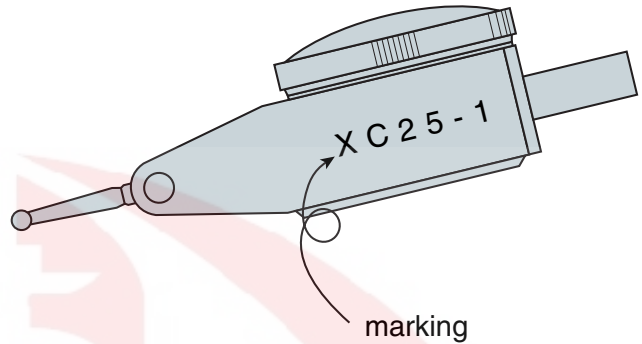
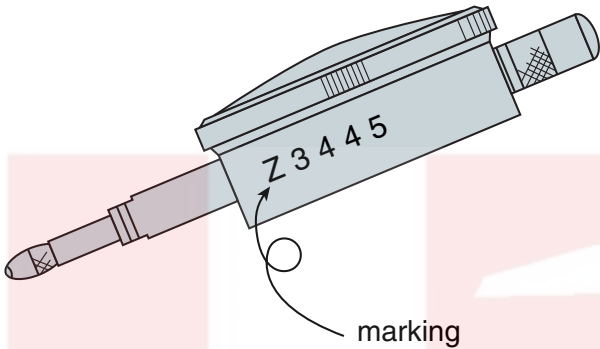
Measuring force of mechanical dial gauge [maximum permissible limit (MPL)]

Performance	Measuring range (mm)			
	10 or under	Over 10 up to and incl. 30	Over 30 up to and incl. 50	Over 50 up to and incl. 100
Maximum (N)	2.0 max	2.5 max	3.0 max	3.5 max
Minimum (N)	To be defined by the manufacturer.			
Hysteresis (N)	To be defined by the manufacturer.			

Marking Service

To all our valued customers :

When you purchase any new PEACOOK gauges from us, we now offer an optional value adding free making services of Control Numbers directly onto gauges for your ISO needs; any other control needs and for planned future needs.



● Marking is made by an ultrasonic method.

Character size, spacing between characters and its direction can specifically be set under the following ranges :

Character size (height) — 1.0 to 10 mm
(at intervals of 0.1mm, at variable step)
max. 10 characters

Numbers of characters — • Alphabet-Capital letters (26)

Characters of making — A B C D E F X Y Z

• Alphabet-Small letters (26)

a b c d e f x y z

• Numeric characters (10)

0 1 2 3 4 5 6 7 8 9

• Symbols (18)

+ - × / ± = () < > [] ¥ : . , . .

• Standard font (Helvetica)

